

RE-THINKING PUBLIC PARTICIPATION

Lay-Expert Interaction and Knowledge Exchange in Community-Based Design Processes

Presented by

AURELIO DAVID

Supervised by

Prof Dr –Ing J Alexander Schmidt (University Duisburg-Essen)

Prof Howard Davis (University of Oregon)

Prof Dr HansJoachim Neis (University of Oregon)

A dissertation

submitted to the Institute for Urban Planning and Urban Design

Department of Civil Engineering, University Duisburg-Essen

In partial fulfilment of the requirements for the degree of

Doctor of Philosophy

December 2017

This Thesis has been approved by the Faculty of Engineering, Department of City Planning and Urban Design of the University of Duisburg-Essen

Oral examination date:

February 21st, 2018

Commission:

Herrn Prof. Dr. –Ing. J. A. Schmidt (Institut für Stadtplanung + Städtebau)

Prof. Howard Davis (University of Oregon, USA)

Herrn Prof. Dr. phil. Dipl. -Ing. M. Lang (Technologie und Didaktik der Technik, Vorsitz),

Herrn apl. Prof. Dr. - Ing. J. Bluhm (Institut für Mechanik),

Prof. Dr. M. Denecke (Siedlungswasser- und Abfallwirtschaft).

DuEPublico

Duisburg-Essen Publications online

UNIVERSITÄT
DUISBURG
ESSEN

Offen im Denken

ub | universitäts
bibliothek

Diese Dissertation wird über DuEPublico, dem Dokumenten- und Publikationsserver der Universität Duisburg-Essen, zur Verfügung gestellt und liegt auch als Print-Version vor.

DOI: 10.17185/duepublico/70232

URN: urn:nbn:de:hbz:464-20190705-123855-5

Alle Rechte vorbehalten.

Abstract

Since Arnstein's seminal paper of 1969, the debate on public participation in the context of urban planning, urban design, and architecture, has historically been revolving around topics of democracy and distribution of power. As a consequence of this political focus and despite the growing interest of practitioners, the current body of research on participatory design lacks systematic investigations on how experts and laymen communicate, interact, and generate knowledge. Understanding such interactions is relevant under the following assumptions. First, citizens are repositories of a distributed local knowledge. Second, part of such knowledge is vital to addressing design problems. Third, participation is the only way for experts to get exposed to local knowledge, re-examine the assumptions underpinning their actions, and achieve a more informed design by a process of "knowledge contextualization".

Combining the concepts of *Boundary Objects* (Star, 1989) and *Learning Communities* (Wenger, 1998; Fischer 2001) from Knowledge Management theories with the evidence collected from six projects of community-based architecture and urban design, this research outlines an epistemological theory of participation focused on face-to-face public workshops. Of the six projects analysed, three were carried out in England using *charrettes*, a well-established and reliable methodology to co-design; three were carried out in non-western countries (India, Mexico, and Japan) applying the principles of Christopher Alexander's Pattern Language theory (Alexander *et. al*, 1979).

The comparative analysis of the six case studies provides insights into (1) the mechanisms underlying lay-expert interaction, (2) the nature of local knowledge, and (3) the cognitive role of artefacts, e.g. maps and pattern languages, in participatory design processes. Finally, this thesis put forth a set of practical recommendations to facilitate lay-expert communication and learn from local communities.

Abstrakt

Seit dem Samenpapier von Arnstein aus dem Jahr 1969 hat sich die historische Debatte über Partizipation im Zusammenhang mit Stadtplanung, Städtebau und Architektur auf die Themen der Demokratie und Machtverteilung fokussiert. Als Folge dieser politischen Fokussierung und trotz des wachsenden Interesses von Praktikern weist die aktuelle Forschung über „Participatory Design“ einen Mangel an systematischen Untersuchungen darüber auf, wie Experten und Laien kommunizieren, interagieren und Wissen erzeugen. Das Verstehen solcher Wechselwirkungen ist unter den folgenden Annahmen wichtig. Erstens sind Bürger Träger verteilten lokalen Wissens. Zweitens ist ein Teil solcher Kenntnisse notwendig, um Gestaltungsprobleme anzugehen. Drittens ist Bürgerbeteiligung der einzige Weg für Experten, um lokales Wissen zu sammeln, die Annahmen nochmals zu prüfen und ein „informed Design“ durch einen Prozess von „Wissenskontextualisierung“ zu erreichen.

Auf Basis der Konzepte von Boundary Objects (Star, 1989) und Learning Communities (Wenger, 1998; Fischer 2001) aus Wissensmanagementtheorien, verknüpft mit nachweisbaren Erkenntnissen aus sechs Projekten der gemeinschaftsbasierten Architektur und Stadtgestaltung, wird im Rahmen dieser Forschung eine Erkenntnistheorie der Partizipation entwickelt, die sich auf öffentliche face-to-face Werkstätten konzentriert. Von den sechs Projekten wurden drei in England mit Hilfe von *Charrettes* und drei in nichtwestlichen Ländern (Indien, Mexiko und Japan) unter Verwendung der Pattern Language von Christopher Alexander durchgeführt (Alexander et al., 1979).

Die vergleichende Analyse der sechs Fallstudien bietet Einblicke in (1) die Mechanismen, die der Laien-Experten-Wechselwirkung zugrunde liegen, (2) die Arten des lokalen Wissens und (3) die kognitive Rolle von Artefakten, z.B. Karten und Pattern Languages in partizipatorischen Designprozessen. Abschließend wurden in dieser Arbeit eine Reihe praktischer Empfehlungen abgeleitet, um Laien-Experten-Kommunikation zu erleichtern und von lokalen Gemeinschaften zu lernen.

Acknowledgments

This thesis represents the fruit of three years of work. Besides books, papers, conferences, laptops, libraries, and imperfect drafts, my experience as a PhD student was shaped by the interaction with many important people.

First and foremost, I would like to express my sincere gratitude to my three supervisors, Prof **Howard Davis**, Prof Dr Ing- **J Alexander Schmidt**, and Prof Dr **Hajo Neis**, for their constant support and for guiding my efforts towards the right direction. Without their advice and expertise this work would not have been possible. Most importantly, they have taught me the foundation of being a researcher. Besides my advisors, I would like to thank rest of my thesis committee: Prof. Dr. phil. Dipl.-Ing. **M. Lang**, Prof. Dr.-Ing. **J. Bluhm**, Prof. Dr. **M. Denecke**.

I am also thankful to Prof Dr **Jens Martin Gurr**, Prof **Arun Jain**, Prof Dr **Susanne Moebus**, and the professors of the ARUS PhD Programme for their hard questions and thought-provoking feedback during our official colloquia and private conversations. Likewise, I am grateful to all the people at the University: my ARUS PhD fellows – **Himanshu, Marielly, Ilka, Ricardo, Paulina, Mariana, Janka, Adnan, Gloria, and Julita**, - the ISS group – **Conrad, Minh, Fabian, Sonja**, Frau **Gabi**, and Dr **Elke Hochmuth**. During my time at the university, I have always found inspiration in talking with them during our lunch breaks, seminars, or simply in the Institute's corridor.

I thank **Charles, Fred, Andreas, Ugo, Lorenzo, Andrea, Dario**, and **Marilena** for sharing their professional perspective on the topic of public participation, architecture, and urban design throughout these three years. In particular, a special thanks goes to JTP for allowing me to join two Community Planning Weekend workshops, providing me with key material and information, and releasing two interviews. Their contribution to this work was essential because it allowed me to check my theoretical assumptions against their practical experience. Similarly, I would like to express my gratitude to **Sonia** for her trust in my experimental ideas and her help in organizing a workshop in her town, Alfter, to test them in the real world.

Besides my advisor, professors, colleagues, and professional peers, I am extremely grateful to my friends and family. *In primis*, a very special thanks to **Alua** for our inspiring and clarifying conversations, for helping me improve my writing and argumentative skills, for reading my final manuscript, and – most of all – for her relentless moral and spiritual support throughout these three years. Her positive influence was crucial to help me achieve this goal. Secondly, a big thanks to my **mother** and **father** for their big help outside the academic realm, their encouragement and constant presence. I am also thankful to my brother **Lorenzo** because our conversations in Torino contributed to shaping some of the central ideas of this work.

Last but not least, I would like to thank all other people who - directly or indirectly, intentionally or unintentionally, early or late – positively affected the three years in which I have been writing these pages.

Table of Contents

1. Introduction	1
1.1 Research Problem and Hypotheses	3
1.1.1 Research Problem	3
1.1.2 Hypotheses	5
1.1 Methodology	6
1.2 Scope of the research	8
1.3 Outline of the thesis	9
2. The epistemological role of public participation	12
2.1 Towards a collaborative paradigm of planning and design	12
2.1.1 What is public participation?	12
2.1.2 Setting the context: Public participation in urban design and planning	14
2.1.3 The two dimensions of participation	19
2.2 The role of knowledge in urban planning and design	21
2.2.1 A critical enquiry into expert knowledge	22
2.2.2 A critical enquiry into local knowledge	25
2.2.3 Beyond the deficit model: the collaborative model of communication	26
2.2.4 The contribution of Knowledge Management theories: Communities of Practice and Communities of Interest	27
2.3 The issue of transdisciplinary communication: boundary objects, knowledge visualization, and storytelling	30
2.3.1 Boundary objects	31
2.3.2 Knowledge visualization and storytelling	33
2.4 The goals of this research	35
2.4.1 The research gap	35
2.4.2 The research questions	35
2.4.3 Hypotheses	36
3. Methodology	37
3.1 Introduction	37
3.1.1 Why charrettes and the pattern language: parsimony for generalization	38
3.1.2 Why qualitative research on multiple case studies?	39
3.1.3 The challenges of qualitative research	39
3.2 Research procedure	40
3.2.1 Research question and case study selection	40
3.2.2 Crafting instruments and protocols	43

3.2.3	Data analysis.....	46
3.2.4	Shaping hypothesis, enfolding literature, and reaching closure.....	49
4.	A narrative of the six case studies.....	52
4.1	Two modes of interaction: intermittent and seamless participation	52
4.2	The <i>charrette</i> approach: anatomy of participatory design at Scarborough, Newbury, and Cowes 55	
4.3	Scarborough	56
4.3.1	Decision to undertake a project, definition of goals, budget and experts	56
4.3.2	The <i>charrette</i> : Post-it session	58
4.3.3	The <i>charrette</i> : Hands-on Planning session	63
4.3.4	The <i>charrette</i> : Synthesis of results and production of deliverables.....	63
4.3.5	Lay-expert interaction: knowledge generation and the evolution of design.....	68
4.3.6	Partial findings from the Scarborough case study	74
4.4	Newbury.....	76
4.4.1	Decision to undertake a project, definition of goals, budget and experts	76
4.4.2	The <i>charrette</i> : Post-it session	77
4.4.3	The <i>charrette</i> : Hands-on Planning session	81
4.4.4	The <i>charrette</i> : Synthesis of results and production of deliverables.....	82
4.4.5	First proposal: the vision masterplan	85
4.4.6	Midterm review: feedback from citizens	86
4.4.7	Final proposal	89
4.4.8	Lay-expert interaction: knowledge generation and the evolution of design.....	91
4.4.9	Partial findings from the Newbury case study.....	111
4.5	Cowes.....	113
4.5.1	Decision to undertake a project, definition of goals, budget and experts, preliminary analyses. 113	
4.5.2	The <i>charrette</i> : Hands-on planning.....	115
4.5.3	The <i>charrette</i> : Synthesis of results and production of deliverables	117
4.5.4	First proposal: the vision masterplan	120
4.5.5	Midterm review: feedback from citizens	121
4.5.6	Final proposal	124
4.5.7	Lay-expert interaction: knowledge generation and the evolution of design.....	126
4.5.8	Partial findings.....	135
4.6	The pattern language approach: anatomy of participatory design at Mexicali, Vellore and Eishin 137	

4.7	Mexicali.....	138
4.7.1	Decision to undertake a project: definition of goals, budget, experts, and preliminary analyses 138	
4.7.2	Engaging the local community: interviews and discussions.....	140
4.7.3	Site layout	141
4.7.4	Construction works: building together	144
4.7.5	Lay-expert interaction: knowledge generation and the evolution of design.....	148
4.7.6	Partial findings from the Mexicali case study.....	160
4.8	Vellore	162
4.8.1	Decision to undertake a project: definition of goals, budget, experts, and preliminary analyses 162	
4.8.2	Engaging the local community: interviews and discussions.....	164
4.8.3	Site layout	165
4.8.4	Construction works: building together	166
4.8.5	Lay-expert interaction: knowledge generation and the evolution of design.....	168
4.8.6	Partial findings from the Vellore case study.....	178
4.9	Eishin.....	181
4.9.1	Decision to undertake a project: definition of goals, budget, experts, and preliminary analyses 181	
4.9.2	Engaging the local community: interviews and discussions.....	182
4.9.3	Development of a pattern language	182
4.9.4	Site layout	185
4.9.5	Construction works: building together	188
4.9.6	Lay-expert interaction: knowledge generation and the evolution of design.....	192
4.9.7	Partial findings from the Eishin case study.....	201
5.	Results	206
5.1	Lay-expert interaction using <i>charrettes</i>: results from the Scarborough, Newbury, and Cowes projects.....	207
5.1.1	Stage and duration of participation: iterations and the power of the collective.....	210
5.1.2	Tools and methods for participation: the dual nature of artefacts in sustaining and organizing communication.....	212
5.1.3	Sources of reference: from individual experiences to a collectively produced space.....	216
5.2	Lay-expert interaction using pattern languages: results from the Mexicali, Eishin, and Vellore projects.....	225
5.2.1	Stage and duration of participation: piecemeal design and pyramidal involvement	229
5.2.2	Tools and methods for participation: the pattern language, flags, and the contact with reality	231
5.2.3	Sources of reference: reality, realities, and imagination.....	235

5.3	A conceptual framework to understand the general problem of lay-expert interaction.....	240
5.3.1	FIRST ARGUMENT: Knowledge generation in participatory design is sustained by multiple feedback loops (FLs) involving citizens, designers, and other stakeholders	241
5.3.2	SECOND ARGUMENT: The arrangement and sequence of FLs within a design process govern the quality of mutual learning and the attitude of citizens towards the project	250
5.3.3	THIRD ARGUMENT: Each feedback loop is based on the production and upgrade of artefacts that convey partial or integral representations of the product of design	257
5.3.4	FOURTH ARGUMENT: The production of artefacts mirrors and reflects a transition from individual, imaginary realities towards one unique, collectively shared reality. The transition process entails mutual learning.....	261
6.	Discussion.....	269
6.1	The findings and the literature	270
6.1.1	About learning and the knowledge of communities.	271
6.1.2	About the role of artefacts throughout a design process.....	274
6.1.3	About patterns, pattern languages and boundary objects.....	278
6.2	Implications of the research	282
6.2.1	Learning from citizens.....	282
6.2.2	Re-thinking participation	284
6.3	Limits of the research	285
6.4	Lessons for practitioners	286
6.4.1	Recommendations for users of <i>charrettes</i>	286
6.4.2	Recommendations for users of the pattern language	288
6.5	A new methodology?	290
7.	Conclusions.....	293
8.	Bibliography	296
9.	Appendix - transcripts of the interviews.....	308
9.1	Interview #1	308
9.2	Interview #2	321
9.3	Interview #3	325
9.4	Interview #4	336
9.5	Interview #5	346

List of Tables

Table 1. Summary of the six case studies organized according to the design methods adopted.	7
Table 2. Outline of the three planning paradigms of the 20 th and 21 st Century: main features and implications for public participation. Adapted from Hall (1988) and Lane (2005).....	17
Table 3. Description of two patterns from A Pattern Language. Source: Alexander et al. (1979).	18
Table 4. Public participation as a tool to cope with uncertainty. Adapted from Newig, Pahl-Wostl and Siegel (2005). .	21
Table 5. Comparison of Communities of Practice (CoPs) and Communities of Interests (CoIs). Adapted from Fisher et al., (2005).....	30
Table 6. Outline of the six projects of participatory design used as case studies. The asterisk (*) in the “year” column indicates that the project was still ongoing at the time this manuscript was completed.....	41
Table 7. Summary of the primary and secondary data sources used for each case study.	44
Table 8. “Matrix A” is used to perform within-case analysis. The matrix is a framework to highlight the relationships among the three elements of the conceptual diagram.....	47
Table 9. “Matrix B” is used to perform within-case analysis. The matrix is a framework to explore the relationships between the three elements of the conceptual diagram and the problem of lay-expert interaction, e.g. communication and learning	47
Table 10. “Matrix C” is used to perform cross-case analysis.	48
Table 11. Two approaches to participatory design: intermittent interaction vs seamless interaction	53
Table 12. The “Issues and Actions” list for Eastborough. The list was produced by a team of designers by JTP architects during the Community Planning Weekend at Scarborough.	64
Table 13. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Scarborough project.	68
Table 14. . “Matrix B”. Table of synthesis of the key factors in place at Scarborough and how they affected lay-expert communication and the development of design.	69
Table 15. Summary of the Hands-on Planning session. Key discussion points are transcribed from the Statement of Community Involvement (Newbury SCI 2015:52, 58, 59). Courtesy of JTP.	81
Table 16. Synthesis of the “Issues and Opportunities” list for the Newbury project. Source: Statement of Community Involvement (Newbury SCI 2015).....	82
Table 17. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Newbury project.....	91
Table 18. “Matrix B”. Table of synthesis of the key factors in place at Newbury and how they affected lay-expert communication and the development of design.	94
Table 19. Relationship between “Key Themes”, post-it comments about “problems”, and design actions implemented in the Newbury consensus masterplan.	98
Table 20. Relationship between “Key Themes”, post-it comments about “dream” and “solutions”, and design actions implemented in the Newbury consensus masterplan.....	100
Table 21. How participation influenced design. Table of synthesis for the Newbury Market Street case study.	107
Table 22. Table of synthesis. Comparison between the list of opportunities (Issues and Opportunity list, July 2015) and the aspirations (Statement of Community Involvement, September 2015).....	109

Table 23. Verbal summary of the key points discussed during the Hands-on Planning session. Source: Statement of Community Involvement (Cowes SCI 2016).....	115
Table 24. Synthesis of the “Issues and Ideas” list for the Cowes project. Source: Statement of Community Involvement (Cowes SCI 2016).....	118
Table 25. Table of summary with Key Themes emerged at the Cowes Community Planning Weekend. Source: Statement of Community Involvement (Cowes SCI 2016)). Sentences in italics are quotes by citizens expressed during the workshop.....	119
Table 26. The six development scenarios for the Medina Yard in Cowes. Synthesis of the outcomes of the viability studies. Adapted from Design and Access Statement (Cowes DAS 2016).....	121
Table 27. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Cowes project.....	126
Table 28. “Matrix B”. Table of synthesis of the key factors in place at Cowes and how they affected lay-expert communication and the development of design.....	127
Table 29. How participation influenced design. Table of synthesis for the Cowes Medina Yard case study.....	131
Table 30. Table of synthesis. Comparison between the list of ideas (Issues and Ideas list, March 15, 2013 onwards) and the aspirations formalized from February 15, 2013 onwards.....	133
Table 31. “Matrix A”. Table of relationships between the key factors affecting lay-expert interaction in Mexicali.	148
Table 32. “Matrix B”. Table of synthesis of the key factors in place at Mexicali and how they affected lay-expert communication and the development of design.	151
Table 33. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Vellore project.....	168
Table 34. “Matrix B”. Table of synthesis of the key factors in place at Vellore and how they affected lay-expert communication and the development of design.	171
Table 35. The final pattern language adopted at Eishin.....	185
Table 36. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Eishin project.....	192
Table 37. “Matrix B”. Table of synthesis of the key factors in place at Eishin and how they affected lay-expert communication and the development of design.	194
Table 38. “Matrix C”. A comparative analysis among the three charrette projects of Scarborough, Newbury, and Cowes. Cells filled with a code, e.g. N1, indicate that a claim was expressed in a similar way in another case study.	208
Table 39. “Matrix C”. A comparative analysis among the three pattern language projects of Mexicali, Eishin, and Vellore. Cells filled with a code, e.g. M1, indicate that a claim was expressed in a similar way in another case study.....	226
Table 40. The three stages of design. Task, learning focus and supporting artefact.....	281
Table 41. Summary of the three stages of the proposed methodology.	291

List of Figures

Figure 1. Conceptual diagram illustrating the three factors affecting lay-expert interaction, e.g. communication and learning. The diagram conveys one of the two hypotheses underpinning this research.	5
Figure 2. Main steps of the methodological procedure. Adapted from Eisenhardt (1989).	6
Figure 3. The ladder of public participation. Adapted from Arnstein (1969).	13
Figure 4. Main steps of the methodological procedure. Adapted from Eisenhardt (1989).	40
Figure 5. The conceptual diagram used as a framework to analyse the six case studies.	46
Figure 6. Conceptual representation of the four dimensions of a design process.	52
Figure 7. Stages of design as in the model of Charrette-based Intermittent Interaction. In red phases conducted with the interaction with citizens.	55
Figure 8. External view of the Market Hall at Scarborough (UK). Photo of Aurelio David (December 15, 2015)	56
Figure 9. Two pictures from the Community Planning Weekend in Scarborough, UK. Left: the design team read aloud comments written on collects post-its. Citizens listen and discuss. Right: Post-its are sorted into “Problems”, “Dreams” and “Solutions”, according to their content. (Photos: Aurelio David).	58
Figure 10. Bar chart illustrating citizens’ comments about the problems of Eastborough divided into topics.	59
Figure 11. Bar chart illustrating citizens’ dreams for a future, better Eastborough divided into topics.	61
Figure 12. Bar chart illustrating citizens’ solutions for the problems of Eastborough divided into topics.	62
Figure 13. Diagram of a “consensus masterplan”. Courtesy of JTP.	66
Figure 14. Conceptual sketch for Eastborough: the four “steps” to the sea. Courtesy of JTP.	66
Figure 15. Alluvial diagram describing the influence of citizens comments on the design for Eastborough. The diagram focuses on inputs related to “Problems” at Eastborough.	71
Figure 16. Alluvial diagram describing the influence of citizens comments on the design for Eastborough. The diagram focuses on inputs related to “Dreams” and “Solution” for Eastborough.	73
Figure 17. Location of the project site in Newbury. Source: Open Street Map (left) and Google Maps (right). Accessed 12 November 2017.	76
Figure 18. Newbury townscape analysis. Courtesy of JTP Architects. Adapted from Design and Access Statement (Newbury DAS 2015)	77
Figure 19. Bar chart illustrating the number of citizens’ comments about the problems of Newbury Market Street, divided into major topics. Adapted from the Statement of Community Involvement (Newbury SCI 2016) and the transcripts from the “Problem” phase of two post-it session at Newbury (10-11 July 2015).	78
Figure 20. Bar chart illustrating the number of citizens’ comments about a future vision for Newbury Market Street, divided into major topics. Adapted from the Statement of Community Involvement (2015) and the transcripts from the “Dreams” phase of two post-it session at Newbury (10-11 July 2015).	79
Figure 21. Bar chart illustrating the number of citizens’ proposals for Newbury Market Street, divided into major topics. Adapted from the Statement of Community Involvement (Newbury SCI 2015) and the transcripts from the “Solution” phase of two post-it session at Newbury (10-11 July 2015).	80
Figure 22. Conceptual diagram of the state-of-the-art at Newbury (left) and of the proposed intervention (right). Courtesy of JTP.	84

Figure 23. Masterplan for Newbury Market Street: first proposal. Courtesy of JTP Architects. Adapted from the Design & Access Statement document (Newbury DAS 2016).	85
Figure 24. The wooden model of the proposed intervention presented at the Newbury Community Forum. Courtesy of JTP.	86
Figure 25. An aerial 3D-sketch of the final proposal for the masterplan of Newbury. Block G and Block H are highlighted in the foreground. Courtesy of JTP.	87
Figure 26. Details of the masterplan for Newbury Street. On the left: first proposal, September 2015. On the right, amended proposal with alteration to the Blocks G and H, October 2015. Adapted from Design & Access Statement (2015). Courtesy of JTP.	88
Figure 27. Final masterplan for Newbury Market Street as submitted by the architects. Courtesy of JTP.	89
Figure 28. Aerial view of the Newbury project. Courtesy of James Holyoak.	90
Figure 29. Timeline of the design process for the Newbury Market Street development. Circles represent milestone events of public participation. Courtesy of JTP Architects.	92
Figure 30. A poster presented at the Community Forum in Newbury, on 24 September 2015. The poster illustrates the evolution of the design as a piecemeal development Courtesy of JTP.....	93
Figure 31. Alluvial diagram describing the influence of citizens comments on\ the design of the masterplan for Newbury Market street. The focus is on comments about “Problems” at Newbury.	97
Figure 32. Alluvial diagram representing the influence of citizens comments on the design of the masterplan for Newbury Marketstreet. The focus is on comments about “Dreams” and “Solution” at Newbury.....	99
Figure 33. Bar charts of “problems”, “dreams” and “solutions” emerged during the Newbury Market Street CPW. Bar charts are divided into major topics and ranked on the basis of occurrence.	103
Figure 34. Alluvial diagram. Comparison between the list of opportunities (Issues and Opportunity list, July 2015) and the aspirations (Statement of Community Involvement, September 2015).....	108
Figure 35. Location of the project site in Newbury. Source: Open Street Map (left) and Google Maps (right). Accessed 12 November 2017.....	113
Figure 36. Example of spatial analysis performed by JTP. The architects attempted to capture Cowe’s predominant architectural and urban features. Courtesy of JTP. Source Design and Access Statement.....	114
Figure 37. The vision masterplan for the Medina Yard in Cowes (UK). Courtesy of JTP. Source: Design and Access Statement (Cowes DAS 2016).	120
Figure 38. Viability studies for the six development scenarios for the Medina Yard in Cowes. Courtesy of JTP Source: Design and Access Statement (Cowes DAS 2016).	122
Figure 39. “Masterplan Option 2.5” for the redevelopment of Medina Yard in Cowes. Courtesy of JTP. Source: Statement of Community Involvement (Cowes SOI 2016).	123
Figure 40. Final masterplan for the new development of the Medina Yard. Courtesy of JTP. Source: Design and Access Statement (Cowes DAS 2016).	124
Figure 41. Boundaries of the Medina Yard hybrid planning application. Phase I indicates a detailed application, while the remaining site is defined as an outline planning application. Courtesy of JTP. Source: Statement of Community Involvement (Cowes SCI 2016).....	125
Figure 42. Timeline of the design process for the Medina Yard regeneration project. The timeline illustrates public events, such as workshops, fora, and exhibitions. Courtesy of JTP. Source: Statement of Community Involvement (Cowes SCI 2016).....	127

Figure 43. A view of the waterfront of the Medina Yard. The sketch illustrates how the new development may look like. Courtesy of JTP. Source: Statement of Community Involvement (Cowes SCI 2016:73).....	129
Figure 44. Alluvial diagram. Comparison between the list of ideas (Issues and Ideas list, March 15, 2013 onwards) and the aspirations formalized from February 15, 2013 onwards. Source: Statement of Community Involvement (Cowes SCI 2016).....	132
Figure 45. Stages of design as in the model of pattern language-based Seamless Interaction. In red: phases conducted with the interaction with citizens.....	137
Figure 46. Location of the project site in Mexicali. Source: Open Street Map (left) and Google Maps (right). Accessed 3 November 2017.....	138
Figure 47. Sketch from the Mexicali project. Diagram of the central space, the main entrance (bottom arrow), and the small parking spaces (left and right symbols). Source: Alexander et al. (1985).	141
Figure 48. Sketch from the Mexicali project. Diagram of the bottle-shaped site, resulting from the discussion about privacy. On the left, the private side. On the right, the most public part of the site	142
Figure 49. Sketch from the Mexicali process. The five houses assigned to the five families. House number 3 is the “central” house. Source: Alexander et al. (1985).....	142
Figure 50. The project site subdivided into private lots around a central common land. Left and right: two small parking areas. Source: Alexander et al. (1985).	143
Figure 51. Diagram of the final layout of the housing cluster. Source: Alexander et al. (1985).	143
Figure 52. Sketch from Mexicali. The five houses are represented in their overall shape, following the pattern LONG THIN HOUSES. J’s House is in the top left corner. L’s house is in the bottom right corner. Source: Alexander et al. (1985).....	145
Figure 53. Sketch from Mexicali. The main entrance to the houses. Source: Alexander et al. (1985).....	146
Figure 54. The housing project in Mexicali. Sketches of the overall site plan (centre) and individual houses. Source: Alexander et al. (1985).....	147
Figure 55. Sketch of the floor plan of Ms. Duran’s house in Mexicali.....	157
Figure 56. Sketch of the floor plan of José’s house in Mexicali.....	158
Figure 57. Sketches from the fieldwork in Vellore. Different street sections with notes on uses and human activities. Source: Davis et al. (1993).....	163
Figure 58. The final site plan. Source: Davis et al. (1993).	166
Figure 59. The two self-built houses in Vellore. Source: Davis et al. (1993).....	167
Figure 60. Pattern #16: ANIMAL PLACES. Sketches describing three alternative ways to solve the problem of cattle supervision observed in the Vellore region. Courtesy of Davis, Week, and Moses.....	175
Figure 61. A CITY OF ROWHOUSES: Sketch illustrating a typical front porch of Vellore. Courtesy of Davis, Week, and Moses.	175
Figure 62. Floor plan of the house of the A. family. The plan shows how a diagonal alignment of doors creates two active spaces. Courtesy of Davis, Week, and Moses.	177
Figure 63. Location of the project site in Eishin. Source: Open Street Map (left) and Google Maps (right). Accessed 3 November 2017.....	181
Figure 64. A sketch made by a school teacher of Eishin. The sketch was inspired by the first crude language. Source: Alexander et al. (2012).....	184

Figure 65. The tea field at Iruma-shi before the campus was built. The photo was taken during the process of site layout. The flags indicate relevant points, e.g. corners of buildings or public spaces. Source: Alexander et al. (2012)...	186
Figure 66. Final site plan of the Eishin campus. The drawing was drafted after all flags had been placed on site. Their relative positions were measured and triangulated. In the original plan buildings are not highlighted in black. Source: Alexander et al. (2012).....	187
Figure 67. The Eishin campus. This plan was drafted after project completion. Source: Alexander et al. (2012).	187
Figure 68. Alexander’s preliminary sketch of the library. Source: Alexander et al. (2012).	188
Figure 69. 1:50 model of the campus library. Source: Alexander et al. (2012).	189
Figure 70. The arcade on the back of the Home Base Street buildings. Source: Alexander et al. (2012).	190
Figure 71. Photos of the Eishin campus. Source: Alexander et al. (2012).....	191
Figure 72. Conceptual diagram illustrating the three factors affecting lay-expert interaction and mutual learning during participatory design processes.....	206
Figure 73. Diagram illustrating the relationship between artefacts and processes during a typical charrette workshop.	215
Figure 74. Comparison of the “problems”, “dreams”, and “solutions” diagrams from Newbury (left) and Scarborough (right).	218
Figure 75. Comparative text analysis of the Scarborough and Newbury post-its. The pie charts highlights whether citizens related their input to certain spatial entities, e.g. a building, a square, an intersection, etc.	220
Figure 76. Four pages from the Vellore pattern language. The hand writing and the sketches reflect the explorative nature of such patterns, drafted by the designers during a preliminary ethnographic research in Vellore. Courtesy of Davis, Week, and Moses.	233
Figure 77. House plans for the five houses in Mexicali. Source: Alexander et al. (2012).....	234
Figure 78. Two pictures from Eishin (left) and Vellore (right). Flags, sticks, and ropes were used to implement patterns on site by marking the corners of the buildings. Courtesy of Alexander, Neis, Davis, Week, and Moses.....	235
Figure 79. Representation of the feedback loops in place during the three main events of a charrette: the post-it brainstorming session, the hands-on planning workshop, and the “consensus and dilemmas” session.	241
Figure 80. The feedback loop associated with the post-it brainstorming session.	242
Figure 81. The feedback loop associated with the hands-on planning (Hands-on Planning) workshop.	243
Figure 82. The feedback loop associated with the “consensus and dilemmas” session.	245
Figure 83. The feedback loop associated with the Community Forums.	246
Figure 84. The feedback loop associated with the pattern language implementation phase.	248
Figure 85. Alluvial diagram mapping the process of knowledge generation at Newbury	253
Figure 86. Alluvial diagram mapping the process of knowledge generation at Newbury	254
Figure 87. Diagram representing the central role of artifacts in supporting a design-oriented discussion between designers and citizens, as well as the synthesis of local knowledge and expertise.	257
Figure 88. Pie charts representing the share of citizens’ comments related to specific (or vague) places. Elaborated from the post-it transcripts from the Scarborough and Newbury Community Planning Weekend, “Post-it session” workshops.	263
Figure 89. Bar charts of the “problems”, “dreams”, and “solutions” comments expressed at Scarborough and Newbury. Elaborated from the post-it transcripts from the Scarborough and Newbury Community Planning Weekend, “Post-it session” workshops. The full-sized diagrams can be found in Chapter 4.3 and Chapter 4.4.....	264
Figure 90. Schematic representation of a house type proposed for the Vellore housing project	266

Figure 91. Floor plans of the five houses built at Mexicali. The difference in size and arrangement of the rooms mirrors the different needs, preferences, and expectations of the five families involved267

Figure 92. The three stages of design. Adapted from Van der Meer (2013).....271

Figure 93. The spiral of knowledge generation. Source: Nonaka and Konno (1998).....276

1. Introduction

The debate on public participation applied to urban disciplines, e.g. urban planning, urban design, and architecture, has historically been revolving around topics of democracy, justice, and distribution of power. As a prominent example, the paper that popularized participation, Arnstein's *A Ladder of Public Participation* (1969), has a strong political and transformative implications. The emphasis on the political nature of public participation was a reflection of the failure of the managerial model of decision-making in most fields of human activity, including urban planning. Politicians and planners proved unable to cope with the complexity of social problems of the 20th Century using top-down plans grounded on a deterministic outlook. Since Arnstein's seminal paper, practitioners and scholars from various disciplines have been conceptualizing and testing alternative paradigms of participatory decision-making. In the urban sector, their effort was initially focused on urban *planning* because of its evident political implications. In this context, it is worth mentioning Davidoff's *Advocacy Planning* (Davidoff, 1965), Friedman's *Transactive Planning* (Friedmann, 1973), and Healey's *Communicative Planning* (Healey, 1992). Despite their theoretical and procedural differences, these paradigms proposed frameworks for a more inclusive urban planning. To what extent their preaching permeated national legislations and professional practice, is the subject of other works.

It is sufficed to say that where participation is a widely understood and shared approach in *urban planning*, its application in the practice of *urban design* and especially architecture is comparably small. Arguably, the "small" scale at which urban design and architecture operate encompasses a lesser degree of conflict and, therefore, of public interest. Furthermore, in the current procedures of architecture, the product of design, e.g. an office building or a condominium, is often designed for a "standardized user", because the developer has little or no cognition of who will buy, rent, or use it. These circumstances have discouraged the adoption of participatory approaches. For if an architect is appointed to design a high-density residential complex, which units are sold upon construction and who should be involved in the definition of its internal layout and facade?

Despite such dilemmas, since the 1970s, a handful of architects have been experimenting with participatory design, a practice that integrates citizens' input into all phases of design. Giancarlo De Carlo, Christopher Alexander, Henry Sanoff, Jan Gehl, and Alejandro Aravena¹ are only a few of the most prominent contributors to this practice. In some of their works, these architects demonstrated

¹ Many more names could be added to the inventory of architects adopting participatory design. This list includes those who contributed the most to spread the principle and methods of participatory design through their writings and in virtue of their coverage in architectural journals.

that participation may enrich a design process with the knowledge held by local communities. More importantly, their work revealed the epistemological dimension of public participation, i.e. when properly engaged, citizens can contribute to a design process not only by expressing preferences, but also by co-generating relevant knowledge and properly orienting the assumptions underpinning a project.

The idea that laymen can contribute to addressing apparently complex and technical issues has emerged in the work of several philosophers and scholars, albeit with no specific reference to urban planning, design, and architecture. The most pertinent description of this situation was conceptualized by the German theorist Horst Rittel (1984) under the term *symmetry of ignorance*. “*The use of knowledge is a central element in achieving change through planning*” (Rydin, 2007), but knowledge is unevenly distributed among various stakeholders outside traditional planning organization (Sandercock, 1997). The implication of this idea is that the knowledge built up by planners and designers throughout years of practice might not be self-sufficient to address “the next project”. Because every project is situated in a different socio-cultural and geographical context, experts may address it by adopting false assumptions, potentially resulting in substandard design solutions. Of course, this predicament does not apply to every project and, in some instances, the cost of undertaking participation might not justify its epistemological benefits. However, today planners and architects often disregard the utility of public input not because of the simplicity of a project, but because of their belief that their expertise does not require validation from the public.

The body of literature available today flourishes with cross-disciplinary studies laying out the foundations for citizen participation in decision making.

Over the last forty years, however, scholars of public participation have been focusing mainly on the democratic dimension of public participation, while neglecting its epistemological potential.

As Abelson and colleagues (2003) point out in their critical review on deliberation and deliberative methods:

“Where much previous attention has been given to normative discussions of the merits of, and conceptual frameworks for, public involvement, current activity seems largely focused on efforts to design more informed, effective and legitimate public participation processes with a strong evaluation component”. (Abelson et al., 2003)

From an architect’s and urbanists’ standpoint, there is a lack of comprehensive studies that address the problem of lay-expert communication in a systematic way, and with a design-centred perspective. Without a conceptual understanding of how laymen and experts interact to address an architectural

problem, of which factors play a role in this interaction, and of how knowledge is generated and synthesized into a final design; any push for innovation in collaborative design would be tentative. Furthermore, until architects and urban designers do not gain confidence in its epistemological value, public participation will continue to be relegated to its political dimension only.

There are two paths through which the topic of participatory design can be explored. One path is practical and should be walked by planning institutions and practitioners, e.g. urban designers, and architects. By devising and testing novel design methodologies, practitioners can explore first-hand the learning potential of participation. Ultimately, architecture and design are practical and technical disciplines and their innovations find validation when they are implemented in reality. Another path is academic and should be pursued by researchers. A scientific outlook grounded on empirical data can contribute to the construction of reliable theoretical frameworks to understand the mechanisms of participatory design that foster co-learning and proper harmonization of expert and lay knowledge.

Unlike practitioners, researchers are apparently at disadvantage, since their work does not find real implementation. However, by working with theories, researchers have more chances to look for unconventional ideas outside traditional disciplinary fields. For example, a promising source of insight for participatory design is Knowledge Management (KM) and KM theories. Although KM theories have been mainly focused on knowledge systems within the landscape of corporations and institutions, their insight could inform novel and effective design methods. Ideally, both paths should feed each other through projects of action-research, in order to obtain understand the extent by which participation allows (1) to re-examine the assumptions underpinning certain aspects of design, (2) to collectively explore new design alternatives, and, finally, (3) to embody the values and preferences of a community into coherent physical design. As a doctoral dissertation written by a trained architect investigating real case studies, this manuscript has one foot on the first path, and one foot on the second.

1.1 Research Problem and Hypotheses

1.1.1 Research Problem

This research brings insight on the epistemological dimension of public participation in urban design and architecture. In particular, participatory urban design is examined in its processual instantiations with the goal of understanding the mechanisms governing lay-expert interaction and the co-generation of knowledge. To achieve this goal, this research draws evidence from six projects of participatory design carried out in four countries, e.g. the UK, Mexico, India, and Japan, from 1985 to 2015. The term “lay-expert interaction” indicates the system of reciprocal influences fostered by the communication between designers and citizens during participatory design processes.

On the one hand, this work provides a framework to explain the key factors partaking to the complex system of interaction occurring between experts and citizens throughout a project of urban design. On the other hand, this study intends to explore the role and potential of patterns and pattern languages (Alexander, 1979; Alexander et al., 1977) as boundary objects (Star & Griesemer, 1989) in support of lay-expert communication.

Evidence collected from six case studies has provided the backbone of a theory that explains how certain modes of conducting participation, i.e. the organization of the process of design, influence the communication between experts and laymen and, in turn, the co-production of knowledge that informs design.

The central questions addressed by this research can be articulated as follows:

- 1. Which factors influence the exchange of knowledge between architects and citizens in participatory design?**
- 2. To what extent can patterns and pattern languages serve as boundary objects in the context of participatory design?"**

In addition, the current work aims to address the following secondary research questions, implicitly or indirectly:

- What kind of interactions take place between experts and laymen when they address a problem of urban design? How do these interactions affect learning and creativity?
- To what extent do citizen inputs contribute to the generation of knowledge to influence a project?
- What kind of local knowledge do citizens possess? To what extent is local knowledge important for a design process?
- How do certain tools and methods, e.g. the pattern language and *charrettes*, control the workflow of a project and affect citizens' participation?
- To what extent does the adoption of pattern and pattern languages improve the quality of lay-expert interactions?

1.1.2 Hypotheses

The initial hypotheses are:

H₁: Three key factors affect and determine the quality of lay-expert communication: (1) the organizational settings of public creative sessions, (2) the methods, tools, and artefacts adopted during public hearings, and (3) the sources of references adopted by experts and citizens throughout a design process. The interplay of these three factors determines the quality of mutual understanding, learning and the generation of relevant knowledge, which are paramount to a meaningful participation (Figure 1).

H₂: “Patterns and pattern languages serve as effective boundary objects between experts and laymen throughout a process of design. As such, they improve the quality of the dialogue between experts and laymen and provide useful lessons to address some common problems of participatory design”.

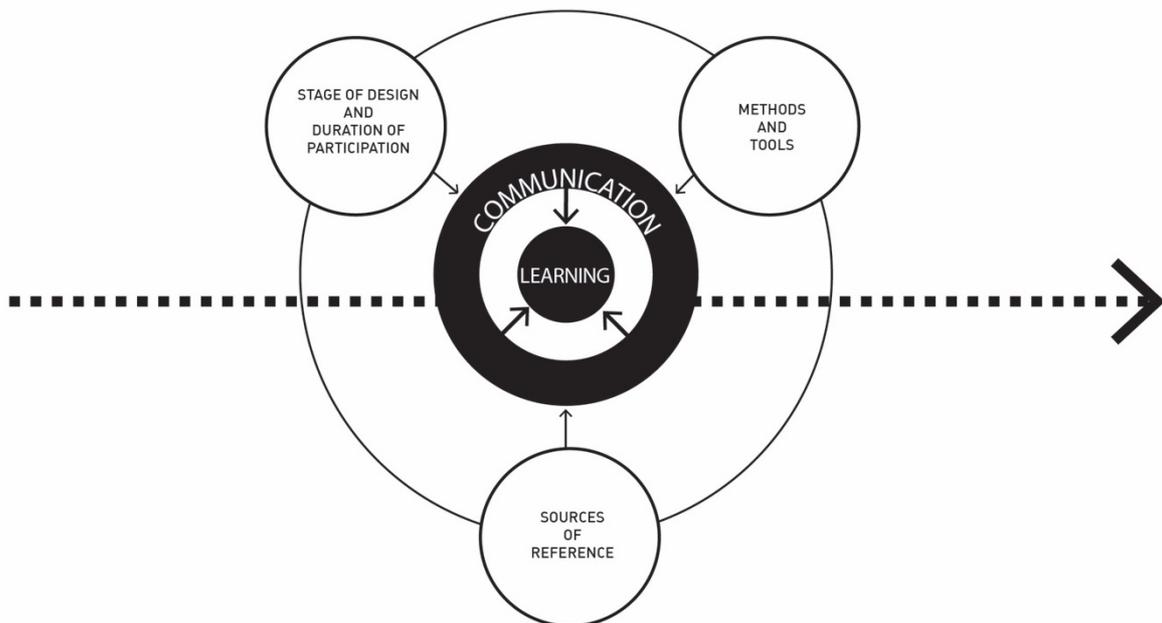


Figure 1. Conceptual diagram illustrating the three factors affecting lay-expert interaction, e.g. communication and learning. The diagram conveys one of the two hypotheses underpinning this research.

1.1 Methodology

As Peng (1994) points out, social phenomena, such as participatory design, are better approached in their real instantiations, rather than in simulated or controlled environments. In the real world, citizens and experts engage in a power-laden context, where rational argumentation is influenced by political ideologies and power relationships (Flyvbjerg, 1998b). Both rational argumentation and the exert of power form structural elements in contemporary urban decision-making, constituting a crucial aspect of lay-expert communication. Under this perspective, investigating real case studies appears as an appropriate mode to analyse and understand the research problem, despite the risks of a bias and loss of rigor.

Following the above-mentioned considerations, this research relies on qualitative investigation of six case studies, i.e. projects of participatory urban design and architecture. The design process of each project represents the unit of analysis of this research.

To address the risks of qualitative approaches, e.g. biases and lack of internal and external validity of the results, the author has designed this research, according to the procedural framework proposed by Eisenhardt (1989) and represented in Figure 2 and the methodological suggestions from Yin (2011).

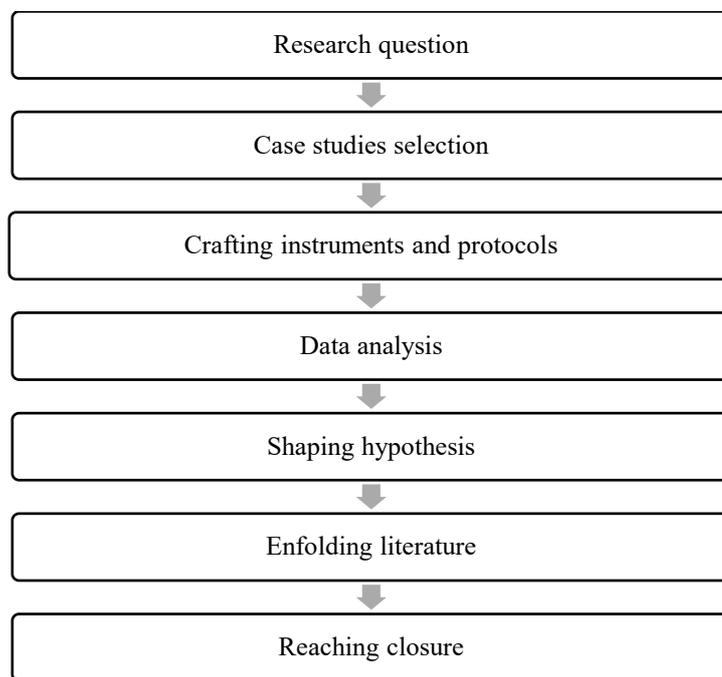


Figure 2. Main steps of the methodological procedure. Adapted from Eisenhardt (1989).

The six case studies of participatory urban design and architecture were carried out between 1985 and 2015 across four countries: three projects in England, one in Japan, one in Mexico, and one in India. It is worth mentioning that in the English case studies, the architects set up *charrettes* as

methods to engage citizens, whereas the remaining case studies were conducted according to the principles of the pattern language methodology. For this reason, “*charrettes*” and “pattern language” can be used to classify the six projects into two families (Table 1).

Table 1. Summary of the six case studies organized according to the design methods adopted.

Case studies	
Charrette	Pattern Language
Scarborough (UK)	Vellore (India)
Newbury (UK)	Eishin (Japan)
Cowes (UK)	Mexicali (Mexico)

Despite their variety, the six case studies were selected according to certain shared criteria, e.g. access to and availability of data, the nature and complexity of the design task, and the adoption of similar assumptions towards participation. The rationale behind case study selection was to build a pool of “comparable” exemplars to analyse through cross-case analysis and pattern matching.

Data have been collected from multiple sources, e.g. in-depth content analysis on relevant documents and interviews with the leading designers involved in the six projects. Furthermore, the author was able to attend one of the *charrette* projects (Scarborough), thus collecting data through direct observation. Beyond data from the six case studies, five informal interviews with experts of participation² and attendance of two charrette workshops in Germany³ allowed the author to obtain a general hands-on experience on the procedural issues of integrating citizens input into a design project. Data from the six case studies have been analysed according to a common analytical framework to produce two kinds of theoretical inferences. On the one hand, a cross-case analysis *within* the same family of projects generated insight that are technique-specific, e.g. the pattern language or *charrettes*. On the other hand, a cross-case analysis *across* families of projects generated insights that are independent from the adopted technique (*charrette vs pattern language*) and pertain

² Informal interviews were conducted with: (1) Mr B., architect and urban designer, project leader of an organization working with participatory urban planning in Emilia Romagna Region, Italy (February 2015); (2) Mr M., architect and advocate for juvenile public participation in Torino, Italy (February 2015 and July 2015); (3) Mr Z., facilitator of large-scale urban projects in Germany (March 2016); (4) Mr P., project manager and facilitator of an organization for public participation in Piemonte Region, Italy (June 2017). The information obtained during these conversations influenced the approach to case-study analysis. Although they have been recorded in field notes, they are not included in the appendices as they do not pertain to any of the six case studies analyzed.

³ The two workshops cited took place in small towns near Hamburg (March 2016) and Cologne (July 2016). The former involved the redevelopment of a greenfield. The second was an experiment set up and led by the author in an attempt to test pattern languages in a charrette. Because these two projects are not as rich in data as the six analysed, they have not been included in the research.

to the general mechanisms of lay-expert interactions and communication in participatory architecture and urban design.

1.2 Scope of the research

This section describes the limits of this research, i.e. the domain within which its findings are valid. Additionally, such a description serves to justify any arbitrary choices operated by the author, e.g. number and type of case studies and methodological tools.

First, this research focuses on non-complex, familiar design tasks.

Local communities involved in the six case studies had to grapple with the development of their houses (Vellore, Mexicali), residential-led, mixed-use neighbourhood regenerations (Scarborough, Newbury, and Cowes), or their own university campus (Eishin).

The choice of these familiar topics and places reflects one of the assumptions underpinning this research, namely that local communities hold local knowledge in virtue of their experience with a place⁴. Thus, the selected case studies involve familiar places and activities, while not being too complex topics to grapple with. As a consequence of this choice, the findings from this research may not be valid for larger projects, e.g. regional plans, infrastructure, hospitals, etc.

Second, this research focuses on formal participation.

Formal participation denotes top-down processes set up by official authorities, in concert with professionals. Within formal participatory processes, citizens are engaged according to the protocols of certain techniques of participation, e.g. the space and time of *charrettes*.

Bottom-up, informal participation may follow different organizational patterns and are therefore outside the scope of this research.

Third, this research is focused on a face-to-face mode of interaction between experts and citizens. All case studies are characterized by real-world interactions between the actors involved in a design process. The interaction often takes place during public workshops, in small or large groups, and through one-to-one interviews, in order to understand trans-disciplinary communication and mutual learning. Although digital platforms, e.g. online participation methods and m-participation, are increasingly popular in territorial analysis and urban management, they are not yet effective at the scale of urban design and architecture. Instead, *charrettes*, workshops, and public hearings in general are established mainstream methods for participatory design.

⁴ A comprehensive definition of expert and local knowledge can be found in Paragraph 2.2.

Fourth, this research is focused on low-conflictual situations.

The six projects investigated are characterized by a low degree of conflict. For example, the low-income families in Mexicali and Vellore were interested to get access to affordable housing, the Eishin community was eager about the prospects of a new school in the middle of green fields. Likewise, the three English projects were carried out without significant levels of conflict. Non-conflictual case studies were selected in an attempt to reduce the communication noise caused by politics. While interests and conflict cannot be completely erased by any process of urban transformation, they should not be a major driver in the six projects analysed. The backdrop of this choice is that the theory emerging from this work may be ill-suited for heated sessions of public participation

1.3 Outline of the thesis

The manuscript is divided into three parts.

Part I introduces the context and goals of the research (Chapter 2), as well as the methodology adopted (Chapter 3). The deliberate focus of the study is on small-group public hearings (i.e. *charrettes* or face-to-face workshops) concerned with simple, uncontested design tasks. Although a drop in the lake of participation, such events represent well-established methods to conduct participatory urban design and architecture.

Part II includes a description of the six case studies along the lines of a similar narrative structure (Chapter 4). Three case studies involved the use of charrettes, e.g. Scarborough (Chapter 4.3), Newbury (Chapter 4.4), and Cowes (Chapter 4.5). The other three were carried out according to the principles of the pattern language theory, e.g. Mexicali (Chapter 4.7), Eishin (Chapter 4.9), and Vellore (Chapter 4.8). Evidence collected through different data sources provide the backbone for an emerging theory to explain recurring patterns of interaction and factors influencing mutual learning and mutual understanding.

Part III exhibits the results of the analytical work, presents the strands of theory emerged (Chapter 5), and ends with a critical discussion on the theoretical and procedural implications for participation in architecture and urban planning (Chapter 6). The outcomes of this research are twofold. On the one hand, this research problematizes the system of lay-expert interaction into a theoretical framework. On the other hand, it expands the pattern language theory with a new insight from a process-centred perspective on participation. Finally, the theory and findings obtained from this study are meant to inform practitioners on how to innovate state-of-the-art techniques of participation (i.e. *charrettes*) to optimize lay-expert communication, as well as to lay the foundations for a new method of participatory design centred around the concept of patterns.

PART I

The Epistemological Role of Public Participation

2. The epistemological role of public participation

This section reviews on the available literature on participation, planning, and Knowledge Management (KM) theories to outline the context of this research. The chapter begins with an introduction of the concept of public participation and its influence across several disciplinary fields, including planning and design. Lane (2005) analytical framework is used to explain the complex relationship between planning paradigms and public participation as it unfolded in the last century. This historical excursus serves to contextualise the two design methods investigated in this research, namely charrettes and the pattern language. In addition, Lane's brief history of planning and participation provides the bedrock to discuss the two dimensions of public participation, e.g. its democratic and epistemological dimensions. Since the focus of this research is in the latter, the chapter delves into the merits and shortcomings of expert and lay knowledge, i.e. the two kinds of knowledge affecting participatory design processes. Finally, the idea of transdisciplinary communication is discussed, along with some key questions of KM theories, e.g. Communities of Practice and Communities of Interest, and boundary objects. The chapter ends with a reflection on the research gaps, and the questions that this work intends to cover.

2.1 Towards a collaborative paradigm of planning and design

2.1.1 What is public participation?

“Public participation is the process by which an organization consults with interested or affected individuals, organizations, and government entities before making a decision. Public participation is two-way communication and collaborative problem solving with the goal of achieving better and more acceptable decisions”. (iap2 website)

The idea, rationale, and implications of public participation were made prominent in the late Sixties by Arnstein's seminal paper: A Ladder of Citizens Participation (Arnstein, 1969) . The article, written in a period of social unrest and transformations, emphasised the asymmetrical relationship between institutions and citizens in controlling public decisions. The “ladder” in the article title refers to the vertical classification used by the author to describe various participatory activities, e.g. consultation and voting. The lowest step of the ladder pertains to non-participation, e.g. Manipulation. The highest step indicates the highest degree of citizen participation, e.g. Citizen Control (Figure 3).

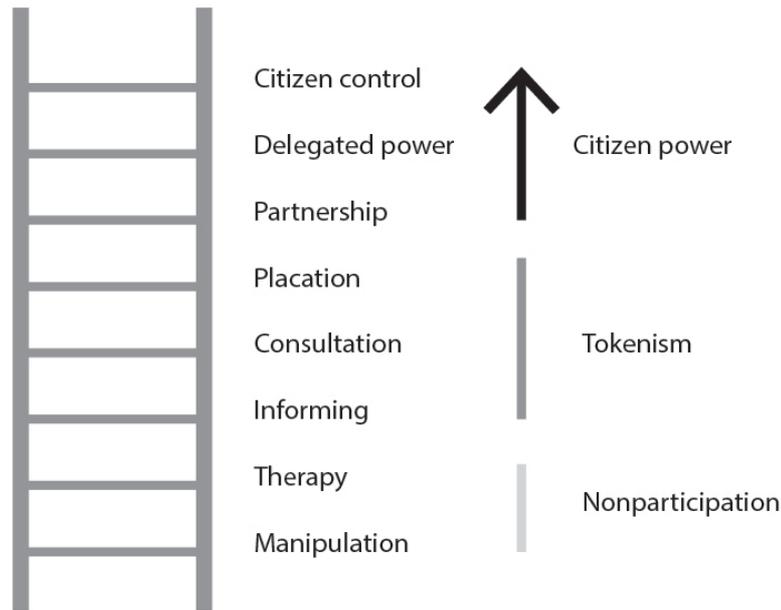


Figure 3. The ladder of public participation. Adapted from Arnstein (1969).

Since its inception, Arnstein's paper and metaphor inspired researchers, practitioners, and activists to critically investigate, implement, and advocate for, public participation in decision-making. Regardless of its applications, the central idea of public participation is that people have the right to partake in decisions affecting their lives, whether on the content of a new policy or the location of a new urban settlement. As Irvin and Stansbury (2004) point out, the benefits of participation "as a process and an end" are manifold. For example, an active citizenry is, arguably, better than a passive one (King, Feltey, & Susel, 1998). Additionally, decisions taken in concert with the public may enjoy a better reception, since they would be formulated from public preferences (Box, 1997; Oldfield, 1990). However, since participation comes with financial, technical, and political costs (Irvin & Stansbury, 2004), its implementation requires careful planning.

Notwithstanding the risks involved and after five decades from Arnstein's essay, theories of participation have permeated several fields of human activity, i.e. politics and democracy (Fraser, 1990), healthcare (Martin, 2008; Mooney & Blackwell, 2004), environmental decision-making (Beierle & Cayford, 2002), socio-technical issues (Marres, 2007), and urban planning (Brabham, 2009; Sanoff, 2000, 2010). In the literature of urban planning, participation appears under the guise of several labels, i.e. community, deliberative, and collaborative planning (E. Arias, Eden, Fischer, Gorman, & Scharff, 2000; Brand & Gaffikin, 2007; Forester, 1999; Sokoloff, Steinberg, & Pyser, 2005), participatory urban design (Carmona & Tiesdell, 2007; Tress & Tress, 2003), and crowdsourced urbanism (Brabham, 2009; Salinger et al., 2011; Seltzer & Mahmoudi, 2012). Likewise, practitioners have devised a wide array of techniques and methods to enable the citizens to

be part of planning and design processes, i.e. *charrettes*, open forums, citizens juries, etc. (G. Rowe & Frewer, 2000; Gene Rowe & Frewer, 2004). The advent of IT has expanded the possibilities of interaction between administrators, experts, and citizens, i.e. through internet, mobile phone, and social media (Kheir Al-Kodmany, 2001; Evans-Cowley & Hollander, 2010; Fredericks & Foth, 2013). Online mapping tools (Bugs, 2012; Haklay & Weber, 2008; Simão, Densham, & Haklay, 2009; Talen, 2007) enable citizens to communicate in real time with local administrations through ordinary objects, e.g. smartphones or laptops (Ertiö, 2013). Beneath this wide-ranging landscape of labels and methods, however, lies a common endeavour: to involve citizens in the planning of the city and its parts.

2.1.2 Setting the context: Public participation in urban design and planning

An investigation of the theories and methods of public participation in urban planning, urban design, and architecture must take into account the broader planning paradigm within which participation is established. A planning or design paradigm can be defined as the set of assumptions underpinning planning and design activities. Following the set of assumptions enshrined in a particular design paradigm affects the attitude a planner towards her political role and the value, and reach, of her knowledge.

To avoid further misunderstandings, it is essential to clarify the relationship between urban planning, urban design, and architecture, as far as they are understood in this thesis. A conceptual tie between planning and design activities is possible, insofar as urban planning, urban design, and architecture are conceived in their substantive similarities, rather than in their procedural differences. While pertaining to different scales and relying on different methods, urban planning, urban design, and architecture are knowledge-based activities aimed at transforming space. Like urban planners, architects and urban designers operate within epistemological and organisational restrictions (Forester, 1988; Judith E Innes, 1998; Schneekloth & Shibley, 1995). In their work, planners “muddle along within the constraints of human knowledge, grapple with complex ambiguities, survive in a world of power imbalances, and present ideas with rhetorical force” (Sternberg, 2000).

In dealing with problems of a similar nature, urban planning, urban design, and architecture are, thus, inspired by the tenets of similar normative paradigms governing (1) the role of the planner (2) the goals of planning, and (3) the knowledge used to achieve planning outcomes (Lane, 2005).

Lane demonstrated how these three factors change in response to socio-cultural transformations occurring in society; and how they affect the role, and goals, of public participation. When certain models of planning produce unsuccessful outcomes, or cannot address the full spectrum of societal

complexity, practitioners discard and pick up new assumptions, generating new paradigms (Lane, 2005; Whitemore, 2015).

2.1.2.1 An historical excursus of planning paradigms: rational-comprehensive, synoptic, and today's pluralistic approaches.

Planners and architects operating between the early decades of the 20th century and the late Fifties belong to the tradition of “omniscient neutral technocrats”. Acting outside the realm of politics - at least in their understanding - their role was to devise plans and draft blueprints to achieve a “common good” (Faludi, 1973; Lane, 2005). Following an idea from the Enlightenment, planners were convinced that society had to be guided towards a better configuration by reshaping their physical environment. Under these assumptions, there was no space for participation. For if experts knew what is “good” for a certain community, and knew how achieve such “good”, why should they have involved the uneducated citizens in the process? As a notable example, Le Corbusier’s ambitious plan for "La Ville Radieuse was a technocratic attempt to transform Paris according to the principles and goals of the “modern spirit”, while assuming that its citizens would have adapted to the new lifestyle made of standard apartments high above vast green fields and network of highways (Hall, 1988; Jacobs, 2016).

This paradigm of planning did not stand the test of time. New challenges, i.e. the global economy, the emerging complexity and scale of urban problems, environmental and civil rights movements, and an atomistic understanding of communities, demanded more sophisticated planning paradigms (Hall, 1988; Yvonne Rydin et al., 2012). The new social and cultural landscape exposed the political implication of planning, burdening planners with a new discovered political responsibility. Inspired by the work of sociologists, political scientists, and philosophers, a new breed of planning models emerged from the Sixties onwards (Friedmann, 1987). Among them, it is worth mentioning Davidoff’s Advocacy Planning (Davidoff, 1965), Friedmann’s Transactive Planning (Friedmann, 1973), and Healey’s Communicative Planning (Healey, 1992). Using Lane’s (2005) classification, these paradigms belong to the “pluralistic approach”.

These models of planning emphasised public engagement, albeit from different standpoints. Davidoff’s notion of “advocacy” links planning with participation-as-democracy. His stance debunks the idea of a holistic society, united by common aspirations.

“Determinations of what serves the public interest, in a society containing many diverse interest groups, are almost always of a highly contentious nature. In performing its role of prescribing courses of action leading to future desired states, the planning profession must

engage itself thoroughly and openly in the contention surrounding political determination”.
(Davidoff, 1965)

Healey’s “communicative theory” emerged as a reaction to the failure of rational-comprehensive planning. Empirical studies had revealed the limits of scientific reason to adequately address the transformation of a city. Following Habermas (1984) and Giddens (1994), Healey argued in favour of a new mode of planning based on intra-subjective understanding and the inclusion of local knowledge.

“Reason, understood as logic coupled with scientifically-constructed empirical knowledge, was unveiled as having achieved hegemonic power over other ways of being and knowing, crowding out moral and aesthetic discourses”. (Healey, 1992)

In his theory of Transactive Planning, Friedmann first developed the idea that planning should entail an exchange of knowledge between experts and local communities. In particular, while the former possessed analytical know-how, the latter had first-hand experience with their environment (Friedmann, 1973; Whittemore, 2015).

Despite their different origins, influences, and implications, the three planning models belonging to the pluralistic paradigm share three common assumptions.

1. Society is not homogeneous. Rather, it is made of a variety of social groups laden with conflicting interests.
2. A unique “common good” does not exist. Instead, the goals of planning have to be socially constructed through a dialogic and conflictual process of negotiation with local communities.
3. Experts are not the only repositories of knowledge useful for planning.

The central tenets of each paradigm are summarised in Table 2. From a historical perspective, participation has become increasingly central to planning conversations.

Table 2. Outline of the three planning paradigms of the 20th and 21st Century: main features and implications for public participation. Adapted from Hall (1988) and Lane (2005).

	Rational-comprehensive paradigm	Synoptic paradigm	Pluralistic paradigm
Role of the planner	Apolitical, omniscient, technocrat.		Political.
Goals of planning	To <i>guide</i> society and pursue the “common good” through fixed end-state plans.		To <i>transform</i> society, distribute resources, empower minority groups.
View of society	Holistic.		Atomistic.
Knowledge	Held by planners.	Held by planners – to be partially validated.	Held by multiple actors.
Role of participation	Absent.	Mild consultation on planning goals.	Manifold, with political and epistemological implications.

Despite Lane’s clear-cut classification, however, reality exhibits less marked contours. At the beginning of the 21st century, planning institutions and designers no longer operate under the guise of a purely rational-comprehensive paradigm. However, none of the pluralistic approaches mentioned above has emerged as a stable normative framework to guide planning and design procedures. Instead, planners and urban designers borrow different assumptions from the synoptic and pluralistic approaches, so as multiple paradigms coexist (Lane, 2005; Rydin et al., 2012; Whitemore, 2015). Hudson (1979) ascribes the persistence of the synoptic model to its practical simplicity. In fact, despite its multiple theoretical flaws, the model remains a reliable approach to use and teach. Architecture and urban design practices, as well as university curricula, are grounded mainly on synoptic principles, whereby goals are given as a set of specifications to be achieved via an expert-made plan (Davis). Among the countless methods to implement a participatory design, this research focuses on two, namely *charrettes*, and the pattern language.

2.1.2.2 Charrettes

A *charrette* is a public workshop attended by citizens, experts, and relevant stakeholders with the goal to reach consensus about the main features of a project. A *charrette* is usually organised at the beginning of a design process and runs for several days, e.g. 2-5. Within this timeframe, citizens and experts are engaged in a series of feedback loops to come up with a feasible plan. The plan is generally articulated in a set of documents, e.g. a conceptual masterplan and an action plan. In the context of the whole design process, this material is then developed into technical drawings and documents to be submitted to the local planning authority. Beyond the definition of a public-informed masterplan,

charrettes serve to establish a bond between decision-makers and citizens. In today’s practice, charrettes can be considered mainstream techniques to effectively engage citizens in design activities for urban redevelopment and masterplanning.

2.1.2.3 The Pattern Language

Unlike *charrettes*, the pattern language is not a methodology in itself. In fact, it is the central element of a design methodology embedded in a broader theory developed by Christopher Alexander and the Center for Environmental Structure (CES) in the 1970s (Alexander, 1979, 2017; Alexander et al., 1977). The original theory behind the pattern language advocates the restoration of a set of design principles to govern the organisation of the physical environment at all scales. These ideas attempted to counter modern, and post-modernist approaches to architecture and restore a “living environment”. The authors of the theory contended that, since the Industrial Revolution, architecture had been progressively removed from beauty and human feelings (Alexander, 1979). As a result, buildings had become highly functional yet lifeless, alienating spaces, disconnected to people and their innermost needs. According to the pattern language theory, to overcome the loss of quality in architecture, one has to reboot the process of building and allow communities to partake in it. In this context, the pattern language is a methodological tool to achieve these aims (Alexander, 1979). The building blocks of a pattern language are “patterns”.

“Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to that problem” (Alexander et al., 1977). In other words, a pattern can be conceptualised as a simple design guideline to solve a simple spatial problem. The following table presents examples of patterns to design a public space (Table 3).

Table 3. Description of two patterns from A Pattern Language. Source: Alexander et al. (1979).

Code	Name	Problem	Solution
#69	“Public Outdoor Room”	“There are few spots along the streets of modern towns and neighborhoods where people can hang out [...] for hours at a time.”	“In every neighborhood and work community, make a piece of common land into an outdoor room – a partly enclosed place [...]”
#124	“Activity Pockets”	“The life of a public square forms naturally around its edge. If the edge fails, then the space never becomes lively”	“Surround public gathering places with pocket of activity – small, partly enclosed areas at the edges [...] and contain activities which make it natural for people to pause and get involved”

A group of logically interconnected patterns forms a language. In fact, “*No pattern is an isolated entity. Each pattern can exist in the world, only to the extent that is supported by other patterns*”(Alexander et al., 1977). A comprehensive pattern language can be made of several dozens of interlinked patterns. If each pattern tackles a simple spatial problem, a pattern language is meant to address the complexity of a large project. For example, the two patterns mentioned above can be combined and inform the design of a public space. By following pattern #69 first, and pattern #124, an architect would deploy a system of enclosed spaces around a public square. By doing this, she would foster a lively and active public space. In the homonymous book, Alexander and colleagues (1979) developed a library of 253 patterns to embrace all scales of design, from the landscape of a region to the color of the wall of a bedroom. During their activity, members of the CES have tested the theory and the methodology in several projects (Alexander, 1975; Alexander, Davis, Martinez, & Corner, 1985; Alexander, Neis, & Alexander, 2012), fine-tuning and expanding it with other concepts. In the field of architecture and urban design, however, Pattern Languages have hardly been adopted outside such planning experiments.

Besides their historical applications and the kind of architecture that they advocate, patterns and pattern languages can be regarded as methodological tools for design. In this sense, two attributes are worth discussing. First and foremost, a distinction needs to be made between the structure and the content of patterns. While the content of patterns includes evidence-based design guidelines, they are not intended to be fixed. Instead, the authors encouraged architects and users to edit the language in order to fit their specific needs. Second, public participation is an integral aspect of the pattern language theory. Patterns should be created, discussed, or approved by a local community. Their simplicity, together with the combination of verbal and visual descriptions, is meant to allow laymen to understand the complexity of architectural and urban design. In fact, Alexander’s book of 1979 is titled “*A Pattern Language*” and not “*The Pattern Language*”, suggesting that the library of 253 patterns proposed are not unique. This distinction between “*A Pattern Language*” (e.g. the set of patterns from the 1979 book) and “*the pattern language*” (e.g. any combination of patterns) is not fundamental for the scope of this thesis. In the following chapters, “*patterns*” are defined in their structural meaning, rather than in their original content.

2.1.3 The two dimensions of participation

In the previous paragraph, it has been argued that any attempt to investigate participation in urban planning must account for the system of beliefs adopted by individual professionals, as well as the political implications of a project. Indeed, participation is always articulated along a political and an epistemological dimension (Dean, 2017).

The most common instances of public participation in urban planning involve large-scale projects of infrastructure and urban development, e.g. Italy's Torino-Lione railway (Algostino, 2008; Fedi & Mannarini, 2008) and Germany's "Stuttgart 21" project (Novy & Peters, 2012; Schweizer et al., 2016). Because such projects have profound impacts on the public, national laws and regulations mandate that their planning is preceded, or accompanied, by a participatory process. Under these circumstances, and with the belief that their combined expertise is sufficient to achieve its goals, a design team would not seek knowledge from a local community. Instead, participation would be aimed at building public consensus, capturing preferences, and mediating local conflicts. Some scholars argue that a collective exploration of urban problems, as well as the alternative solutions to address them, is vital for the contemporary scene of planning (Bobbio & Pomatto, 2008; Bucchi & Neresini, 2007; Callon, 2001).

"Problems are always open to interpretation. All actors have uniquely different perspectives on what is a problem and what constitutes improvement. As knowledge and understanding are socially constructed, [...] it is essential to seek multiple perspectives on a problem situation by ensuring the wide involvement of different actors and groups". (Pretty, 1995)

In this framework, participation can be used by planners and institutions to establish the legitimacy of a plan through a direct relationship with citizens (Fearon, 1998; Pellizzoni, 2003). This kind of participation can be ascribed to a mixed paradigm, whereby the goals of planning are overtly political and the relevant knowledge to plan and execute the project is a prerogative of the planners. The public, understood in its atomistic character, is enquired on questions of values and preferences, not of knowledge. In such projects, the separation between the political and epistemological dimensions of participation is so marked that, often, facilitators involved in urban issues do not have a formal background in architecture or spatial planning, but in sociology or conflict management.

A different kind of participation emerges when designers encounter a thorny task or a situation of uncertainty. Faced with gaps in their knowledge, designers may use participation as a tool to complement their understanding of the task at hand and to validate the assumptions underpinning design strategies. Rittel (1984) theorised this situation as a symmetry of ignorance. According to his theory, knowledge is distributed tacitly among various stakeholders outside traditional planning organisation, such as members of local communities (Sandercock, 1997). Since citizens may hold important, yet incomplete, information, planners can tap into such knowledge through participation. Evidence-Based Design (EBD) is a prime example of this type of participation. The central idea of this approach is that users know better how they perform activities in space and that such information

should be used to inform design. It is no coincidence that EBD found widespread application in the healthcare section, e.g. hospitals and mental health facilities (Cama, 2009; Ulrich, 2006; Ulrich et al., 2008), although recent experiments involved the design of office spaces (Sailer, Budgen, Lonsdale, Turner, & Penn, 2008). In EBD applications, the spatial needs of a community are defined by designers and communities through public workshops, questionnaires, or interviews. By learning how doctors and medical staff operate a hospital, for example, designers learn how to optimise its layout and adopt specific materials.

In reality, the two dimensions of participation, i.e. political and epistemological, are not mutually exclusive. Regardless of the prime motive driving participation, each case of participatory planning and design presents features of the two. Even if a public event is set up to building consensus, in reality, it is bound to involve the exchange of ideas and knowledge. Overall, it is within such political-epistemological continuum that citizen participation exists in the practice of urban planning, urban design, and architecture. On the one hand, participation can enable citizens to influence decisions concerning their environment (political dimension). On the other hand, citizens can engage in practices of knowledge exchange with planners (epistemological dimension). Newig, Pahl-Wostl and Sigel (2005) referred to these two issues as “informational uncertainty” and “normative uncertainty” (Table 4).

Table 4. Public participation as a tool to cope with uncertainty. Adapted from Newig, Pahl-Wostl and Siegel (2005).

Type of uncertainty	Participation as a means to...	Benefits of participation
Informational uncertainty	Profit from local knowledge	Better informed decisions
	Gain insight into the social system	
	Profit from information about acceptance of design alternatives	Better informed decisions AND more easily implemented decisions
Normative uncertainty	Mediate interests and goals	More easily implemented decisions

2.2 The role of knowledge in urban planning and design

The previous paragraphs have set the context for an investigation of public participation in the domain of urban planning, urban design, and urban planning. Because this research addresses the epistemological dimension of public participation, the following sections explore the topic of knowledge in planning as it has been articulated by scholars of planning theory (Friedmann, 1987; Rydin, 2007; Sternberg, 2000), Knowledge Management experts (Alavi & Leidner, 2001; E. Arias et

al., 2000; Ernesto G. Arias & Fischer, 2000; Edelenbos, van Buuren, & van Schie, 2011; Hautala & Jauhiainen, 2014; Nonaka, 1994; Nonaka & von Krogh, 2009; Shannak, Masa'deh, & Akour, 2001), philosophers (Cerezo & González, 1996; Polanyi, 1958), cognitive scientists (Kirsh, 2009), and sociologists (Star, 2010; Star & Griesemer, 1989) from the 1960s to the present day. In particular, the discussion is polarized between two notions of knowledge: expert-technical knowledge and lay-local knowledge. Expert knowledge is scientific knowledge obtained from formal education in a professional field. Lay-local knowledge, on the other hand, is the knowledge of the “man of the street”, obtained through, and reflecting personal experience. Rydin (2007) posits that the use of knowledge in planning and design is necessary to bring about positive change. Thus, the legitimisation of non-traditional knowledge (Sandercock, 1997) can only take place once the pillars of the synoptic model – and the Illuminist tradition in general – are broken down.

2.2.1 A critical enquiry into expert knowledge

The existence of professional figures like architects, engineers, technical consultants, and builders appointed to carry out planning activities suggests that the knowledge required to plan a city is obtained from formal education and experience. Because of this mode of acquisition, such knowledge is referred to as “expert knowledge”. In the context of planning and design, expert knowledge is also technical, since designers can link it to action by producing technical plans and blueprints representing buildings and other spatial transformations.

In general, experts think that their scientific knowledge is superior to over other forms of knowledge obtained from non-scientific sources. This assumption originates from the Enlightenment (Bacon, 2000) and is conveyed in the “deficit model” of communication (Eden, 1998; Wynne, 1991; Yearley, 2000a, 2000b). In one of its interpretations, the deficit model portrays a dichotomy between experts and citizens regarding the value of their knowledge and, ultimately, their role in addressing technical problems. According to this model, citizens are deficient in knowledge (Durant et al., 2000; Irwin, 1995; Irwin & Michael, 2003) and, for this reason, they should be disqualified from participating in scientific debates, such as planning (Corburn, 2003; Eden, 1998).

However, adhering to a deficit model does not necessarily exclude participation from planning practices. Planners who uphold this outlook would generally involve the public to raise questions and provide political values while retaining control over technical issues (Corburn, 2003; Douglas & Wildavsky, 1983). Using Lane’s and Friedman’s classification, both the rational-comprehensive and – in a lesser measure - the synoptic planning approaches were characterized by a deficit model of communication. Such an attitude towards the public partially explains the lack of participation in

planning and design until the late Sixties. Even in recent times, the deficit model is conveyed by planners who display a benevolent and paternalistic approach towards citizens.

Petts and Brooks (2006) studied why institutional appointees and experts may disregard inputs by citizens. Their study underscores that, because officials do not value cogenerated knowledge enough to underpin final decisions, they may not consider public involvement as fundamental for problem-solving.

“Public perceptions based on local and personal experience differed from their [the experts] own understanding which derived from scientific evidence, and contextualized this lay understanding as misunderstanding”. (Petts & Brooks, 2006)

Furthermore, the authors demonstrated that the deficit model has roots even outside the epistemological realm. Regardless of the “objective” value of lay knowledge, the idea that laymen can be knowledgeable about technical issues can be challenging to experts and to their social status.

Although experts might claim that their knowledge is “superior” to a layman’s knowledge, this hierarchical separation does not hold true under the real conditions of planning.

Since the 1960s, scholars of planning, sociologists, and knowledge management experts have debated the authority of scientific knowledge in planning, as opposed to less-formal, heuristic instances of local knowledge. Their critique can be articulated along three arguments.

First, the “wicked” nature of planning problems renders scientific knowledge substantially inadequate.

In their seminal essay, Rittel and Webber (1984) recognised urban problems as “wicked problems”, and the challenges to address them in the same manner as if they were mechanical problems, e.g. the design of a car. Central to any wicked problem is the lack of a shared definition of it. The following excerpt from the authors unveils the implications for planning, planners, and knowledge in general.

“By now we are all beginning to realize that one of the most intractable problems is that of defining problems (of knowing what distinguishes an observed condition from a desired condition) and of locating problems (finding where in the complex causal networks the trouble really lies). In turn, and equally intractable, is the problem of identifying the actions that might effectively narrow the gap between what-is and what-ought-to-be”. (Rittel & Webber, 1973)

When planning the transformations of a city, planners address open-ended problems, characterised by “radical uncertainty” (Pellizzoni, 2003) and indeterminacy (Wynne, 1991). In fact, the goals of planning are never neutral and objective; instead, they are socially constructed through a process of negotiation among multiple stakeholders. Even in the absence of participation, the use of scientific knowledge is always subordinate to a (more or less explicit) dialogic exploration of the dimensions of an urban problem.

Second, the political nature of planning depauperates scientific knowledge from its scientific pretence.

Contrary to Le Corbusier’s, and the Modernists’ convictions, planning is not a purely technical act. Since planning is sustained, and coordinated by politics, scientific knowledge is subject to ideology. In opposition to an ideal, objective knowledge, planners often choose the “best” strategy of action according to extra-rational factors. Rationality is, thus, not objective (Faludi, 1973) but intertwined with power structures (Bent Flyvbjerg, 1998b). Far from being separated from it, rationality is shaped by power.

Third, the limited resources involved in planning force planners to operate through pseudo-scientific assumptions and shortcuts.

The time-resource constraints within which planners operate require prompt decisions and little opportunities to validate theories properly (Friedmann, 1987). As a result, planners often have to make assumptions in order to simplify the complexity of reality and deliver a project on time. The critique of such “quick and dirty” solutions is not directed towards their practical applications, but to the scientific pretence with which they may be presented. Theoretical assumptions are often arbitrarily chosen according to practical needs, and cannot be scientifically validated.

Historical accounts from Lane (2005), Hall (1988) and Friedmann (1987) partially ascribed the failure of rational-comprehensive planning to the shortcomings of “expert knowledge”, and the models that experts created to explain reality. Their observations, together with the rise of planning approaches that sought epistemological validation from the public, solicit fundamental questions on the nature of the knowledge necessary for planning, and how it can be obtained. In particular, if the knowledge adopted by planners is influenced by ideology and – in practice - does not rest on sound scientific grounds, why should it be considered scientific? Also, if the act of planning tackles non-mechanical, social problems, why should an expert-technical knowledge be sufficient to address them? Finally, considering its non-scientific foundations and the elusiveness of the problems it attempts to solve, is expert knowledge substantially “better” than lay knowledge to address architectural and urban issues?

2.2.2 A critical enquiry into local knowledge

Lay-local knowledge is a kind of knowledge entrenched in the social fabric of communities in virtue of their relationship with places. It is “the mixture of knowledge built up through practical experience and the frames of reference people use to filter and give meaning to that experience”. (Geertz & Knowledge, 1983). In the literature, systematic research on the use of local knowledge in urban planning is scarce. However, empirical evidence from multiple studies in environmental subjects suggests that, when properly engaged, local rural communities can support scientists in contextualising conventional scientific knowledge (Irwin, 1995; Petts, 1997; Renn, Webler, & Wiedemann, 1995; Webler, Kastenholz, & Renn, 1995).

These examples from environmental sciences are conceptually linked with urban planning and design insofar as they pertain to space and localised problems. As mountain communities can be helpful because of their experience with the natural environment, citizens could help planners in virtue of their experience in the urban environment. Because citizens live in and interact with the physical and social environment of a particular neighbourhood, they are the holder of a vital source of local knowledge. Commuting to work, walking around the neighbourhood, shopping, practising sports and hobbies, looking for restaurants, cafes, and leisure. These activities contribute to the development of a knowledge of the place. By definition, local knowledge is community-specific, since it pertains to the experience of a local community with their specific environment.

As Friedman noted (1993), the knowledge of a community cannot be surrogated by theories or observations. Because local knowledge can only be obtained by direct experience and time, participation is the privileged, if not the unique, method to acquire local knowledge. Despite its theoretical value, however, local knowledge in itself is not self-sufficient to address the complexity of contemporary urban problems in practice.

“Planners and administrators can be out of touch with communities and local knowledge, but citizens can be out of touch with political and economic realities and long-term considerations for a community or resource”. (Judith E. Innes & Booher, 2005)

From a political standpoint, for example, personal knowledge can be adulterated by ideology, just like expert knowledge. Like political institutions, Individual citizens have interests that they can promote through manipulative knowledge. Because society is atomistic, the interests of a person, or of a social group, may not correspond with the interests of other groups, or the majority of citizens involved. Hence, the dichotomy expert vs local knowledge is not mirrored by a dichotomy of political

vs apolitical knowledge. If planning ought to be grounded on an a-political rationality, then its foundations cannot be found in local knowledge, either.

From an epistemological standpoint, local knowledge presents itself bundled together with other subjective instances originating from people's personal experience. Rydin expands on this point, observing how "engaging different knowledges is fundamentally different to engaging different voices" (Rydin, 2007). The author noted how, when laymen engage in a technical problem; they contribute with a variety of claims that fall outside proper "knowledge claims", such as ethical, aesthetical, emotional, and political. A similar argument was put forth by Wynne, who concluded that: "people do not use, assimilate, or experience science separate from other elements of knowledge, judgment, or advice" (Wynne, 1991). Being aware of the multifaceted nature of local knowledge is essential to understand its limits and the challenges of its implementation. As Collins and Evans (2002) point out, the personal experience of citizens is not sufficient to make them empowered with knowledge. Additionally, as Polanyi (1958) argues, lay-local knowledge exists in an implicit or tacit form. In his books *Personal Knowledge - Towards a Post-Critical Philosophy*, Polanyi articulates the attributes of tacit and explicit knowledge, arguing that people know more than what they can express. As a consequence, to have access to lay-local knowledge may demand alternative communication modes, such as visual and metaphorical ones.

From a procedural standpoint, *knowledge needs to be linkable to action and be "scientifically valid, socially robust and [...] useful for policy making"* (Edelenbos et al., 2011). As Irvin & Stansbury (2004) explain, one of the main obstacles for participation in planning is the risk of bad decisions made on the basis of public inputs, i.e. local knowledge. Under those circumstances, political endorsement of participation can backfire when outcomes are poor, while the public may act hostile towards authorities, too.

Thus, planning needs to be supported by a knowledge base that is not only made of true claims but also relevant and implementable claims. Whether non-experts can restrain their self-interest, while promoting relevant and implementable knowledge claims, is open to debate. Nevertheless, the three arguments put forth in this section reveal that, from a practical standpoint, local knowledge has more profound flaws than expert knowledge. If neither is self-sufficient, many scholars have considered the possibility that, together, expert and local knowledge may provide a solid base for planning.

2.2.3 Beyond the deficit model: the collaborative model of communication

In opposition to the deficit model, the collaborative model of communication suggests that to be accurate, scientific, and technical, expertise needs to be complemented by lay input (Eden, 1998;

Petts, 1997; Petts & Brooks, 2006). In theory, the collaborative model mirrors the Aristotelian idea that “The whole is more than the sum of its parts”. When the public partakes in a planning process, multiple points of views and facts can come together, thus solving the “symmetry of ignorance” dilemma (Rittel, 1984). Under this perspective, participatory design becomes an opportunity for planners to have access to other kinds of “incomplete” information and “[pose] alternative questions, [test] sensitivities to different methods, [consider] ignored uncertainties, and [examine] new options or different possibilities” (Petts & Brooks, 2006). The collective exploration of urban problems, as well as the alternative solutions to address them, is vital for making sense of contemporary issues (Bobbio, 2006; Bobbio & Pomatto, 2008; Bucchi & Neresini, 2007; Callon, 2001). At the same time, a collaborative approach represents an alternative strategy for decision-making; one that seeks legitimacy through a direct relationship with citizens (Fearon, 1998; Pellizzoni, 2003).

Following the tenets of the collaborative model, the shift towards a collaborative mode of *decision-making* is achieved simultaneously to a collaborative *problem-solving* process. Decision-making and problem-solving represent, respectively, the political and epistemological dimensions of a project, as already discussed in REF Previous paragraph.

“Problems are always open to interpretation. All actors have uniquely different perspectives on what is a problem and what constitutes improvement. As knowledge and understanding are socially constructed [...] What we take to be true depends on the framework of knowledge and assumptions we bring with us. Thus it is essential to seek multiple perspectives on a problem situation by ensuring the wide involvement of different actors and groups”. (Pretty, 1995)

In this framework, how do expert and local knowledge come together in practice?

2.2.4 The contribution of Knowledge Management theories: Communities of Practice and Communities of Interest

This question has been a primary concern of Knowledge Management (KM) scholars. KM is an applied field of research concerned with the processes underlying knowledge creation and transfer within an organisation (Alavi & Leidner, 2001; Nonaka & von Krogh, 2009; Shannak et al., 2001). Part of the aim of KM is “[to make] knowledge visible so that it can be better accessed, discussed, valued or generally managed” (Eppler, 2011; Eppler & Burkhard, 2007). and “[to facilitate] the processes by which knowledge is created, shared and used in organizations” (Zack, 1999). KM abounds with empirical studies and insight from the corporate sector because knowledge represents

a substantial competitive asset for corporations and institutions. As a result, knowledge generation and knowledge sharing processes have been extensively explored by several scholars (Ambrosini & Bowman, 2001; Bhatt, 2001; Gherardi, 2009; Nonaka & Takeuchi, 1995). Despite the different disciplinary fields, however, urban design arenas can be linked to corporations under the proposition that both are knowledge-based enterprises. As such, KM can be used to understand some of the epistemological issues faced by architects and designer during participatory design.

According to theories of KM, local knowledge and expert knowledge are knowledge systems that originate from human organisations, or communities (Hildreth & Kimble, 2004; Weinberger, Stegmann, & Fischer, 2007; E. Wenger, 1998; E. Wenger, McDermott, & Snyder, 2002). To understand how different knowledge systems interact in planning and architecture, it is necessary to introduce the concept of design communities as “social structures that enable groups of people sharing knowledge and resources in support of collaborative design”. (Ernesto G Arias, Eden, & Fischer, 2015). Despite the lack of agreement on the number and variety of design communities, a common classification recognises Communities of Practice (CoPs) (E. Wenger, 1998; E. Wenger et al., 2002) and Communities of Interest (CoIs) as fundamental to explain most design and decision-making problems (Fischer, 2001).

2.2.4.1 Communities of Practice

A theory of Communities of Practice (CoPs) was put forth by Wenger (1998) to explain how people learn through multiple interactions in practice. CoPs are groups whose members belong to a same professional background, e.g. architects, lawyers, mechanical engineers, etc. In human societies, people become part of a CoP through education and work experience. For example, all architects undergo training in a university first and practice in an architecture office later.

Because its members undergo common learning paths, CoPs are characterised by a domain-oriented knowledge system. For example, all architects can conceptualise a building in its structural and functional parts. Good urbanists are familiar with planning theories and understand mobility patterns. Likewise, lawyers are familiar with a court system, human rights, and the relationship between a state and its citizens. Even if, within the same CoP, senior members have broader and more in-depth knowledge than the juniors, all members share the same jargon and, to a certain extent, some familiar referential figures. In architecture, for example, virtually everyone is familiar with the work of noteworthy architects from the past or the present, such as Filippo Brunelleschi, Frank Lloyd Wright, and Alvar Aalto. Scholars point out that all these commonalities contribute to, and are sustained by, an efficient system of communication within each member of a CoP (Fischer, Giaccardi, Eden, Sugimoto, & Ye, 2005). Part of the effectiveness of communication seems to rest on shared

ontologies, i.e. implicit assumptions and well-known facts, which become implicit in the profession. For example, when an architect nominates Kahn, she may not need to specify that she is talking about Louis to be understood by a fellow architect. However, when talking with a doctor, to avoid misunderstanding, she may need to specify that she is referring to the American architect, not to the Mongolian warlord. As another example, all architects understand the concept and rationale behind the “window-to-floor ratio”, although a layperson may require clarification. The theory of CoPs can also be used to explain the shortcomings of mono-disciplinary design groups. According to Fischer and colleagues (2005), the existence of shared ontologies and implicit knowledge may result in groupthink, i.e. shortcuts in decision-making that may impair the quality of decisions. False assumptions about the needs of a community originate from the same substrate.

Empirical evidence suggests that, while simple problems can be solved by individual CoPs and their knowledge domain, complex problems require the knowledge of multiple CoPs. For example, small architecture offices are equipped with the knowledge and tools to tackle simple design problems, e.g. a small housing project, the retrofit of a townhouse, or the layout of an office space. However, to design an airport, a hospital, or the masterplan for a mid-sized city, architects have to work in cooperation with other professionals, as their expertise is not sufficient to embrace the various dimension of such tasks.

2.2.4.2 Communities of Interest

When projects are too large or too complex for small, mono-disciplinary design groups, they are usually addressed by larger, multi-disciplinary groups. Such groups are comprised of people from different disciplinary fields, united by a common concern, or interest (Fischer et al., 2005; Mueller & Ibert, 2015). Their association may be temporal and last only for the duration of a project. For this reason, they are referred to as Communities of Interest (CoIs). Contemporary planning and design enterprises, and multidisciplinary design teams in particular, are, in fact, CoIs. Designers, engineers, environmental specialists, lawyers, accountants, financial advisors are just some of the professional figures that partake in a design project. The strength of CoIs is their aptness to tackle complex problems in virtue of the interaction of the multiple knowledge systems held by its members. Although the source of their creative potential, the internal diversity of CoIs represents a fundamental communication issue. Because its members belong to different professional groups, i.e. CoPs, characterised by different ontologies, CoIs often lack a shared understanding of the same phenomenon. The communication dilemma faced by CoIs is articulated in this quote from Fischer:

“each stakeholder possesses some, but not all, relevant knowledge, and the knowledge of one participant complements the ignorance of another. This barrier must be overcome by building a shared understanding of the task at hand, which often does not exist at the beginning, but evolves incrementally and collaboratively and emerges in people’s minds and in external artifacts”. (Fischer & Redmiles, 2008)

Table 5. Comparison of Communities of Practice (CoPs) and Communities of Interests (CoIs). Adapted from Fisher et al., (2005).

Dimensions	CoPs	CoIs
Nature of problems	Different tasks in the same domain	Common task across multiple domains
Knowledge development	Refinement of one knowledge. New ideas come from within the practice	Synthesis and mutual learning by combination of multiple knowledge systems
Strengths	Shared ontologies, i.e. mutual understanding	Diversity and social creativity
Weaknesses	Group-think	Lack of shared ontologies. Risks of misunderstanding
People	Beginners and experts	Stakeholders

In this context, public participation expands the dimension and variety of CoIs, by including laymen in an otherwise expert-only group (Grabher & Ibert, 2014). A “participatory CoI” is substantially different from a “non-participated” CoI. In the latter, when an expert team is set up to work on a project of urban design, all necessary professions are included to cover all dimensions of the urban problem. For example, when a bridge needs to be built across a valley, a traffic manager, an environmental analyst, and a geologist may be appointed as consultants to an engineering firm. When participation is enacted, on the other hand, it is rarely possible to control the composition of the public involved, as well as their knowledge and capacity to express it. According to the theory of CoIs, this uncertainty can have an adverse effect on mutual communication, because experts do not know with whom they have to communicate and how a mutual understanding can be established.

2.3 The issue of transdisciplinary communication: boundary objects, knowledge visualization, and storytelling

According to theories of KM, the members of a CoI need to establish a shared understanding of the issue at stake to foster knowledge exchange and trigger mutual learning. Scholars contend that a shared understanding can only be achieved when the many stakeholders collaborating towards a common goal overcome the communication barriers and take advantage of the boundaries of their CoP. The word “boundary” sounds impairing since it suggests the limits of one’s knowledge. In fact,

the strength of a CoI is grounded on the overlapping of the knowledge boundaries of its members. For example, a geologist's field of expertise should make up for the knowledge gap, i.e. ignorance, of an architect towards soil and land. Likewise, water scientists may recommend best practices in managing water cycles that are unknown by the engineer in charge of planning pipes. The knowledge of the former should inform the strategies adopted by the latter, and vice-versa.

Instead of barriers, boundaries can be bridges linking different knowledge systems, but only if certain conditions are met (Fischer, 2001; Star & Griesemer, 1989; E. Wenger, 2000; E. C. Wenger & Snyder, 2000). In particular, the knowledge of one member should not be wholly divorced from the knowledge of all other members. Using the examples above of the geologist and the architect, if the former did not have a partial understanding of the disciplinary field of the latter, and vice versa, their capacity to work together would be impaired. A good architect ought to be aware of the relationship between the quality of the soil and the capacity to build on it, as well as the dangers connected with hydrogeological risks. Likewise, a geologist should be cognizant of which information is required for an architect to address a specific project, e.g. the erection of a skyscraper vs the building of a power plant. In fact, university curricula are - perhaps implicitly - addressing the problem of boundaries, by offering young architectural students introductory courses on "fringe" subjects, e.g. statics, building materials science, building physics, housing market principles, and ecology. Upon graduation, practising architects would still need the consultancy of engineers, accountants, and ecologists. However, because of their formal education, the knowledge systems of all experts would naturally overlap in some areas, i.e. boundaries, which would allow them to cooperate. If the overlapping of knowledge boundaries fosters seamless communication, do the knowledge systems of citizens, e.g. elementary teachers, butchers, postmen, etc. overlap with the knowledge system of an architect, and with one another's? How can such a diverse and heterogeneous group work together? Can a shared understanding be built during temporary planning and design processes? Such is the central epistemological dilemma of public participation.

2.3.1 Boundary objects

The existence of such a dilemma led Star and Griesemer (1989) to study how groups of people could work together without a shared professional background and in the presence of conflict. Although their study involved natural scientists and the work in a museum, their theories can be useful for planning and design. Star and Griesemer discovered that, when heterogeneous groups are united by a common goal and, perhaps, by a scarcity of time and resources, they tend to solve their knowledge gap by employing frameworks and artefacts that hold meaning to all participants.

“Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites”. (Star & Griesemer, 1989)

Because of their epistemological value, boundary objects coordinate the perspectives of various constituencies, e.g. different CoPs, around a common framework. Boundary objects coordinate trans-disciplinary communication by forcing the knowledge boundaries of a design community, e.g. a CoI, to emerge (E. Arias et al., 2000; Ernesto G. Arias & Fischer, 2000; Frey, Botan, & Kreps, 2000; Star, 2010; Star & Griesemer, 1989). Examples of boundary objects are repositories, models, methods, maps, and case studies.

A certain ambiguity exists in the literature on the nature of boundary objects. In fact, twenty years after the publication of her seminal paper of 1989, Star wrote *This is not a boundary object: Reflections on the origin of a concept*. In this article, she dismissed the existence of a univocal definition and set of boundary objects by stating: “Boundary objects are a sort of arrangement that allow different groups to work together without consensus.” (Star, 2010).

Regardless of the misunderstanding concerning their definition, boundary objects have spawned a large body of work under the assumption that their understanding may improve interdisciplinary knowledge management in various fields of human activity. The semantic ambiguity behind boundary objects encouraged scholars to look for them in the real world. In so doing, they put forward different hypotheses on their nature and function. For example, Carlile (2002) posits that different boundary objects, e.g. repositories and models, have different capacity to address different kinds of knowledge boundaries. Fischer and colleagues (2005) studied the relationship between boundary objects and the fish-scale collaboration model as a way to foster social creativity in software development. Despite their pertinence, KM and boundary objects have not been explicitly integrated into the theoretical framework of participatory urban planning, urban design, and architecture. By observing how architects operate, one may infer that maps, technical drawings, visual renderings, and physical models are used as boundary objects since they are often used during public events. However, it is not clear how such alleged boundary objects bring together the different knowledge systems of experts and citizens.

In fact, the current discourse on the communication gap between architects, designers, and citizens springs from empirical studies of the tools and techniques adopted in the mainstream practice, namely knowledge visualisation and storytelling. The two approaches are sustained by the search for effective techniques that would equalise experts’ technical jargon and laymen’s everyday speech.

2.3.2 Knowledge visualization and storytelling

“Knowledge visualization examines the use of visual representations to improve the management of knowledge on all levels”. (Eppler & Burkhard, 2007)

Al-Kodmany (1999), following King and colleagues (1998) emphasises the communicative virtues of visual methods to convey architectural messages, e.g. artists’ sketches, photo renderings, and GIS maps. Al-Kodmany argues that “visualization is the key to effective public participation because it is the only common language to which all participants – technical and non-technical – can relate” (Al-Kodmany, 1999). This idea is reiterated by other scholars, such as Orland and colleagues (2001) and Tress and Tress (2003). Furthermore, the use of visualisation is inherently embedded in the architectural practice, and empirical evidence suggests that it is the default mode of communication employed by architects and urban designers. Indeed, posters, maps, and drawing sessions are central to any public workshop. Likewise, it is commonly understood by our culture that drawings and sketches are an ideal way to communicate ideas about buildings, streets, and trees.

Storytelling, on the other hand, is a mode of establishing a common understanding based on discourses, narrative, and metaphors. Ambrosini & Bowman (2001) claim that storytelling and metaphors can be harnessed to get access to the tacit knowledge of laymen. Soliva and Hunziker (2009) conducted planning experiments with narratives and their power to dig deep into the consciousness of people to draw out experiences, values and knowledge.

2.3.2.1 *The limitations of knowledge visualization and storytelling.*

Although both approaches elicit some desired response from citizens, their critiques reveal how neither knowledge visualisation, nor storytelling are apt to grasp the full spectrum of lay and local knowledge throughout a planning process.

One of the central argument against visual methods is presented in Soliva and Hunziker’s paper (2009). Referencing Nohl (2010), the authors make the case that visual representation may baffle citizens with the aesthetic qualities portrayed by a picture, burying important, yet non-visual, attributes of the puzzle under a pile of assumptions (Rydin, 2007). Their argument is consistent with the marketing aspect of architectural renderings, which is frequently used to edulcorate a design, especially during architectural competitions. In the social experiment described by Soliva and Hunziker, when visual material was coupled with a verbal description, citizens would not only change their initial preferences but also provide extra information which was valuable for policymaking. A further critique of knowledge visualisation methods is that they can only be adopted in the presence

of a design proposal. For example, citizens may be asked to debate on the pictures of a building or a landscape as they may look like in the future. This strategy does not tap into local knowledge and everyday experience, which are bound to the present time. If citizens are the experts of the site, it follows that their contribution during initial phases of problem-setting is arguably more critical than during problem-solving stages.

While approaches based on storytelling are common in urban and environmental planning to generate “scenarios” and “visions”, they are rarely employed in architectural and urban design projects. Verbal descriptions of reality and metaphors, in particular, may result too difficult to grasp for laymen. Perhaps, a thorough discussion of “values”, preferences, and ideas may establish some common grounds at an early stage of design. However, it is difficult to imagine how storytelling alone can convey the physical and material image of a physical environment, and sustain it throughout all stages of design. In fact, it is not clear if citizens would be able to understand the connections between metaphors and the reality of what they are called to co-design. Even in Soliva and Hunziker’s experiment on the development of scenarios for the Swiss valleys, metaphors and storytelling had to be combined with visual imagery of the Swiss landscape to make sure that citizens understood the task at hand. (Soliva & Hunziker, 2009).

Using the concept of boundary objects, it appears as if the shortcomings of both knowledge visualisation and storytelling techniques lie in their limited capability for externalisation (Bruner, 1996). "Externalization" is an operation by which designers and experts make explicit the principle of design that they usually adopt implicitly. As Wynne claims: “The elicitation of implicit knowledge requires examination of not only the knowledge or information, per se, but also the underlying values and assumptions that go with it” (Wynne, 1991). Bruner (1996), Fischer et al. (2005), and Fominykh (2016) posit that externalisation of knowledge is the most effective strategy to stimulate mutual learning in CoIs and, ultimately, to turn the problem of symmetry of ignorance into an opportunity for learning and creative collaboration. Visual techniques and narratives may play a role in bridging the communication gap between experts and laymen, but if they are not based on externalisation, they may fall short in establishing a shared understanding, which is a primary condition for meaningful participation.

2.4 The goals of this research

2.4.1 The research gap

The current body of research on methods to integrate expert and local knowledge in urban planning and design has not yet addressed the fundamental relationship between the mechanisms of communication and knowledge generation processes within a design process. For example, the literature does not provide satisfactory answers to questions such as:

- How do current methods of participatory design engage citizens and their knowledge? At what stage of design is local knowledge relevant?
- Which factors influence the epistemological dimension of participatory design?
- What constitutes a boundary object in planning and design processes? How do boundary objects influence communication and knowledge generation processes in participatory design?
- Would expert and lay knowledge harmonise, if citizens were not only exposed to the product of design, but also to the process and rationale that generated it, i.e. to a process of “externalisation”?

This research gap may be a byproduct of the deficit model that characterises urban planning and urban design. If planning institutions, e.g. local authorities, planners, and architects, operate within such framework of assumptions, participation is relegated to its democratic dimension only. In turn, it follows that researchers are more concerned with the political dimension of participation, and less with its epistemological one. Additionally, KM theorists have rarely dealt with urban design problems. As a consequence, the domain of KM theories, as well as their recommendations, is mainly valid for company and institutions and need validation before they can be transferred to the realm of urban planning, urban design, and architecture. Finally, the participatory dimension of the pattern language theory has not yet been explored by empirical studies.

2.4.2 The research questions

This research attempts to integrate KM and boundary object theories into the disciplinary field of urban planning, urban design and architecture. By investigating six case studies of participatory design carried out using charrettes and pattern languages, this research follows two intertwined goals.

The first goal is to problematize and explain recurring mechanisms of lay expert-interaction in participatory design. The research question associated with this goal is:

“Which factors partake in the exchange of knowledge between architects and citizens during instances of participatory design?”

The second goal is to understand the role and function of patterns and pattern languages in establishing shared frameworks of meaning and action. The research question associated with this goal is:

“In the context of participatory design, to what extent are patterns and pattern languages boundary objects?”

Both questions address the phenomenon of lay-expert interaction as it presents itself in the disciplinary field of urban design and architecture. The results of this empirical work are meant to improve the body of scholarship related to KM, participatory design, and the pattern language, as well as to provide sound recommendations for architects and designers who are interested in using participation to learn from communities.

2.4.3 Hypotheses

Building on the critical analysis of the literature, I argue that the key factors affecting the quality of lay-expert communication are: (1) the organisational settings of public workshops, (2) the role and relationship between experts and citizens and (3) the support material adopted during public hearings. The interplay of these three elements is central to determine the quality of mutual understanding, learning, and the generation of relevant knowledge, which makes up a meaningful participation. Additionally, I argue that patterns and pattern languages perform as effective boundary objects, bridging the communication gap between experts and laymen throughout a process of design. As such, they improve the quality of the dialogue between experts and laymen and provide useful lessons to address some common problems of public participation.

3. Methodology

3.1 Introduction

As outlined in Chapter 0, this research explores the phenomenon of lay-expert interaction in participatory design along two levels of investigation. On one level, this work attempts to explain the mechanisms underlying the processes of interdisciplinary communication and knowledge generation. On another level, this work investigates Alexander's (1977) concept of pattern languages in light of Star's (1989) notion of boundary objects, in order to understand to what extent do patterns establish shared ontologies between designers and citizens who work on a common design task. The two levels of analysis are not disconnected. Rather, the latter is nested within the former, because the pattern language represents only one of the countless way through which architects have solved the problem of engaging citizens in participatory design⁵.

Overall, the research questions explored in this research are not related to any specific instance of participatory design, e.g. to any specific case study. In fact, the ambition of this work is to build on empirical evidence from six case studies to address the general problem of participatory design as it manifests in current practices of architecture and urban design. Ideally, the theoretical framework emerging from this work should be able to explain the structural mechanisms governing lay-expert interaction under similar circumstances as those characterising the six case studies.

Under this perspective, the two foci of this research are (1) the design process and (2) the interdisciplinary communication underlying participatory projects of architecture and urban design, i.e. projects in which groups of designers and citizens cooperate to plan and design a certain spatial entity, e.g. a building, a public space, a new neighbourhood development, etc. In architecture and urban planning, a "design process" can be defined as the series of steps and actions undertaken by a team of professional designers to define spatial solutions to a given problem. In the context of participatory design, "interdisciplinary communication" indicates the modes of communication occurring between experts-experts, e.g. architect-engineer, expert-laymen, e.g. architect-citizen, and laymen-laymen, e.g. citizen-citizen. Dialogue constitutes the chief mode of communication. Besides verbal, however, the communication of architectural ideas is frequently pictorial. Indeed, architects often use maps, visual renderings, and diagrams to convey the attributes of public spaces and buildings and communicate the key features of a project. The implementation of participation presupposes that citizens are engaged in the design process, i.e. that they can put forward, and discuss

⁵ The existence of countless variation of techniques to capture citizens' inputs for planning and design, as well as the scientific challenges related, are discussed in Paragraph 3.1.1.

design ideas. Finally, one of the challenges associated with participatory design is how citizens input can be integrated into the design, in an attempt to balance individual and collective interests.

These phenomena are complex and rooted in, and affected by, social dynamics, e.g. the role of experts in society (Petts & Brooks, 2006), power struggles (Bent Flyvbjerg, 1998a), and the strength and shortcomings of expert and local knowledge. It follows that, from a methodological standpoint, the analysis of real case studies through the lenses of a qualitative framework would be an optimal strategy to address the research questions. As Gerring posits, case study research involves “intensive study of a single unit for the purpose of understanding a larger class of (similar) units”. (Gerring, 2004)

3.1.1 Why charrettes and the pattern language: parsimony for generalization

The ambitions of generalisation pursued by this work are undermined by the lack of a standard way of conducting participation in planning and design, as well as the specific nature of each project. Currently, the number and variety of approaches and methods to implement participatory design in the real world is hard to pin down. Public workshops, Future Search Conferences, survey methods, online mapping tools, Open Space Technology, mobile participation are only a handful of methods available to practitioners and local administrations to incorporate citizen inputs in design procedures. Despite such variety, however, it is possible to distinguish between online and offline participatory methods. Online methods rely on the internet and mobile technologies to collect a large number of information from citizens. Offline methods are based on face-to-face workshops organised before, during, and after a design process.

In practice, these two approaches are characterised by two different system of communication. For example, on an online platform, communication is often standardised, e.g. citizens are enquired through a pre-defined set of questions about the positive and negative features of a neighbourhood. Conversely, during a face-to-face workshop, citizens and designers usually make sense together of a particular design problem and their exchange of ideas may not follow a pre-defined path. During a workshop, several media can be used to convey information, e.g. maps, sketches, and pictures.

In order to achieve a certain degree of generalisation, it is crucial to limit the variables involved in the process of lay-expert interaction by reducing the object of this research to a limited number of design methods used by architects to achieve participation. This research focuses on offline, face-to-face interaction. In particular, three case studies were carried out following the principles of charrettes, as adopted by one British office of architecture. Three case studies were carried out via a pattern-language-based design method.

3.1.2 Why qualitative research on multiple case studies?

Contrary to a common misunderstanding, projects of urban design and architecture are not purely technical acts. In fact, they are political, insofar as they involve trade-offs between conflicting interests and exclusionary solutions. For example, besides issues of technical feasibility, whether a brownfield is developed into a nine-storey office tower or a public park would undoubtedly elicit different reactions from citizens, real estate developers, and local authorities. In the real world, experts and citizens rarely engage in apolitical, “rational” conversations. Instead, they interact within a power-laden context. Politics and ideology tend to influence their argumentation and slant their rationality towards personal or group interests.

These effects are crucial to understanding the research questions, but cannot be perceived in a controlled environment (Yin, 2003, 2011). Furthermore, the dynamics of knowledge exchange in a political environment can be grasped and understood only through the lenses of an interpretative framework, i.e. observation and in-depth interviews, as argued by several scholars of methodology (Baxter & Jack, 2008; Eisenhardt, 1989; Flyvbjerg, 2006; Mason, 2002; Merriam, 1988; Patton, 2005). The investigation of real projects enables to maintain the influence of power relationships that would not be present in a controlled context. Hence, multiple case studies offer the opportunity to study the same phenomenon, e.g. lay-expert interaction, under slightly different circumstances.

On building theory from multiple case studies, Eisenhardt and Graebner explain:

“Central to building theory from case studies is replication logic [...]. That is, each case serves as a distinct experiment that stands on its own as an analytic unit. Like a series of related laboratory experiments, multiple cases are discrete experiments that serve as replications, contrasts, and extensions to the emerging theory [...]”. (Eisenhardt & Graebner, 2007).

And:

“The theory-building process occurs via recursive cycling among the case data, emerging theory, and later, extant literature”. (Eisenhardt & Graebner, 2007)

3.1.3 The challenges of qualitative research

In order to generate a valid theory from multiple case studies, this research follows Yin’s handbook (Yin, 2003), a well-established manual of recommendations for qualitative researchers. In particular, to ensure that results obtained from case study research are rigorous and trustworthy, two parameters need to be controlled, namely validity and reliability (Lincoln & Guba, 1985; Rolfe, 2006). Validity is ensured by triangulation, i.e. the adoption of multiple data collection methods for the same case

study, e.g. observation, content analysis of relevant documents, and stakeholder interviews. The validity of a specific theoretical proposition is corroborated by converging evidence from multiple data extraction methods. Reliability is guaranteed by the adoption of a unique protocol of analysis (Baxter & Jack, 2008; Eisenhardt & Graebner, 2007; Yin, 1984). The protocol used in this research consists of two parts: a conceptual diagram and a system of matrices.

3.2 Research procedure

This research follows the methodological framework described by Eisenhardt (1989) to obtain reliable findings from multiple case studies analysis, and link them to an emerging theory (Figure 4).

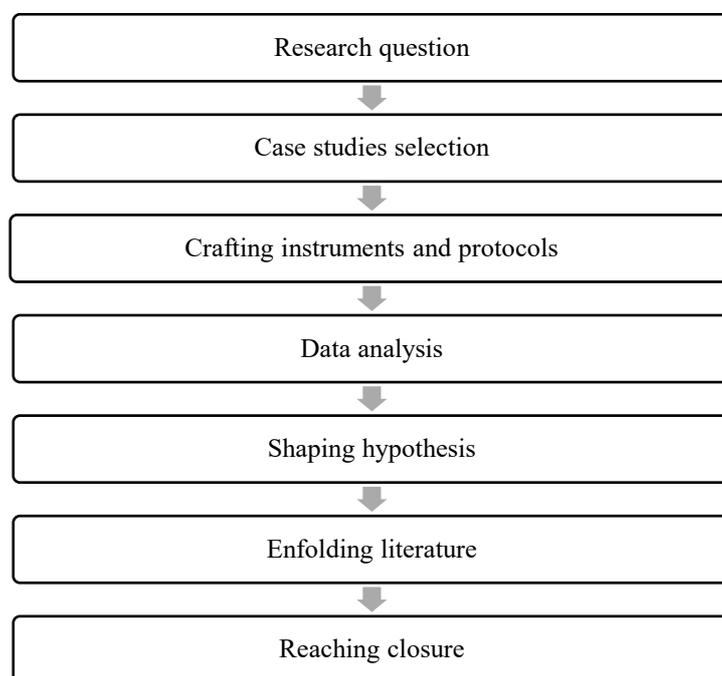


Figure 4. Main steps of the methodological procedure. Adapted from Eisenhardt (1989).

3.2.1 Research question and case study selection

The definition of the research question lies at the root of a research activity and is not discussed in this section. To address the research questions, the present research relies on empirical evidence from six case studies of participatory urban design and architecture, henceforth referred to as the cities in which they took place: Scarborough, Newbury, Cowes, Vellore, Mexicali, and Eishin. Of the six, the first three projects involved the use of charrettes as settings to interact with citizens; the others were carried out according to the principles of the pattern language theory (Table 6).

Table 6. Outline of the six projects of participatory design used as case studies. The asterisk () in the “year” column indicates that the project was still ongoing at the time this manuscript was completed.*

Family (based on design method)	Name of the case study	Design task	Town, country	Year(s)
Charrette	Scarborough	Development of a spatial concept for the main commercial street of the town	Scarborough, UK	2016
	Newbury	Development of a masterplan to regenerate the area between the train station and the town centre using mixed-use building typologies	Newbury, UK	2013*
	Cowes	Development of a masterplan to regenerate the waterfront of the town, along with a strip of mixed-use buildings and public space.	Cowes, UK	2012*
Pattern Language	Vellore	Site layout of a housing cluster with 30 small houses for low-income families	Vellore, Tamil Nadu State, India	1991 - 1993
	Mexicali	Site layout and design and construction of 5 houses for lower-middle class families	Mexicali, Mexico	1975-1976
	Eishin	Site layout and design of a campus for higher education	Nihongi, Iruma, Saitama Prefecture, Tokyo (Japan)	1981-1985

All projects were carried out following the principle that the product of design, e.g. a masterplan, the layout of a cluster of housing, or a university campus, had to be influenced by citizens. In principle, a design team can achieve this goal using many design methods. However, this research focuses on two, e.g. charrettes and pattern languages. Both methods are based on public workshops and face-to-face communication. However, while charrettes are mainstream, well-established, and successful methods to organise participatory design in architecture and urban design, pattern languages are less used in practice. In other words, the research questions were addressed by an investigation on two families of projects that aim to achieve a similar goal, e.g. participatory design, via different paths. The three charrette projects were managed by a British office of architecture, and urban design specialised in participatory design. The three pattern language projects were developed by the Center for Environmental Structure (CES), an independent organization comprised of architects and professors working at the University of California Berkeley, where the pattern language theory was developed. Besides the common goal of instantiating participatory design, however, case studies are highly diverse. In fact, the project of a Japanese campus in the 1990s has little in common with the design of low-cost housing in India in 1993. Both examples are different from the regeneration of an English commercial street, or from the transformation of a town square executed in 2014. The

multiple variables that characterise the pool of case studies (Table 6) calls for some words of explanations about the criteria of selection, and how such criteria ensure a certain degree of comparability among the case studies. First, the investigation is centred on the process of design, i.e. in how experts and laymen coordinate their interaction to make sense of the situation and devise strategies for interventions. Although socio-cultural factors may play a role in how this phenomenon unfolds, the similarity of the six case studies lies in the attributes of the process.

Case studies have been selected in accordance with the following four process attributes: (1) low complexity, (2) high degree of public involvement, (3) flexible space of negotiation, (4) and low degree of conflict.

1) *Low complexity* means that the design task must not be daunting for citizens uneducated to planning. In fact, all case studies involve small-scale urban transformation or the design of houses. Additionally, to cater to the notion of local knowledge, all projects are related to the everyday experience of citizens, e.g. living and inhabiting (Vellore, Mexicali), shopping and using the public realm (Cowes, Scarborough, and Newbury), studying and being together with other students (Eishin).

2) *High degree of public involvement* means that the process of design must be carried out through a joint effort between citizens and architects. In other words, citizens should have played an active role in the definition of the elements of a project, e.g. site layout, size and position of buildings, and building details.

3) *Flexible space of negotiation* presupposes a proper balance in decision-making between freedom and restrictions. Although each of the six projects is characterised by some initially fixed boundaries, e.g. a program, spatial constraints, or a limited budget, each design process was open to influences following citizens' inputs. In other words, each project had a space of uncertainty, which was shaped by the process of deliberation.

4) *Low degree of conflict* reflects a situation whereby citizens do not have significant animosity towards the overarching goals project. In his search for suitable charrette case studies, the author stumbled upon several projects that did not meet this criterion. A general review of their planning reports revealed that the majority of citizens attending public workshops adopted an attitude of protest, that would subside instances of local knowledge. Because the latter is one of the central element of this enquiry, its occurrence seems to be related to the low degree of conflict inherent to a

project. Under these circumstances, it is argued that citizens would be more willing to share their knowledge and cooperate in the planning endeavour.

The four criteria mentioned above ensure that the six case studies are substantially comparable for what concerns the nature of expert-lay interaction, despite their multiple differences, e.g. programme, cultural setting, and design method adopted. The juxtaposition of charrette and pattern language projects is meant to elicit, on the one hand, insight specific to each family of techniques; on the other hand, the development of overarching theoretical inferences. A final criterion for case study selection was data availability. A project that met all four of the criteria listed above also needed to be well-documented to provide data and evidence to support a research activity. In this work, a project was considered “well-documented” when multiple data sources (1) existed for each project, (2) were accessible to the author at the time of analysis, and (3) included sufficient information to reconstruct the design process of a given case study.

3.2.2 Crafting instruments and protocols

This research relied on multiple data collection methods, e.g. first-hand observations, content analysis of relevant documents, and interviews with experts involved in participatory design processes. This approach is known as “triangulation” because it enables relevant aspects of the research problem to emerge from different angles (Flick, 2004; Golafshani, 2003; Krefting, 1991). Triangulation of diverse data sources serves to corroborate emerging theoretical inferences via convergent evidence (Eisenhardt, 1989). In general, the adoption of multiple data sources add redundancy, which is confident to control the internal validity of the evidence generated, i.e. to control and minimise the effects of biases (Baxter & Jack, 2008; Yin, 1984).

Table 7 provides an overview of primary and secondary data sources used for each case study.

Table 7. Summary of the primary and secondary data sources used for each case study.

Family (based on design method)	Case study	Primary sources		Secondary sources
		Documents	Interviews	
Charrettes	Scarborough	Author's field notes (observation)		Council Business Plan "A 21 st Century Marketplace" (2015); Report back presentation slides (February 2016); Post-it transcripts from the CPW; Maps, rendering, lists of synthesis and other material produced throughout the design process; Press releases (January 7, 12, 15 2016, and article with no date titled: "What does Scarborough want from its new market?").
	Newbury	/	Semi-structured interviews with Arch. L. [#1] and Arch. C. [#2]	Post-it transcripts from the CPW; Maps, rendering, lists of synthesis and other material produced throughout the design process; Statement of Community Involvement (Newbury SCI 2016); Design and Access Statement (Newbury DAS 2016); Report back presentation slides (July 2015); Report back broadsheet (Newbury RB 2015); Posters exhibited during Community Forums; Press releases (April 8, 2013, October 2, 2015, and November 25, 2016)
	Cowes	/		Maps, rendering, lists of synthesis and other material produced throughout the design process; Statement of Community Involvement (Cowes SCI 2016); Planning Statement (2016); Report back broadsheet (Cowes RB 2016); Design and Access Statement (Cowes DAS 2016)
Pattern Language	Vellore	/	Semi-structured interview with Arch. D. [#3]	Davis, Week, and Moses (1993); Document of patterns produced in the aftermath of the ethnographic research.
	Mexicali	/	Semi-structured interview with Arch. D. [#4]	Maps, sketches, lists of synthesis and other material produced throughout the design process; Journal articles and books: <ul style="list-style-type: none"> • Ruesjas (1997); • Fromm and Bosselmann (1984); • Alexander <i>et al.</i> (1985).
	Eishin	/	Semi-structured interview with Arch. N. [#5]	Maps, sketches, lists of synthesis and other material produced throughout the design process; Book: Alexander <i>et al.</i> (2012).

3.2.2.1 Primary data sources

As the table reveals, the author had a first-hand experience with the Scarborough project. Aside from Scarborough, however, the author was invited by the same architectural office to assist and observe a charrette workshop in a town near Hamburg in Germany. Additionally, he coordinated a small-scale experimental charrette workshop in a town near Bonn in Germany. On both circumstances, the author witnessed some background social and procedural dynamics that would not be reported in official documents, e.g. preparations of the workshop and time management strategies. In general, even informal conversations with the Scarborough and Hamburg design teams were helpful to understand some implicit rules of their design methods. The Hamburg and Bonn projects could not be integrated into this work due to their lack of data. Hence, the observational data collected from them was not directly used to build up evidence and theoretical inferences. Instead, these observations were used as a background reference during data analysis. Additionally, data was collected from a campaign of semi-structured interviews involving four designers partaking all case studies. The designers shared their experience with participatory design, making specific references to the case studies under investigation. This information helped the author complemented data from documentary sources.

3.2.2.2 Secondary data sources

Besides Scarborough, the other five case studies involve design processes that took place before this research had started. Their investigation relied on secondary data sources, e.g. technical drawings, official reports, documents, minutes, scholarly and press articles, and books. For example, the more recent charrette projects of Scarborough, Newbury, and Cowes, are well-documented through technical drawings, sketches, workshop minutes, transcripts of citizens' inputs, official planning application documents, and press articles. Similar documents are not available for the less recent pattern language projects, e.g. Vellore, Mexicali, and Eishin. Data about them was obtained from books, research articles, and sketches. For example, accounts of the experiences at Vellore can be found in three articles. The Mexicali project has been reported in the book *The Production of Houses* (Alexander et al., 1985), and retrospectively investigated by Ruesjas (1997) and Fromm and Bosselmann (1984). The Eishin project is the subject of Battles (Alexander et al., 2012). The documentary material, as well as the four interviews, have been digitized and collected in a central database using the software MaxQDA 12.

3.2.3 Data analysis

Following the principles of triangulation, primary and secondary data sources were inspected according to a standard analytical framework. Such framework is meant to link the research questions and the emerging theory. In particular, the framework supports the analysis of multiple data sources in light of the research question, while providing the bedrock for the inception of a theory. The presence of a clear analytical framework is also meant to improve the reliability of the study, i.e. to permit the replication of the experiment (Baxter & Jack, 2008; Eisenhardt, 1989; Yin, 1984).

3.2.3.1 The analytical framework

The analytical framework consists of two parts: a conceptual diagram and a system of matrices. The conceptual diagram represents the key components that construct and influence lay-expert communication, as hypothesised by the author in Paragraph 1.1.2 (Figure 5).

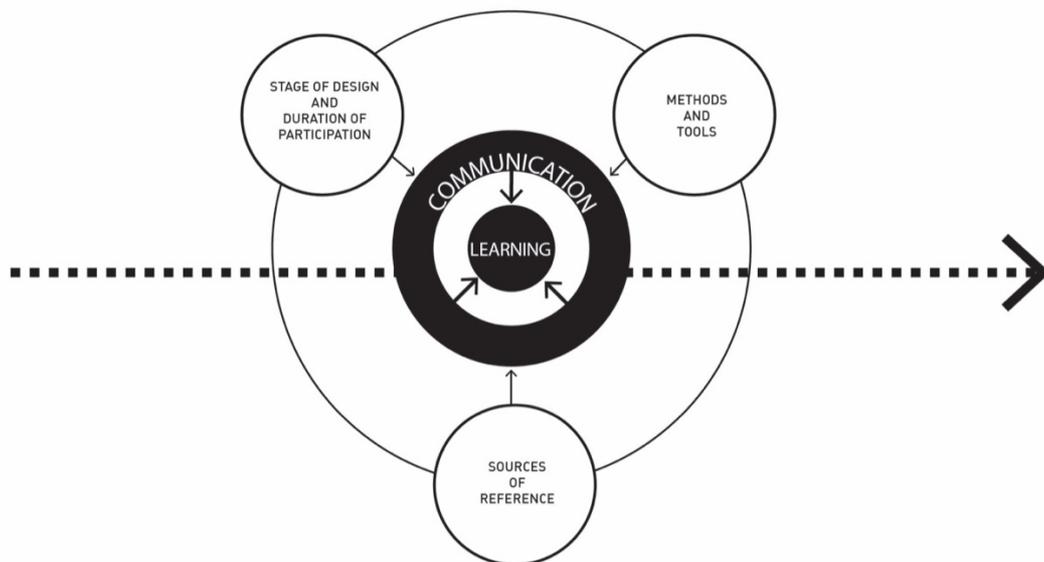


Figure 5. The conceptual diagram used as a framework to analyse the six case studies.

The system of matrices is a set of three tables comprised of salient questions that plunge into the key components represented in the diagram (Table 8, Table 9, and Table 10). The conceptual diagram and the matrices are complementary. Indeed, the latter attempts to make explicit the underlying dynamics that are simplistically outlined by the former. From another standpoint, the diagram provides a tentative theoretical framework that must be validated and supported by the evidence collected from each relevant case study organised into each matrix. This dual structure aims at guiding the investigation of the case studies in line with the research questions, and to give a bedrock to

organise relevant evidence to support the process of theory building. Eisenhardt (1989) breaks down this process of investigation, or theory building, into two-steps, named “within-case analysis” and “cross-case analysis”. The adoption of a two-step analytical process explains the adoption of three matrices.

3.2.3.2 Within-case analysis

The first step of a multi-case study research is referred to as “within case analysis”. During this analytical phase, a researcher attempts to understand each case study with respect to its specific pattern, e.g. the dynamics in place within an individual instance of participatory design. For example: how did collaboration unfold at Vellore? Why and how were citizens engaged in participation? What about Scarborough? Which documents were produced in the aftermath of the Newbury charrette? This step is supported by two matrices mirroring the elements of the conceptual diagram (Table 8 and Table 9). The general question underlying both matrices is:

“In which way does [column element] influence [row element] in the [case study] project?”

Table 8. “Matrix A” is used to perform within-case analysis. The matrix is a framework to highlight the relationships among the three elements of the conceptual diagram.

	Stage and duration of participation	Tools and methods	Sources of reference
Stage and duration of participation			
Tools and methods			
Sources of reference			

Table 9. “Matrix B” is used to perform within-case analysis. The matrix is a framework to explore the relationships between the three elements of the conceptual diagram and the problem of lay-expert interaction, e.g. communication and learning.

	Communication	Learning / Design development
Stage and duration of participation		
Tools and methods		
Sources of reference		

Matrix A (Table 8) serves to highlight the relationships among the three elements of the conceptual diagram, e.g. stage and duration of participation, tools and methods, and sources of reference. For example, the matrix records whether specific sources of references emerged during later stages of design, or whether the adoption of public workshops was related to the duration of a project. In theory,

the existence of a system of relationships among these three elements is not necessary for all case studies. Matrix B (Table 9) enquires about the mechanisms linking the three elements of the conceptual diagram to the issues of communication and learning, i.e. the central aspects of this investigation. The scope of both matrices is to elicit salient information that is corroborated by evidence from primary and secondary data sources, e.g. the transcript of an interview, an official document, technical drawings, etc. Likewise, the matrices provide a common framework to organise information from a variety of sources. This information is then interpreted, synthesised, and organised in theoretical claims. These claims represent general theoretical statements describing various aspects of the research problem. In practice, every case study chapter ends with a list of theoretical claims which are valid for the specific case studies from which they originate.

3.2.3.3 Cross-case analysis

In the second step of the analysis, case studies are compared with one another, with respect to specific attributes relevant to the research question. The goal of this phase is to search for common patterns and validate, corroborate, confute, or expand on theoretical claims emerging from within-case analyses. This step is carried out through matrix C (Table 10).

Table 10. “Matrix C” is used to perform cross-case analysis.

Category	Claim	True for [case study A]	True for [case study B]	True for [case study C]
Stage and duration of participation	<i>Claim 1</i> [from case study A]	Grey	Green	Green
	<i>Claim 2</i> [from case study B]	Green	Grey	Red
	<i>Claim 3</i> [from case study C]	Yellow	Yellow	Grey
	<i>Claim 4</i> [from case study C]	Yellow	Green	Grey
Methods and tools		Grey	Green	Green
		Grey	Yellow	Yellow
		Grey	Green	Green
		Green	Grey	Green
		Green	Green	Green
Referential cognitive objects		Grey	Green	Green
		Green	Green	Green
		Green	Grey	Green
Learning, knowledge generation and design		Grey	Green	Green
		Grey	Green	Green
		Red	Grey	Green
		Red	Grey	Green
		Yellow	Green	Grey

Matrix C (Table 10) provides a framework to collect and cross- compare all theoretical claims generated from multiple case studies. Claims are arranged according to the dimension they pertain to, e.g. “stage and duration of participation”, “methods and tools”, “referential cognitive objects”, and “learning, knowledge generation, and design”. The robustness of each theoretical claim is determined by process of cross-case validation marked by a colour code system. A claim emerged from [case study A] may describe a phenomenon or mechanism that also appear in the design process of [case study B]. When this situation happens, the claim [from case study A] is considered “true” for [case study B] and marked with a green cell. A paramount requisite to attribute truthfulness to a claim is the presence of substantial and converging evidence. When a claim from one case study is not validated by the evidence collected from another case study, the cell is marked in yellow or red. Yellow indicates “lack of supporting evidence”; red indicates “presence of conflicting evidence”. Once the matrix is compiled, it reveals both the truthfulness and the robustness of the theoretical claims within the pool of case studies under investigation.

Building on the tapestry of colours of Matrix C, a set of theoretical inferences can be put forth. These inferences differ from the initial claims insofar as they represent statements that pertain to a higher level of generality. Because of the qualitative nature of the cross-comparison process, each inference is critically discussed in light of the empirical data. As a general rule, the presence of multiple red cells indicates that the claim does not describe a general mechanism. A claim with two green cells, on the other hand, should pin down a general phenomenon. Matrix C serves two purposes. The first purpose is to generate theoretical inferences that are valid for all projects belonging to the same methodological family, i.e. inferences that pertain to lay-expert interaction and the specific methodology. This aim is achieved through the comparison of similar case studies, e.g. cases belonging to the same family (charrettes and pattern language). The second purpose is to generate theoretical inferences that are valid for all projects, i.e. that pertain to the overarching problem of lay-expert interaction, irrespective of the design method adopted. This aim is achieved through the comparison of all case studies.

3.2.4 Shaping hypothesis, enfolding literature, and reaching closure

The final step of data analysis is to build on the theoretical inferences generated by “within-case” and “cross-case” analyses to shape a comprehensive theory that addresses the research questions. Once the novel theory is outlined and discussed, Eisenhardt (1989), recommends to corroborate its validity by investigating the literature in search for similar findings.

PART II
A Narrative of the Six Case Studies

4. A narrative of the six case studies

This section exhibits an account of the six case studies introduced in the previous chapter. Although the focus of this research is lay-expert interaction, this phenomenon needs to be considered within its broader organisational context, e.g. the design method adopted by a team of architects, and the external conditions specific to each project. Aside from public meetings, the design teams involved in all six case studies were engaged in other activities, e.g. site analyses, ethnographic studies, meetings with clients and other stakeholders, and production of relevant maps, sketches, etc. Furthermore, each project was grounded in distinct legal and financial frameworks, which influenced not only the product of design but also the mode of participation itself. Thus, any attempt to study how charrettes and pattern languages affected the interaction between experts and citizens must be wary of the broader context in which they occur (Figure 6).

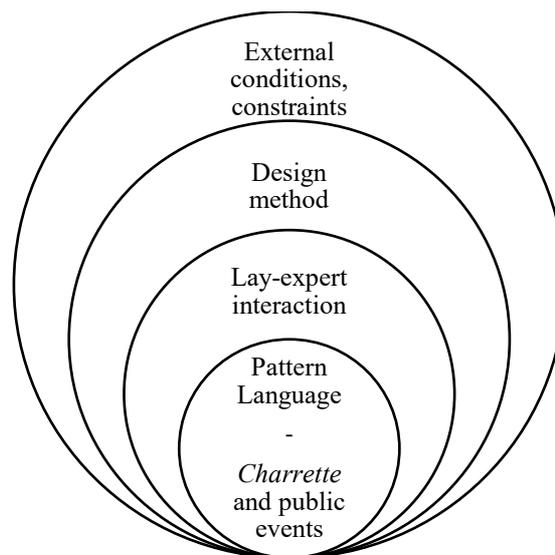


Figure 6. Conceptual representation of the four dimensions of a design process.

4.1 Two modes of interaction: intermittent and seamless participation

Preliminary examination of the six case studies reveals recurring features associated with the adoption of charrettes and Pattern Languages. Projects in which lay-experts interactions are regulated by charrettes are characterised by organised meetings and separation between the various phases of design. At Scarborough, Newbury and Cowes, a kick-off charrette served to introduce citizens about the goals of the project, to collect ideas on socio-spatial problems of the region, and to understand citizens' aspirations. The design was then developed in an architecture office and later presented

during public meetings, where architects had the opportunities to review their work by collecting public feedback. Using a diagram, if the overall process of design is represented as a straight line, “lay-expert interaction” would appear as few distinct segments, separated by larger ones, representing the architects’ work carried out in the office.



Conversely, in the three projects carried out with pattern languages, the division of participation/non-participation is blurred. In fact, local communities were engaged seamlessly throughout the whole design process; in some cases, directly on site. Conversations with citizens did not occur during well-defined workshops. Instead, they were set up according to the evolution of design and its immediate needs. Borrowing the diagram of the straight line mentioned above, the segments indicating activities done in concert with locals would be larger, blurred, and distributed on a wider section of the line.



In the following pages, the first and second modes of participation are referred to as “Intermittent Interaction” (Int-Int), and “Seamless Interaction” (Seam-Int) respectively (Table 11).

Table 11. Two approaches to participatory design: intermittent interaction vs seamless interaction

Charrette-based, Intermittent Interaction (Int-Int)	Pattern-based, Seamless Interaction (Seam-Int)
Takes place in a formal arena (e.g. a public event or workshop)	Takes place on site, outside formal arenas (no public workshop)
Has clear temporal boundaries, i.e. duration of the public workshops	Has fuzzy temporal boundaries, i.e. duration of the process of design
Allows the communication with large groups of citizens (hundreds at a time)	Is limited to small groups of citizens (one-to-one communication to a dozen of individuals)
Yields massive amount of data and information	Yields a few, specific information depending on the stage of design

The consistent manifestation of these two modes of lay-expert interaction is a reflection of, and perhaps the product of, the professional and philosophical stance of the stakeholders involved in the execution of the nine projects examined, e.g. the design teams and the clients. To understand these differences, it is necessary to consider all projects in their geographical, temporal, and legal context, as well as in their scale. All projects carried out through charrettes (e.g. belonging to the Int-Int family) involve urban transformations of large portions of land located in England, a highly regulated Western country with a long planning tradition. These projects demand a change in the local transport

system, and the planning of non-residential functions need to be addressed by several agencies and coordinated by complex financial operations. On the other hand, the pattern language projects (e.g. belonging to the Seam-Int family) are urban interventions of residential settlements and small-scale public spaces. Two of them, e.g. Mexicali and Vellore, took place between in the 1970s in two developing countries, e.g. Mexico, and India. Eishin is an exception, as it involves the project for a new campus in Japan in the 1980s. Regardless, in all cases, the team of architects from the Center of Environmental Structure (CES) was granted extraordinary powers and responsibilities by local planning authorities.

Overall, the charrette-based, Int-Int projects are examples of participatory design integrated to, and complying to, mainstream processes of design, whereas the pattern-language-based, Seam-Int projects are deliberate attempts to test a new radical paradigm of participatory design. Once the two modes of interaction have been outlined, the six case studies are presented following a process-oriented narrative.

4.2 The *charrette* approach: anatomy of participatory design at Scarborough, Newbury, and Cowes

The design process in place at Scarborough, Newbury, and Cowes can be represented as in Figure 7.

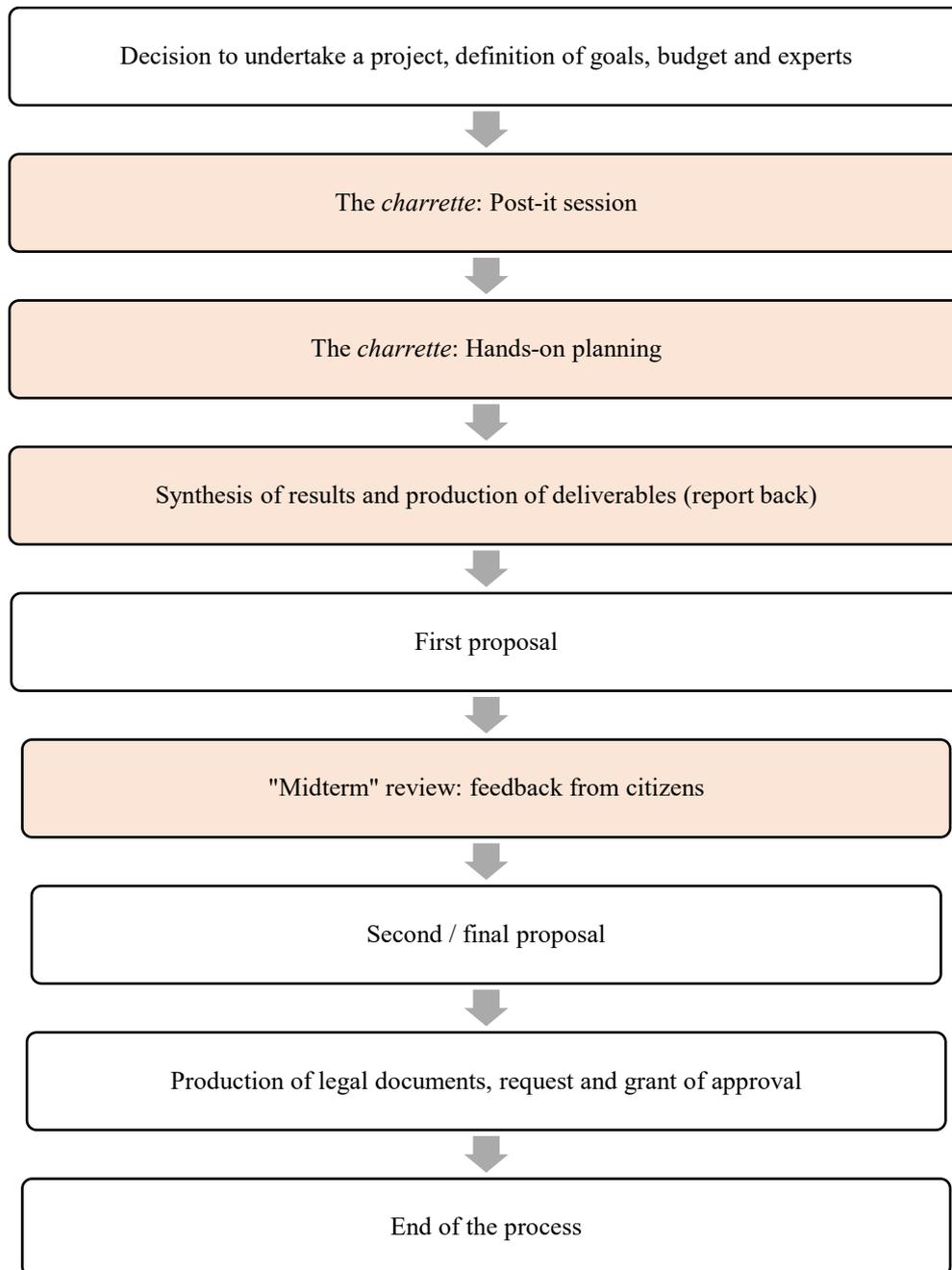


Figure 7. Stages of design as in the model of Charrette-based Intermittent Interaction. In red phases conducted with the interaction with citizens.

4.3 Scarborough

4.3.1 Decision to undertake a project, definition of goals, budget and experts

Scarborough is a coastal town located near York, in the northern part of England. In the past decades, the town has been a prime tourist location in Britain. In recent times, however, the tourist sector has been declining due to global competition. In response to this, the Scarborough Borough Council laid out a strategic plan to diversify the local economy (Council Business Plan “A 21st Century Marketplace” 2015). New housing, a University campus, and a Business Park are expected to transform the urban and social structure of Scarborough. In 2015 the Coastal Community Fund granted 2.7m Pounds to the Council for the project "A 21st Century Marketplace". The goal of the project was the renovation of the Market Hall and its outdated infrastructure (Figure 8). A new mezzanine would increase the commercial area to accommodate more stalls, while an efficient heating system would increase thermal comfort during the winter. The renovation of the internal building, together with other strategic initiatives⁶, would transform the Market Hall into a vibrant hub of local trade.



Figure 8. External view of the Market Hall at Scarborough (UK). Photo of Aurelio David (December 15, 2015)

The Scarborough Market Hall is located between Westborough and Eastborough, two parts of the main street of the town. Unlike the former, a thriving retail street, the latter suffered from physical decay and abandonment. To address the urban issues of Eastborough, in 2015 the local council

⁶ For example, the Business Plan mentions the development of services to support local business, e.g. a “virtual market” online platform, bespoke business advice, and educational and training programmes (Council Business Plan “A 21st Century Marketplace” 2015:1).

launched “Rethinking Eastborough”, a project aiming at improving the public realm surroundings the Market Hall through public participation. In particular, the explicit goals of the project were:

- to reshape the physical area of Eastborough;
- to improve connectivity with other parts of the town;
- to bolster commercial and non-commercial activities of Eastborough;
- to achieve these goals through an inclusive process of citizen participation.

In this framework, the Council appointed JTP to develop a collaborative vision masterplan for Eastborough. The masterplan would have to be built on input from the local community and serve as a roadmap to develop further plans and policies. JTP is a London-based architecture office with long experience of participatory design and masterplanning. At Scarborough, JTP engaged the local community through a "Community Planning Weekend" (CPW), i.e. a two-day *charrette* workshop where citizens and experts discussed the urban problems of Eastborough and came up with a shared action plan. The CPW event took place between Friday 15 and Sunday 17 January 2015. On Friday morning, the team of experts arrived in Scarborough. After a visit to the town centre, the designers arranged the space in the Market Hall to run the public *charrette*.

The *charrette* comprised of two types of workshop. First, a “Post-it session” allowed citizens to discuss the problems of and ideas for Eastborough. Then, a “Hands-on Planning” (Hands-on Planning) session enabled citizens to explore design ideas, sketching them on blank maps. During these workshops, citizens and designers could discuss about current condition of Eastborough, as well as how to improve its urban quality (Figure 9). Each session lasted for 60-90 minutes. In order to engage as many citizens as possible, the *charrette* workshops were repeated twice a day over two days. Overall, about 150 people attended the Scarborough CPW.

4.3.2 The *charrette*: Post-it session



Figure 9. Two pictures from the Community Planning Weekend in Scarborough, UK. Left: the design team read aloud comments written on collects post-its. Citizens listen and discuss. Right: Post-its are sorted into “Problems”, “Dreams” and “Solutions”, according to their content. (Photos: Aurelio David).

In the first part of the *charrette*, citizens used post-its to write down comments about the problems of Eastborough (“problem” round), as well as ideas to improve the urban quality of Eastborough (“solutions” round). Finally, a “dream” round allowed citizens to imagine an ideal future Eastborough, one that could exist if the right transformation were to be put in place (Figure 9). Each round (e.g. “problems”, “dreams”, and “solutions”) run for 20-30 minutes in an interactive fashion. Experts would collect post-it notes and read them out loud for everyone to hear and comment. In other words, the content of each post-it provided the basis for a public conversation. Citizens would add their own point of view, agree, or disagree with each emerging point. For example, a man in the audience pointed out that there was no reason for people to walk down Eastborough from Westborough. When an architect from JTP asked him why, the man lamented a lack of interesting shops and that shop fronts were “seedy”. Another member of the audience added that, to her, Eastborough and Westborough were physically and perceptively separated by the St. Nicholas Street. A same remark was put forth by other members of the community. To them, this was the main reason why Eastborough was not as busy as Westborough. During the Post-it session, as soon as a sticky note was collected and discussed, a designer from JTP would pin it on a wall (Figure 9, right). Sticky notes with similar remarks were organized in thematic clusters, e.g. “Maintenance of existing buildings”, “Traffic, accessibility and parking”, “The offer”, etc. Simultaneously, another staff member was in charge of transcribing the content of each note on a text file for later analysis. After two days of workshop, by the end of the CPW, the design team collected 140 comments related to the problems of Scarborough, 98 comments describing solutions, and 62 comments about “dreams” for the future of Eastborough. The comments have been collected and organized in the following bar

chart to emphasise the occurrence of comments per thematic clusters, e.g. “The offer”, “Maintenance of existing buildings”, “Traffic, accessibility, and parking”, etc⁷.

The “Problems”.

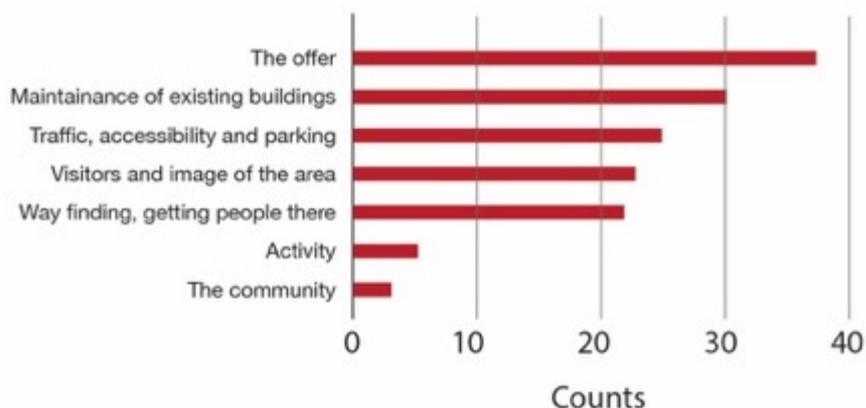


Figure 10. Bar chart illustrating citizens’ comments about the problems of Eastborough divided into topics.

The “Problems” chart is comprised of 140 comments covering 7 topics. The majority of comments points to the scarcity in the offer of shops (25.5%), and to the lack of maintenance of existing buildings (20.6%). As a result of these two factors, the area suffers from a negative image (17%). Traffic congestion and parking problems (15.6%), and lack of street signs (“Way finding / getting people there”, 14.9%) were also high ranked. Overall, the chart highlights a public agreement over a few topics. Indeed, 5 out of 7 topics were mentioned by more than 20 post-its. Conversely, negative remarks about "The Community" of, and the "Activity" in, Scarborough emerged with less frequency. By combining the key issues emerging from the CPW, it is possible to construct an accurate picture of Eastborough. In this case, accuracy can be defined as the similarity of citizens' comments and experts' site observation. Indeed, Eastborough has evolved as a shopping street in the heart of Scarborough and most of the buildings along the street were designed to accommodate shops and restaurants on the ground floor. Yet, because Scarborough is also a touristic town, many shops are open only during the warm season. Others, e.g. charity shops, offer goods or services which are not compelling for locals. As one man in the audience pointed out, locals have little reasons to go to Eastborough. Indeed, when the author visited Scarborough in January, most shops in Eastborough were closed. The "scruffy image" of the built environment might have been caused by the lack of maintenance by the shop owners, who might have not feel compelled to take care of their front shop due to the seasonality. As a consequence of the lack of footfall during the non-tourist season, other

⁷ The bar chart was plotted by the author during case study analysis and was not used by JTP architects to inform the development of the masterplan for Scarborough.

shops were closing down, creating a vicious circle of urban degradation. The “poor image” of the area would negatively affect the footfall. Simultaneously, the lack of footfall would not encourage shop owners to maintain their shop fronts, thus impoverishing the image of the area. To add up to this situation, citizens complained about the inaccessibility of Eastborough. Several comments indicate St. Nicholas Street as a barrier dividing Westborough and Eastborough. Citizens described such fracture in both physical and mental terms:

"End of precinct puts a psychological full stop on many shoppers", "Westborough to Eastborough needs to flow together". (Post-its comments from Scarborough, “Problems”)

On the one hand, some comments confirmed certain observations made by the design team during the morning visit. For example, the poor image of the area was evident to everyone who walked Eastborough. Likewise, experts noticed a trend of touristic shops and casinos clustered in the south of the street. Other comments expanded the total knowledge pool. Such is the case of seasonality. A nonlocal might have misunderstood a temporarily closed shop with an empty premise. Or, as one designer pointed out at an evening briefing, discussing with citizens helped understand the full extent of the disparity between the “posh” Westborough and the “downgraded” Eastborough.

The “Dreams” chart is comprised of 62 comments covering 11 topics (Figure 11). Most comments point to dreams of a lively Eastborough. Liveability emerged by descriptions of interesting shops and cafes, and a social mix of locals and tourists. (“The Offer”, 15 counts):

“Lovely food smells Local people buying their food and their everyday items in local shops (preferably locally produced as well)”, “Noisy, full of happy locals/visitors/traders”, “vibrant and interesting shops”, “It has become an area of unique shops and cafes”, “There are more artisan and tourist shops, and fewer charity shops”. (Post-its comments from Scarborough, “Dreams”).

Some citizens imagined the transformation of Eastborough to follow the architectural heritage of the city. (“Heritage”, 12 counts):

“All rancid corporate-branded shop fronts replaced by signs that emphasize architectural aspects of buildings”, “Capitalise more on the town’s history and buildings and on the Victorian heritage of the town”, “Victorian buildings all restored and painted in non-garish colors”. (Post-its comments from Scarborough, “Dreams”).

Others wished for a “contemporary” pedestrian streetscape; one with a mix of refurbished shopfronts, murals, and artistic installments (“Building and street feel”, 9 counts).

“There’s a constant distraction of architecture, murals, shops and sights, so much to look at”, “Shop fronts have been refurbished”, “There’s a continental feel, with cafes spilling onto the streets and planting”. (Post-its comments from Scarborough, “Dreams”).

Additional comments (five or fewer counts per topic) referred to a better connectivity of the town with public transport, to more green and public spaces, and to an improvement of the community. Parking and local events were mentioned by two people only.

The “Dreams”.

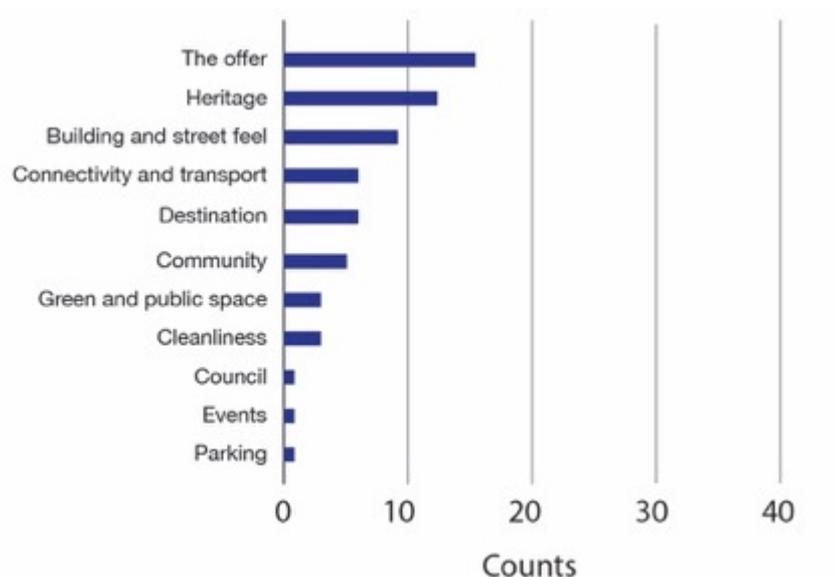


Figure 11. Bar chart illustrating citizens’ dreams for a future, better Eastborough divided into topics.

The “Solutions” chart is comprised of 98 comments covering 15 topics (Figure 12). Two of the top three topics (“Support/Local authority”, 15 counts; and “Regulations”, 12 counts) advocated the use of economic policies and bottom-up initiatives to address the problems of Eastborough. For example, grants to encourage shop owners to refurbish their shopfronts. Also, improvement to the rubbish collection system in order to avoid trash on the street. Overall, more investments were advocated to improve the quality of the area.

“Clean up, brighten up, pep up, fill up shops”, “Rubbish collection earlier and proper bins”, “Grant availability for conforming shop fronts”. (Post-its comments from Scarborough, “Solutions”)

Other citizens suggested the transformation of Eastborough into a well-lit, well-furnished pedestrian street. (“Physical access”, 12 counts).

“No barrier (physical or mental) between Westborough and Eastborough”, “Pedestrianise the area”, “Restricted traffic access (bus/taxis) to enable a shared space concept”, “Serious re-think of roads in town centre. Let pedestrians reclaim streets.”, “Boulevards tree-lined and clean”, “Create Eastborough as a walk of art and sculpture”. (Post-its comments from Scarborough, “Solutions”)

The “Solutions”.

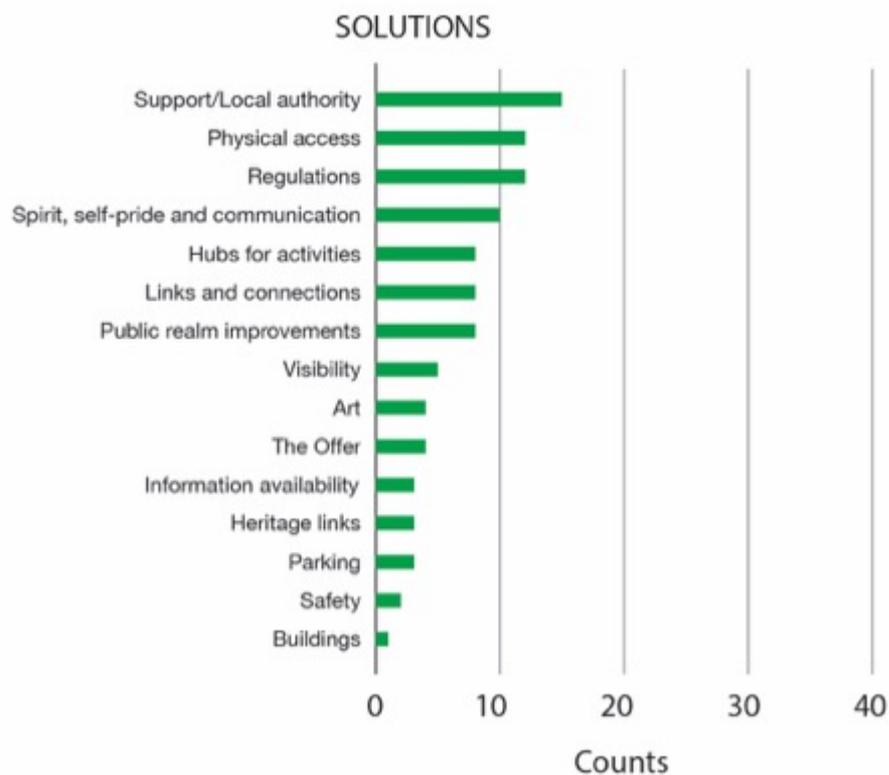


Figure 12. Bar chart illustrating citizens’ solutions for the problems of Eastborough divided into topics

Furthermore, citizens argued that more effort should have been put to promote Scarborough. In this sense, citizens suggested that local leaders rely on marketing and branding strategies. (“Spirit, self-pride and communication”, 10 counts). Similar remarks were put forth to improve the availability of

information about the past and present of Scarborough (4 counts). Other ideas involve the development of connections with the rest of the town ("Links and connections", 8 counts), the improvement of the public realm (8 counts), and the establishment of new activities and events in the city (8 counts). Proposals to improve the parking situation and safety scored low (6 counts).

The key points and ideas discussed during the Post-it session were later developed during Hands-on Planning session.

4.3.3 The *charrette*: Hands-on Planning session

At the end of the 40-minute session, each group presented the main points of their proposals to the audience for further comments. In two days, six plans were produced, which were collected by the team of experts and archived for further analysis and reference:

- “Cohesive community connection”;
- “Gateway to the Sea”;
- “Market 4ces”;
- “Supporting business”;
- “Transport & accessibility”;
- “Welcome to the Old Town”.

4.3.4 The *charrette*: Synthesis of results and production of deliverables

On Saturday evening and Sunday morning, the team of experts reviewed the inputs collected from the workshop and produced the following deliverables:

- a list of “Issues and Actions” (Table 12), with suggestions on policies and physical transformations that would improve the spatial and economic quality of Eastborough;
- a list of “Key Topics”, i.e. a description of the most recurring themes of the workshop;
- a “consensus masterplan”, i.e. a diagram vision for Eastborough (Figure 13 and Figure 14).

Table 12. The “Issues and Actions” list for Eastborough. The list was produced by a team of designers by JTP architects during the Community Planning Weekend at Scarborough.

	Issues	Actions
Heritage	The condition, care and maintenance of heritage buildings in the area needs to be improved – i.e. the Pentecostal Church	Encourage re-development and unattractive buildings but with suitable uses.
	Shopfronts need to be attended to; the heritage grants worked well for some shops but more need to be brought up to scratch	Additional grant funding could help more shop fronts to become an asset to the street
	People don’t know about the interesting history of the area	Joined up thinking, using online resources, tourist information, publicity, marketing and the local businesses and residents can help increase the visibility of the area to visitors and locals too.
	There are events at the Castle and other places, which are not well enough advertised	One off events and permanent trails – such as a heritage trail – will attract visitors and locals all year round
	The traditional aspect of the area has been diluted (fishing tradition, Victorian seaside resort, pre-Victorian eras)	The Eastborough area could be reclaimed as “The Old Town” again showcasing Maritime traditions.
Public Realm Improvements	Lighting is inadequate	Improved lighting, especially in ginnels. Improve the quality and integrate creative lighting solution (accent lighting).
	Shopfronts are described as ‘grubby’ and ‘tatty’	Stimulus to shop owners to improve their building condition.
	Argos building has been singled out as unattractive	Consider introducing new public square.
	Pavements are too narrow	Increased pavements and shared zones considered
	Bin provision is not sufficient	Better bin provision and collections
	There is a visual clutter consisting of mismatching street furniture and inconsistent shop fronts.	Reduced street furniture, introduce unified design. Unsightly items to be removed (toilet, old phone box)
	Accessibility is restricted especially for older/disabled people	Improved surfacing and wayfinding, ramps and railings to be introduced
Parking and connections	Parking is considered insufficient, too expensive and too restricted in time duration	Traffic impact assessment to be completed. Consideration of longer periods and parking location.
	Multi storey car parking is underutilised	Improved signage and awareness of the car park. Bring back into use
	The connection between West and East is inadequate and confusing, creating a mental and physical barrier.	Crossing point is rationalised and Eastborough pedestrianised.
	Coach drop off has changed and considered a big blow for businesses	Introduce alternative drop offs.
	The transport links between hill top and shore are insufficient	Introduce ‘Hands-on Planningper’ buses. Free of charge and moving between station and shore
	Speed of cars passing by is frequently excessive	Subtle effect of traffic calming, consistent with Heritage approach. Changes in level on shared surfaces

Management	Management of the area is perceived as not caring or supporting local businesses. Issues around rubbish collection, funding and problems with seasonal tenants not operating during winter months.	Better links and visibility of Council initiatives. Greater support for businesses through funding routes.
Art	Empty shopfronts considered unattractive	A scheme to use empty shopfronts with local artwork, school presentations. Maybe against a small charge.
	Buildings considered grubby. No visual links and stimuli	Public Art on empty gables. Murals.
	Limited reasons to travel down Eastborough	Built on existing art by introducing more artworks/sculptures down Eastborough which could build on the traditional character of the street. Introduce a comprehensive signage all the way down from station to beach and Foreshore.
Businesses and the Offer	A bigger range and types of shops would attract more visitors	Taxation and rates for local businesses need consideration
	Perception of friendliness and warmth is very important to visitors	There is a desire for more artisan shops
	Clusters of shops of similar types (Charity, Tourist, Amusements)	Encourage niche and craft shops, artisan and café culture which would appeal to locals as well as visitors.
	No big brands or names to attract visitors down the street	Building on the success of the harbour project, a better public environment will attract those names
	Not enough publicity about the area	Use of internet/ social media to publicise area and foster community links between local residents and businesses
	Not enough indoor provision for children	Encourage play areas, children centres to move in old buildings
	Seasonality is seen as an issue, most passing trade is in summer months	Improvements for visitors and locals by diversifying businesses

The Key Themes:

- Support for Eastborough Regeneration
- Putting Eastborough on the map
- Heritage
- Creating a town square
- Traffic and getting around
- Funding and leadership
- Continue community involvement
- Old Town community

The consensus masterplan and “the concept”



Figure 13. Diagram of a “consensus masterplan”. Courtesy of JTP.

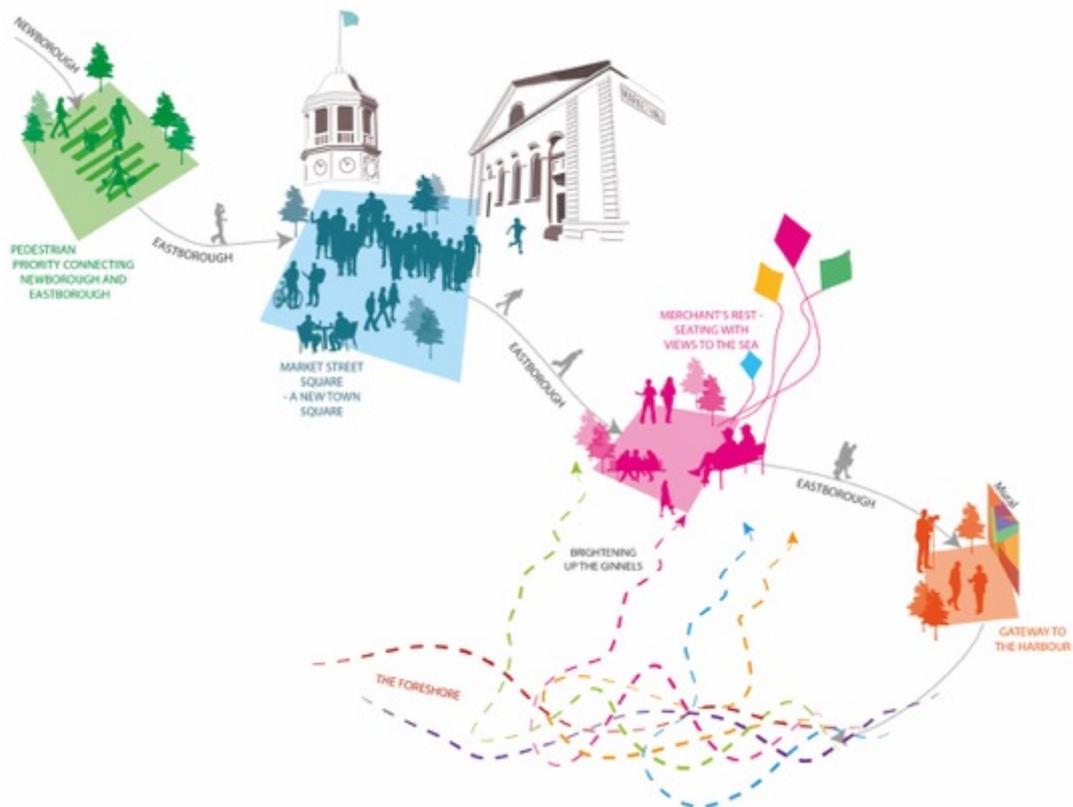


Figure 14. Conceptual sketch for Eastborough: the four “steps” to the sea. Courtesy of JTP.

The consensus masterplan was articulated into two complementary illustrations: a diagram (Figure 13) and a conceptual sketch (Figure 14). Both illustrations describe the key features to regenerate Eastborough. In particular, the masterplan consists of four social spaces along Eastborough. The first space (to the left of the map) consists of a pedestrianized surface across St. Nicholas Street to connect Westborough and Eastborough. The second space is a new square in the heart of Eastborough, adjacent to the Market Hall. The third space is called “Merchant’s rest”. It is located at the junction of three streets, where the built environment opens up to allow a view to the sea. The fourth space, the "Gateway to the harbour", is located at a point where Eastborough bends rightwards, towards the sea. There, street art and murals improve the quality of space and creates a new connection with the coast. Not only does the masterplan highlight the position of the four spaces. It also reveals visual and spatial relationships through arrows and symbols. For example, relevant building corners are highlighted as visual orientation elements. A magnet emphasizes the intent of making the Market Hall the focal point of the intervention.

4.3.5 Lay-expert interaction: knowledge generation and the evolution of design

The investigation on the nature of lay-expert interaction and the production of knowledge at Scarborough is carried out through the system of matrices explained in Chapter 3. The first level of investigation is aimed at revealing interconnections between the three factors influencing lay-expert interaction. In particular:

“In which way does [column element] influence [row element] in the Scarborough project?”

Table 13. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Scarborough project.

		Stage and duration of participation	Tools and methods	Sources of reference
Stage and duration of participation	One public event at the beginning of the process (Community Planning Weekend).	X	Community Planning Weekend: Tools must engage large groups in a short time frame, and avoid dominant citizens to prevaricate acquiescent ones.	Community Planning Weekend: The project site is the main referential object.
Tools and methods	Charrette based on “problems” and “dreams / solutions”	X	X	Problem phase: the project site is a shared referential object. Dream / solution phase: multiple referential objects.
	Sticky notes	X	Sticky notes are the basis for the creation of the “Issues and Actions” list.	Sticky notes provide inputs to ground discussions during workshop.
Sources of reference	“Issues and Actions” list.	X	The “Issues and Actions” list influenced the development of the masterplan and the production of visual material (sketches, maps, wooden model).	Maps, sketches, and diagrams became the reference for discussions about the quality of the project.
	Maps and sketches			
	The project site.	X	X	X
	Others, e.g. idiosyncratic references.	X	X	X

At Scarborough, the need to engage a broad slice of the local community over a weekend required tools that would operate efficiently under such circumstances. Hence, the Community Planning Weekend was organized as a collective brainstorming (e.g. the “Post-it sessions”) followed by a group

work (e.g. the Hands-on Planning sessions). Because the CPW took place at an early stage of design, the only referential object shared by citizens and expert was the project site, i.e. Eastborough.

As a second step of the analysis, the three key elements affecting lay-expert interaction are related to interdisciplinary communication, learning, and design development. The matrix below addressed the following question:

“In which way does [column element] influence [row element] in the Scarborough project?”

Table 14. . “Matrix B”. Table of synthesis of the key factors in place at Scarborough and how they affected lay-expert communication and the development of design.

		Communication	Learning / Design development
Stage and duration of participation	Charrette based on “problems” and “dreams / solutions”	Limited time allocated to discussion required tools to survey large groups in a short time. Mostly one-sided communication (citizens-to-designers).	Engaging citizens at the beginning of the process was an effective strategy to understand the urban problems of Eastborough and address them through the project.
Tools and methods	Sticky notes.	Used to collect and preserve a large amount of fragmented information from hundred citizens.	X
	Maps, sketches, and diagrams.	Grounded ideas and suggestions on space. Used to synthesize large amount of information into relevant shared knowledge. The list was also used as a communication tool among all actors involved in the process.	Loosely consulted during the elaboration of the vision masterplan
Sources of reference	“Issues and Actions” list, “Key Themes”.	Used to synthesize large amount of information into relevant shared knowledge. The list was also used as a communication tool among all actors involved in the process.	Central element for the elaboration of the vision masterplan and partial output of the process.
	The project site.	The project site was a common ground for discussion, resulting in: consensus over a limited number of issues; the emergence of relevant and specific insight about urban problems.	The project site was useful to understand the problems of Eastborough and where to act.
	Others, e.g. idiosyncratic references.	The lack of a shared referential object spawned multiple ideas.	Having too many referential objects made it impossible to integrate many ideas into a coherent design. Ideas were too many, too vaguely formulated, or unimplementable.

4.3.5.1 *The nature of communication and the process of co-learning: how participation influenced design*

Compared to the other case studies presented in this section, the Scarborough project was atypical. First, the process was limited to one public meeting. Second, the goal of the project was the production of a conceptual masterplan with no follow-up leading to a formal masterplan. Third, the only actors involved in the design process were designers, citizens and a representative of the local council. The absence of both a profiting actor (e.g. land developer), and the lack further negotiations to develop a final masterplan may have curtailed the political conflict involved. Overall, the process took place in a semi-ideal situation. Nevertheless, the Scarborough case study provides plenty of material to investigate the processes of lay-expert interaction and knowledge production. At Scarborough, citizens and experts interacted only once, within the controlled setting of a public *charrette*. The *charrette* was aimed at (1) encouraging citizens to participate, and (2) providing an inclusive environment within which each citizen could express their ideas.

Participation was promoted by the open-house format, i.e. everyone was welcome. Equal possibility of expression was ensured by the mechanics of the post-it session. The “Post-it session” format encouraged citizens to express ideas. In fact, post-it comments provided a starting point for a two-way conversation aimed at framing and solving a design problem. It is worth noting that input originated from citizens, not from experts. Furthermore, every stage of the Post-it session (e.g. “problems”, “dreams”, and “solutions”) ran for a similar timeframe, e.g. 20-30 minutes. Within this timeframe, citizens could write down as many comments as they wanted. From my observation, almost everyone wrote at least two or three post-its. Some members of the audience wrote as many as seven. Allowing citizens to write their ideas before discussing them allowed everyone to express their ideas fully and equally. By the end of the post-it session, all comments were collected in a written form and re-examined at a later stages of design. Later on, during Hands-on Planning sessions, experts and citizens based their interaction on maps of Scarborough. In this phase, experts took the lead by producing sketches and diagrams. When I walked around the tables, I noticed that citizens were not as prone as experts to draw, albeit they were eager to express ideas. Ultimately, it is difficult to ascertain which type of material, e.g. post-it note, diagram, personal memory, influenced the proposed masterplan. Certainly, the design process was informed by two days of interaction with the local community, town walks, and expertise. The six Hands-on Planning maps and individual post-its were not used in a strict manner. Rather, post-its were read, interpreted in light of the public event, and finally synthesized in the “Issues and Actions” list. In particular, because the “Issues and Actions” list and the “Key Themes” were written on the basis of the designers’ *critical interpretation* of post-

it comments, plotting them on alluvial diagrams may reveal knowledge generation processes in place at Scarborough.

The alluvial diagrams

Post-it transcripts have been cross-referenced with the tactical points highlighted in the “Issues and Actions” list and with the main attributes of the consensus masterplan. The goal of this analysis is to map which input have been integrated into the design. An alluvial diagram registers this process of integration. The interpretation of the diagram provides insights about knowledge generation and lay-expert communication. First, the analysis concerning the problems of Eastborough (Figure 15).

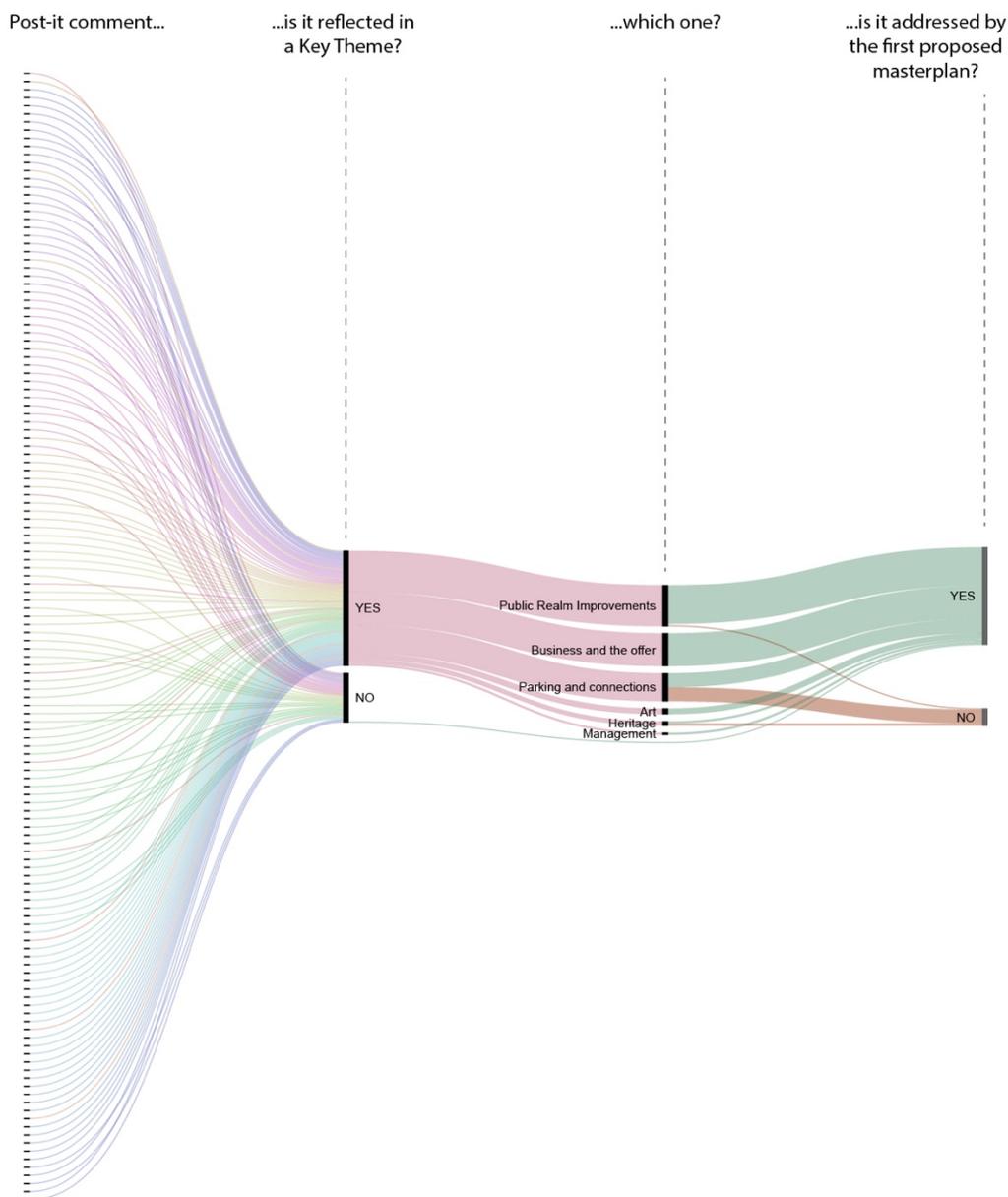


Figure 15. Alluvial diagram describing the influence of citizens comments on the design for Eastborough. The diagram focuses on inputs related to “Problems” at Eastborough.

The ratio of comments that are reflected in one or more Key Themes is 70% (98 post-its out of 140). Among such comments, the majority contributed to formulating three categories of problems, e.g. “Public Realm Improvement” (35 counts), “Business and the Offer” (28 counts), and “Parking and Connections” (24 counts).

Problems related to “Art”, “Heritage”, and “Management” were significantly less mentioned, e.g. 5, 4, and 2 times respectively. The remaining 30% of comments (42 out of 140) were not directly taken into consideration.

I recall that the architects who wrote the “Issues and Actions” list encountered some recurring problems during the process of synthesis. The following is a list of such problems:

- The meaning or intent of the comment was not clear, e.g. “*Connections through the maritime industry*”.
- The comment could not be made into a design guideline, e.g. “*Perception of Scarborough changed*”.
- The comment is too abstract and requires further discussion, e.g. “*Lack of identity*”.
- The comment re-stated the goals of the project, e.g. “*Needs something to attract people down*”.
- The comment was a remonstrance, e.g. “*The council does not listen*”.
- The comment was clear and relevant but exceeded the boundary of the project or the space of solution. For example, comments such as “*Anti social behaviour*”, or “*Sorting out the drunks and alcoholics in summer (they bring down the area)*” could not be addressed without comprehensive social programs.

Overall the design team managed to draft a masterplan to address most of the issues articulated in the “Issues and Actions” list. The alluvial diagram, however, reveals a partial discrepancy within the topic “Parking and Connections”. This category includes three subtopics: (1) the physical connection of Westborough and Eastborough, (2) traffic, and (3) parking. On the one hand, the masterplan and conceptual sketches reveal attempts to link East and West. On the other hand, issues of traffic and parking belong to a higher degree of complexity and need further technical assessments. The line connecting “NO” to “YES” refers to the comment: “We need more open space, maybe more than one square”. Experts did not frame the problem of public space in the “Issues and Action” list. Yet they addressed the problem by including a square and two public spaces in the masterplan (Figure 16).

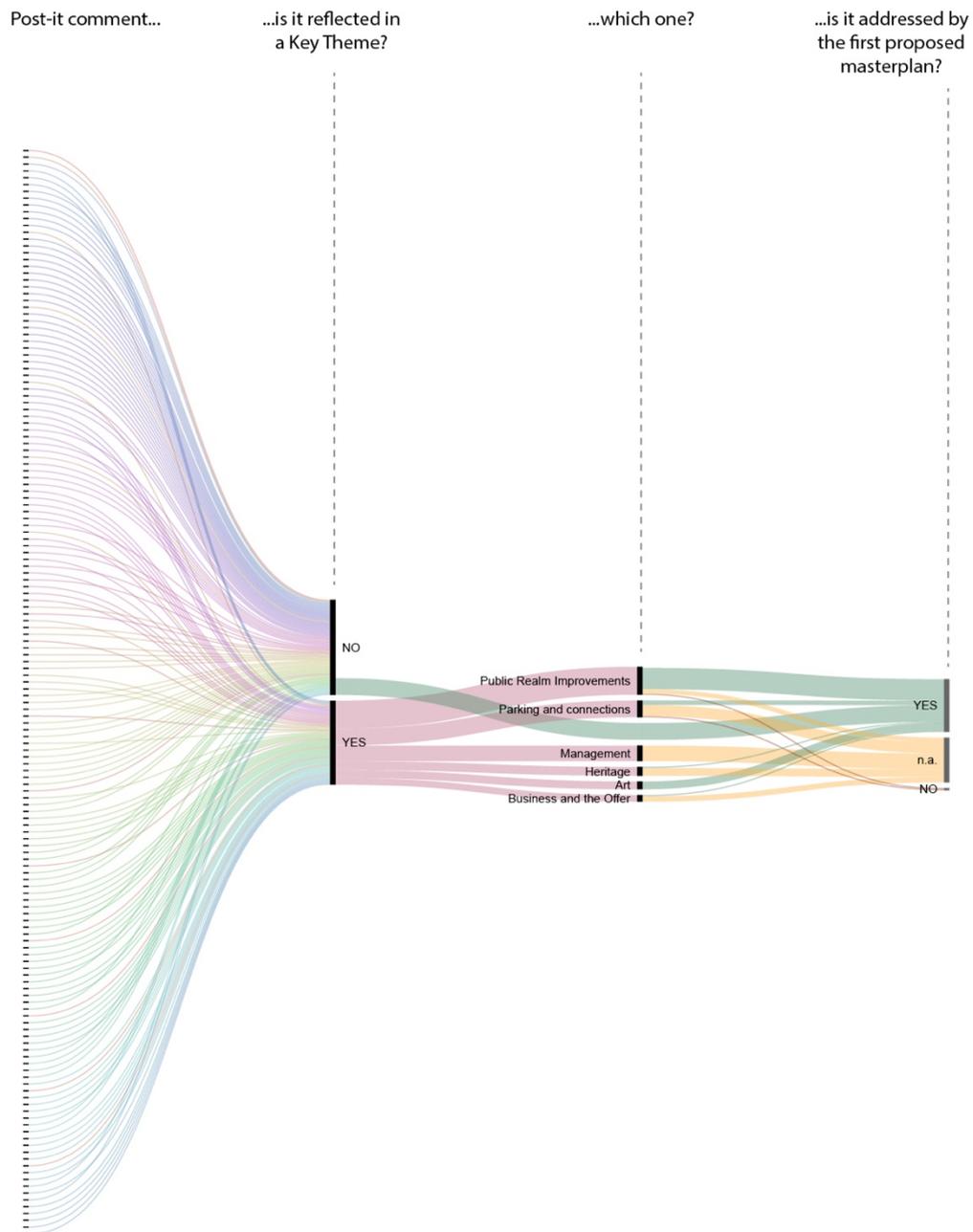


Figure 16. Alluvial diagram describing the influence of citizens comments on the design for Eastborough. The diagram focuses on inputs related to “Dreams” and “Solution” for Eastborough.

The ratio of comments reflected in one or more categories of the “Issues and Actions” list is 47% (74 post-its out of 159). Among such comments, the majority contributed to the following points: “Public Realm Improvement” (25 counts), “Parking and Connections” (15 counts), and “Management” (14 counts). Ideas about “Heritage”, “Business and the Offer”, and “Art” account for 8, 6, and 7 post-its respectively. The remaining 53% of post-its do not appear in the “Issues and Actions” list (e.g. 85 out of 159 comments).

To understand the fraction of rejected comments, a distinction has to be made between “Dreams” and “Solutions”. On average, post-its about “dreams” include poetic descriptions of the future of Eastborough. For example: *“It’s still the traditional seaside, and more beautiful than ever”*

or *“The Old Town is a place I wanted to explore”*. Some dreams include multiple attributes, e.g. *“Flower baskets and an ambience like the Shambles. Tourists and locals are flocking there now for quirky shops”*. By contrast, most of the comments describing solutions are short and specific, e.g. *“Pedestrianise Eastborough possibly just during the day”*, *“Better lighting will bring people down lower end of town”*. The majority of discarded inputs accounted for abstract “dreams”, or vague “solutions”, e.g. *“Community engagement program. Give people a sense of belonging”*.

Certain comments could not be integrated because they referred to cultural and societal topics (e.g. *“Leadership. Someone to set the vision”*, *“Re-introduce the spirit of the Renaissance”*). Others were not deemed appropriate for the project (e.g. *“Boulevards tree-lined and clean”*, *“Bunting all year round”*). A large number of inputs concerning “Public Realm Improvements”, and “Art” were addressed by the masterplan. Most ideas are commonplace solutions to previously highlighted problems (e.g. *“Better lighting will bring people down lower end of town”*). Solutions to problems of parking, traffic, and management are addressed as general recommendation in the "Issues and Actions" list. Indeed, the implementation of such solutions requires prior technical and financial analysis.

The line connecting “NO” to “YES” refers to those “dreams” that, although intricate, inspired the development of the masterplan, e.g. *“Local people buying their food and other everyday items in local shops (preferably locally produced as well”*, or *“It has become an area of unique shops and cafes”*.

4.3.6 Partial findings from the Scarborough case study

In light of what has been discussed throughout the Scarborough chapter, the following arguments emerge:

About the stage and duration of participation

- To obtain reliable and robust information by engaging citizens for a short period of time requires multiple iterations of a *charrette*.

About the methods and tools adopted during the process of participation

- Multiple rounds of brainstorming with different groups of citizens produce consensus over a limited number of problems.

- Multiple rounds of brainstorming with different groups of citizens result in a large number of diverging solutions and visions for the future.
- In order to bring citizens' inputs into design, it is necessary to rely on documents of synthesis. Such documents, and in particular lists, tables, and diagrams, organize otherwise chaotic information into a legible structure.

About the referential cognitive objects

- During problem-setting phases of design, the project site acts as a shared referential object upon which citizens bound their knowledge claims.
- During problem-solving phases of design, in the absence of a nascent design to guide their thoughts, citizens express idiosyncratic suggestions.
- As a design process progress, citizens rely on the documents illustrating an emerging design to guide their thoughts and feedback.

About learning, knowledge generation, and design

- Non-experts produce more “relevant” insight when they discuss problems, rather than design solutions. Relevance is measured by the degree to which inputs are realistically to integrate in a design.
- Expertise determined the relevance of local inputs. Experts acted as gatekeepers of applied knowledge.
- The iteration of participatory workshops improves the quality and reliability of information generated by the public.
- Verbal communication between experts and citizens may produce abstract, unviable suggestions. Working together to produce maps and sketches help overcome this problem.

4.4 Newbury

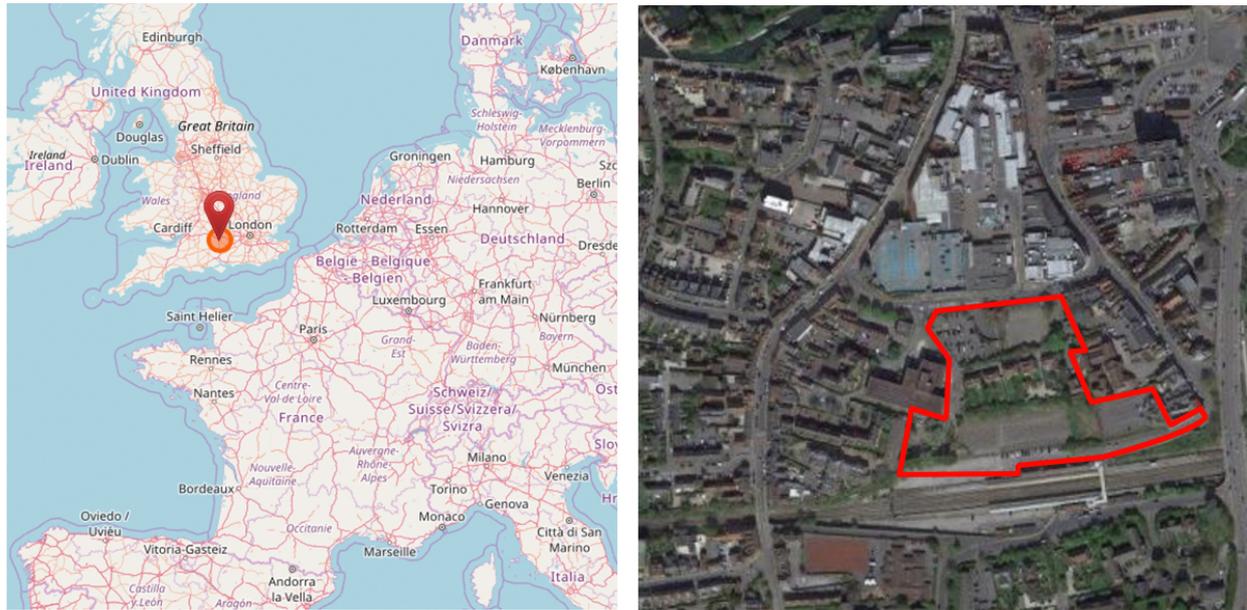


Figure 17. Location of the project site in Newbury. Source: Open Street Map (left) and Google Maps (right). Accessed 12 November 2017.

4.4.1 Decision to undertake a project, definition of goals, budget and experts

Newbury is a town located in the southern part of England (Figure 17). Its Market Street site was an under-utilized area adjacent to the railway station and the historic neighbourhood of Newbury in England. Before the project, the area was used mainly as a bus station and car parking space. In 2005 the Berkshire Council released a Planning and Design Brief, a document that outlined the vision for an Urban Village to be developed between the train station and Market Street. The project had to (1) contribute to the integration of the railway station with the town, (2) be an interchange for different modes of transportation, (3) assist the vitality of the town as a whole, and (4) regenerate the fragmented townscape by providing a gateway to Newbury (Newbury DAS 2016).

In March 2013, one of the UK's largest property developers obtained consent to redevelop the 5.5-acre site and appointed JTP as the architectural partner. After about two years of feasibility studies and viability testing, in 2015 the development phase started. Background research was carried out by the Design Team to understand the context, i.e. the physical, social and economic characteristics of the site, as well as the relevant planning policy. This research resulted in the production of several maps of synthesis (constraints and opportunities), sketches (e.g. townscape analysis, Figure 2), and in the definition of nine design principles that construct the so-called "Newburyness": (1) Diversity and Consistency; (2) Horizontality and Verticality, (3) Materials, (4) Windows; (5) Modelling; (6) Roofline; (7) Heights; (8) Delight; (9) Rule Breakers (Figure 18).

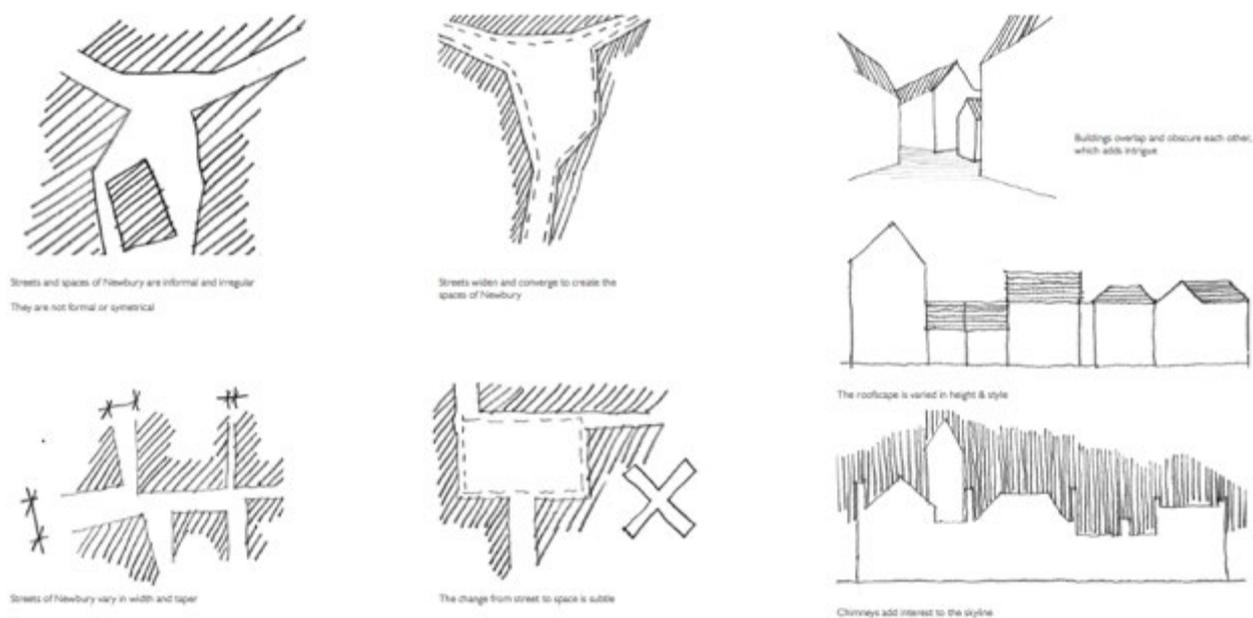


Figure 18. Newbury townscape analysis. Courtesy of JTP Architects. Adapted from Design and Access Statement (Newbury DAS 2015)

Between July and October 2015, a team of architects led by JTP designed a proposal for the site. Two public events were organised to engage the local community: a Community Planning Weekend workshop in July (3 days) and a Community Forum in September (1 day).

4.4.2 The charrette: Post-it session

According to the Statement of Community Involvement (Newbury SCI 2016), on Friday 10 and Sunday 11 July 2015, around 200 people took part in workshop activities during the Community Planning Weekend. The Statement of Community Involvement includes transcripts of all post-its collected, as they were written by the local community of Newbury over the “Problem”, “Dream” and “Solution” phases of the post-it session. Overall, the team of architects harvested 97 comments about the problems of Newbury, 100 comments about people’s dreams or visions for the town, and 42 suggestions to solve its problems. Although no two post-its are alike, it is possible to divide them into broad categories, covering the main topics of the conversation, as the following charts illustrate (Figure 19, Figure 20, and Figure 21). The three bar charts below were plotted by the author from the post-it transcripts from Newbury. They were not part of JTP’s material during the Newbury design process.

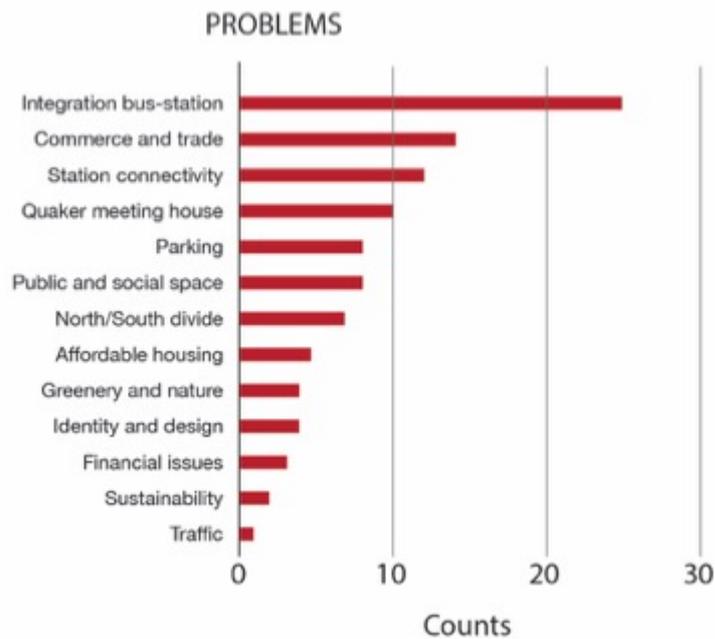


Figure 19. Bar chart illustrating the number of citizens' comments about the problems of Newbury Market Street, divided into major topics. Adapted from the Statement of Community Involvement (Newbury SCI 2016) and the transcripts from the "Problem" phase of two post-it session at Newbury (10-11 July 2015).

The top criticism was the poor connectivity of the train station with the surrounding area. Indeed, over twenty independent comments referred to the physical and functional separation of train and bus stations, e.g. "Bus station should be close to the train station", and "[Lack of] Buses outside the station."; while twelve comments described a situation of limited connectivity between the train station and the public realm, e.g. "Access between town and rail station". Overall, citizens highlight the dysfunctionality of the public transport system, e.g. "Newbury, the first town in the world to destroy public transport" which needed to be addressed by a new masterplan. The second topic of concern for citizens was the parking situation (8 counts), although consensus on the matter was feeble. Some citizens thought there was too little parking available in the area, e.g. "Congestion and parking", while others claimed that, not only too much space was allocated to parking, but also that its abundance was ruining the area, e.g. "Too many car parking areas which ruin the area". One citizen suggested building an underground parking, e.g. "Consider underground parking", while another manifested their opposition to multi-storey car parking, describing them as being an "eyesore". A third key issue brought to the fore by multiple comments was the Quaker's House (10 counts), which represented a prominent place for the community of Newbury, and therefore needed to be preserved.

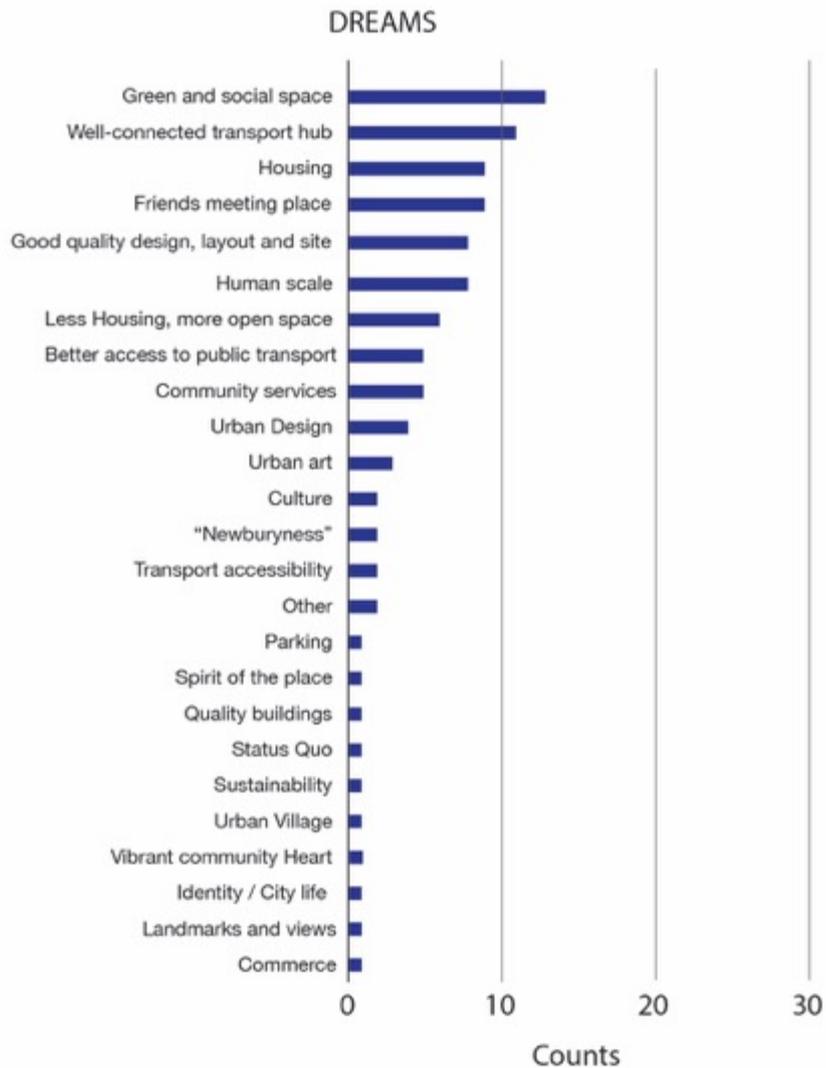


Figure 20. Bar chart illustrating the number of citizens' comments about a future vision for Newbury Market Street, divided into major topics. Adapted from the Statement of Community Involvement (2015) and the transcripts from the "Dreams" phase of two post-it session at Newbury (10-11 July 2015).

Most of the “dreams” comments collected from the local community describe the ideal Market Street as a green, human-scale hub with a well-functioning, integrated public transport system. Indeed, the most recurring topics are “Green and Social Space” (13 counts) and “Well-connected transport hub” (11 counts). These ideas are consistent with the top recurring problems emerged from the prior Post-it session. Another recurring theme is the relationship between the community and public space: five post-its advocate for community facilities for vulnerable people; while nine envision that the Quaker’s House be the heart of the community for everyone. Eight post-its mention "human-scale" as a general principle that architects should abide to when designing public space, e.g. “Human scale, ease to and from (e.g. foot, car, bike, bus) and greenery”, and the built environment, e.g. “Avoid large blocks of buildings”, and “Have two-level houses maximum”. A few comments mentioned urban art

and culture, while the remaining post-its are idiosyncratic and hard to group (see the bottom 11 categories in the “Dreams” chart, Figure 4). Their content touches on a variety of different topics, e.g. identity, the quality of an urban village, and sustainability.

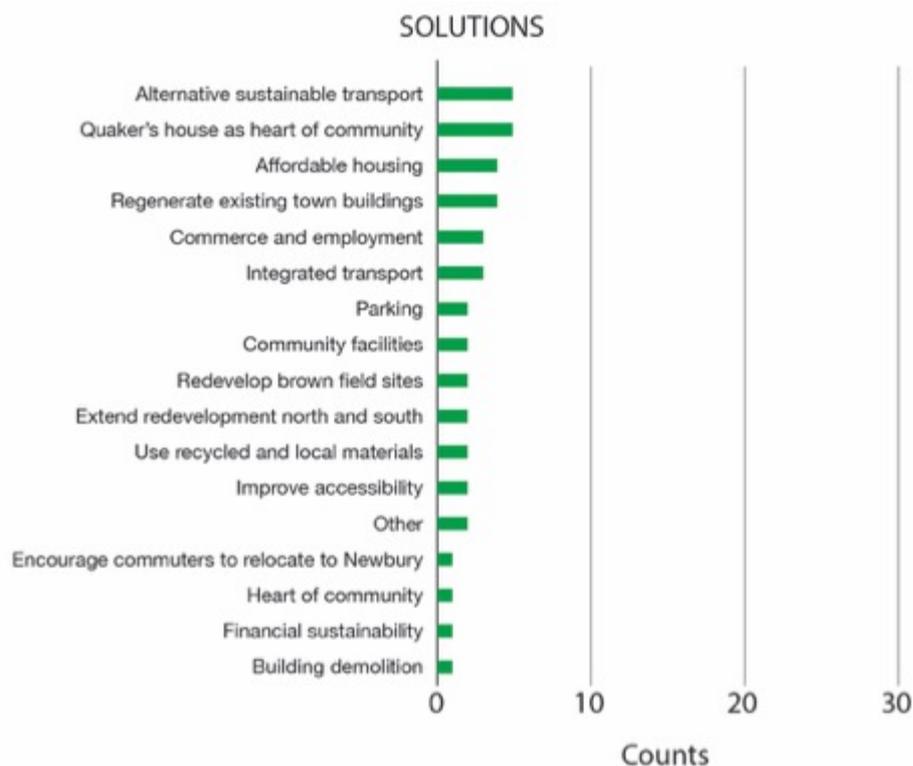


Figure 21. Bar chart illustrating the number of citizens’ proposals for Newbury Market Street, divided into major topics. Adapted from the Statement of Community Involvement (Newbury SCI 2015) and the transcripts from the “Solution” phase of two post-it session at Newbury (10-11 July 2015).

The number of post-its about “Solutions” for Newbury Market Street is twice as low as the number of post-its written during the “Problem” and “Dream” rounds (e.g. 49 counts vs 100 and 99 counts, respectively). As the “Solutions” bar chart highlights, only a few categories have more than three occurrences, indicating the peculiar nature of most of the citizens’ ideas. Public and sustainable transportation appears at the top of the list, with suggestions to create a pedestrian and bike-friendly system of paths to connect the train station with the town center, e.g. “SUSTAINABLE ACCESS to/from Town Centre and rail station – ENCOURAGE walking, cycle & bus access – [...]”, and “Bike routes to make Newbury greener, more active and reduce traffic?”. Another popular suggestion was to leave the Quaker’s House as the symbolic and spiritual center of the new intervention, e.g. “Consider Quaker garden as centre (heart) to build community feel”, and to pivot it around the Quaker garden, e.g. “Start with the Quaker garden and build around it as the centre to the whole “village”. General strategies to build affordable housing – especially for young people – and to improve

employment in the area were mentioned by six post-its. The remaining suggestions relate to other topics, e.g. parking, community facilities, and urban form.

4.4.3 The *charrette*: Hands-on Planning session

Hands-on-planning sessions allowed experts and citizens to explore together the physical implications of previously discussed ideas. The following table summarises the key points of discussions of the seven groups who took part in the Hands-on Planning sessions.

Table 15. Summary of the Hands-on Planning session. Key discussion points are transcribed from the Statement of Community Involvement (Newbury SCI 2015:52, 58, 59). Courtesy of JTP.

Thematic group	Focus of the group	Key discussion points
“Getting About”	Transportation and pedestrian movement	Convenient Access to safe covered and well-lit Bus stops; Reinstate Pedestrian Bridge over the railway with access for people with disabilities; Underpass under A339 to improve pedestrian access to school; Create strong pedestrian connection to the town; Create East-West connections through the site to help Cheap Street and Bartholomew Street; Create green focal point at the centre of the development.
“Friends”	The Meeting House	Building and garden remain as they are; Building to be improved with additional space and the garden remains; Garden is retained but the existing building is replaced by a new purpose-built facility; New purpose-built facility and garden is constructed on a new on-site location; Facility will move to a new location in the town centre and current Quaker site will be redeveloped.
“Linked Green and Connected Spaces”	Green space and public space	Linked green spaces connecting the station plaza, Market Street, QMH garden and nearby trees; Enhance pedestrian experience walking eastwards from Inch’s Yard including a new square in front of the council offices; Greened streets from the station to a new piazza space; Create a better pedestrian link to the west, south of the council offices; Ramp from the station plaza to the upper level to allow easy wheelchair access.
“Centre Heart”	The heart of the new development	Green spaces – not many in southern part of town centre; Car parks – seems a lot; Bus station (to be relocated); Grouping of Quakers, Baptist Church and Retirement community; Road network to south of railway; The two bridges crossing the railway are 450m apart; Footpath from Bartholomew St.
“Gateway”	Traffic and railway station	Create new pedestrian gateway with pedestrian and cycle access to the town centre; Explore a new pedestrian crossing to the A339 to the east; Explore the potential of unused Network Rail land. New public realm and street trees Improve pedestrian connection to bus stops; Hands-on Planning per bus link to new Bus Station; Introduce vehicular loops from Market Street to Cheap Street provides improved access for taxis and drop off and reduces vehicular conflicts; Relocate permit holders to multi storey car park to create improved public realm.

New Identity	A new identity for Newbury Market Street (based on “Newburyness”)	Connections to Bartholomew Street and Cheap Street Buses – need effective shelter – and public toilets; Footpath from Bartholomew Street • Possible link to Cheap Street? Consider loyalty system to encourage people to shop locally; Food store + tourist info?; Bike hub and coffee bar; Station square; Ramp up to town level;
Park Living	Public realm	Walkable district; Predominantly traffic free environment; Locate flats on the main roads and access routes, houses to the rear of the flat blocks thereby providing more privacy/ quieter environment; Ample spaces to sit out, balconies, private gardens, and also roof gardens and terraces; Green public routes and interlinked town gardens; Provide local facilities but not to create competition with local businesses.

4.4.4 The charrette: Synthesis of results and production of deliverables

Following the two-day workshop, architects from JTP operated a process of synthesis to make sense of the multiple inputs collected. The interaction with the local community was not limited to the exchange of written comments through post-its. In fact, the communication stretched further in verbal and non-verbal fashion throughout group works, Hops, walkabouts, and informal chatting. Furthermore, in the aftermath of the public workshop, the team of designers gathered and discussed “Consensus and Dilemmas”, i.e. the key points of public consensus emerged during the CPW.

To capture such a variety of more or less specific stimuli in light of the upcoming report-back presentation held five days after the end of the workshop, the team of experts relied on three tools:

- A list of “Issues and Opportunities”, comprised of design guidelines to address the most recurring issues of the Market Street project;
- A list of "Key Themes" emerged from general discussions;
- A spatial diagram illustrating the concept for the development of a masterplan.

The Issues / Opportunities list

Two “Issues / Opportunities” lists have been produced by members of JTP. Below the tables have been merged into one.

Table 16. Synthesis of the “Issues and Opportunities” list for the Newbury project. Source: Statement of Community Involvement (Newbury SCI 2015).

Issues
Need for easy interchange between buses and trains
Concern that bus station relocation could result in reduced services at/near station
Weather protection, seating at current bus station important – will new stops have these?
Impact of development on taxi rank outside station
Need more pedestrian and cycle links between town centre and station

Few north-south pedestrian rail crossing
Both surface car parking and multi-storey car parks can be eyesores – is this avoidable?
High prices cause cars to park on nearby streets instead of using car park
Uncertain future for Friends Meeting House and groups using it
Lack of social spaces, especially indoors
New urban village needs a "heart"
What kind of retail in urban village? Already an overprovision of some shop types in town center
Impact on nearby streets which have empty and deteriorating shops
Recent investment in northern part of town centre - south needs regeneration
Who will homes be for: occupied or left vacant, for local workers, commuters or newcomers, how much affordable
Suitability of town infrastructure to cope with more people and vehicle
Will development reflect local character, site history?
Housing provision needs to include affordable homes. What property sizes are needed?
Parts of nearby shopping areas appear to be under-occupied or struggling: Cheap Street, Bartholomew Street, Kennet Centre
Under-provision of low rent/rate space for retail, social enterprise
Need for comprehensive town centre strategy, not north v. south regeneration
The importance of the Friends Meeting House, and need for certainty for the Quakers and community groups who use the space
Impact on and opportunity for nearby organisations, buildings
Need for integrated public transit, walking and cycling infrastructure
Impact of bus station relocation on bus services, user accessibility
Increasing congestion and parking problems
Potential loss of vegetation, habitat – will new development have green character?
Sustainability of development: building materials, waste water management, lifetime use
Flooding issues at lower levels

Opportunities
Buildings of different height and character
Opportunity to learn from other places: what's worked, what hasn't connections
Design that supports integration (not severance) with town centre
Well-marked pedestrian and cycle connections, and views, through the site
Transport services that link station to town centre and to outer areas
Integrate and improve parking within the development housing
Housing that is affordable, for diverse occupiers (young/old, tenures)
A future for the Friends Meeting House, whether in new or existing location on or off-site
Open space that integrates spaces to stop and socialise with greenery, wildlife habitat
Development could be catalyst for regeneration of nearby streets
Support local shopping offer, employment
A welcoming, stylish entrance from the station into the town
Easy interchange between trains, buses, taxis – on both sides of the rail tracks
High quality, accessible pedestrian and cycle routes
Open, public spaces for sitting, socialising, playing
Active streetscape – reasons for people to walk through and stop
Keep green character of site through trees (old and new), gardens Community Centre
Include the 'spiritualness' of the site: Quakers, Baptist Church
Facilities to support services provided by community organisations Neighbourhood Identity
Support regeneration of surrounding town centre
Opportunities for independent, local businesses/enterprises, onsite or nearby

Possibility of becoming cultural quarter of town centre
Mix of housing types, tenures that are attractive and accessible for existing Newbury residents and newcomers
'Human scale' environment that breaks up buildings with paths, open space, greenery
Use materials that are sustainable and also reflect 'Newburyness'

The Key Themes:

- Support for regeneration
- An urban village with "Newburyness"
- Quaker's Friends meeting house
- Buses
- Rail and station square
- Community living
- A vibrant southern quarter
- Continuing community participation

The spatial concept

In an attempt to synthesise multiple inputs from the Community Planning Weekend, the team of architects developed a spatial diagram with a concept for the area.

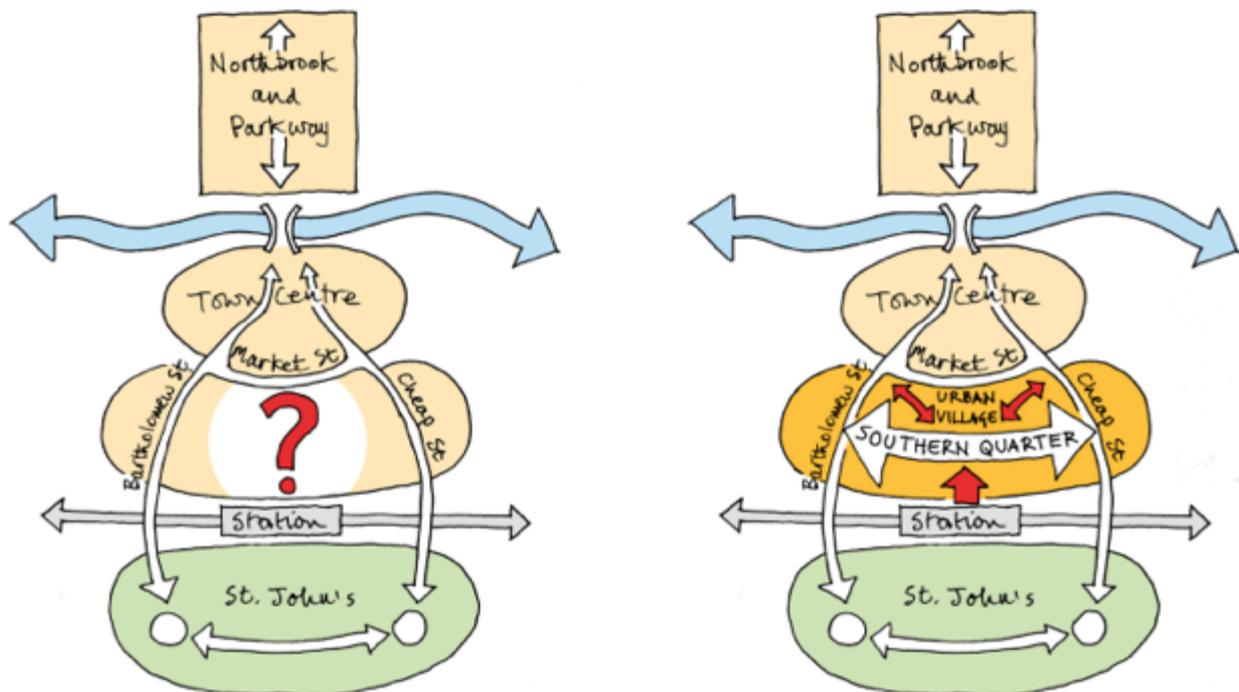


Figure 22. Conceptual diagram of the state-of-the-art at Newbury (left) and of the proposed intervention (right).
Courtesy of JTP.

The design concept consists of a public space in front of the station that functions as a gateway to the town, a network of pedestrian routes connecting north and south, and a neighbourhood space (referred to as “Urban Village”) in-between the two.

The “Issues and Opportunities” list, the Key Themes list, and the design concept were used as a framework of reference to guide the further development of a masterplan in line with the sentiment of the local community.

4.4.5 First proposal: the vision masterplan

Between July 2015 and September 2015, the design team worked on the development of the masterplan.

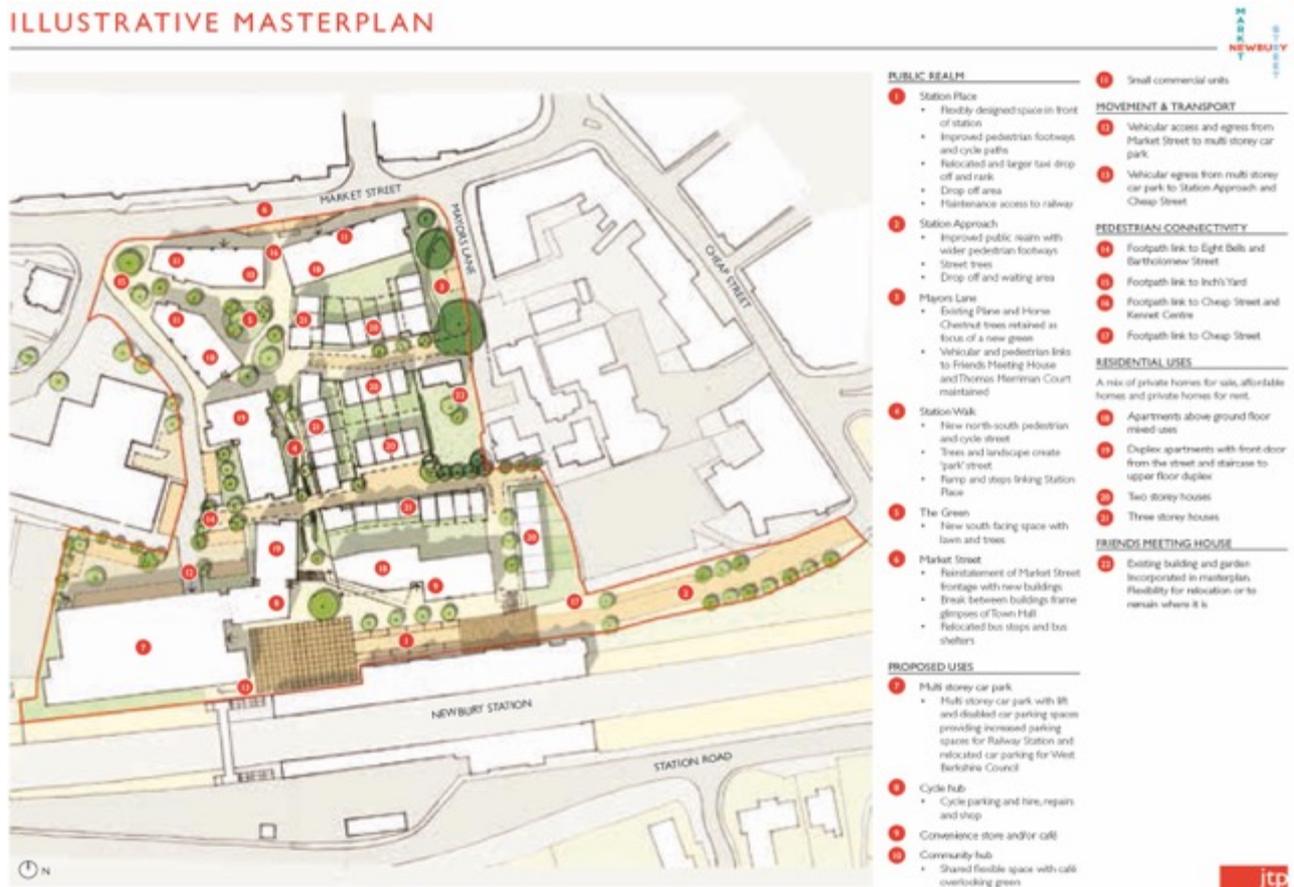


Figure 23. Masterplan for Newbury Market Street: first proposal. Courtesy of JTP Architects. Adapted from the Design & Access Statement document (Newbury DAS 2016).

The proposal (Figure 7) was the result of the interplay of (1) feedback from the Community Planning Weekend workshop, (2) background analyses on physical, social and economic qualities of Newbury, and (3) the legal and financial constraints put forward by planning authorities and the developer. The

design underwent a technical review between July and September, resulting in the alteration of certain building blocks (Newbury DAS.2016:48).

4.4.6 Midterm review: feedback from citizens

The adjusted proposal was presented on the 24 September 2015 at a Community Forum, in the form of visual representations (maps and renderings) and a wooden model.



Figure 24. The wooden model of the proposed intervention presented at the Newbury Community Forum. Courtesy of JTP.

At the Forum, citizens had the chance to observe the development of the project and to propose further modifications. From the experts' viewpoint, this event was an opportunity to understand the extent to which the proposal was in tune with the expectations of the local community. Amidst an overall good reception, around 50 attendees raised concerns about the height of certain buildings and the relocation to the bus station further away from the train station. Furthermore, citizens questioned the lack of access to the multi-storey car park from Station Square (which is on a secondary street in the masterplan), and the misalignment of Station Walk and the station. While the overall layout did not change significantly from the first proposal, the shape and size of some buildings were adapted to comply with some feedbacks by the developer and planning authorities. One of the most controversial aspects of the masterplan was the height of the so-called "Block G" and "Block H", the buildings facing Newbury Station, to the south of the area (Figure 25).

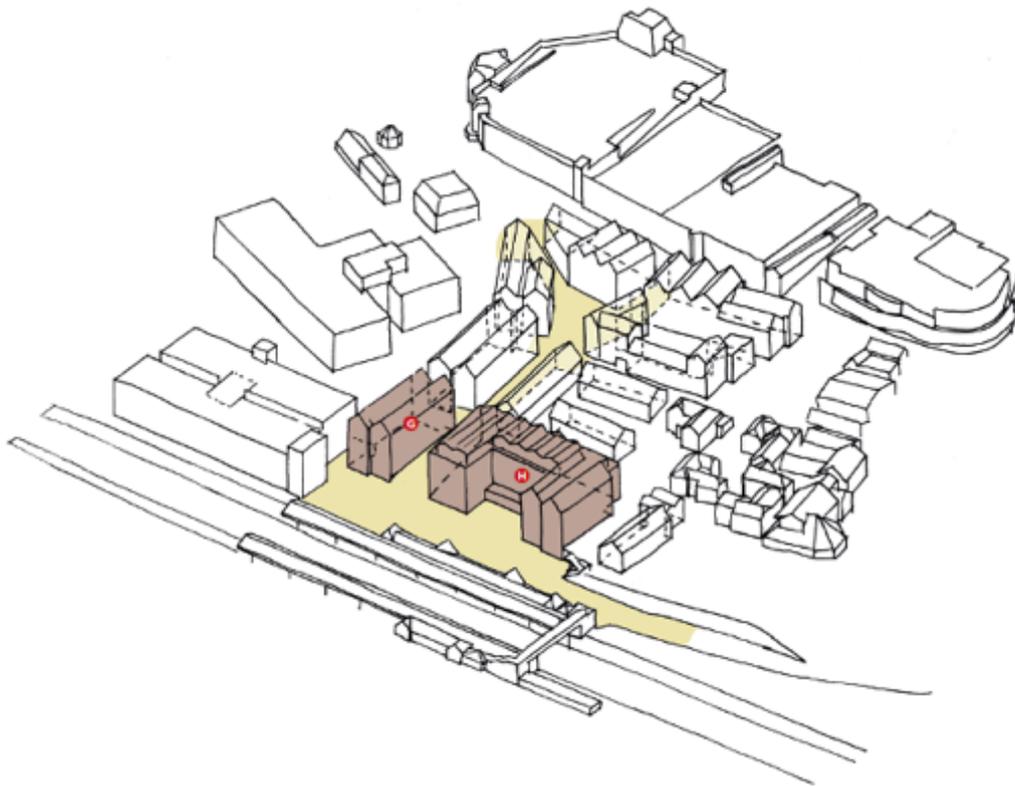


Figure 25. An aerial 3D-sketch of the final proposal for the masterplan of Newbury. Block G and Block H are highlighted in the foreground. Courtesy of JTP.

The issue of storey limit did not emerge as a collective theme at the workshop in July. In fact, the process of consultation with the local community at that early design stage brought to the fore a more generic concept of “human scale”, as part of the so-called “Newburyness”.

This idea was reported in the “Issues / Opportunities” list, under the line: “‘Human scale’ environment that breaks up buildings with paths, open space, greenery”. In the list, the concept of human scale was translated into an operational design guideline to be followed as the project develops. Indeed, the principle of “human scale” was followed in the preparation of the layout of the masterplan. A network of pedestrian paths permeates the project site, and green public and private areas abound. Furthermore, the building fronts do not follow an orthogonal grid, and their juxtaposition in irregular fashion was inspired by the old town, enhancing the sense of village and “Newburyness”. Although the residential area (located in the heart of the site) was comprised of 2-4-stories buildings, the southern border facing the station hosted two mixed-use 7-stories buildings (Block G and H). When architects unveiled their proposal at the Community Forum in September 2015, some citizens were concerned about “Block G” and “H” being too tall for Newbury. The concern was emphasized by the aspiration of the project to be an Urban Village built around the notion of “Newburyness”.

The issue was brought to public attention in October 2015 in a local press article titled: High rise plans for Newbury town centre. Seven and four-storey blocks unveiled for "Urban Village" project. The architects responded with amendments to the plan adopting strategies such as set-backs and mass redistribution (Figure 10). For example, Block H was reshaped into a U-shape building, with much of the mass moved north, as far as possible from the train station, to avoid the “Wall Effect”, e.g. to perceive the building façade on a front plane. The height of Block G was curbed, not by removing floors, but by dropping the roof height (Newbury DAS 2016:50). In the Design and Access Statement document, the team of experts justified the proposed height with these words:

“[...] These heights have been carefully considered in relation to individual buildings, the role they are performing in urban design terms and also the surrounding context. [...] Along the western edge of the site, adjacent to the Council offices, and in the south where the site faces the railway station, taller buildings of 5 and 6 storeys are proposed that relate to the larger buildings and bigger spaces”. (Newbury DAS 2016).



Figure 26. Details of the masterplan for Newbury Street. On the left: first proposal, September 2015. On the right, amended proposal with alteration to the Blocks G and H, October 2015. Adapted from Design & Access Statement (2015). Courtesy of JTP.

4.4.7 Final proposal

The final proposal was delivered in November 2015. Adjustments were made according to the discussion in place in September, at the Community Forum, and to a review with planning officers and other stakeholders. A further meeting with the local community was held in March 2016.

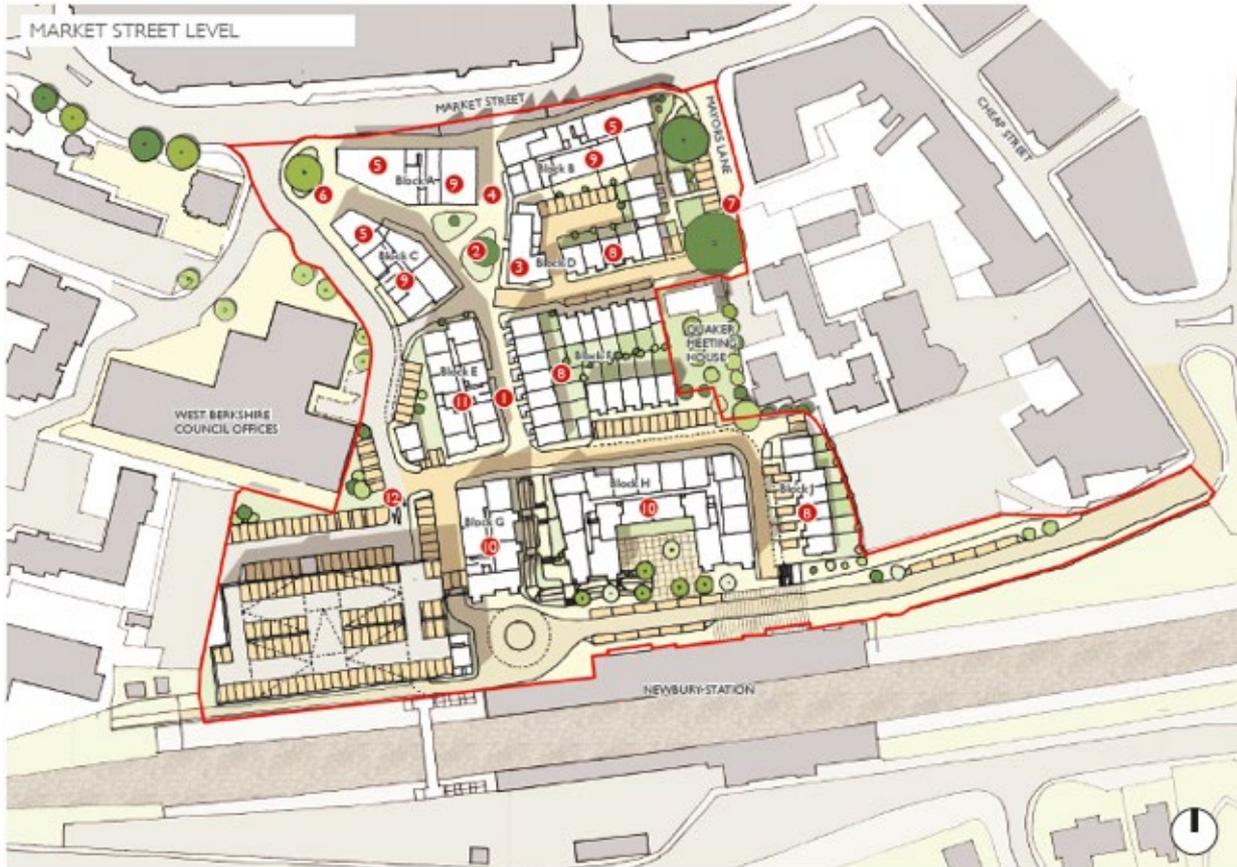


Figure 27. Final masterplan for Newbury Market Street as submitted by the architects. Courtesy of JTP.

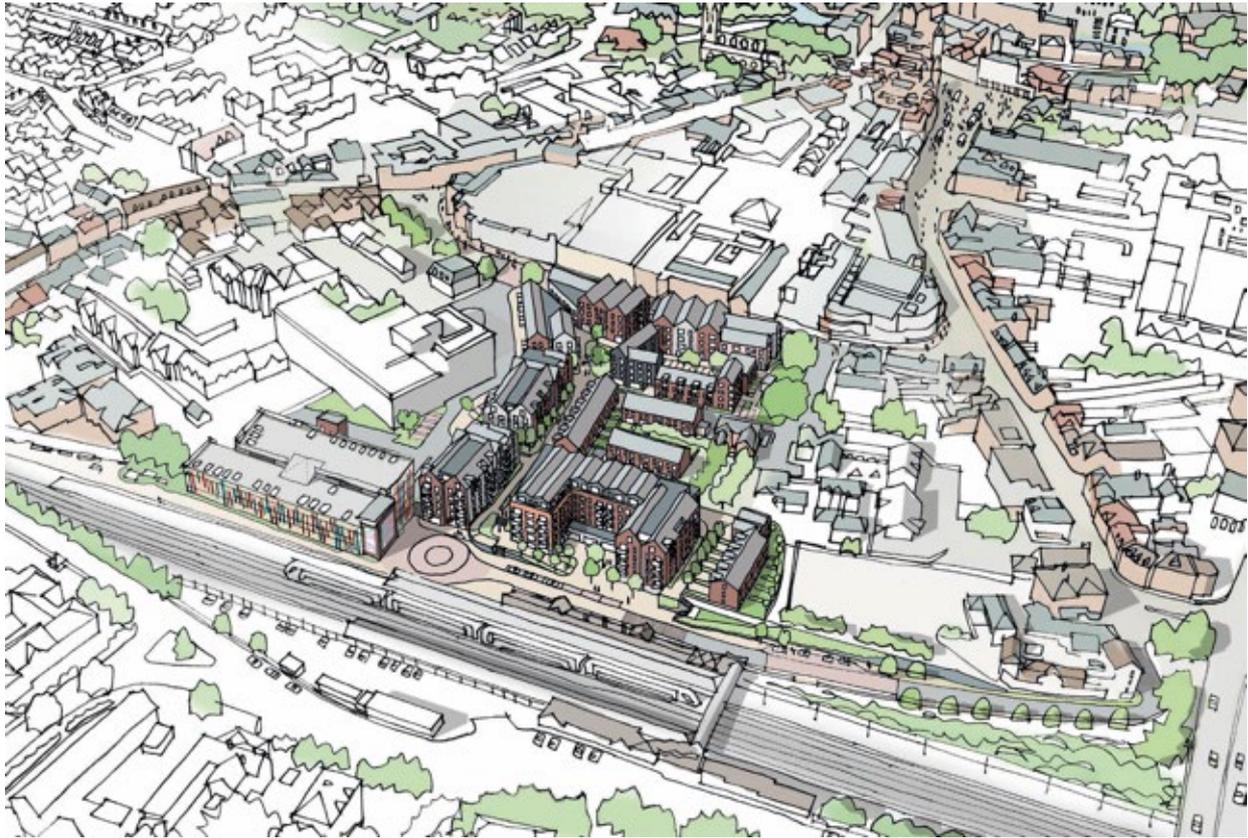


Figure 28. Aerial view of the Newbury project. Courtesy of James Holyoak.

JTP submitted the planning application to the portal of the West Berkshire Council for public review. The application consisted of scheme drawings accompanied by the ‘Design & Access Statement’ with hundreds of pages illustrating the various aspects of the project, e.g. history of the site, policy framework, design methodology, public consultation, technical analyses, floor plans (Newbury DAS 2016). An advisory team of professionals from different fields (e.g. environmental protection, housing strategy, crime and safety, etc.) were asked to provide feedback on the plan.

In June 2016, an amended plan was submitted to the Council. The plan is not significantly different from Figure 11. Detailed Planning Permission was granted by WBC in November 2016 and is now in the Construction Phase led by 3D Reid Architects with JTP providing comments and answering queries.

4.4.8 Lay-expert interaction: knowledge generation and the evolution of design

The first level of investigation is aimed at revealing interconnections between the three factors influencing lay-expert interaction. In particular:

“In which way does [column element] influence [row element] in the Newbury project?”

Table 17. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Newbury project.

		Stage and duration of participation	Tools and methods	Sources of reference
Stage and duration of participation	Two public events. One at the beginning of the process (Community Planning Weekend).	X	Community Planning Weekend: Tools must engage large groups in a short time frame, and avoid dominant citizens to prevaricate acquiescent ones.	Community Planning Weekend: The project site is the main referential object.
	Another in the last phase of design, prior to the submission of the planning application (Community Forum)		Community Forum: need to present the project and its features.	Community Forum: the wooden model and the visual representations. Architects had to produce extra material to explain the rationale of the masterplan and its features.
Tools and methods	Charrette based on “problems” and “dreams / solutions”	X	X	Problem phase: the project site is a shared referential object. Dream / solution phase: multiple referential objects.
	Sticky notes	X	Sticky notes are the basis for the creation of the “Issues and Actions” list.	Sticky notes provide inputs to ground discussions during workshop.
	“Issues and Actions” list.	X	The “Issues and Actions” list influenced the development of the project and the production of visual material (sketches, maps, wooden model).	Maps, sketches, and the wooden model become the reference for discussions about the quality of the project.
Maps, sketches, and the wooden model ⁸ .				
Sources of reference	The project site.	X	X	X
	Others	X	X	X

⁸ The “Issues and Actions” list, maps, sketches, and wooden material are both tools *and* sources of reference used to interact with the local community.

At Newbury, the design process consisted of the alternation between public meetings on site and project development in the office. The design team engaged the local community at specific points in time, in line with the milestones of the project. The first opportunity for public participation was the Community Planning Weekend workshop, on 10 and 11 July 2015. Besides collecting ideas and inputs from citizens, the workshop was a kick-off event to advertise the project. Five days later, the design team introduced a first version of the masterplan at the report-back presentation and kept on working from their headquarters for two months. In September 2015, the designers presented the project development and received feedback to improve it. An improved version of the masterplan was amended before submission to the Council, in November 2015 (Figure 29).

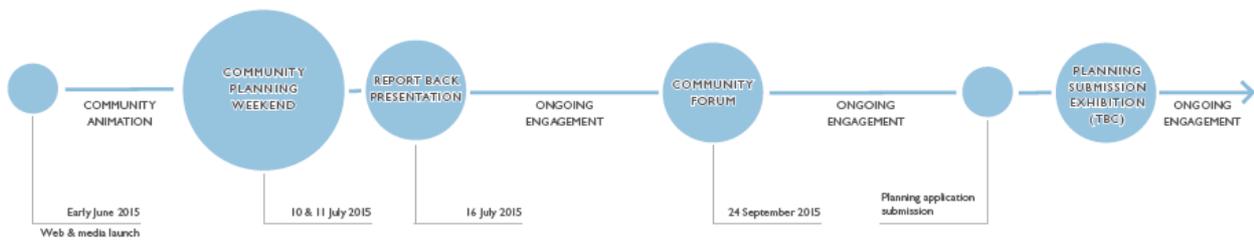


Figure 29. Timeline of the design process for the Newbury Market Street development. Circles represent milestone events of public participation. Courtesy of JTP Architects.

Each circle of Figure 29 represents a public meeting. All events were open to the whole community of Newbury, and everyone was invited to partake in the conversation about the future of Market Street. The timeline indicates not only a sequence of dates but also different stages of development of the project. This meant that each public was focused on different goals. At the Community Planning Weekend (CPW) workshop, for example, there was no clear proposal yet. People discussed in general terms about problems of and dreams for the Market Street area. To make it effective, the designers devised the “Post-It Session”. Inputs were collected via sticky notes, so as (1) to engage hundreds of people in a short time span while (2) ensuring equal opportunity for expression to everyone. If this first design stage (i.e. the CPW) was characterized by a lack of a common referential source (except the project site itself), subsequent meetings were based on a specific idea of urban development. In fact, the Community Forum was held almost three months after the Community Planning Weekend, and in this time the architects drafted a comprehensive masterplan. The masterplan was articulated in maps, sketches and a wooden model. To communicate all relevant features of the masterplan, the architects produced ad hoc illustrative material. Figure 30 introduces a poster exhibited at the Community Forum.

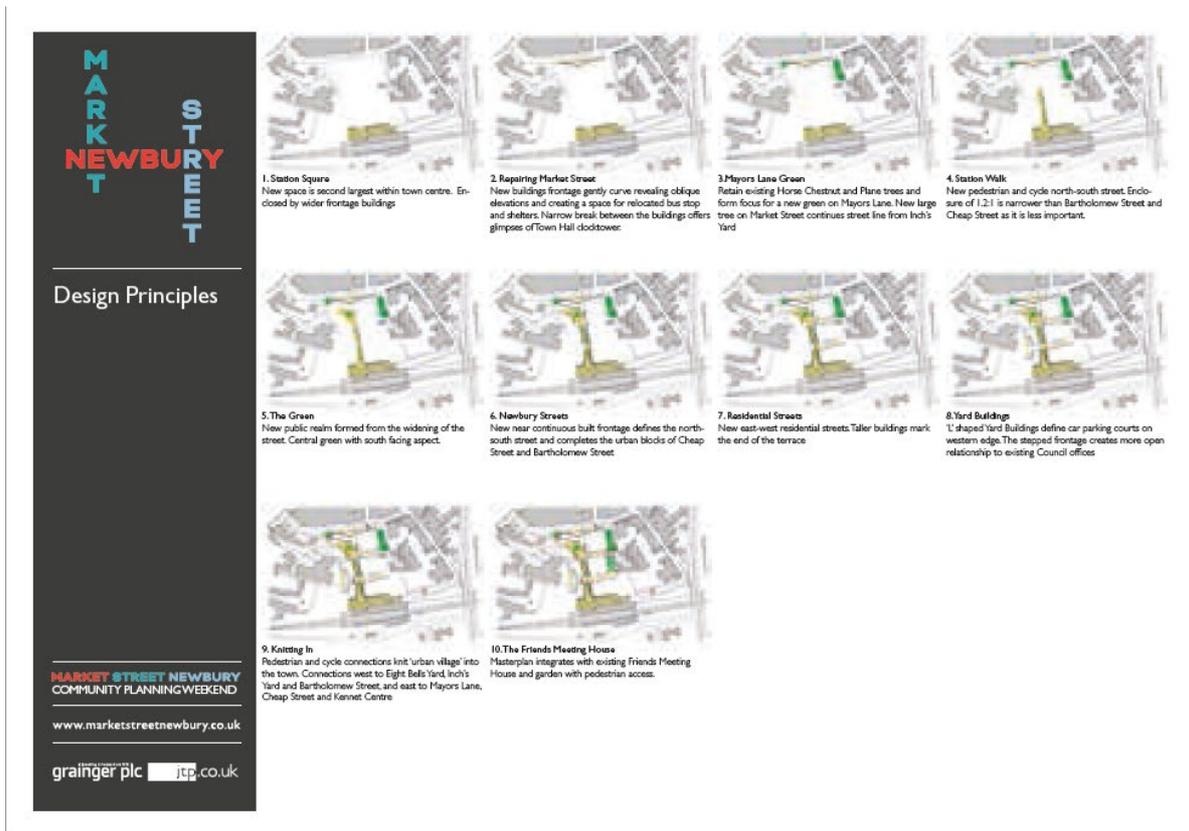


Figure 30. A poster presented at the Community Forum in Newbury, on 24 September 2015. The poster illustrates the evolution of the design as a piecemeal development Courtesy of JTP.

Overall, the methods and artefacts adopted at Newbury were influenced by the way participation was integrated into the overall design methodology. On the other hand, such tools and methods created and affected the sources of references underpinning lay-expert interaction.

As already mentioned, sticky notes allowed the design team to engage hundreds of people in a short time span, e.g. in one-hour intervals. The content of each sticky note was used as a basis for the on-going discussion during the workshops. At the end of the two-day Community Planning Weekend workshop, the notes were synthesised into an “Issues and Actions” list. In turn, the list was used to construct the masterplan, while keeping track of citizens’ inputs. Once the masterplan was drafted, it became a common reference for citizens and architects alike.

As a second step of analysis, the three key elements affecting lay-expert interaction are related to communication and design. The underlying question is:

“In which way does [column element] influence [row element] in the Newbury project?”

Table 18. “Matrix B”. Table of synthesis of the key factors in place at Newbury and how they affected lay-expert communication and the development of design.

		Communication	Learning and design development
Stage and duration of participation	Two public events. One at the beginning of the process (Community Planning Weekend). Another in the last phase of design, prior to the submission of the planning application (Community Forum)	Limited time allocated to discussion and need to survey large groups in a short time produced large quantity of recorded information to be managed and synthesized. CPW: one-sided communication (citizens-to-designers). CF: two-way communication.	Engaging citizens at the beginning of the process was an effective strategy to understand the urban problems of Newbury and address them through the project. Efficient and effective time/outcome relationship.
Tools and methods	Sticky notes	Used to collect and preserve a large amount of fragmented information from hundred citizens (see the “Alluvial diagram” section below). During the Community Planning workshop, inputs served to structure dialogues with citizens and elicit new ideas.	X
	“Issues and Actions” list “Key themes” list	Used to synthesize large amount of information from sticky notes into relevant shared knowledge. The list was also used as a referential tool in the development of the project.	Central element for the elaboration of the vision masterplan and partial output of the process.
	Maps, sketches, and the wooden model.	At the Community Planning workshop, maps and sketches were produced to ground ideas and suggestions on space. Other maps and sketches, as well as a wooden model were used to communicate design ideas to the citizens.	X
Sources of reference		At the Community Forum, maps, sketches, and other visual material served the purpose to focus the conversation on the features of the proposed masterplan.	X
	The project site.	The project site was (1) a source of reference to discuss problems and potential and (2) the chessboard upon which new ideas could be related to.	Reference to the project site helped understand the problems of Newbury and where to act.
	Others	The lack of a shared referential object during the Community Planning workshop allowed multiple ideas to blossom.	X

4.4.8.1 The nature of communication

At Newbury, participation occurred within the framework of three public events, i.e. the Community Planning Weekend (CPW), the Report Back presentation, and the Community Forum (CF). These events were open and well-advertised, so a large crowd was expected to participate. Furthermore, each event was planned for a limited time, e.g. half a day, or two days. Reports and pictures of the events indicate that each event was attended by about a hundred citizens (Newbury SCI 2016).

To effectively engage large groups in a limited time span, communication was managed according to the stage and goals of each design phase. For example, the goal of the Community Planning Weekend (CPW) was to collect inputs and ideas from the local community of Newbury. At that initial stage, the architects needed to understand the urban problems of Market Street. So, three 40-minute brainstorming sessions were organized (e.g. the “problem”, “dreams”, and “solutions” sessions). Then, to experiment how ideas could be implemented on site, people were asked to partake in a Hands-on-Planning workshop. The material and knowledge produced in this first public event constituted the bedrock of the masterplan. The Community Forum (CF) was set up at a later design phase when the architects had already worked on a more refined version of the masterplan. The goal of this event was to introduce the masterplan, explain how citizens’ inputs were included (or not), and receive feedback. Hence, at the CPW communication was mostly one-sided, with the designers listening to and collecting data and information from locals. At the CF communication was two-sided since architects had to explain and defend some design choices while listening to public feedback.

In general, the communication process was organized to achieve some design-specific goals in an effective, inclusive, and time-efficient way. To achieve both an inclusive and efficient design process, the design team relied on a series of tools and objects, such as sticky notes, lists, maps, etc. The following paragraphs unpack the relationship between tools, methods, and the communication process. The Community Planning Weekend workshop was the first public meeting. By the number and quality of documents produced, it was also the event with the highest degree of lay-expert interaction.

To organise a discussion with a large group and in the absence of a clear focus, the architects used sticky notes (or post-its, as the name: “Post-it sessions” suggests). The architects asked general questions, such as “What are the problems of Newbury?” and “How do you imagine the Market Street in the future?”. Participants wrote down ideas and comments in the form of short sentences; one comment for each sticky note. Post-its were then collected by members of the design team and used to stimulate a plenary discussion. In other words, although the organisational framework was set up by architects, it was the local community that provided the material for a conversation. Citizens were free to bring to the table whatever they deemed worthy of discussion. Not surprisingly, certain topics

occurred more frequently than others, and so they were debated longer. For example, parking was perceived by many as a problem. Likewise, dozens of comments revealed a shared concern for the future of the Quaker's House and the transfer of the bus station towards the north of the site. By the end of each session, e.g. "problem", "dream", and "solution", hundreds of post-it were collected (see Paragraph 4.4.2 for the actual count).

Besides sticky notes and written comments, the communication of ideas involved visual objects, such as maps and sketches. Hands-on-Planning sessions provided an opportunity to translate abstract ideas into the project site. Groups of 4-6 people gathered around a blank map of Newbury and discussed specific topics emerging from Post-it sessions, e.g. the Quakers' House, green space, accessibility, etc. The existence of a shared referential framework, e.g. the map of a familiar place, and a thematic focus provided the basis for a fruitful conversation. In fact, with the help of an expert, each group came up with a comprehensive diagram addressing the central issues of Newbury. At the end of the Hands-on Planning session, all maps were presented to the rest of the audience and commented. Sticky notes and Hands-on Planning maps had a manifold utility throughout the early design stage. On the one hand, they were useful tools to organize and sustain conversations during the workshop. On the other hand, they provided the basis for the production of the "Issues and Actions" list and the consensus masterplan, after the workshop had ended (see Paragraph 4.4.4). The "Issues and Actions" list became a referential tool by the designers in further stages of project development. The list is a collection of guidelines and key themes based on the outcome of the CPW workshop.

The following diagrams are an attempt to describe the relationship between post-its, the Issues and Actions list, and the first proposal of the masterplan for Market Street. Transcripts from the workshops of Friday and Saturday, the "Issues and Actions" list, and the first draft of the masterplan has been put together into an alluvial diagram. The diagram registers which comments became part of the "Issue and Actions" list, and which features of the list influenced the production of the final masterplan. Overall, the diagram provides an overview of how information was managed by the design team in producing design knowledge.

PROBLEMS

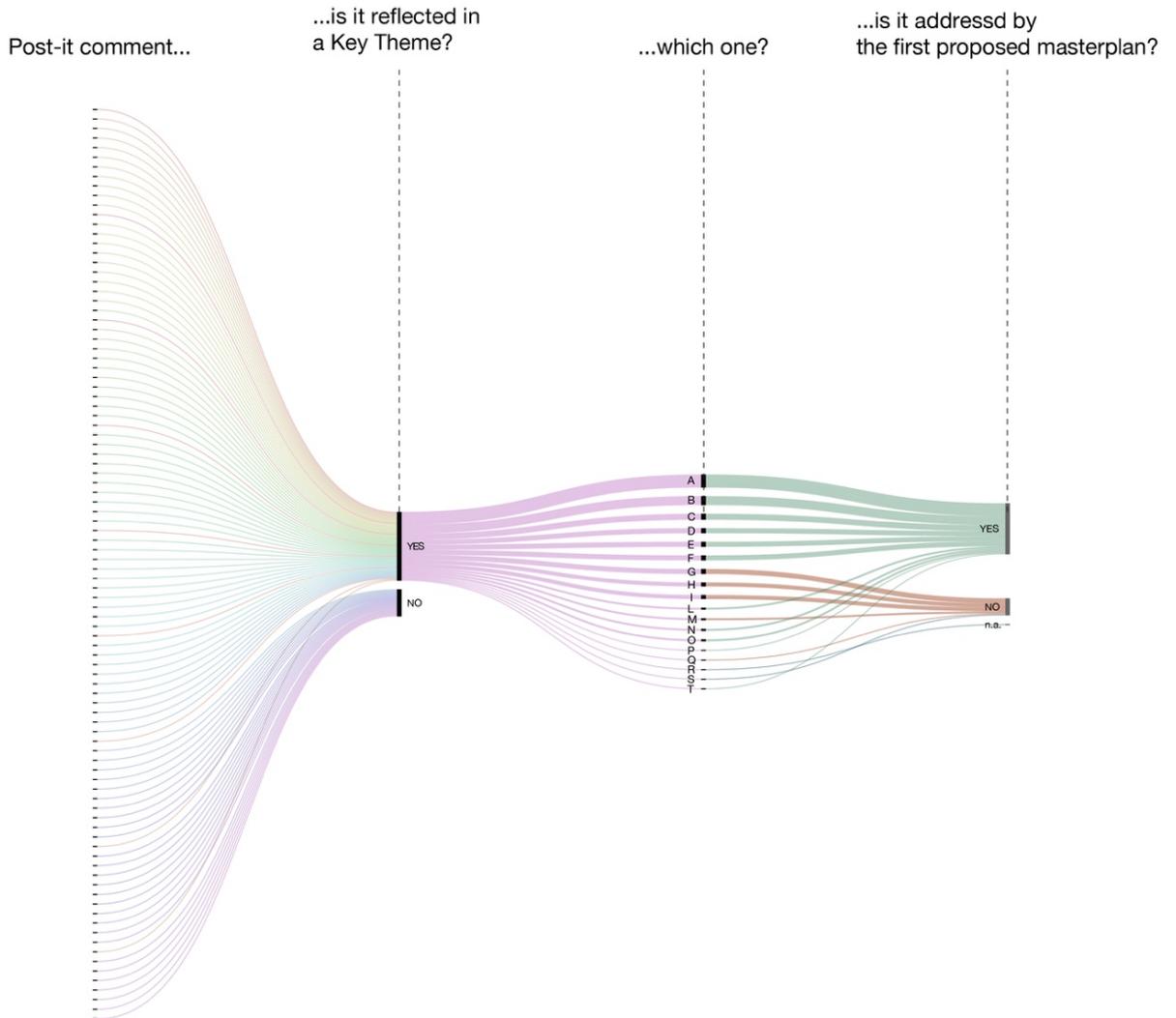


Figure 31. Alluvial diagram describing the influence of citizens comments on\ the design of the masterplan for Newbury Market street. The focus is on comments about “Problems” at Newbury.

Table 19. Relationship between “Key Themes”, post-it comments about “problems”, and design actions implemented in the Newbury consensus masterplan.

ID	Key Theme about “Problems” (from the “Issues and Opportunities” list)	Number of in-flow comments (from post-it session)	Addressed by masterplan proposal?
A	Concern that bus station relocation could result in reduced services at/near station	13	Yes
B	The importance of the Friends Meeting House, and need for certainty for the Quakers and community groups who use the space	9	Yes
C	Need more pedestrian and cycle links between town centre and station	6	Yes
D	Housing provision needs to include affordable homes. What property sizes are needed?	5	Yes
E	Increasing congestion and parking problems	5	Yes
F	Need for comprehensive town centre strategy, not north v. south regeneration	5	Yes
G	Parts of nearby shopping areas appear to be under-occupied or struggling: Cheap Street, Bartholomew Street, Kennet Centre New urban village needs a “heart”	5	No
H	Need for easy interchange between buses and trains	4	No
I	What kind of retail in urban village? Already an overprovision of some shop types in town center	4	No
L	High prices cause cars to park on nearby streets instead of using car park	2	Yes
M	Lack of social spaces, especially indoors	2	No
N	New urban village needs a “heart”	2	Yes
O	Potential loss of vegetation, habitat – will new development have green character?	2	Yes
P	Both surface car parking and multi-storey car parks can be eyesores – is this avoidable?	1	Yes ⁹
Q	Few north-south pedestrian rail crossing	1	No
R	Flooding issues at lower levels	1	n/a
S	Impact of development on taxi rank outside station	1	No
T	Sustainability of development: building materials, waste water management, lifetime use	1	Yes

⁹ The project addresses this point, although it does not fulfill it.

DREAMS / SOLUTIONS

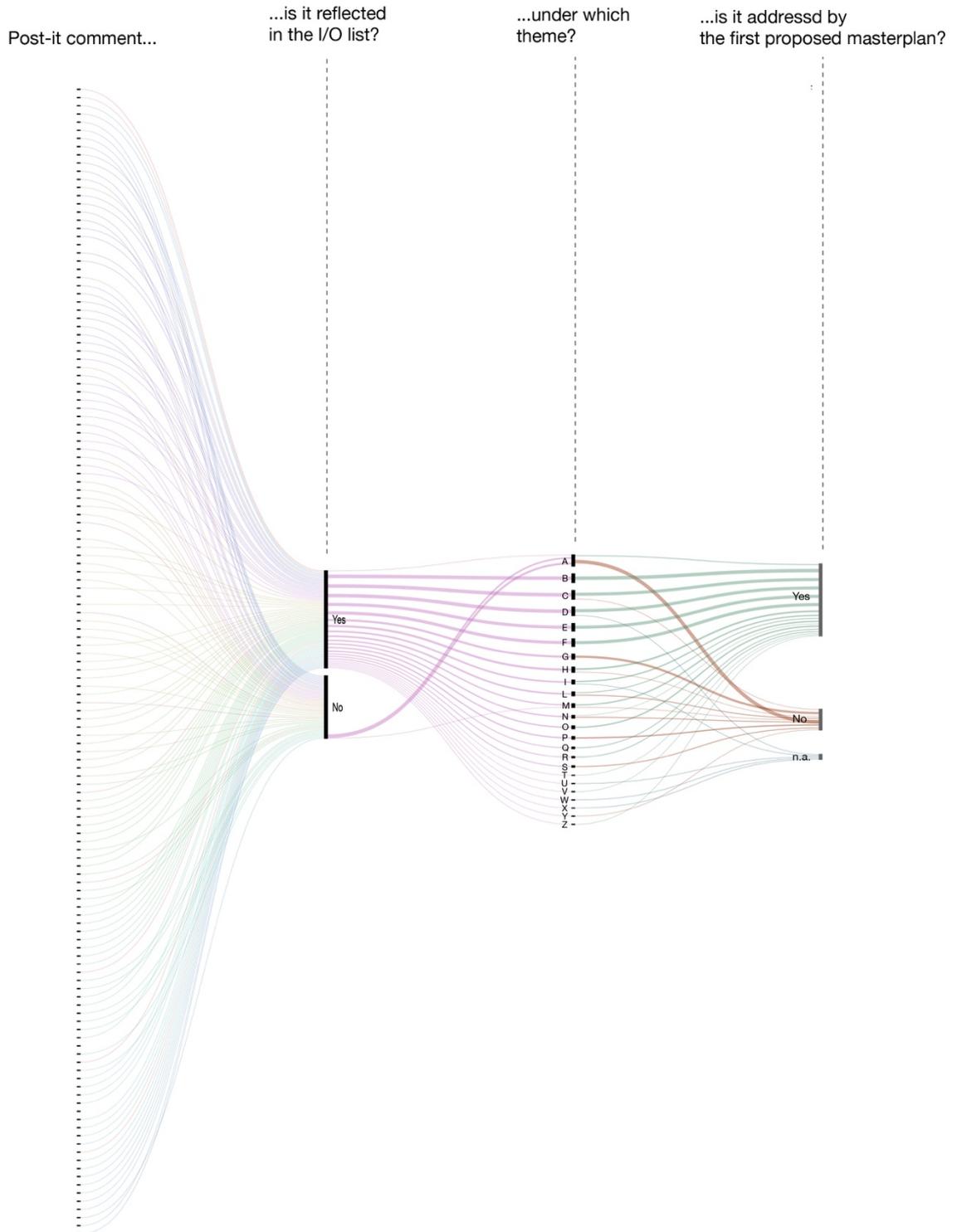


Figure 32. Alluvial diagram representing the influence of citizens comments on the design of the masterplan for Newbury Marketstreet. The focus is on comments about “Dreams” and “Solution” at Newbury.

Table 20. Relationship between “Key Themes”, post-it comments about “dream” and “solutions”, and design actions implemented in the Newbury consensus masterplan

ID	Key Theme about “Dreams and Solutions” (from the “Issues and Opportunities” list)	Number of in-flow comments (from post-it session)	Addressed by masterplan proposal?
A	‘Human scale’ environment that breaks up buildings with paths, open space, greenery	8	Yes
B	Easy interchange between trains, buses, taxis – on both sides of the rail tracks	8	(7) Yes*
C	Open space that integrates spaces to stop and socialise with greenery, wildlife habitat	8	(7) Yes*
D	A future for the Friends Meeting House, whether in new or existing location on or off-site	7	Yes
E	Housing that is affordable, for diverse occupiers (young/old, tenures)	7	Yes
F	Facilities to support services provided by community organisations. Neighbourhood Identity	5	No
G	Use materials that are sustainable and also reflect ‘Newburyness’	5	(4) Yes*
H	A welcoming, stylish entrance from the station into the town	4	Yes
I	Integrate and improve parking within the development housing	4	(2) Yes*
L	Well-marked pedestrian and cycle connections, and views, through the site	4	(3) Yes*
M	Keep green character of site through trees (old and new), gardens Community Centre	3	No*
N	Mix of housing types, tenures that are attractive and accessible for existing Newbury residents and newcomers	3	Yes
O	Support local shopping offer, employment	3	No
P	Active streetscape – reasons for people to walk through and stop	2	Yes
Q	Open, public spaces for sitting, socialising, playing	2	Yes
R	Support regeneration of surrounding town centre	2	No
S	Buildings of different height and character	1	Yes
T	Development could be catalyst for regeneration of nearby streets	1	n/a
U	High quality, accessible pedestrian and cycle routes	1	Yes
V	Include the ‘spiritualness’ of the site: Quakers, Baptist Church	1	n/a
W	Opportunities for independent, local businesses/enterprises, onsite or nearby	1	n/a
X	Possibility of becoming cultural quarter of town centre	1	n/a
Y	Transport services that link station to town centre and to outer areas	1	Yes

The left-hand side of the alluvial diagrams reveals that the establishment of key themes does not depend on the quantity of comments emerging from the local community. Rather, quality matters. Although the most recurring topics were recorded in the list, e.g. the future of the Quaker's House and the desire for a human-scale development, the occurrence of a specific topic is not sufficient to explain the genesis of the "Issues and Actions" list. For example, the "Problem" diagram reveals that five themes are constructed by one comment only (e.g. "Flooding issues at lower levels", and "Sustainability of development: building materials, wastewater management, lifetime use"); four are backed only by two sticky notes, and fifteen out of eighteen themes are mirrored by five comments or less. In fact, only two themes (at the top of the ranking) are supported by nine comments or more. Likewise, eighteen themes related to "dreams" and "solutions" are based on five or fewer comments. Seven of such themes reflect individual comments (i.e. one count).

This trend is explained by the fact that the mechanism whereby knowledge was selected and regarded as useful was in control of the architects. Indeed, the "Issues and Actions" list was created by the architects without extra public consultation. In writing the list, the architects filtered the content of each post-it according to their perceived relevance for the project. Although it is impossible to accurately determine the intentions underpinning the construction of the list, it is important to emphasize the following. Post-its were written at the very beginning of the consultation process, while the "Issues and Actions" list was produced after the workshop ended. In between, architects and citizens engaged in a two-day discussion. Architects repeated the charrette twice over two days and certain topics emerged more frequently than others, ideas were exchanged, opinions were reinforced, dismantled, and put together to make sense of the situation. While it is impossible to backtrack this dialogic process, it is plausible that it influenced the production of the "Issues and Actions" list.

The right-hand side of the alluvial diagrams indicates whether the proposed masterplan included traces of the key themes described in the "Issues and Actions" list. Since the list was produced by architects, it is no surprise that most of the key themes are embodied in the plan. In determining the relevance of certain themes, the architects might have applied criteria of viability grounded in expertise and experience with planning. That may have guaranteed that the guidelines of the "Issues and Actions" list would be implementable.

To understand why certain key themes/guidelines were not included in the preliminary masterplan, it is necessary to address them individually.

This investigation reveals that most of the excluded suggestions could not be included at a preliminary design stage. For example:

"Impact of development on taxi rank outside station".

“What kind of retail in urban village? Already an overprovision of some shop types in town center”.

“Parts of nearby shopping areas appear to be under-occupied or struggling: Cheap Street, Bartholomew Street, Kennet Centre. New urban village needs a ‘heart’”.

The three guidelines above are not visible in the preliminary masterplan. Although they describe crucial issues for the development of the project, these statements require further technical analyses before they can be integrated into a plan. The same thing is true for some of the strategies proposed during the “solutions” and “dreams” sessions. For example:

“Facilities to support services provided by community organisations. Neighbourhood Identity”.

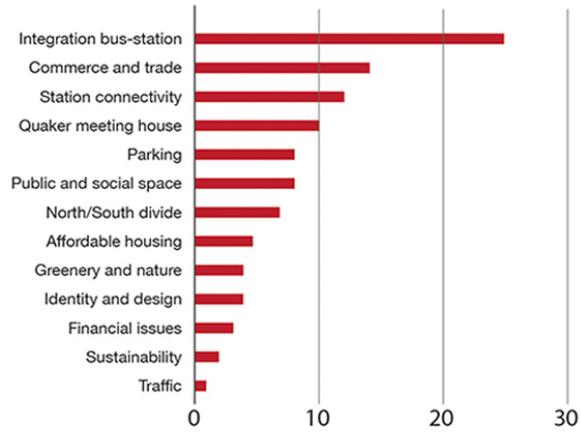
“Support local shopping offer, employment”.

Other suggestions indicate general principles of development, such as “spiritualness”, “the cultural quarter”, “catalyst for regeneration”. The data available does not clarify the practical implication of such principles, and content analysis is insufficient on shedding light to these issues. Thus, such themes have been labelled as n/a.

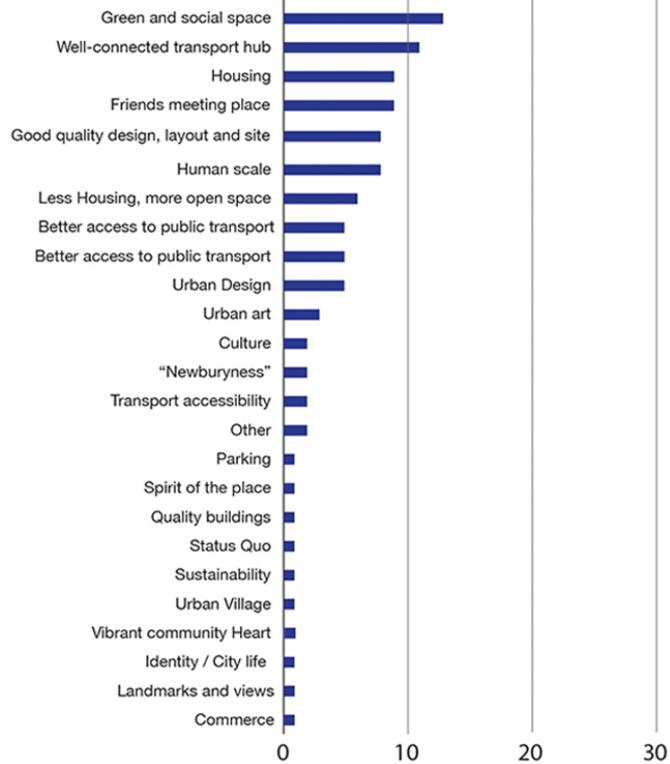
Overall, evidence suggests that the “Issues and Actions” was not implemented as a whole. Other untraceable factors contributed to the development of the project. Negotiations with the Council and the land developer, further technical assessments, budget consideration. All these factors might have played a role in the development of the project. Nevertheless, plans and official reports suggest that the list provided a referential framework for the architects to keep track of the main collective topics emerged from the public.

The last point of discussion in this paragraph is the role of referential objects. The alluvial diagrams do not provide evidence to understand what citizens used as sources of reference when they interacted with the designers. Instead, the answer to this riddle can be found in the transcripts of the post-its, i.e. the primary inputs given by citizens. In the following page, the “problem”, “dreams”, and “solutions” bar charts are put together for cross-comparison. This macro analysis is a first step in the discovery of collective referential frameworks.

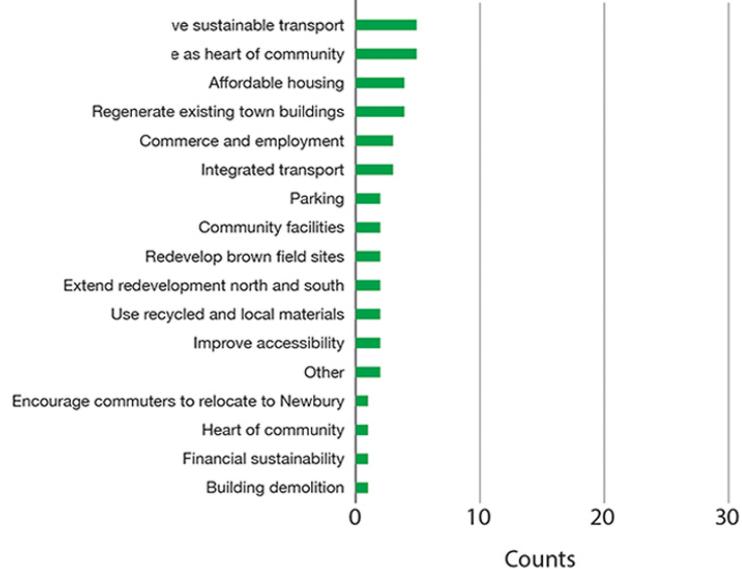
Problems



Dreams



Solutions



Counts

Figure 33. Bar charts of “problems”, “dreams” and “solutions” emerged during the Newbury Market Street CPW. Bar charts are divided into major topics and ranked on the basis of occurrence.

At first glance, the “problem” chart has fewer categories than the “dreams” and “solutions” ones. Furthermore, each category of the problem chart includes a greater number of entries (i.e. post-its). The difference is greater if the “problems” chart is compared with the “solutions” one.

The high count of comments focused on a small number of categories suggests two things. First, that citizens focused their thoughts on a limited number of objects. And second, that a certain degree of consensus over certain problems emerged. Both statements can be true at once. To investigate this issue, one must look at the top five categories in the “problem” charts:

1. Integration bus-station.
2. Commerce and trade.
3. Station connectivity.
4. Quaker Meeting House.
5. Parking.

The bus, the station, and the Quaker Meeting House are precise buildings, and most participants understood what was wrong with them. Before the Market Street project, rumours were circulating that the station’s bus stop would have been transferred to a northern point, far removed from the train station. Citizens expressed concerns about this idea, emphasising the problem of “integration of the bus and the train station”. Likewise, the Quaker Meeting House was located at the border of the project site, and citizens were concerned that any intervention would undermine its space and community spirit. About parking and “bad commerce”, although such issues were expressed generically, it is plausible that citizens of Newbury had experienced such issues in their daily interaction with the project area. This trend may be an indication that reality and the project site acted as a referential object to ground knowledge claims. When citizens were asked to comment on the problems of Newbury, they naturally referred to real objects and real situations. It is no surprise then that many citizens came up with similar remarks, i.e. that parking around Market Street is a problem. Reference to reality also appears in the “dreams” chart, albeit in a more moderate form. Two of the top five “dreams” are related to the Quaker House and the “interchange”, i.e. a well-connected system of train and bus stations.

Compare the top categories of the “problems” and “dreams” charts with the lowest ones. The lower number of occurrences corresponding to abstract and non-site-specific claims. “Newburyness”, “Heart of the Community”, “Financial” or “Environmental Sustainability”, “Identity”, “Culture and Art”. These are just some examples of low-ranking categories, and one or two comments revolved around them.

The hypothesis that reality and the project-site acted as natural referential objects is corroborated by an opposite trend visible in “dreams” and “solution” bar charts. When dealing with “dreams” and “solutions” in the general sense, citizens were asked to perform an act of imagination. Indeed, at the time of the Community Planning Weekend workshop, there was no proposal for a masterplan. Not dealing with the project site and in the absence of a virtual referential object, citizens seemed to rely on multiple idiosyncratic referential objects. The bottom half of the “dream” chart and the entire “solution” chart is an eloquent map of this phenomenon: each category was mentioned by four or fewer people. The hypothesis that at Newbury citizens spontaneously relied on reality to formulate ideas would explain the asymmetrical relationship between the count of inputs and number of categories across “problems”, “dreams”, and “solutions”. In short, at that early stage of design, problems were real and familiar to the citizens of Newbury. Dreams and solutions required citizens to tap into their imagination. As a result, communication resulted in two different patterns. On the one hand, consensus over a limited number of problems. On the other hand, a larger variety of idiosyncratic ideas.

A caveat: his discussion must be considered in its intent: to understand and describe how experts and locals communicate within the boundaries, tools and methods of charrettes. The intents of a charrette and of designers are different and not always easy to discern. The two must not be conflated, and value judgments should not be drawn. For example, the existence of a shared referential object is not positive or negative in itself. In fact, brainstorming sessions, e.g. post-it sessions, often benefit from the lack of boundaries to elicit creativity.

Finally, as already discussed, the occurrence of comments for each category, e.g. quantity, is not an indicator of quality or relevance. The “Issues and Actions” list, i.e. the roadmap for the development of the project, includes several elements from the low-ranking themes.

At the Community Forum of September 2015, the interaction was focused on a concrete masterplan proposal. At this stage, communication was two-sided. On the one hand, architects illustrated the plan and its main features through visual artefacts, e.g. maps, models, diagrams, etc. On the other hand, citizens provided verbal comments, which were recorded. This discussion was not based on sticky notes or physical artefacts. It is, therefore, impossible to perform content analysis as for the Community Planning Weekend workshop. Nevertheless, by tracking the evolution of the masterplan and cross-referencing its amendments with press reports and official emails, it is plausible that communication was grounded on the visual artefacts.

The next section provides examples of how the masterplan was affected by the inputs from the local community.

4.4.8.2 The process of co-learning: how participation influenced design

The Community Planning Weekend was staged as a public brainstorming. In response to general questions about “problems” and “solutions”, citizens generated a large number of inputs in the form of pieces of comments on sticky notes. A plenary discussion led by the architects helped all participants to make sense of the fragmented inputs and put them in context. In particular, the Hands-on Planning session allowed inputs to be related to the physical reality of Newbury. The plenary discussion was a first attempt to attribute qualities and relevance to the inputs. For example, the issues concerning the Quaker’s House and the parking situation were discussed longer than other minor topics. Likewise, certain topics emerged at a larger number than others. The outcome of this first step was a pool of post-its reflecting citizens inputs and seven thematic maps co-produced by groups of architects and citizens. From a knowledge management perspective, this phase yielded “information”, i.e. elaborated data.

Second, the architects tapped into this pool of inputs in search for relevant information to advance the design process. The goal of the architects was to synthesise information into a coherent framework. The framework was embodied into a set of deliverables, i.e. the “Issues and Opportunities” list, the “Key Themes” list and the consensus masterplan. In this phase, information was subject to a screening process. On the one hand, relevant information was embedded in the “Issues and Opportunities” list and becomes knowledge to develop a masterplan. On the other hand, irrelevant information was discarded. Evidence from the alluvial diagrams indicates that the transformation process from information to knowledge did not follow a democratic pattern. In other words, relevance was not associated with the relatively high count of similar inputs. Indeed, most of the guidelines included in the “Issues and Opportunities” list are based on less than four comments. Relevance was assessed by the architects in light of their expertise and responsibility for the project. In fact, expertise alone does not suffice to explain the construction of the “Issues and Opportunities” list. The architects were also influenced by themes emerging from the plenary discussion. The “Issues and Opportunities” list, in particular, can be considered the document in which knowledge and expertise come together to construe a body of shared knowledge. The content of the list mirrored the key points discussed with the local community validated by the architects.

The final stage involved the production of visual and legal documents to represent and describe the masterplan. The masterplan emerged as the interplay of several factors, such as technical and financial analyses, ongoing negotiations, and resource constraints. The “Issues and Opportunities” list remained the referential object to represent citizens in the development of the masterplan, which was carried out in the architects’ office. Before the masterplan was submitted to the Council, the design team organized a public meeting (e.g. the so-called “Community Forum”) to

collect feedback on the design. After due amendments, the project was submitted. As part of the planning application, the architects drafted a Statement of Community Involvement (SCI). In the SCI the architects explain how the design of Market Street was influenced by the local community aspirations. Two tables provide an accurate picture of the amendments to the masterplan and their underlying rationale (Newbury SCI 2016:35,36). These tables are an important data source to understand how participation influenced design. They also inform on the kind of knowledge informing the designers. For this reason, they are reported below, albeit in an abridged form (Table 21).

Table 21. How participation influenced design. Table of synthesis for the Newbury Market Street case study.

Community Aspiration (formalized during the Community Planning Weekend, July 2015)	Community comment (formalized during the Community Forum, September 2015)
Support for Market Street regeneration with mixed use development	Reduce the height of Block G on the station forecourt
A new gateway to Newbury from the railway station.	Improve the design of the station forecourt buildings to provide a public space opposite the station.
Attractive buildings and spaces designed with a Newbury character - 'Newburyness'.	Improve the visibility and accessibility of the 'gateway' to Station Walk linking the station to the town centre.
A mix of accommodation to support a balanced community.	Provide on-site parking for Quakers' Friends Meeting House
A range of housing, commercial and community uses to ensure mixed and active "community living"	
Ensure investment in Market Street helps revitalise Cheap Street and Bartholomew Street to create a vibrant southern quarter.	
Strong, accessible pedestrian and cycle links to the town centre.	
Accommodate the Quakers' Friends Meeting House.	
Bus services serving the station.	
Future proofing should the Kennet Centre be redeveloped in the future.	
Minimise inconvenience during the construction period.	

The table introduces two terms: "aspirations" and "comments". Both terms – exactly transcribed from the original document – reveals the relationship between community inputs, stage of development, and design. "Aspirations" are ideas generated at the Community Planning Weekend workshop. "Comments" are responses to a comprehensive masterplan, as presented to the community at the Community Forum in September 2015.

A caveat: the “aspirations” introduced in Table 4 were produced after the final masterplan was drafted, in September 2015, in an attempt to communicate how participation influenced design. As already discussed, the primary source for “aspirations” was the “opportunities” section of the “Issues and Opportunities” list. The list was written in the aftermath of the Community Planning Weekend workshop, in July 2015, and was the main referential document at the beginning of the masterplan development. From a conceptual and pragmatic point of view, “aspirations” and “opportunities” are two different things. In theory, however, the extent by which citizen inputs informed the final design should be reflected in the relationship between “aspirations” and “opportunities”. Citizen inputs influenced design to the extent that “opportunities” are mirrored and encompassed by “aspirations”. Any discrepancy between the two would reveal the extent by which the “Issues and Opportunities” list performed as a sound framework to transfer citizen inputs throughout the complexities of a design process.

The following alluvial diagram maps the cross-comparison of the two tables, namely the “opportunities” section from the “Issues and Opportunities” list and the “community aspirations” from the “Statement of Community Involvement”.

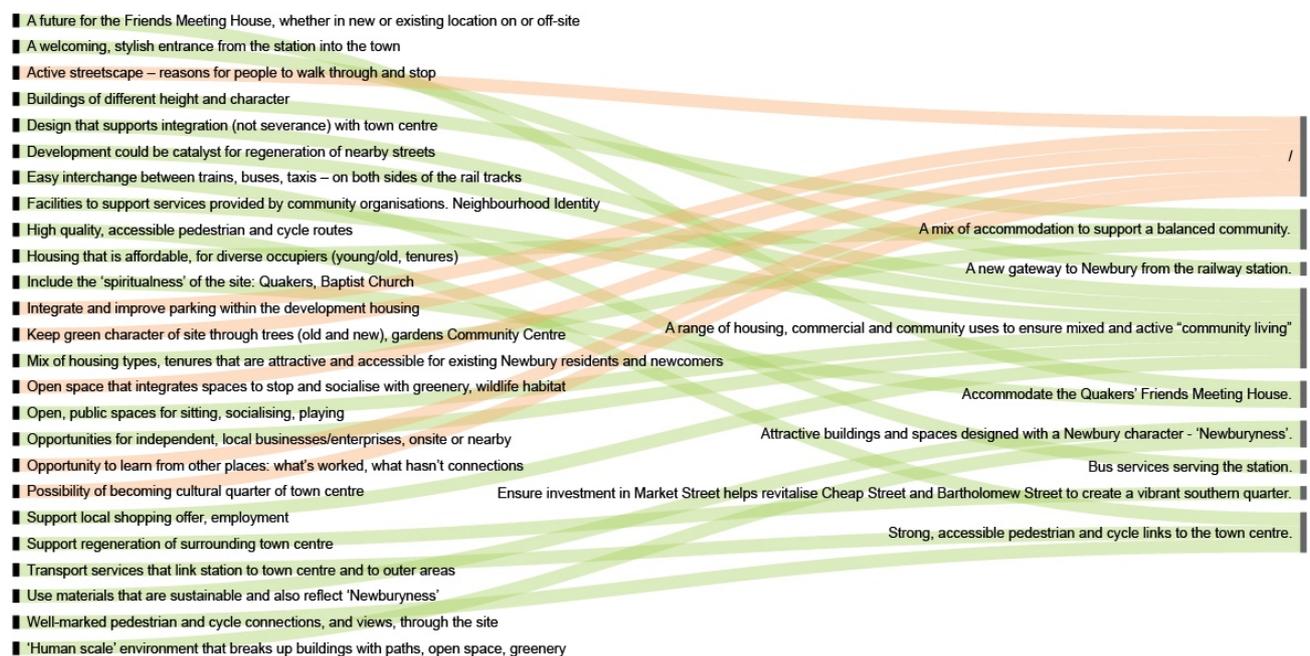


Figure 34. Alluvial diagram. Comparison between the list of opportunities (Issues and Opportunity list, July 2015) and the aspirations (Statement of Community Involvement, September 2015).

Table 22. Table of synthesis. Comparison between the list of opportunities (Issues and Opportunity list, July 2015) and the aspirations (Statement of Community Involvement, September 2015).

Opportunities (Drafted in July 2015)	Aspirations (Drafted in September 2015)
Buildings of different height and character.	A mix of accommodation to support a balanced community.
Opportunity to learn from other places: what's worked, what hasn't.	/
Design that supports integration (not severance) with town centre.	A range of housing, commercial and community uses to ensure mixed and active "community living"
Well-marked pedestrian and cycle connections, and views, through the site.	Strong, accessible pedestrian and cycle links to the town centre. Support for Market Street regeneration with mixed use development.
Transport services that link station to town centre and to outer areas.	Strong, accessible pedestrian and cycle links to the town centre.
Integrate and improve parking within the development housing.	/
Housing that is affordable, for diverse occupiers (young/old, tenures).	A mix of accommodation to support a balanced community.
A future for the Friends Meeting House, whether in new or existing location on or off-site.	Accommodate the Quakers' Friends Meeting House.
Open space that integrates spaces to stop and socialise with greenery, wildlife habitat.	A range of housing, commercial and community uses to ensure mixed and active "community living".
Development could be catalyst for regeneration of nearby streets.	A range of housing, commercial and community uses to ensure mixed and active "community living".
Support local shopping offer, employment.	A range of housing, commercial and community uses to ensure mixed and active "community living".
A welcoming, stylish entrance from the station into the town.	A new gateway to Newbury from the railway station.
Easy interchange between trains, buses, taxis – on both sides of the rail tracks	Bus services serving the station.
High quality, accessible pedestrian and cycle routes	Strong, accessible pedestrian and cycle links to the town centre.
Open, public spaces for sitting, socialising, playing.	A range of housing, commercial and community uses to ensure mixed and active "community living".
Active streetscape – reasons for people to walk through and stop.	/
Keep green character of site through trees (old and new), gardens Community Centre.	/
Include the 'spiritualness' of the site: Quakers, Baptist Church.	Accommodate the Quakers' Friends Meeting House.
Facilities to support services provided by community organisations. Neighbourhood Identity.	A range of housing, commercial and community uses to ensure mixed and active "community living".
Support regeneration of surrounding town centre.	Ensure investment in Market Street helps revitalise Cheap Street and Bartholomew Street to create a vibrant southern quarter.
Opportunities for independent, local businesses/enterprises, onsite or nearby.	A range of housing, commercial and community uses to ensure mixed and active "community living".
Possibility of becoming cultural quarter of town centre.	/
Mix of housing types, tenures that are attractive and accessible for existing Newbury residents and newcomers.	A mix of accommodation to support a balanced community.
'Human scale' environment that breaks up buildings with paths, open space, greenery.	Attractive buildings and spaces designed with a Newbury character - 'Newburyness'.
Use materials that are sustainable and also reflect 'Newburyness'.	Attractive buildings and spaces designed with a Newbury character - 'Newburyness'.
	Future proofing should the Kennet Centre be redeveloped in the future.
	Minimise inconvenience during the construction period.

Overall, the “community aspirations” underpinning the project matched the initial “opportunities” drafted in the aftermath of the Community Planning Weekend. The diagram provides evidence that the “Issues and Opportunities” list was properly consulted throughout the design process. Indeed, later versions of the masterplan include most of the elements articulated in the list. The final masterplan also includes the following guideline, which was not reported in the “aspirations” section: “Integrate and improve parking within the development housing”. Only three “opportunities” were not fulfilled. In the diagram, they are represented by the points disconnected from any “aspiration” (Figure 34):

- “Active streetscape – reasons for people to walk through and stop.”
- “Keep green character of site through trees (old and new), gardens. Community Centre.”
- “Possibility of becoming cultural quarter of town centre.”

One hypothesis to explain the mismatch between initial intents and actual design is the abstract nature of the inputs. The architects could deal with the guidelines from the “Issues and Opportunities” list to the extent that they described spatial structures. Unlike other guidelines from the “opportunities” list, the un-fulfilled ones do not indicate any spatial configuration. Instead, they describe general principles of planning (e.g. “active streetscape”), or visions for Newbury at a general level (e.g. “cultural centre”). Data supporting this hypothesis are scarce. Furthermore, the primary data source for this investigation, namely Table 4, has its limitations. “Aspirations” were laid out to explain to the public how citizens inspired spatial transformations. They alone do not encompass the entirety of the project. A second hypothesis is that “aspiration” indicates how initial “opportunities” were re-conceptualised as the project developed. In the three months of actual design between July and September 2015, negotiations, analyses and measurements occurred. During this time, some initial intents may have changed due to new information, or feasibility assessment. Evidence in support for this hypothesis seems stronger. On the one hand, the alluvial diagram indicates how several loose “opportunities” converge into a small number of well-articulated “aspirations”. From a qualitative point of view, “aspirations” appears as more precisely defined. For example:

“Include the ‘spiritualness’ of the site: Quakers, Baptist Church”

and

“A future for the Friends Meeting House, whether in new or existing location on or off-site”

are somewhat generic statements indicating vague intents. By reading them, it is not clear whether the Meeting House would be kept in place or relocated. Plus, the concept of “spiritualness” needs to be grounded in spatial terms. Yet, after the design team underwent a process of negotiations and design, they could rephrase the community aspiration as: “Accommodate the Quakers’ Friends Meeting House”. A similar observation can be made for the other aspirations.

On the other hand, the presence of two extra aspirations that did not appear in the initial “opportunities” list suggests that they emerged as the design process progressed.

- “Future proofing should the Kennet Centre be redeveloped in the future”.
- “Minimise inconvenience during the construction period”.

Both hypotheses may be true at the same time.

As far as the “community comments” are concerned, they were put forward at a later stage of design, when the masterplan had already been defined. In fact, they represent minor amendments to the overall design of Market Street project.

4.4.9 Partial findings from the Newbury case study

In light of what has been discussed throughout the Newbury chapter, the following arguments emerge:

About the stage and duration of participation

- Participation at an early stage of design is bound to generate (1) relevant and detailed insight about local problems and (2) generic descriptions concerning the future development of design.

About the methods and tools adopted during the process of participation

- Brief post-it sessions based on broad questions (e.g. problems, dreams, solutions) are effective modes to elicit inputs from a large audience in a short time.
- Regardless of the relevance of the inputs produced, early stages of design benefit from brainstorming sessions.
- The process of synthesis of the key points emerged from the public event provides an opportunity to attribute relevance to local inputs.
- Tables or lists of synthesis are key artifacts for participatory design. On the one hand, they streamline citizen inputs in a form that is suitable for design purpose. On the other hand, they

provide a referential object for the future development of a project. As such, they are vital components in the workflow of participatory design.

About the referential cognitive objects

- During early stages of design and in the lack of project proposals, the only shared referential object is the local environment. The local environment refers to both the physical and the social fabric encompassing the project site.
- When the public is engaged in early stages of design to frame the design problem, citizens naturally refer to the project site to ground their inputs. Although not all inputs are related to the project site, the most relevant are.
- When the public is engaged in early stages of design to come up with design ideas, citizens base their answers on personal, idiosyncratic references.
- As the project develops and is made public through reports, images, and sketches, the project itself becomes a shared referential object.

About learning, knowledge generation, and design

- Following open questions on architectural issues, non-experts generate several types of inputs: information, opinions, value judgments, and wishful thoughts. In some instances, different types of inputs may appear intertwined.
- In order for inputs to be useful for design purpose, they need to be turned into applied knowledge.
- The transformation of inputs into applied knowledge does not follow a democratic principle. Rather it is governed by a Darwinian principle. Inputs are not selected proportionally to their occurrence, but to the extent that they are relevant for the project.
- Experts are in charge of assessing the relevance of citizen inputs. They rely on expertise to transform inputs into applied knowledge, i.e. knowledge serving design purpose.

4.5 Cowes

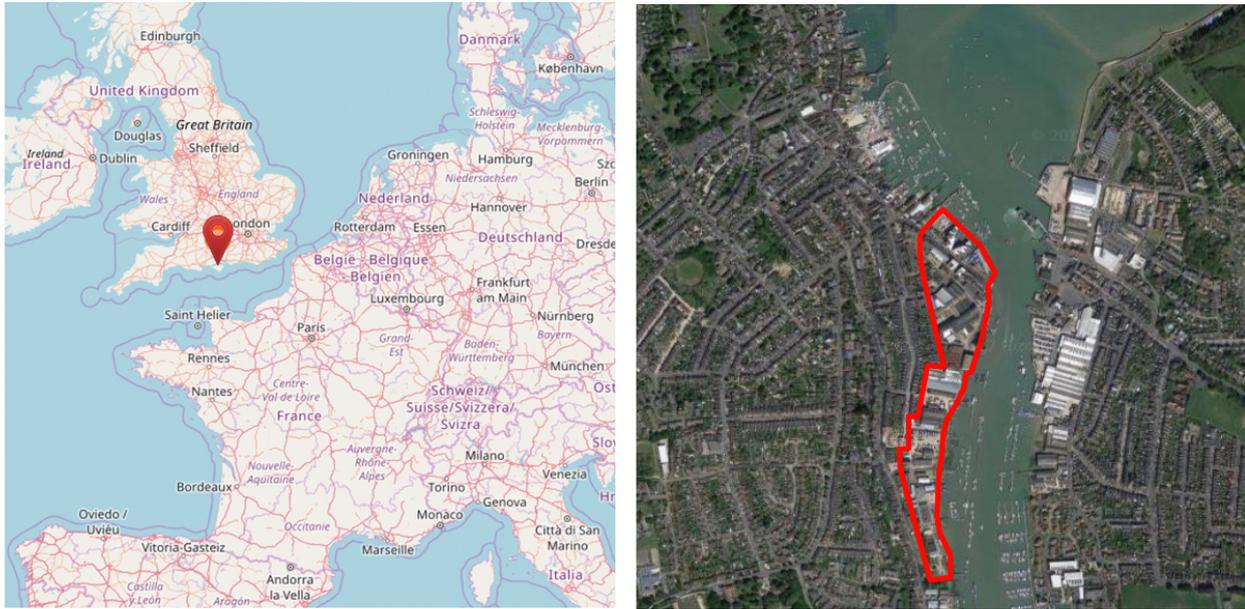


Figure 35. . Location of the project site in Newbury. Source: Open Street Map (left) and Google Maps (right). Accessed 12 November 2017.

4.5.1 Decision to undertake a project, definition of goals, budget and experts, preliminary analyses.

Medina Yard is a 5 ha site on the west bank of the Medina River, in the south of the English town of Cowes, Isle of Wight. In the past century, the site was used to build and repair large boats. Following the industry's decline of the late twentieth century, the area accommodated multi-let business and industrial functions, while boat storage and repair functions remained confined in a small area of the site. In the early 2000s, the majority of buildings and the infrastructure of the Medina Yard was outdated and dilapidated. As a consequence, the Yard experienced increasing levels of vacancy and dilapidation. No longer fit to accommodate any sustainable urban function, the Medina Yard needed regenerating. In 2005, the site owner proposed a masterplan for a mixed-use development. The proposal was withdrawn as it found opposition from the Council. In 2007, the Council appointed a Development Team to pursue the redevelopment of the Yard through the Island Plan. Technical analyses on the iconic crane and the waterfront were commissioned in 2007-2008 in support of the Plan. In 2009 a masterplan for the Medina Yard was put forth by an English planning company. The masterplan identified opportunities and constraints for the development of the area.

After five years of public discussion, technical reviews, and amendments, the Island Plan was approved in 2012 and Medina Yard was promoted as a potential development site. In March 2012,

the Council and the site owner secured a planning performance agreement (PPA). The PPA identified deadlines and documents to be submitted to the Council, including a strategy to engage the local community. Under the National Planning Policy Framework and the IoW Council Statement of Community Involvement, developers are encouraged to engage with the public, “for applications that are likely to have a significant impact on the wider community” (Cowes PPA 2012). JTP was appointed to develop a masterplan by including public input. Between January 2013 and January 2016, twelve public events took place. Each event was an opportunity for citizens to get informed on the evolution of the process, and to provide feedback. Prior to any public workshop, the architects undertook spatial analysis of the site, e.g. land use, building heights, accessibility, and the architectural and spatial character of Cowes (Figure 36). Together with inputs from the public, this analysis informed the first masterplan proposal for the Medina Yard.

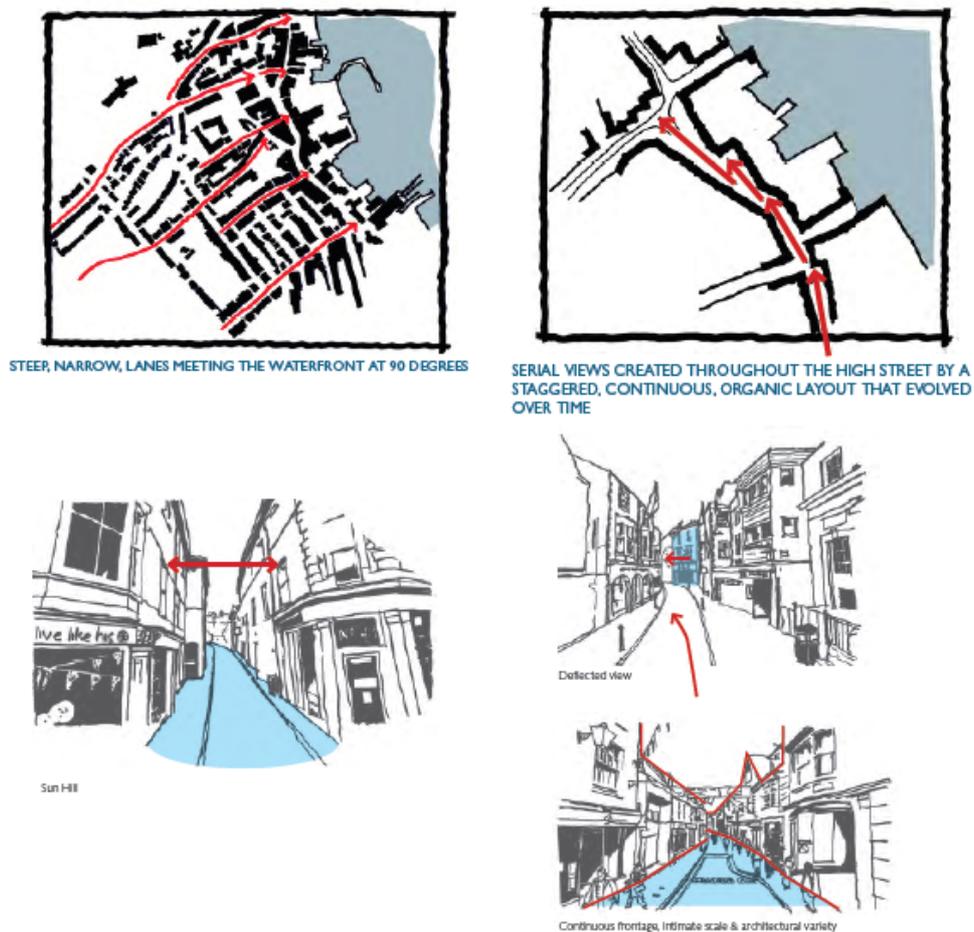


Figure 36. Example of spatial analysis performed by JTP. The architects attempted to capture Cowe’s predominant architectural and urban features. Courtesy of JTP. Source Design and Access Statement (Cowes DAS 2016:30).

On 13 January 2013, JTP organized a Launch to introduce the goals of the project to the public. The Launch was also an opportunity to publicise the upcoming Community Planning Weekend (CPW),

which took place on the 1 and 2 February 2013. According to official reports, over 200 people attended the CPW to create a new vision for the site.

4.5.2 The charrette: Hands-on planning

Transcripts of the post-its from the Medina Yard Community Planning Weekend workshops were not available for analysis. However, post-its informed the development of the 11 plans drafted during the Hands-on Planning session, as well as the “Issues and Ideas” and “Key Themes” lists.

Table 23. Verbal summary of the key points discussed during the Hands-on Planning session. Source: Statement of Community Involvement (Coves SCI 2016).

Group Name	Focus	Key discussion points
“Gateway to River”	Participants from the Youth Water Activities Centre (IYWAC). Suggestions for the youth of Cowes	Waterfront cycle route through the site providing direct link from town centre to Newport New Building for IYWAC with modern changing facilities and heating Housing zone with shops at ground level Retained crane with café/flexible space that welcomes young people Flexible parking area that could also host events such as a farmer’s market Boat Yard with public slipway Green space overlooking boat yard with play area
“Walk + Water”	The location of the Medina Yard within the broader region of Cowes	Visitor arrival Visitor and freight arrival Yacht arrivals give commercial opportunity High visibility site connection East and West Cowes currently a broken heart Important connection with Cowes town centre - should complement not compete
“Heritage Connections”	The heritage of Cowes, museums and workshops.	New Cowes Heritage Centre Tank Museum Bus Museum Classic Boat Museum Classic Boat Shuttle Service Classic Bus and Cycle Route Refurbished Hammerhead Crane Heritage Centre relating to Cowes achievements: - Engineering - Shipbuilding - Hammerhead Crane - Classic Boat ‘Taster’ Exhibition - Cafe Outdoor Performance Space - Programmed events - Sound & Light show - Markets Listed Sail Loft Deep Water harbour for display of boats Potential Views of Crane

“Local and Vocal”	The needs of the community	<p>‘Fir for purpose’ work facilities Retain the boat yard and create jobs Public promenade and open space with a public house and views of the sea Smaller houses for local people Combined Public and Community uses including:</p> <ul style="list-style-type: none"> - Heritage Centre - Tourist Information Centre - Multi-use Leisure Centre - Health & Wellbeing Centre - Additional nursery (current wait list of 12 months) - Public Toilet
“Treasure Island”	The manifold opportunities of the site	<p>Potential to encourage tourism Potential for closer links with East Cowes via better Ferry communications Potential to create a Lisbon feel along the water front with wide walkway and shops/cafes Retain the crane and treat it like the Forth Bridge, with consistent maintenance Create new basins for greater riverside opportunities and to provide fill to build new flood defences. Maintain a balance of uses with residential and commercial enterprises Create a development brief</p>
“A New Esplanade”	Access and movement strategy for the site	<p>Primary access point to the site A shared pedestrian/cycle route through the site Cycle/Pedestrian route behind the industrial use should continue to the south Cycle/Pedestrians routes should provide direct access to the floating bridge Provide adequate car parking. A new SPG is being prepared for residential parking The site lends itself to pump priming a Cowes Car Club to reduce parking demand HGV route from East Cowes via Newport The esplanade faces outwards, the centre of Cowes faces inwards.</p>
“Team Me”	General ideas for the site	<p>New bridge replacing the Cowes chain ferry to link Cycle route and esplanade Place of employment Pizzeria Leisure centre including a swimming pool, tennis courts, gym and sports pitch Velodrome Retirement home and health walk</p>
“Hammerhead Square”	A new square around the Hammerhead Crane	<p>Links along the water Slipways and provision of new points of access New routes of access from Pelham and Thetis Roads Long views to the crane from the town and River Medina Development of crane area, featuring</p> <ul style="list-style-type: none"> - Sound and vision shows - Crane demonstrations - Cowes Heritage Tours - Cowes Regatta as an extension to Cowes Week - Inclusion of art and artefacts in Hammerhead Square - A heritage centre, café and viewing platforms - Invite Polish Navy back to celebrate Blyskanawica ship

“Team Town”	The connection of the project site with the old town	Predominantly residential apartment homes Gateway space Public space with the crane as a focal point New publicly accessible esplanade Rationalised boat mooring Public slipway and square Employment area for marine activity New ‘front door’ public space Route to the crane Waterfront promenade Public slipway Cycle route linking the town centre and Shamblers Copse
“Something for the People”	Buildings and functions for the local community	Community Centre combined with Tourist Information Smaller units on the boat yard Sustainable jobs for the local people for the entire year, not just in the summer season ‘Affordable Units for the People’ - a mix of houses and buyers
“The Promenade”	A new promenade as the backbone of the new development	The location of several facilities along a new promenade

4.5.3 The charrette: Synthesis of results and production of deliverables

Following the Community Planning Weekend public sessions, the JTP team synthesized the inputs collected from the workshop into two documents: the “Issues and Ideas” list. In addition, the key outcomes from both the workshops and the hands-on planning groups were distilled into the “Key Themes”. Both documents are written accounts reflecting an attempt to bring together issues and aspirations into a coherent set of guidelines. On the basis of these guidelines and the hands-on planning drawings, a vision masterplan was drafted.

Table 24. Synthesis of the “Issues and Ideas” list for the Cowes project. Source: Statement of Community Involvement (Cowes SCI 2016).

	Issues
Image and identity	Cowes is a world famous place but could do more to celebrate its heritage and attract visitors
	Cowes is a half/half town - east/west, locals/incomers, young/old, have yacht/have not
Medina Yard	Buildings are rundown, unattractive and a blight on the local area
	Sea wall in poor condition
	Concern over flooding
	High cost of regenerating the site
Access to the water	Limited public access to enjoy the waterfront
	Limited public slipway access
	Lack of affordable boat storage
Heritage	Lack of interpretation of Cowes heritage
	Hammerhead crane - heritage value versus cost of refurbishment
Local economy	Lack of visitor accommodation and facilities to keep visitors spend in the town
	Concern for the existing jobs at Medina Yard
	Lack of modern space for boat yard activity, start-ups and SMEs
	Cowes needs new sustainable jobs
Access and parking	Large commercial vehicles through residential areas
	Lack of resident parking, including disabled spaces
	Effect of new resident parking on surrounding streets
Community amenities	Lack of modern, multi-use community facility
	Lack of open space, play and leisure areas Housing
	Availability/affordability of housing for local people
	Homes lived in for only part of the year

	Ideas
Regenerating Medina Yard	Create an iconic waterfront development for locals and visitors, accessible to all Including housing, restaurant, retail, hotel, boat yard, industrial units, heritage interpretation
	Connect to and complement the town centre offer to create spaces for Cowes Week pop-up activities
Planning and design	Plan and design in liaison with the Council, stakeholders and the community
	Confirm flood risk areas and find solutions
	Establish parking demand and improve its provision
	Create a place with its own distinctive character, linking the heritage of the past to the lifestyles of the future.
The waterfront	Deliver an accessible waterfront with a public slipway, arts and heritage attractions
	Make the waterfront a focal point for public and cultural activity
	Create a lively sequence of public spaces with play, cafes, shops, etc.
	Provide a new flexible community arts facility
Local economy	Look to the future. Support the establishment of thriving businesses and apprenticeships e.g. IT start-ups, boating related, arts and crafts, etc.
	Build a modern boat yard and retain existing users wherever possible
	Create a skills centre teaching marine skills to people from island and mainland
	Provide a hotel to create sustainable jobs and retain Visitors
Housing	Create a range of new homes that blend in with the site and its surroundings
Community participation	Establish a Community Forum for the continuing exchange of information and ideas
	Explore opportunities to establish partnerships to fund raise and support heritage, arts and sports etc.

Key Themes

Table 25. Table of summary with Key Themes emerged at the Cowes Community Planning Weekend. Source: Statement of Community Involvement (Cowes SCI 2016)). Sentences in italics are quotes by citizens expressed during the workshop.

Key Theme	Description
Support for regeneration	Medina Yard has been an important site for the town of Cowe. The regeneration of the site has a potential to benefit the local community. <i>“Cowes has lived on its past for years – we need to look to its future”</i>
Revitalization of the local economy	Shipbuilding is no longer a sustainable option for bringing jobs to the citizens of Cowes. The new development should accommodate new jobs (e.g. start-ups, arts and crafts, hospitality, etc.) <i>“There is an ample supply of good quality inexpensive industrial and business space on the Island, but still some requirement for traditional and start up workshop/office space near boatyard”</i>
Retain marine related employment and training	People expressed concern about the future of maritime activities on the site. <i>“Think about the people who work there now”</i>
Hammerhead crane	Mixed feelings surround the landmark of Medina Yard. Some would like to preserve it, some others not. <i>“Big up the crane as an installation with a light show and fireworks!”</i> , <i>“The crane is not universally loved!”</i>
Addressing complex and costly redevelopment	The redevelopment of Medina Yard is expensive. The plan should be economically sound. <i>“Nothing will happen here if it’s not economically viable”</i>
Delivering a new accessible public waterfront	There is not much public space in the waterfront. The new development has a potential to improve it, as well as multi-modal connections with the town center. <i>“The trick is to keep the vibrancy of a living waterfront.”</i>
Creating a mixed-use place	The new development should be inclusive for locals and visitors. This goal can be reflected in a mixed-use programme of housing, retail, hotels and restaurants. <i>“We want something that’s inclusive not exclusive.”</i>
Celebrating local heritage	The site of Medina Yard reflects the broader maritime culture of Cowes. The new development should include features echoing such heritage. <i>“This area has a proud heritage which should be celebrated!”</i>
Continuing the process	Participants of the event were keen to be involved in further stages of development. <i>“Find a vision that’s economically viable and then support it!”</i>
Making a place for young people	Young people lack facilities to learn new skills and pursue new interests. The Medina Yard development can contribute to this by providing a new community facility with flexible space. <i>“There’s an opportunity to invest in our young people”</i>

4.5.4 First proposal: the vision masterplan

The first masterplan elaborated by the team of experts reflects the key themes discussed during the Community Planning Weekend (Figure 37).



Figure 37. The vision masterplan for the Medina Yard in Cowes (UK). Courtesy of JTP. Source: Design and Access Statement (Cowes DAS 2016).

The layout of the masterplan is a network of pedestrianized roads linked to the adjacent town. Three entry points grant access to the new development site, leading to the waterfront. The focal point of the development is a public square arranged around the historic Crane. The masterplan is comprised of several building typologies, e.g. housing blocks, row houses, and non-residential buildings. This

diversity suggests a mixed-use development, which cannot be fully appreciated at this stage of design. Indeed, the goal of the vision masterplan was to define the general structure of the project, with a focus on public space, mass distribution and access. The description of the project included in the Design and Access Statement indicates that cafés, restaurant, and retail would be located along the main pedestrian route.

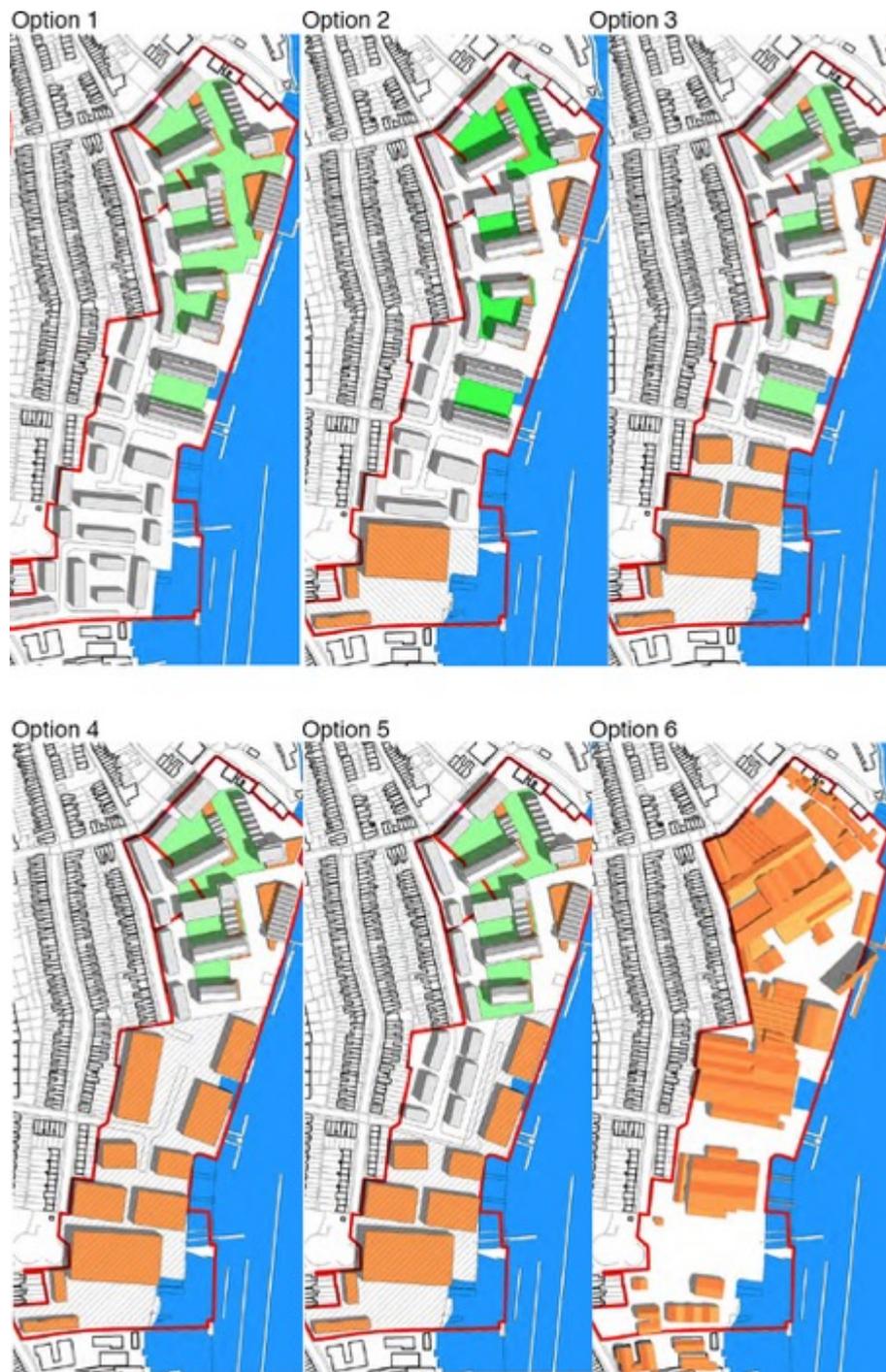
4.5.5 Midterm review: feedback from citizens

The redevelopment of Medina Yard project site was expected to entail extraordinary costs. Indeed, aside from standard costs, the seawall had to be replaced, and the Crane refurbished. The local Planning Department requested a viability study to understand the quantum of Marine Employment land that could be retained on site. The masterplanning team developed six development scenarios by running cost-analysis methods. Cost estimates included demolition costs, flood risk mitigation, sea wall renewal, basement car park, and ecological and environmental improvements. Table 26 introduces the six scenarios for the Medina Yard and the outcome of viability studies.

Table 26. The six development scenarios for the Medina Yard in Cowes. Synthesis of the outcomes of the viability studies. Adapted from Design and Access Statement (Cowes DAS 2016)

Scenario	Description	Viable?
Option 1	All residential development	YES
Option 2	Residential led mixed-use development. Marine industry located in a cluster yard in the south part of the site.	YES
Option 3	Residential led mixed-use development. Marine industry located in a cluster yard in the south part of the site. Larger cluster compared to Option 2	NO
Option 4	Residential, mixed-use development is balanced by large marine industry cluster	NO
Option 5	Employment driven mixed-use development with a small residential area in the north of the site	NO
Option 6	All marine employment	NO

The spatial implication of the six scenarios are shown in Figure 38.



**Figure 38. Viability studies for the six development scenarios for the Medina Yard in Cowes. Courtesy of JTP
Source: Design and Access Statement (Cowes DAS 2016).**

The viability study was performed by the masterplanning team prior to the second public meeting, i.e. the Community Forum. At the Forum, a discussion with the local community led the design team to opt for a mix between Option 2 and Option 3. In other words, that meant to balance the marine employment space of Option 3 and the mixed-use space of Option 2. The result of this process – named “Option 2.5” - is presented in Figure 39.



Figure 39. “Masterplan Option 2.5” for the redevelopment of Medina Yard in Cowes. Courtesy of JTP. Source: Statement of Community Involvement (Cowes SOI 2016).

The general layout of the site is not significantly different from the one represented in the vision masterplan. A comparison between Figure 37 and Figure 39 reveals amendments in the southern part of the site. Housing has been reduced to improve the space destined to the marine industry. For

example, the large rectangular shape at the bottom of the picture represents a storage boat facility. Overall, the quantity of public space has been reduced in the south and improved in the north.

4.5.6 Final proposal

Building from the Masterplan Option 2.5, the design team produced the final masterplan for the Medina Yard (Figure 40).



Figure 40. Final masterplan for the new development of the Medina Yard. Courtesy of JTP. Source: Design and Access Statement (Cowes DAS 2016).

The masterplan describes a mixed-use area comprised of 535 homes of varying unit sizes. Additionally, the masterplan includes 1250 m² of office space and 2500 m² of retail, restaurant, and café uses. Office space would accommodate small and medium enterprises, while restaurants and

cafés would support existing and new businesses. The focal point of the development was the Listed Hammerhead Crane, retained in the middle of a new square. Adjacent to the square, a new maritime heritage museum would provide new community facilities. The core of the site would be pedestrianized and the public realm was articulated on three small squares. A new seawall with a publicly accessible waterfront would stretch across the entire length of the site and is designed to prevent flood events. An ecology area can be found in the central part of the development. Sustainable and energy saving technology would reduce carbon emission footprint, i.e. CHP energy centre, green roofs and photovoltaic cells. From a procedural standpoint, the masterplan for the Medina Yard was submitted as a hybrid application¹⁰. As a consequence, the north part of the masterplan is illustrated in detail, while the southern part is defined in outline terms.



Figure 41. Boundaries of the Medina Yard hybrid planning application. Phase I indicates a detailed application, while the remaining site is defined as an outline planning application. Courtesy of JTP. Source: Statement of Community Involvement (Coves SCI 2016)

While undergoing formal review by planning authorities, all documents were published online and available to public scrutiny. At the time of writing, the project planning application still awaits determination.

¹⁰ The Planning Portal, a joint venture between a private company and the British Department for Communities and Local Government defines a hybrid application as follows: “one that seeks outline planning permission for one part and full planning permission for another part of the same site”.
Source: https://www.planningportal.co.uk/info/200126/applications/60/consent_types (Accessed 16/04/2017).

4.5.7 Lay-expert interaction: knowledge generation and the evolution of design

The first level of investigation is aimed at revealing interconnections between the three factors influencing lay-expert interaction. In particular:

“In which way does [column element] influence [row element] in the Cowes project?”

Table 27. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Cowes project.

		Stage and duration of participation	Tools and methods	Sources of reference
Stage and duration of participation	Multiple short-term events.	X	Tools must efficiently engage large groups in a short time frame.	At first, the project site is the only shared referential object. Then, comments are grounded on the proposal put forward by the masterplanning team.
Tools and methods	Sticky notes “Issues and Ideas” list.	X	X	Division of the workshop in “problems” and “dreams / solutions” sessions created a divide. (1) Problem phase: the project site is a shared referential object. Inputs are specific. (2) Dream / solution phase: multiple referential objects. Ideas are general in nature.
	Maps, sketches, and the wooden model	X	X	X
Sources of reference	(Early stage) The project site.	X	X	X
	(Later stage) The proposed masterplan.	X	X	X

The design process at Cowes followed the pattern of the Newbury project, whereby public events were alternated with independent work by the architects. The local community was involved from an early stage and updated throughout the design process (Figure 42).



Figure 42. Timeline of the design process for the Medina Yard regeneration project. The timeline illustrates public events, such as workshops, fora, and exhibitions. Courtesy of JTP. Source: Statement of Community Involvement (Coves SCI 2016).

At the Community Planning Weekend of February 2013, citizens were engaged to provide with ideas and suggestions for the design team. To manage large groups of citizens while sustaining productive discussions the architects adopted the *charrette* format. A brainstorming session based on broad and simple questions (e.g. “What are the problems in Cowes?”) enabled all citizens to participate. The Hands-on Planning session was useful to translate ideas into space, thus exploring issues of feasibility. Since at this stage there was no pre-determined design, the discussion was virtually open to any kind of discussion. In practice, the “Issues and Ideas” list indicates that, by the end of the workshops, most ideas were grounded on the project site. To sustain participation throughout the entire design process via public events, the architects produced *ad hoc* material to explain the evolution of the project. Such material includes maps, diagrams, sketches, renderings, historical accounts, and architectural models (Paragraph 4.5.1), and was presented at the six Community Fora.

As a second level of investigation, the three key elements affecting lay-expert interaction are related to communication, mutual learning, and design. In particular:

“In which way does [column element] influence [row element] in the Cowes project?”

Table 28. “Matrix B”. Table of synthesis of the key factors in place at Cowes and how they affected lay-expert communication and the development of design

		Communication	Learning / Design development
Stage and duration of participation	Multiple short-term events.	Limited time allocated to discussion required tools to survey large groups in a short time. Community Planning Weekend: mostly one-	Engaging citizens at the beginning of the process was an effective strategy to understand the urban problems of Cowes and address them through the project.

		sided communication (citizens-to-designers). Community Forums: two-sided communication: experts explained the masterplan to citizens and citizens provided feedback.	
Tools and methods	Sticky notes	Used to collect and preserve a large amount of fragmented information from hundred citizens.	Not used (see “Issues and Ideas” list)
	“Issues and Ideas” list.	Used to synthesize large amount of information into relevant shared knowledge. The list was also used as a communication tool among all actors involved in the process.	Central element for the elaboration of the vision masterplan and partial output of the process.
Sources of reference	Maps, sketches, and the wooden model ¹¹ .	Grounded ideas and suggestions in space.	Consulted during the elaboration of the vision masterplan as a surrogate of citizens needs.
	(Early stage) The project site.	A common referential ground for discussions despite the lack of a proposal. Emergence of relevant and specific insight about urban problems.	The project site was useful to understand the problems of Cowes and where to act.
	(Later stage) The proposed masterplan.	A common referential ground for later discussions.	Having too many referential objects made it impossible to integrate many ideas into a coherent design. Ideas were too many, too vaguely formulated, or non-viable.

4.5.7.1 The nature of communication

At Cowes, the communication between experts and the local community took place within the boundaries of public events. Indeed, the Community Planning Weekend workshop and several Community Forums were opportunities for citizens to partake in the design process. The Community Planning Weekend workshop was organized at the beginning of the design process. Although the architects had already collected information about Cowes, a masterplan had not yet been prepared. In fact, the architects wanted to listen to the local community for inputs to inform design. For this reason, communication was mostly one-sided, from citizens to experts. The format of the post-it sessions

¹¹ The “Issues and Ideas” list, maps, sketches, and wooden model are both tools *and* sources of reference used to interact with the local community.

encouraged citizens to reflect in terms of “problems”, “dreams”, and “solutions”. Within this general framework, citizens were free to express what they deemed necessary. Comments were collected on post-its and then discussed with the experts. All comments were then organized into clusters of thematic categories, to facilitate subsequent operation of synthesis. The process of synthesis was carried out by the architects according to the relevance of each topic for the development of a masterplan. The product of this phase was the development of two documents: the “Issues and Ideas” list and the “Key Themes” list. Although it is not possible to draw a deterministic relationship between the content of these list and the evolution of a masterplan, their goal was to include all relevant information collected during the Community Planning Weekend. From a procedural standpoint, both lists were meant to surrogate the interests of the local community in the architects’ office.

The “Issues and Ideas” list was the bedrock for the development of a vision masterplan, presented to the public as a set of visual representation. The evolution of the masterplan was presented at the Community Forum. At this stage, communication was two-sided. First, the architects explained the masterplan. Then, citizens could comment on it. Maps, posters, rendering, and physical models supported the conversation at the Community Forum (Figure 43). In other words, the manifold visual representations of the future development of the Medina Yard provided a common referential object for plenary discussions.

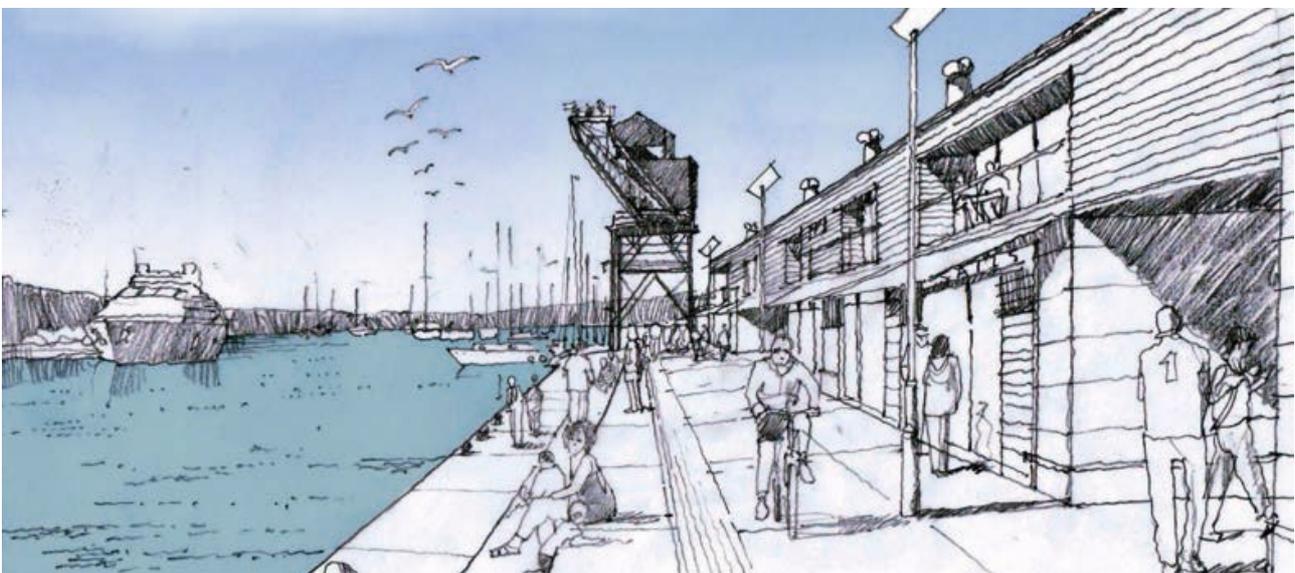


Figure 43. A view of the waterfront of the Medina Yard. The sketch illustrates how the new development may look like. Curtesy of JTP. Source: Statement of Community Involvement (Coves SCI 2016:73).

An additional mode of communication was established through the internet. After submission to the local authority, the documents of the planning application were available on the Council website¹².

¹² <https://www.iwight.com>

Citizens could download the documents and submit comments. From the submission of the proposal (July 2016) to the time of writing (June 2017), 66 comments have been submitted by individuals, as well as interest groups. Sixty-five comments were put forth during the first two weeks of August 2016. Most of these comments are critical to the overall masterplan, especially on two topics: the impacts of the new intervention, and the issue of the marine employment. To explore the content of these comments would provide material for a whole new thesis on public participation. Instances of NIMBY-ism, legitimate concerns, personal ideas, and more are intertwined together across hundreds of written pages. For the sake of this work, suffice to say that at Cowes communication extended beyond public events. Unlike public arenas, this kind of online interaction was purely one-sided. Citizen arguments could not be addressed (nor challenged) by an open discussion.

4.5.7.2 The nature of communication and the process of co-learning: how participation influenced design

As for the Newbury project, the exchange of knowledge took place largely during public events. In particular, the Community Planning Weekend provided the opportunity to collect inputs and create a general vision for the site. Community Forums served for architects to present the evolution of design and receive feedback to improve it.

The Community Planning Weekend was staged into two sub-events: a public brainstorming, i.e. the post-it session, and a hands-on planning workshop. During the event, several documents were produced in support of collective discussions. For example, sticky notes were used to fix comments and ideas to be discussed with the help of architects. Maps and sketches from the hands-on planning workshop were useful tools to ground ideas in space. The learning process was fostered by the production of such documents and the concurrent discussions in place.

Post-its and maps were not only useful for plenary discussions. They were also useful in the aftermath of the public event, when architects consulted them to inform the vision masterplan. In fact, as for Newbury, the architects did not directly consult post-its or maps. Post-its, maps, and other information captured during public discussions were translated into the “Issues and Ideas” list. Because the list was drafted by the architects, it can be considered a synthesis between local information and expertise. In other words, the transition between post-its and maps to the “Issues and Ideas” list represents the process of transformation between information and applied knowledge. Although the “Issues and Ideas” list was used by the architects as a referential object to work, it was not the primary tool of communication with the public. In fact, visual documents were produced to illustrate the masterplan and its features. In the Statement of Community Involvement, the team of experts drafted two tables to describe how community inputs influenced the proposed masterplan.

One includes the aspirations from the first public event, e.g. the Community Planning Weekend (Table 29, left), another emphasizes the comments from subsequent Community Forums (Table 29, right).

Table 29. How participation influenced design. Table of synthesis for the Cowes Medina Yard case study.

Community Aspiration (from the Community Planning Weekend, February 1 and 2, 2013)	Community Comment (from the Community Forum, March 15, 2013 onwards)
Create a publicly accessible waterfront.	Reduce height of landmark tower.
Create a vibrant mixed-use place.	Maximise on-site marine related employment.
Support a varied local economy.	Support on-site businesses.
Complement existing town centre offer.	Celebrate marine heritage.
Retain marine related employment and training.	Refurbish the Hammerhead Crane.
Celebrate the local heritage and context.	Manage the traffic impact of the development on the surrounding streets.
Continued community participation in developing proposals	

Aspirations and comments represent the rationale of certain design solutions implemented in the masterplan. Hence, from a conceptual standpoint, they are similar to the “Ideas” put forth in the “Issues and Ideas” list. In fact, aspirations, comments and “ideas” are different. On the one hand, “ideas” were written in the aftermath of the Community Planning Weekend in order to make sense of the hundreds of post-it comments. On the other hand, aspirations and comments were drafted in the preparation of the planning application, at the end of the process. They serve the purpose of illustrating how citizens ideas were included in the process. Hence, each statement included in Table 29 is reflected in the masterplan. So, the articulation of “ideas” depended solely on the discussion in place during the initial Community Planning Weekend. The definition of aspirations and comments depended on both public discussions and the experience of design itself. The gap between “ideas” on the one hand, and “aspirations” and “comments” on the other, reveals which principles of actions were not followed throughout. If an “idea” could not be implemented, it is not found in the aspirations and comments tables.

The alluvial diagram in Figure 44 illustrates the cross-comparison between “ideas” (left) and “aspirations” and “comments” (right). It reveals three kinds of relationships between ideas and aspirations. First, ideas mirrored by - or flowing into - aspirations. This includes the majority of inputs, as illustrated by the top section of the diagram. All aspirations use different wording than the analogous ideas. In general, aspirations are synthetic and refined descriptions of ideas. Second, ideas which are not reflected on aspirations. This class includes four ideas that could not be implemented in later stages of design. For example, the suggestion to establish a hotel to retain visitors was premature and required agreement with private actors in the hospitality sector. Other requests pertain

to public policies, i.e. to explore fund raising for arts and sports, and support start-ups and local business. In this case, such interventions would exceed the boundary of urban design, and could not be implemented by a group of architects. Third, new aspirations which were not problematized during the first Community Planning event: the marine employment and the height of some buildings. Both topics emerged in a conflictual manner as the masterplan unfolded. Transcripts from the post-it sessions, together with wrap-up material from report-back presentation suggest that neither citizens nor designers were fully aware of the two conflicts highlighted in this chapter. Additionally, none of the Hands-on Planning workshops focused on density or economy.

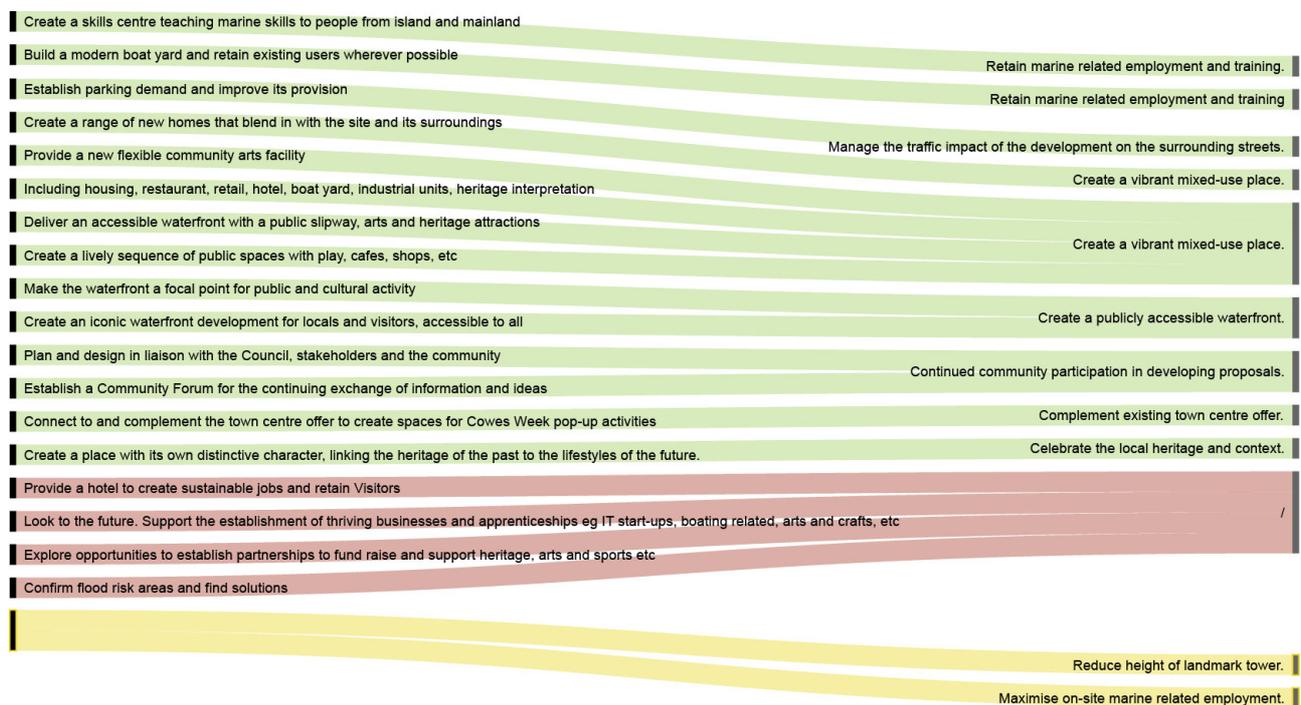


Figure 44. Alluvial diagram. Comparison between the list of ideas (Issues and Ideas list, March 15, 2013 onwards) and the aspirations formalized from February 15, 2013 onwards. Source: Statement of Community Involvement (Cowes SCI 2016).

Indeed, in the “Ideas” table (Table 30, left) the architects wrote: “*Retain marine related employment and training*”, to indicate that the new development would include a modern infrastructure for marine functions. In the second table (Table 30, right), however, one reads: “*Maximise on-site marine related employment*”. The change in wording between “retain” to “maximize” is explained by the architects themselves:

“Comments received through the forums and meetings with businesses asked for this onsite area to be maximised. In response to this the design team undertook a viability option

appraisal which led to a redesign of the scheme and an increase in the amount of marine related employment space provided”. (Cowes SCI 2016:42)

Table 30. Table of synthesis. Comparison between the list of ideas (Issues and Ideas list, March 15, 2013 onwards) and the aspirations formalized from February 15, 2013 onwards. Source: Statement of Community Involvement (Cowes SCI 2016).

Ideas (Drafted in February 1 and 2, 2013)	Aspirations¹³ (Drafted from March 15, 2013 onwards)
Create an iconic waterfront development for locals and visitors, accessible to all	Create a publicly accessible waterfront.
Including housing, restaurant, retail, hotel, boat yard, industrial units, heritage interpretation	Create a vibrant mixed-use place.
Connect to and complement the town centre offer to create spaces for Cowes Week pop-up activities	Complement existing town centre offer.
Plan and design in liaison with the Council, stakeholders and the community	Continued community participation in developing proposals.
Confirm flood risk areas and find solutions	/
Establish parking demand and improve its provision	Manage the traffic impact of the development on the surrounding streets.
Create a place with its own distinctive character, linking the heritage of the past to the lifestyles of the future.	Celebrate the local heritage and context. Celebrate marine heritage.
Deliver an accessible waterfront with a public slipway, arts and heritage attractions	Create a vibrant mixed-use place.
Make the waterfront a focal point for public and cultural activity	Create a publicly accessible waterfront.
Create a lively sequence of public spaces with play, cafes, shops, etc.	Create a vibrant mixed-use place.
Provide a new flexible community arts facility	Create a vibrant mixed-use place.
Look to the future. Support the establishment of thriving businesses and apprenticeships e.g. IT start-ups, boating related, arts and crafts, etc.	/
Build a modern boat yard and retain existing users wherever possible	Retain marine related employment and training
Create a skills centre teaching marine skills to people from island and mainland	Retain marine related employment and training.
Provide a hotel to create sustainable jobs and retain Visitors	/
Create a range of new homes that blend in with the site and its surroundings	Create a vibrant mixed-use place.
Establish a Community Forum for the continuing exchange of information and ideas	Continued community participation in developing proposals.
Explore opportunities to establish partnerships to fund raise and support heritage, arts and sports etc.	/
	Maximise on-site marine related employment.
	Reduce height of landmark tower.

¹³ “Community aspirations” and “community comments” are merged into one category called “aspirations”.

The conflict over the new function of the site originates from the history of Cowes. Prior to this project, the Medina Yard site was used for the marine industry, a sector that shaped the history and traditions of Cowes. The tradition was so much alive that members of the local community advocated for the retention of marine employment on the site. Yet, viability studies revealed a tradeoff between a residential led mixed-use vs a maritime employment development. In short, the more land was to be allocated to marine industry, the less sustainable the project would be.

An analysis of the masterplans reveals that the design team addressed this issue. Indeed, subsequent proposals show a gradual increment in functions of marine employment. In particular, the final masterplan locates a shipbuilding and shipyard facility in the southernmost part of the site. Compared with early drafts, a larger area is allocated for such uses. The increased space destined to marine employment was still underestimated, according to a certain segment of the public opinion. Following the planning submission in the summer of 2016, the Town Council advanced the following remark:

“The proposed area for marine industry is not large enough. The retention of a suitable area for the site of marine related industry is of critical importance to the local economy and essential if Cowes is to retain its historic and renowned maritime skills with those related service industries. It is also vital that the marine industry retain the deep water frontage along the length of the development site adjunct to the river”. (Letter by the Town Council. August 11, 2016)

At the moment of writing, the planning application was still under scrutiny, and the design process is still ongoing. It is uncertain whether the design team and client would opt for a different masterplan. Likewise, the aspiration “Reduce height of landmark tower” emerged in response to the scale of the built environment revealed at the Community Forum.

“Following the Community Planning Weekend there was concern about the height of one of the buildings on the waterfront which was designed as a 10 storey landmark tower. Subsequently this was removed and the buildings heights across the scheme have been create a varied roofscape to sit within the wider Cowes context and with a maximum height of 7 storeys”. (Cowes SCI 2016:42)

Overall, compared to the other case studies presented in this work, the Medina Yard masterplan did not undergo significant changes. In other words, the final layout maintains the same spatial structure as the preliminary vision masterplan, albeit with minor changes to the built form.

If learning is defined as the process whereby architects discover new, relevant information to enrich a design, at Cowes learning took place mostly at the beginning of the process.

4.5.8 Partial findings

In light of what has been discussed throughout the Cowes chapter, the following arguments emerge:

About the stage and duration of participation

- Participation at an early stage of design is bound to generate (1) relevant and detailed insight about local problems and (2) generic descriptions concerning the future development of design.
- An early stage brainstorming session reveals most of the problems of the site, including public opinions on the project. However, certain topics may emerge only as the masterplan is constructed and revealed to public scrutiny

About the methods and tools adopted during the process of participation

- Brief post-it sessions based on broad questions (e.g. problems, dreams, solutions) are effective modes to elicit local knowledge from a large audience.
- *To keep track of community inputs throughout the design process, experts relied on lists and tables.*
- The process of synthesis of the key points emerged from the public event provides an opportunity to attribute relevance to local inputs.
- Relevance is attributed by the architects, who filter and organize citizens' inputs on the basis of expertise.

- The “Issues and Ideas” and “Key Themes” lists are meant to surrogate the interests of the local community in the architects’ office.

About the referential cognitive objects

- During early stages of design and in the lack of project proposals, the only shared referential object is the local environment. The local environment refers to both the physical and the social fabric encompassing the project site.
- Citizens use “anchors” to ground their claims. A masterplan proposal act as an anchor. Prior to the development of a masterplan proposal, the project site act as a natural anchor.
- Documents and material describing a project act as referential objects. By consulting them, non-experts can ground comments and feedback in the absence of experts.

About learning, knowledge generation, and design

- When a masterplan is defined, citizens focus their comments on its weaknesses.
- In a participatory design process, the extent of democratic choice is limited by the feasibility of people’s requests

4.6 The pattern language approach: anatomy of participatory design at Mexicali, Vellore and Eishin

The design process in place at Mexicali, Lima, Vellore, and Eishin can be represented by the following diagram.

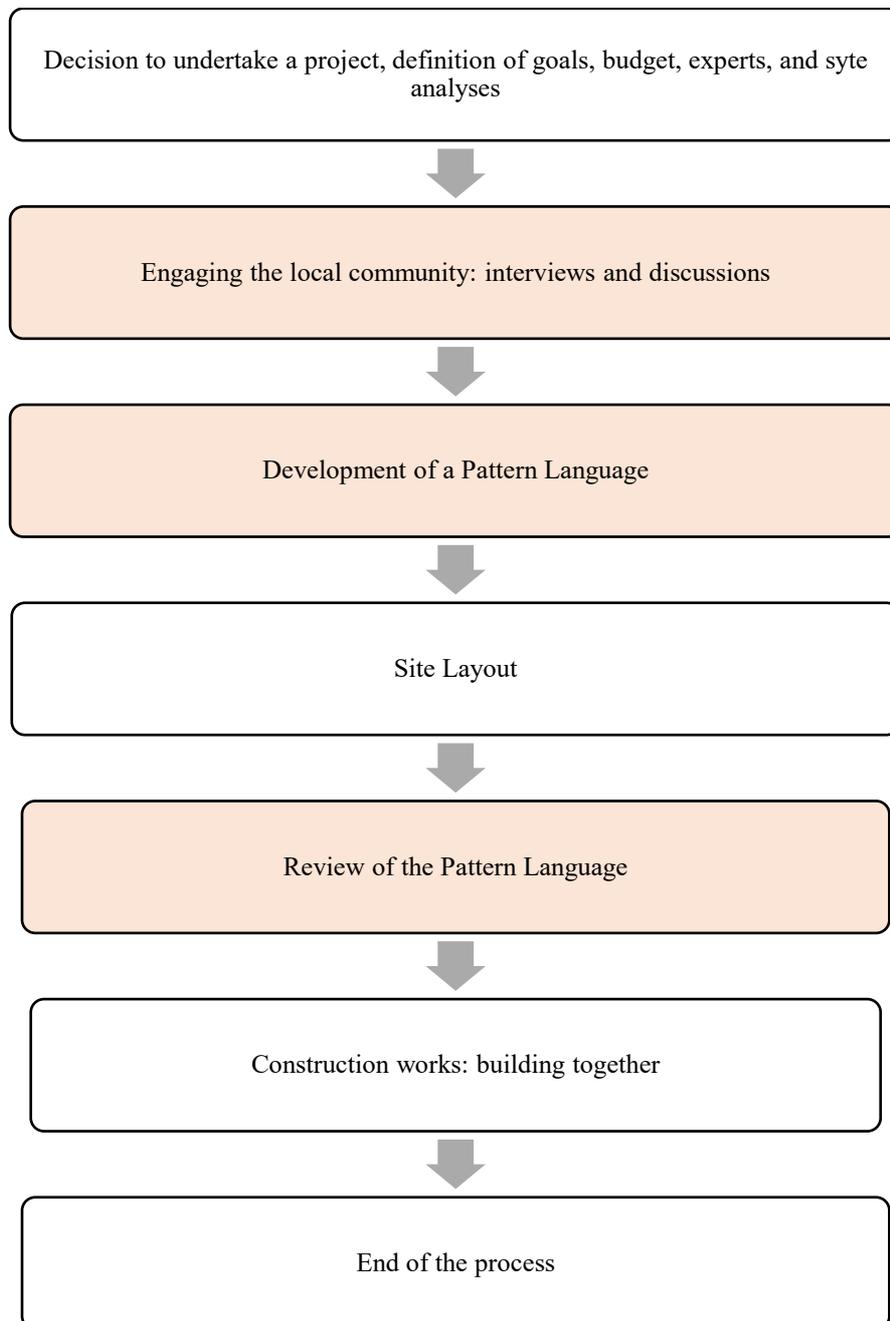


Figure 45. Stages of design as in the model of pattern language-based Seamless Interaction. In red: phases conducted with the interaction with citizens.

4.7 Mexicali



Figure 46. Location of the project site in Mexicali. Source: Open Street Map (left) and Google Maps (right). Accessed 3 November 2017.

4.7.1 Decision to undertake a project: definition of goals, budget, experts, and preliminary analyses

In the Summer of 1975, Christopher Alexander was approached by Mr Martinez, a student at Berkeley who – at the time - was employed as a summer intern at the Department of Public Works of the State of Baja California in Mexicali (Mexico). Mr Martinez had been exposed to Alexander’s work with the Center for Environmental Structure (CES) while being a student of architecture at the University of California. The two men discussed the possibility to develop a housing project in Mexico that would reflect Alexander’s theories. Alexander and colleagues from the Center for Environmental Structure (CES) had to deliver the design and construction of thirty houses. The size of each house had to be about 650 sqft. and their cost below \$3500 each, about one-third of the average for that region of Mexico. The program had to be carried out with the involvement of the local community. To achieve these aims, the CES and the Government negotiated legal and strategic details. The following paragraphs outline how this negotiation influenced the design process.

First, the CES assumed full responsibility for the process of design and construction. The CES had total control of the following operations:

- Planning,
- Design,

- Structural engineering,
- Material testing and development,
- Construction, manufacturing,
- Acquiring building permits,
- Accounting
- Loan permit provision.

Furthermore, special permits were granted to the CES in their relationship with local authorities. The CES did not have to follow exactly local building codes. Nor did the architects have to present detailed plans to local officials or banks. What mattered most were certain building details, i.e. the major components of the buildings. The project would be approved only if the houses had such details. Besides that, the architects had to follow the budget and housing size while involving families thoroughly. It was a continuous contact with the families that would ensure a balanced power structure.

Second, the design process was organised according to the principles of the “Architect-Builder” and the “Builder’s Yard”. The architect-builder is the role of an architect who is primarily focused on construction, rather than design. The builder’s yard was “the physical counterpart of the architect-builder” (Alexander et al., 1985:95). It was the home base and workshop on the building site. On the one hand, the builder’s yard provided architects with a space to experiment. At Mexicali, new technologies and building solutions were tested before being deployed to the project. On the other hand, the local community could use the builder’s yard to follow the development of a project. In fact, the builder's yard was the place where architects and families could come together and socialise. Builder's yard, architect-builder, community participation, and total control over the design process. The interplay of these elements constituted the basis for the design methodology employed at Mexicali. In it, design and construction were integrated seamlessly and recursively. Because the designer and the builder coincided, sketches and drawings would be done only to clarify or communicate certain aspects of the project.

Third, the low budget led the design team to fix decisions about construction technology before the start of the project. The choice fell on soil-cement blocks, to be manufactured on site using local adobe soil. The main issue was to balance thermal and static properties. On the one hand, the more earth in the block, the more insulation is provided. On the other hand, blocks needed to have holes to include steel bars and concrete for earthquake resistance. In the months preceding actual fieldwork, the architects experimented with different mixtures and shapes of blocks. Besides optimal insulation for the Mexicali climate and seismic resistance, the blocks would be cheap to produce. The

architects bought a block-making machine to be deployed on site and designed several kinds of moulds.

Fourth, the design team decided to develop the land in clusters of houses. A cluster can be defined as a group of houses arranged around a shared patch of common land. This decision would fit in the urban blocks of the neighbourhood where this experiment had to take place. Furthermore, one of the project goals was to create a community. In fact, each family was bound to design their own house while supporting the creation of a common land. As part of the agreement with the Government, site layout had to be carried out in concert with the families that would inhabit it. Hence it was necessary that groups of families be selected before the beginning of the project. Advertisement circulated in the local press and five families signed up to the project.

In October 1975, after due preparation, the Mexicali project began. A builder's yard was established on the construction site. Its size comprised almost the full scale of the first housing cluster. The yard remained on site for the whole duration of the design and construction process. Throughout the process, the builder's yard functioned as both a workshop for technology experiments and a community centre. It was in the builder's yard that participation unfolded.

4.7.2 Engaging the local community: interviews and discussions

During a first meeting, twenty-five Patterns were distributed to the families. Patterns were selected from the original book, according to their relevance for the design problem. Example of such patterns are HOUSE CLUSTER, and COMMON LAND. Both articulate the need for an arrangement of houses around a shared space. Other Patterns are SMALL PARKING LOTS, PRIVATE TERRACE ON COMMON GROUND, and INTIMACY GARDEN. The first suggests that small parking lots are better than large asphalt areas. The second one describes a possible way to organise the edges of a building by providing terraces. The third one raises awareness to the problem of privacy and its spatial implications. The goal of the CES was to raise enthusiasm for the project and trigger a discussion on the validity of the Language. Ideally, the families should have modified the PL, adding their ideas. In fact, they did not:

“Under normal circumstances, the architect-builder of a particular area would also modify and refine these patterns, according to local custom. In this particular project we were so occupied by the demands of construction that we had little time to undertake work of this sort”. (Alexander et al., 1985:133)

4.7.3 Site layout

The first step to define the layout of the first cluster was a general discussion with all five families. The meeting took place on the site, and the patterns supported the discussion: “House Cluster”, “Common Land”, “Small Parking Lots”, “Degree of Publicness”, “Main Gateway”, and “Public Outdoor Room”. The goal was to locate the five single-family houses while providing a sensible courtyard, and parking. Because five families were involved, an agreement was necessary. The design process followed by the design team can be compared to the act of stone polishing. Order emerged gradually from the painstaking refinement of a rough, ill-defined initial situation. The sketches below illustrate the main steps of the site layout (Figure 47-51).

The first decisions to shape the site were not controversial. Everyone agreed that the common space would be at the centre, surrounded by the houses. The entrance gate would be placed to face the builder’s yard, and two small parking areas would be located to the side (Figure 47).

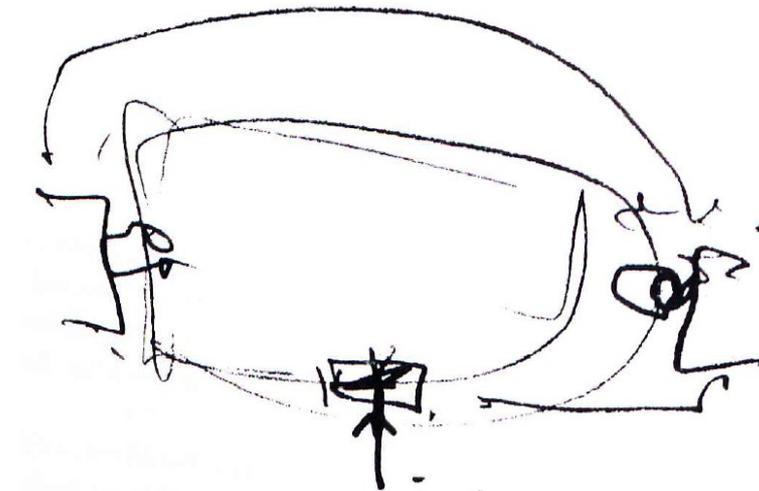


Figure 47. Sketch from the Mexicali project. Diagram of the central space, the main entrance (bottom arrow), and the small parking spaces (left and right symbols). Source: Alexander et al. (1985).

The next step was about the location of the five individual houses. As the discussion over this point unfolded, the Pattern DEGREES OF PUBLICNESS came to the fore. Indeed, the deciding factor in locating each house was privacy. Two families had children and wanted to live in the centre of the activity. Others expressed the desire to be located in a sheltered position. To obtain a public-private division, the site was shaped like a bottle, as shown in Figure 48.



Figure 48. Sketch from the Mexicali project. Diagram of the bottle-shaped site, resulting from the discussion about privacy. On the left, the private side. On the right, the most public part of the site. Source: Alexander et al. (1985).

Once the overall shape of the site was fixed, it was time to decide the position of the five houses. The houses had to be located around a common courtyard, one per corner plus one roughly in the middle. The architects asked the families to pick a spot. Two families wanted to be in the northeast corner because of its proximity to a busy street. The head of one family was a barber, and the other was a music teacher. Both wanted exposure to start a business. One family picked the “bottleneck”, more private corner because of quietness. The conflict was resolved through negotiation: whoever decided to leave their favourite spot to a contending family would receive a larger lot. For example, a mother of ten children was convinced to accept the central house in exchange for a larger yard for children’s play (Figure 49).

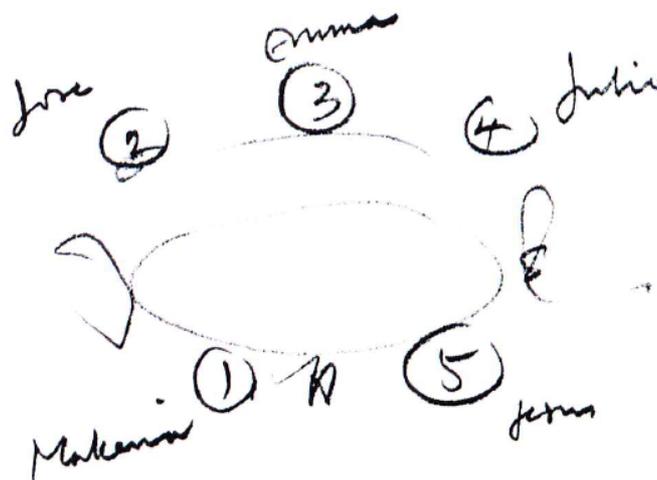


Figure 49. Sketch from the Mexicali process. The five houses assigned to the five families. House number 3 is the “central” house. Source: Alexander et al. (1985).

To define the boundaries of each lot, architects and families walked the site and placed sticks. The process lasted for two days. Adjustments were made in a reiterative fashion through dialogue and negotiation (Figure 50).

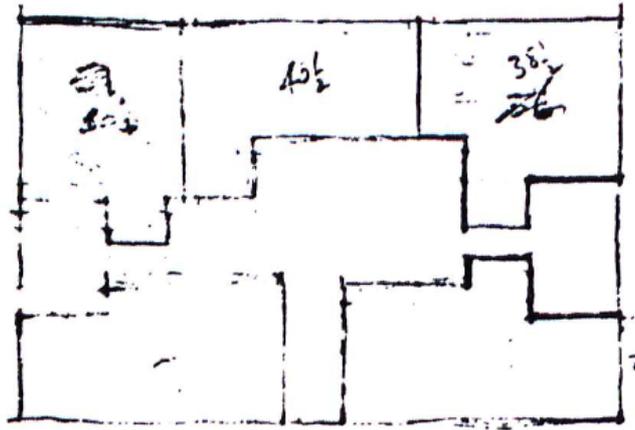


Figure 50. The project site subdivided into private lots around a central common land. Left and right: two small parking areas. Source: Alexander et al. (1985).

Site layout required a last step of definition before the project moved to the lower scale of individual house design. For the common space to be well-defined and functional, it was necessary to define the boundary of each house with respect to it. The challenge was to layout a spatial structure whereby both private gardens and common yard would be positive. The risk was to end up with an aggregate of five houses, not a cluster. As Alexander points out:

“The crux of this issue lies in the treatment of the boundary between common land and private land. If the houses are placed in such a way as to help form this boundary, the common land succeeds. If not, it fails”. (Alexander et al., 1985)

After a process of discussion, design team sketched the diagram illustrated in Figure 51.

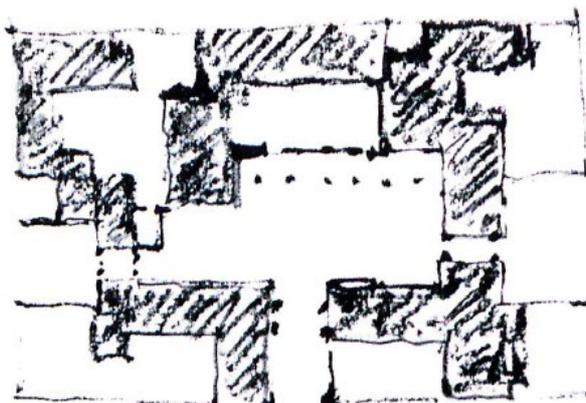


Figure 51. Diagram of the final layout of the housing cluster. Source: Alexander et al. (1985).

In the end, however, a compromise had to be reached. To create the central yard, each house had to be pushed towards the outer boundary of the site. As a result, private gardens became small and fragmented.

After the houses were placed on the site, the design process was focused on the common yard and the house internal edges.

“Essentially, the idea of this step is that each house provides a portion of the wall which forms the common land and that to make this wall work properly, it must be made of something solid, which is also suitable for human use”. (Alexander et al., 1985:151)

According to Alexander, the families understood the importance of this step. With the help of Patterns and the support of architects, they worked towards the definition of their external house walls. BUILDING FRONTS, BUILDING EDGE, GALLERY SURROUND, ARCADES, PORCHES, and SITTING WALL were the primary reference Patterns for this phase. Arcades and porches were placed along the walls and to create proper divisions, i.e. between the internal courtyard and the parking lots.

4.7.4 Construction works: building together

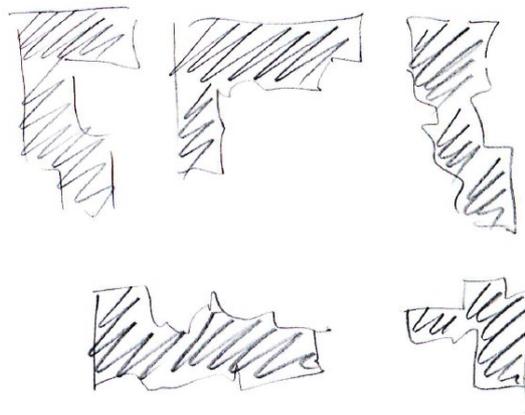
This section focuses on certain aspects of the process, on its dialogic nature, and on the role of patterns. In some cases, full quotes from the book are reported due to their clarity.

Once the site layout was defined and agreed upon, the families had to design their own houses. The process was similar to that of the site layout. The architects met with the families and distributed a Pattern Language from the book. The Pattern Language was meant to provide a basic structure encompassing the main aspects of designing a house.

“[The pattern language] has the amazing capacity to unify the generic needs which are felt by every family, and which make a house functional and sensible, with the unique idiosyncrasies that make every family different, and thus to produce a house which is unique and personal, but also one which satisfies the basic needs of a good house”. (Alexander et al., 1985:176)

With the help of architecture students, the families reviewed each pattern, added their own, and began the design of their own house. The book *The Production of Houses* contains a very detailed description of the whole process. The authors describe how each family dealt with each pattern, according to various circumstances. Needs, preferences, expectations for the future, and even the assigned lot affected the way the patterns were used in the production of space.

At first, the families dealt with the position of their houses within the site. Due to the warm climate of Mexicali, the architects noticed that north-facing gardens were used all year round. They embedded this observation in the pattern **NORTHEAST OUTDOOR SPACE** and suggested the families follow it. Only two families could not implement this pattern, either because the house was at the northernmost part of the site; or because a north garden would have resulted in destroying the common yard. Another pattern, **POSITIVE OUTDOOR SPACE**, was implemented together with **LONG THIN HOUSES**. In theory, narrow wings articulated around outer space would allow the creation of a positive space, while ensuring natural light to enter the rooms. In practice, this pattern was implemented with different degrees and effectiveness by the families (Figure 52).



*Figure 52. Sketch from Mexicali. The five houses are represented in their overall shape, following the pattern **LONG THIN HOUSES**. J's House is in the top left corner. L's house is in the bottom right corner. Source: Alexander et al. (1985).*

The pattern unfolded entirely only in J's house. L decided not to implement it at all, partially because she wanted a protected room for her small daughter. The other families implemented the pattern to a lesser degree. A subsequent step was the placement of the main entrance. The pattern **MAIN ENTRANCE** follows the principle that:

“The entrance has to be visible, easy to approach, and in a place which commands a nice view of the common land”. (Alexander et al., 1985:176)

Everyone agreed although it took some discussion to educate Mr J about the entrance to his house (Figure 53).



Figure 53. Sketch from Mexicali. The main entrance to the houses. Source: Alexander et al. (1985).

The first pattern involved in the discussion about the interior layout was INTIMACY GRADIENT. The pattern indicates that public rooms should be close to the entrance, while private ones should be placed far from it. Two families thoroughly implemented this pattern, by organising the rooms in a sequence. Two families opted for a weaker version of the pattern: “after the entrance, the living areas are on one side, and the sleeping rooms are deeper, to the other side”. (Alexander et al., 1985:186). After the intimacy gradient was fixed, the families dealt with the pattern COMMON AREAS AT THE HEART and FARMHOUSE KITCHEN. Again, the implementation of this pattern was influenced by each family needs and habits. In its most complete form, the kitchen was embodied in the central room. One family chose to design the kitchen in the main common room but placed it in a less central position. Another decided to have a small kitchen open to the large common room through a counter. Two families disagreed with the pattern instructions. Their kitchens were completely separated from the common room.

Later, the process continued with the definition of sleeping areas and alcoves. Then, minor rooms and details were arranged. For example, back porches, sitting places, and bathing places. These steps were supported by patterns and by advice from the architects. The following sketches illustrate the final site and house layout (Figure 54).

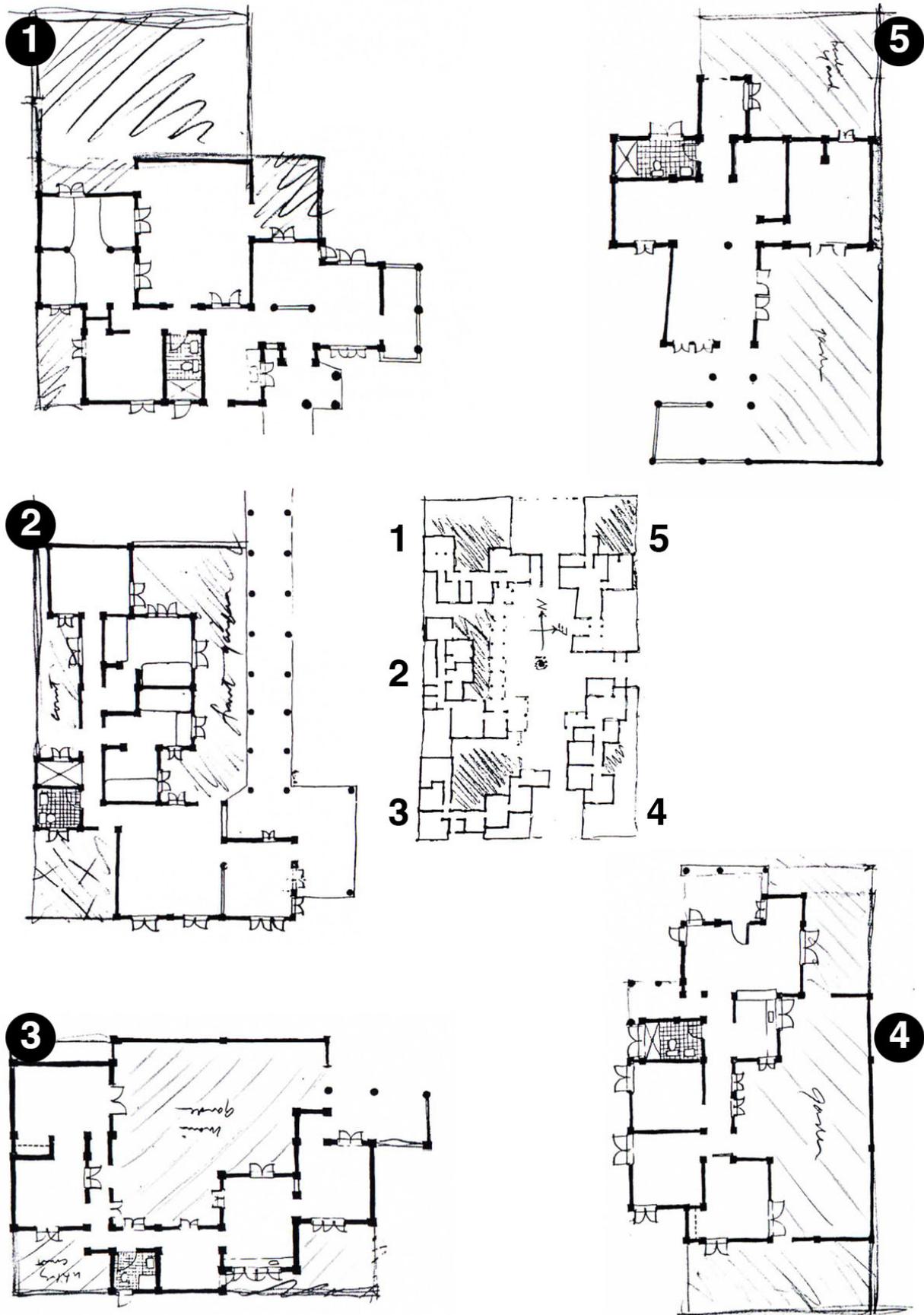


Figure 54. The housing project in Mexicali. Sketches of the overall site plan (centre) and individual houses. Source: Alexander et al. (1985)

4.7.5 Lay-expert interaction: knowledge generation and the evolution of design

The first level of investigation is aimed at revealing interconnections between the three factors influencing lay-expert interactions. In particular:

“In which way does [column element] influence [row element] in the Mexicali project?”

Table 31. “Matrix A”. Table of relationships between the key factors affecting lay-expert interaction in Mexicali.

		Stage and duration of participation	Tools and methods	Sources of reference
Stage and duration of participation	Long (one year) and throughout (from beginning to construction)	X	<p>Continuous involvement until construction demanded extra preparation in the months before the project began. Part of this preparation was intended to make it simple to engage families.</p> <p>Division of collective meeting and individual meeting.</p> <p>Transition from “architect” to “architect-builder”.</p>	The continuous engagement enabled families to see their own house develop and use it as a referential object to ground ideas and inputs.
Tools and methods	<p>Collective meetings.</p> <p>individual discussions.</p> <p>The pattern language</p>	<p>The general approach to design and participation required a continuous interaction throughout the whole process.</p> <p>The construction phase was divided into simple steps and organized into a sequence.</p>	X	The establishment of a PL provided a verbal image of object when nothing was built yet.
Sources of reference	<p>The pattern language.</p> <p>Everyday domestic life and people’s habit.</p> <p>The project site.</p>	X	X	X

4.7.5.1 The relationship between duration of participation and tools and methods employed.

A mutual relationship exists between the duration of participation and the methods employed to enact it. The kind of participation desired for the Mexicali project required special design methods, like the one adopted by the CES. Likewise, the full implementation of the CES methodology required a continuous interaction with the local community. At Mexicali, the interrelationship between participation and methods emerged during negotiations between the Department of Public Works of the State of Baja California, and the CES. Mexican local authorities approached the CES because of their work and theories. In the beginning, the idea of developing a housing project was not on the table. In fact, the Department of Public Works was interested in the ideas of the Center. It was Alexander who proposed to implement such ideas into a real project. After some time of discussion, an agreement was reached. Alexander recalls:

“[Mr. Martinez] contacted me again and said that here was real interest in the possibility of such a building project, and that the State and the Universidad Autonoma de Baja California jointly would invite me down to discuss possible details. I said that I would like to build a group of houses to test the ideas which had been developing in the Center during recent years, especially the idea that families would design their own houses. [...] We agreed that the Center would build thirty houses, which families would design for themselves”. (Alexander et al., 1985:78,79)

It is therefore plausible that the CES innovative approach and its underlying theoretical framework convinced local authorities to allow such a degree of participation. Bosselmann, then a participant in the project, recalls:

“We came to Mexicali to demonstrate a method of design and construction appropriate to self-help housing in this region. The “Pattern Language” [...] was to be used as the basis for self-help design”. (Fromm & Bosselmann, 1984:78)

To demonstrate the efficacy of their method for design and construction, the CES requested special powers and authorisations. It was partly to preserve the integrity of the method that continuous participation was possible. Likewise, to operate properly in this framework of assumptions, goals, and responsibilities, the CES had to adjust the method to each step of design.

Since it was clear that participation would stretch until later stages of design and construction, the CES architects made extensive preparations to maximise efficiency. First, a preliminary PL was constructed with patterns most relevant for the task at hand. Second, studies were undertaken on an optimal building technology that could be reliably used with non-experts. In-situ produced adobe blocks were chosen for their qualities, and a machine to produce them was purchased and deployed in the builder yard. The builder yard and the architect-builder are also products of the interrelationship between continuous participation and employed methods. Both tools serve the purpose of controlling all stages of design from the site while ensuring a successful outcome.

4.7.5.2 Sources of reference: the pattern language and reality.

Different stages of design focus on different aspects of the design. As a consequence, different referential objects emerge throughout a design. The Mexicali project was characterised by two design phases: (1) site layout, and (2) house design. During the process of site layout, the architects used the pattern language to create artificial referential objects. Patterns were inputs to focus the discussion on specific issues related to design. The continuous interaction provided the opportunity for families to witness the transformation of the site and ground their ideas. After the site was laid out, the process was aimed at developing houses. In this phase, two referential objects appear as part of the discussion. One is the set of patterns used to focus the conversation. Another is the house itself. As the project developed, each family could take decisions pertaining their own house by observing how it would form. In the Mexicali project, patterns were embedded in the design method. Whether intentionally or accidentally, their existence influenced the sources of reference of the families.

In this section, the three components construing lay-expert interaction are related to the general categories of communication, learning, and design. In particular:

“In which way does [column element] influence [row element] in the Mexicali project?”

Table 32. “Matrix B”. Table of synthesis of the key factors in place at Mexicali and how they affected lay-expert communication and the development of design.

		Communication	Learning / Design development
Stage and duration of participation	Long (one year) and throughout (from beginning to construction).	<p>Full involvement. Families were aware of the continuity of the process.</p> <p>Two-sided communication was necessary to ensure efficiency. Locals’ ideas had to be challenged when they were considered not fit for the project.</p> <p>Enabled communication of domestic habits and use patterns.</p>	<p>Full engagement increased the families’ responsibilities over the quality of their own house.</p> <p>Not significant engagement from the beginning.</p> <p>Meaningful exchange during later stages of design.</p>
Tools and methods	Collective meetings.	Useful during site layout to reach consensus and mitigate conflict.	Contributed to site layout and fair and consensual division of the lot.
	Individual discussions.	Useful during house design and construction.	Contributed to understand local needs and to instruct people on how to design with patterns.
	The pattern language.	Communication was initiated by the design team by distributing patterns to families.	PL used as a roadmap / verbal masterplan to develop a design.
		<p>The PL provided a basis for discussions on the key features of each house.</p> <p>Families were encouraged to modify them, but did not.</p> <p>People could accept or reject patterns and decide if and to what extent to implement them for the design of their house.</p>	<p>Patterns educated locals on the key aspect of a functional house.</p> <p>Each family could control the design of their house, while architects retained control on the overall quality and livability.</p>
Sources of reference	Patters were useful to investigate everyday patterns of behavior and domestic habits and to suggest spatial structure to cater to them.	Designers could verify whether houses were developing to accommodate families needs.	
	Everyday domestic life and people’s habits.	Bedrock to develop house layout and design.	Houses were designed to accommodate families specific needs (e.g. room size, position, entrance, etc.)
	The project site.		

4.7.5.3 The nature of communication

At Mexicali, families were involved throughout the design process.

The idea that families would be engaged to the point of construction posed a problem: how to ensure that the project develop according to the time and budget constraints, while giving as much independence as possible to the families? The solution to the problem was to set up an interactive system of two-way communication, based on dialectic exchange. As the process unfolded, architects had to distinguish families' bad ideas from personal preferences with which they would disagree. A bad idea is an idea that impairs the project. An architect's disagreement pertains her judgment on the architectural quality of space as produced by non-architects. On the one hand, bad ideas needed to be openly challenged. For example, Alexander noticed that families did not want porches, as they were not willing to pay for what they considered unnecessary and expensive. Instead, they requested an extra bedroom. Yet, porches would increase private livable area by 30% and help define the outer space. Without porches, the quality of the common area would have been significantly reduced. Furthermore, the families could not understand that the cost of a porch was half of that of an extra bedroom (PoH pp184 - 186). Hence the architects had to override the wishes of the families and include porches. Davis recalls:

“Certainly there were cases when things had to be pointed out to them [the families], there was no door, or two rooms were in a position where you can't get into one of them. [...]”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

On the other hand, even disagreeable ideas had to be respected, if participation were to be taken seriously.

“Obviously we had a role to play. But it was really their decision, about what to do. And so if they said: ‘We want a room larger than another’ ...and another family said: ‘Well we want the other room larger’, that was ok. I mean, we would ask them why...and sort of check it out...but their reasons for doing things was taken very, very seriously. [...] And really, we were watching and making sure that things were going ok, but we did not make judgments about ‘Is this architecture or not?’”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

A second challenge was effectiveness. How to make sure that decisions are taken collectively, minimizing the risks of slowdowns? To cope with this, communication was organized in collective or individual discussions, according to the stage of design. In the initial stage of site layout, the architects interacted with all families in collective meetings. Not only did these plenary discussions

allow families to partake in decisions to shape the lot. They were also useful to reach consensus and settle disputes. For example, when families had to choose the position of their house in the cluster, a conflict arose.

“It was clear [...] that there would have to be one house in each corner, and one in the middle. [...] We met one afternoon, and we asked each family to decide which part of the cluster appealed to them most [...]. Two families, the music teacher’s and Jesus the barber’s, wanted to be in the same place, the northeast corner on the main street, because they hoped to open small shops. Emma Cosio and Julio Rodriguez both wanted to be in the northwest corner. José Tapia wanted to be in the south-west corner, on the bottleneck for quietness, and away from the main road. [...] In order to resolve the conflicts, we followed the general rule that a person could exchange location for size”. (Alexander et al., 1985:138)

As soon as the housing cluster and the common space was established, architects and families interacted through individual discussions. Indeed, it did not make sense for other participants to decide on the arrangement of a family’s house. In other words, at Mexicali, participation mirrored the logical division of the design process. The project layout was shaped by everyone, while each house was designed by each family alone. In both phases of project and house layout, the discussion was supported by pattern languages. The pattern language was established by the CES before meeting the families. As Ruesjas notes:

“This contradicts the "Pattern Language" theory, which states that the process of pattern selection should be undertaken by the users, as they are the ones who understand their specific needs. In the project however, residents were never consulted on the selection of patterns, nor was the surrounding environment analyzed to gather information on the real needs of users. Hence, the participatory process was reduced to the residents' simple acceptance or rejection of the designer's ideas”. (Ruesjas, 1997:75,76)

Davis confirms the contradiction, while emphasizing the nature of the experiment:

“I don’t remember asking them [the families] to modify the Pattern Language [...]. Because I think our real emphasis was not with the Pattern Language at all. In other words, if you consider the project as an experiment - which it was, - the experiment really had much more to do with the construction system and the relationship between the construction system and

the design, and the ability of the people to [...] understand construction”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

In this perspective, the pattern language was a tool to enable people to partake in the process of design and construction. While patterns were an important part for the process, it was on user-construction that the architects were mostly focused. As a consequence, although communication was two-ways, it was initiated by the design team. Patterns served the purpose to communicate the intentions of the architects to the families. For example, the content of the patterns HOUSE CLUSTER and COMMON LAND describes a kind of development as it was imagined by the architects prior to the start of the project: a group of four or five houses arranged around a common space. This decision, as Ruesjas reveals, was not entirely arbitrary, but underpinned by sociological observation of similar Mexican housing clusters (Ruesjas, 1997:50,51). In general, the choice of those twenty-five patterns (and not others) indicates a precise roadmap for the development of the project. The Mexicali pattern language was distributed to the families, who were encouraged to read it and accept, reject, or modify its constituent patterns. On a general level, patterns provided inputs to trigger and sustain discussions on the attributes of the site and of each house. In practice, they governed the sequence of steps to implement the design and construction of the housing cluster. Despite one’s level of education or experience with building, reading the content of all patterns created a (more or less) shared mental image of the housing project. Such idea was put forth by the CES according to their expertise. The general vision of the future project was deconstructed into some key features embedded in the Patterns. During the development of the individual houses, each pattern was discussed as the physical space was shaped. This was possible because communication took place progressively and on the site. During these sessions, each family could provide extra information on how the pattern should be implemented in their own house. Because patterns were used and discussed on-site, communication would revolve around a possible reality, i.e. how space could be transformed. In this phase, families would decide to what extent they wanted to implement a pattern.

“The kind of questions we asked were questions that came directly out of design decisions that had to be made [...] And so we would ask questions like: ‘Where do you live?’. Or, let’s say, ENTRANCE TRANSITION. [...] Well, here’s this idea of having [...] transitions between the public realm and the house. ‘Where is that? How does it work? How do we do that?’ [...] So, we actually asked questions and ask them to make decisions that were based directly on the patterns [...]. And the feedback that they gave, was answers to those questions”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

In the case of the pattern FARMHOUSE KITCHEN,

“The extreme form of the kitchen is part of a comfortable living area, but different families vary widely in the extent to which they wish to use this pattern. Emma chose the extreme form: her kitchen is inside the large family room at the center of her house. Lilia chose a more modest version: her kitchen is at one end of the room, which also contains a dining table, but it is less central in the house. Makaria chose an intermediate version: her kitchen is a small room off the living room, but entirely open to it across a counter, so Makaria can talk to people in the living room even when she is cooking”. (Alexander et al., 1985:189)

Another example. When decisions had to be made about bedrooms, a mother of two opted for a very large room. Her husband and she wanted to invest in the future of their children, and they had thought that a large room would have been part of this commitment. In the implementation of the relevant pattern, the family could make this wish manifest. The following excerpt is a quote from this mother reported in the *Production of Houses*.

“We only have two children ... we are giving each of them the largest room we can afford, so that each one can use his room for anything he wants as he grows up: as a study, a workshop, a place where he can make something of himself”. (Alexander et al., 1985:203)

In these example, the implementation of certain pattern mirrors a family’s domestic habits or expectations for the future. Further:

“Even when people do not agree with the vision of the pattern that is stated in a pattern language, the pattern still gives them the opportunity to consider the relationship between the elements mentioned; and whether they choose the “book” version or their own version, it helps them to define this relationship, and so helps the building to emerge”. (Alexander et al., 1985:203)

Hence, the pattern language was *both* a tool to engage non-experts in a technical problem, *and* a referential object to design. In the Mexicali project, it was the combination of patterns as verbal description of space, and the contact with reality as the house was being built that enabled a meaningful communication between experts and families.

4.7.5.4 *The process of co-learning: how participation influenced design*

The high degree of participation in place at Mexicali had implication on the participants' responsibilities. Although the experts would guarantee the completion of the project, the quality of each house would ultimately rest on each family.

Participation was in place from the beginning to the end of the process. Nevertheless, families contributed differently and in different stages to the final design. For example, the site layout was defined almost entirely by the architects. The general idea of a cluster of five houses surrounding a common area was based on research of urban patterns of the Mexicali region (Ruesjas, 1997:51). Families acquiesced, and the process was built on these premises. Families decided the position of their houses with respect to their own needs and desires. It was in this phase that Alexander and colleagues learned that two men from two families wanted to open a business, and that, therefore, they preferred to be to the side of the busy road. Another family expressed the desire to be in a quiet place. A family with ten children chose the site with the larger garden and near the common space, where they could play safely. These simple inputs were enough to determine the relative position on the site so as to cater to the families' needs. The size of each house, and their relationship with the private gardens, and the common land in-between was determined by the architects alone.

“The decision to have the common land...it didn't come from the families. It came from us. But they were along with it, because they thought - I think they thought - it was a good idea. [The families were involved] most so with the design of the houses themselves than [...] with the design of the overall site plan. They were part of it, and we were working together. But in the case of the houses, it was their decisions that were taken seriously”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

Likewise, Alexander acknowledged that “Although we played a major role in defining it [the common land], it was clearly understood and felt, as a communal thing, the result of a communal act” (Alexander et al., 1985:137). Perhaps the general problem “site layout” was too complex for layman to fully conceptualize or operationalize. In fact, multiple sketches and descriptions from *The Production of Houses* reveals the complexity of designing the cluster. A reiterative process and expertise was necessary to solve this spatial problem. In her post-occupancy study on Mexicali, Ruesjas interviewed the students involved in the project and the families. Ruesjas claims that the whole process was too complex for inexperienced laymen. One of the interviewee, Ms Reyes, reported that:

"Students asked me what I wanted for my house and honestly, I had no images: all I wanted was my own home". (Ruesjas, 1997)

Maybe the whole process was not as "participatory" as the CES expected. Yet the diversity in the house plans, as well as the personal stories of the families reported in *The Production of Houses*, points to another story. The design of the Individual houses was heavily influenced by the families. Figure 55, for example, is the plan of the house designed for and by a family of three: Ms. Duran, her husband, and her small daughter. The husband of Ms. Duran was a barber and wanted to open a barber shop attached to the new house. They decided to build a small house to save money. Between the entrance and where the barber shop ought to be, they placed a large porch as a transition element. The small room at the heart of the house is the room for the small daughter, so that they could watch over her.

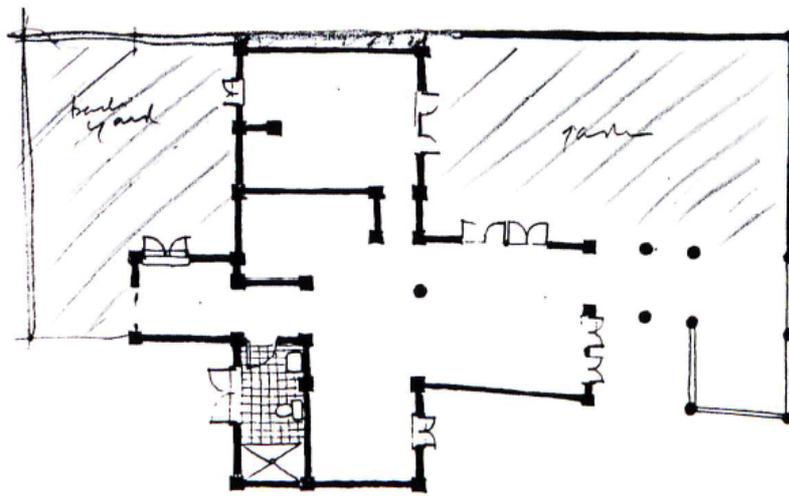


Figure 55. Sketch of the floor plan of Ms. Duran's house in Mexicali.

Figure 56 is a sketch of José's house. According to Alexander, the man had an outgoing personality, and enjoyed spending time with other people. Although he had four kids, he emphasized the semi-public part of his house, namely the living room and the common areas.

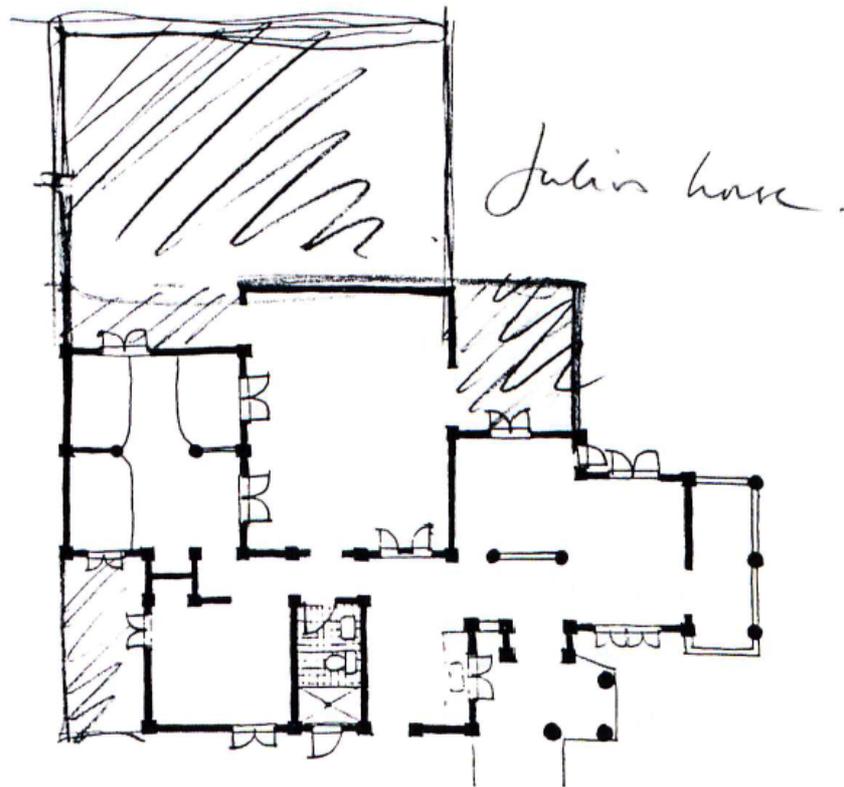


Figure 56. Sketch of the floor plan of José's house in Mexicali.

The plans shown above are just two examples of how the needs and domestic habit of the participants were translated into physical design. Beside the size of each house, the number of rooms and their relative position within the house were decided by the families. According to the evidence, this was possible thanks to the combination of three factors: (1) the pattern language as a verbal roadmap, (2) a continuous interaction of families with the reality of the site, and (3) a step-by-step construction process. First, the role of the pattern language. Patterns educated locals on the key aspect of a functional house. As such, locals could engage in the creative process of design of their own houses, regardless of their experience.

“The families had a Pattern Language, [...] and as they were designing their houses, the students were working directly with them and they would present them with...I mean, there was a sequence of patterns: first we are going to lay out the position of the houses and decide the relationship between the house and the courtyard, then we put the front door [...]. There was a sequence, right...and they would be designing on the basis on that sequence”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

Second, the contact with reality. Each pattern was implemented progressively on site.

“We were directly with the families on the site [...]. But we didn’t have formal charrettes because all the work [...] took place on the ground”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

On-site participation was organized as walking tours around and across the site. Entry ways, boundaries and internal walls and columns were simulated on site with the help of sticks and ropes.

“We would stand in the corners of rooms [...] and determine - just - placing a stick, a vertical piece of wood in the room [...] and walking around to make sure [...] to see where it felt best, where the shape of that room felt best.” (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

Because they were exposed to familiar topics of everyday life, family members could engage in meaningful conversations.

“When you are faced with something real, like [...] the corner of the room is there. People are going to react very strongly because they, it’s about to be built. And so they know that this is good or not good. [...] so I think being there and being sort of in the middle of construction was very very important”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

The argument that reality and familiarity fostered relevant inputs from laymen is also corroborated by the fact that families were more influential during the design of their house, rather than during site layout. Alexander recalls an episode in which a man from the Mexicali community designed a porch without entrance. When questioned, the man revealed that an entry point would destroy the main entrance, located somewhere else. In fact, the porch in question was adjacent to the parking lot, and the family would have used this secondary entrance for instead of the main one. According to Alexander’s field note, the man and his wife did not want to undermine the main entrance since it took them a long time to create. (Alexander et al., 1985:204,205). Third, step-by-step construction. Ultimately, the families’ meaningful contribution was possible because of the step-by-step process devised and controlled by the architects. By dividing the Mexicali project into its constituent parts, the architects could engage citizens with small problems at a time. While the house would take a

certain shape, new problems (e.g. position of the dining room) could be addressed in real form. In Alexander's words:

“In this case, we define the building system in terms of the actions that are needed to produce a building, not in terms of the physical components”. (Alexander et al., 1985:222)

The pattern language was the tool to determine the nature and extent of each step. The patterns represent the “actions” described by Alexander in the quote above. Hence, the sequence of implementation of the pattern language determined the outcome of the project.

Overall, the interplay of the PL with the contact with reality provided a referential compass for local knowledge to emerge. It was, however, the continuous interaction arranged in a step-by-step process of design and construction that allowed such knowledge to emerge *at the right time* to influence the project.

4.7.6 Partial findings from the Mexicali case study

In light of what has been discussed throughout the Mexicali chapter, the following arguments emerge:

About the stage and duration of participation

- #M1. The scope, degree and duration of participation depends chiefly on the political agenda.
- #M2. Throughout participation requires non-traditional power and responsibility structures.
- #M3. Throughout participation remains efficient if communication is two-way and feedback is prompt.

About the methods and tools adopted during the process of participation

- #M4. The pattern language informs non-experts on key aspects of design.
- #M5. Experts can charge a pattern language with their own intents. As such, the pattern language may be used as a tool to communicate a set of intent to the public.

- #M6. The effectiveness of the pattern language is corroborated by piecemeal participation and on-site design.
- #M8. To be effectively translated into a physical design, the pattern language needs to be managed by experts.

About the referential cognitive objects

- #M9. Non-experts need inputs and referential objects to meaningfully engage in the design process.
- #M10. Reality is a natural referential object. The contact with patterns of everyday life encourages non-expert to partake in the design process.
- M11. The pattern language can be fabricated to suggest a possible, future realities. As a consequence, the pattern language creates a shared framework to discuss what is still not real.

About learning, knowledge generation, and design

- #M12. In participatory design, experts have ultimate control on the implementation of ideas.
- #M13. Lay-expert interaction is more effective when it is based on small parts of a whole task.

4.8 Vellore

4.8.1 Decision to undertake a project: definition of goals, budget, experts, and preliminary analyses

The Vellore project involved the construction of 136 houses for low-income rickshaw drivers in India. The project was initiated by the Center for Development Madras (CEDMA), a local organisation in Tamil Nadu. At the time of the project, in the early 90s, the CEDMA was active in promoting inclusive projects for the disenfranchised. To implement the project, the CEDMA needed land and a group of designers who would work together with the local community. Beyond providing affordable housing, one of the goals of the project was to empower the local community to take control of their lives. In 1991 the Government provided the land to develop the project, and the CEDMA appointed Arch. Howard Davis (University of Oregon, USA) and Arch. David Week (Pacific Architecture, Sydney) to design the housing cluster. Davis and Week were chosen because of their experience with ethnographies and participatory design approaches. In fact, Davis was asked to be part of the design team by Paul Moses, a former student of his and son of the director of the CEDMA. Davis first visited Vellore in December 1991. In the following months, two members of the design team conducted an ethnographic investigation in Vellore. They observed how people used space in their daily lives to understand the local culture.

“In between January and March...Tom and Paul [the two designers] did this pattern investigation, where they went to look at villages and slums [...] and came up with this Pattern Language. And that’s what was used for the site layout when we came back in March.” (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Using sketches and annotations, they described how existing spatial structures supported or hindered local activities.

“Tom and Paul went and looked at different places - whether they were villages, or settlements [...] and they were basically looking for places that were healthy. In other words, where there was good life and things were as if they were working well. And then it’s those places that formed the basis for the patterns. And then there were other places that were not working well, like large areas, where people [...] were not taking care of them [...] and streets were too long, or - who knows what [...] and various things that were not working well. [...]

those two kinds of places were compared [...] That was the [...] source of the patterns".
 (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

For example, the architects studied recurring street patterns, their spatial structure, and how they were used. They noticed how women engaged in their daily task of fetching water, and how neighbourhoods were laid out. From their sketches emerge an attention to the edges as the interface between private and social space (Figure 57). The outcome of the fieldwork was a set of empirical rules. Knowledge was synthesized into thirty-five design principle that formed the basis for a Pattern Language. The thirty-five Patterns were also used to share knowledge with the rest of the design team. Equipped with such knowledge, the designers engaged in the design process.

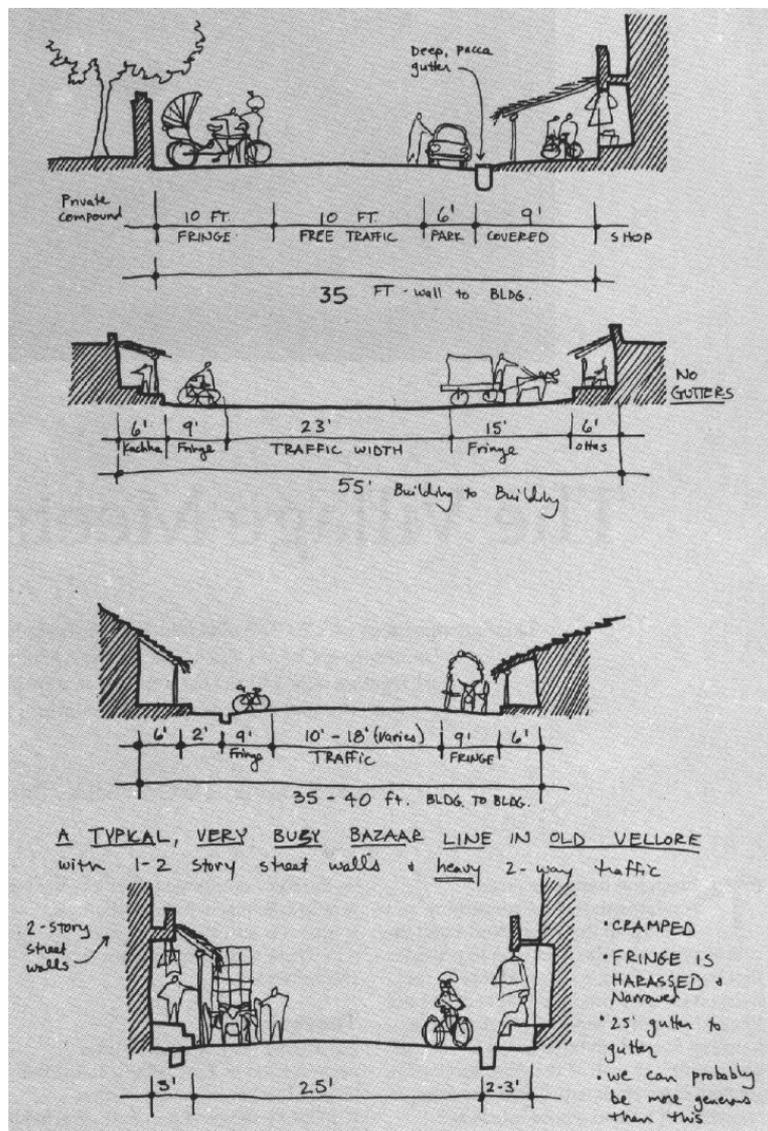


Figure 57. Sketches from the fieldwork in Vellore. Different street sections with notes on uses and human activities.
 Source: Davis et al. (1993).

4.8.2 Engaging the local community: interviews and discussions

The local community was involved in the design process from early stages. In a first meeting, the design team, the client and the local community met to discuss expectations of the project. Despite the assumptions underpinning the fieldwork, the local community had a different take on the project. Davis recalls:

“At the very beginning what we wanted was general information about their own vision for their houses. And during that meeting, what was striking was that [...] they had a vision that was very kind of different from ours. Our vision was - how shall I call it - traditional houses. Their vision was modern concrete houses. What they wanted - and they said it: “We want concrete houses, like the people from the city have”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Besides diverging formal expectations, concrete houses would have been too expensive.

“Because the budget for the houses was actually determined by how much money these people could pay each week [...] for a certain period of time. And that amount of money was not much. And what that meant was that they could not really have these concrete houses with flat roofs, because they would just be much too expensive”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Furthermore, concrete walls and flat roofs would make interiors inhospitable in the warm season. Both from an environmental, and an economic standpoint, bricks and sloped roofs were more suitable solutions than flat-roofs, concrete houses.

Following initial meetings, the design team organized a site walk. The whole community was invited, and about one hundred people attended. As the process unfolded, however, involvement became less broad. One of the reason for this was the decision to develop a design gradually. First, the site layout. Then, individual houses within the spatial structure of the site layout. A second reason was efficiency. Davis recalls how broad involvement was less effective as the design progressed towards a fixed form. Local leaders acted as surrogates for the broader community, ensuring representation and efficiency of the process. Individual families were in charge of shaping their own house.

"Everyone visited the site, walked the boundary of the site, and so forth. [...] The actual layout was done with a few people that were considered to be the community leaders. [...] but the houses were done with the individual families". (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Overall, the design process lasted three years, due to regulations and non-continuous funding.

4.8.3 Site layout

The site layout was produced as a result of a recursive interaction between designers and community leaders on site.

First, the group walked the project site. Community leaders were asked to imagine where the entrance of the site ought to be, and mark it with a stick. The location of the main square was determined in a similar manner. In fact, placing the main square posed an additional challenge, namely the relative position of the temple.

"[the temple] can't be facing a house specifically; it has [...] to be in the so called "rounded" and people must be able to circumambulate the temple" (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Once a major decision was taken on site, it was registered on a laptop. Then back to the site. Then back again to the laptop, until the layout was fixed. Single houses were arranged in clusters organised within an extensive street network. The main street led to two small squares at the heart of the site. One of the squares hosted the temple. Following a dialogue with local leaders, the temple was placed in the middle of the square, so that people could walk around it. Water sources were placed according to the guidelines emerged from the fieldwork. The map reveals that they were scattered across the site, at the intersection of two or more streets (Figure 58). The site layout provided the framework to develop the project further. Each family received an allotment and permission to build their own houses.

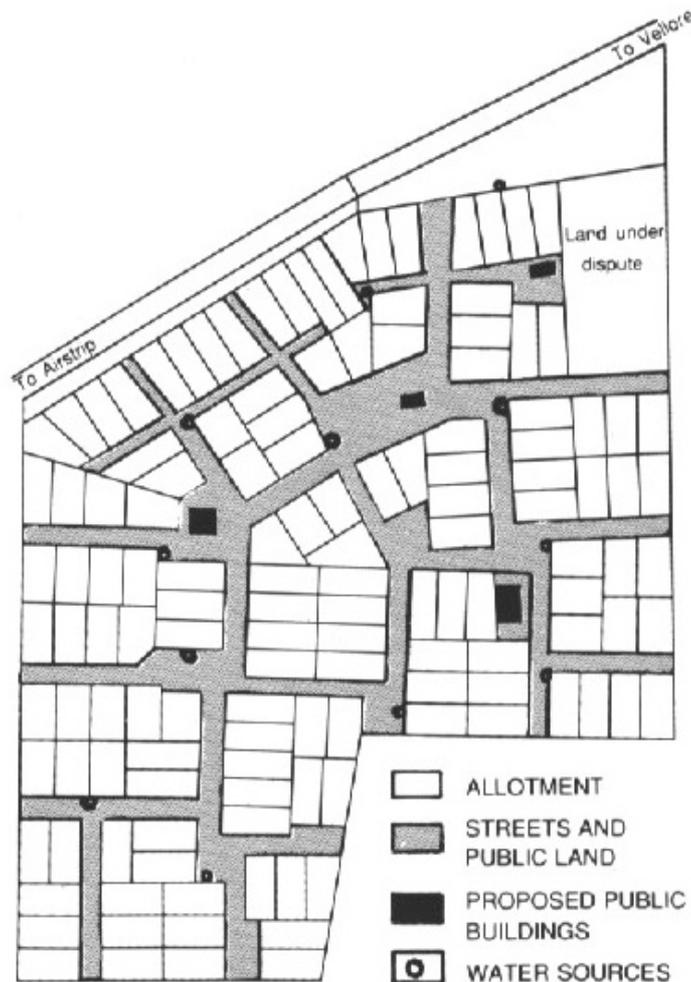


Figure 58. The final site plan. Source: Davis et al. (1993).

4.8.4 Construction works: building together

Like the site layout process, the design and building of individual houses did not follow standard procedures. In fact, the design of each house was determined on-site by each family.

The self-design and self-construction experiment was possible due to the small size of the allotments.

“The Vellore houses were 200-250 sqft [18-20 sqm]. So with such a small house, there’s not that much opportunity for change, for variations. [...] We knew that the houses would have 2 rooms, and a porch. So we developed something, like, 3 kinds of sample houses. [...] the families chose one of those. But then within that choice, they determined the actual size of rooms, the placement of the windows, the placement of doors, how the porch works, and so forth.” (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Each family built their own house following a set of rules agreed with the client (Figure 4). As already mentioned in a previous paragraph, houses were built with traditional materials and forms.



Figure 59. The two self-built houses in Vellore. Source: Davis et al. (1993).

4.8.5 Lay-expert interaction: knowledge generation and the evolution of design

The first level of investigation is aimed at revealing interconnections between the three factors influencing lay-expert interaction. In particular:

“In which way does [column element] influence [row element] in the Vellore project?”

Table 33. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Vellore project.

		Stage and duration of participation	Tools and methods	Sources of reference
Stage and duration of participation	Throughout (from beginning to construction).	X	Each stage of design required different tools to sustain meaningful interaction. To engage citizens in the construction phase, marking flags were needed.	Continuous engagement encouraged people to think about the reality of their houses.
Tools and methods	Public meetings.	X	X	When enquired as a group, rickshaw drivers referred to general concrete houses (like the rich from the city).
	Flags (used on site) and mockups.	Flags and mockups enabled people to influence design at the building scale.	X	Flags planted on site provided a reference to understand the boundaries and proportions of the buildings. Flags projected the project into reality.
		X	X	The pattern language provided a shared referential object for the architects at the beginning of the process.
Sources of reference	Patterns and the pattern language.	X	X	X
	Local built environment	X	Observed by the team of architect and basis for the pattern language.	X
	Modern houses (e.g. made of concrete).	X	X	X

The Vellore project was characterized by continuous participation across two stages of design: site layout and house construction. Since a throughout participation was one of the goals of the project, the architects organised the process to unite design and construction. Indeed, an analysis of secondary sources, such as documents and interviews, reveals an interactive and iterative process of design and construction, supported by different tools.

The first stage of the design was the development of the site layout. The architects engaged the local community of rickshaw driver in partaking decisions about street layout, plot subdivision, placement of public spaces, squares, and temples. Before any public meeting, the architects undertook a two-month ethnographic research on local patterns of space and life. The outcome of such research was a list of thirty-seven patterns made of guidelines and sketches. This first pattern language was used as a referential framework to guide the dialogue with the local community. Local leaders and small groups of rickshaw drivers were engaged on site, with the help of walkabouts and marking flags. If the pattern language was the primary referential document for the architects, the project site and reality was a continuous referential object for the local community. It was by interacting with the site that the architects could understand the validity of the observed patterns. Decisions about site layout were fixed and reported on a laptop, and when a new problem arose, the architects enquired the local community again.

After the site layout was agreed by the client and the families, the area was divided into private parcels. This decision was mostly determined by the program and the budget. Within each plot, each family could take decisions about their own house. In this stage, the contact with reality played a vital role to draw out relevant information from the local community. According to Davis, conversations became fruitful from a design standpoint when reality and details were brought to the fore.

“We tried to have these big meetings, to ask questions about this and that. But I don’t remember those being very effective. In other words, what was effective was dealing with individuals and, also, dealing with reality. In other words, the reality is the site, the reality was the buildings. There the people could be, could answer questions that made sense. But otherwise, if you ask people about: “How do you like that house?”, it was just too abstract. But faced with reality, I think, people could respond much more effectively”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Perhaps reality and the project site provided families with accessible referential objects. In fact, Davis mentions a discrepancy between initial, abstract conversations and later reality-based discussions.

When people asked for modern, flat-roofed houses made of concrete, they were expressing a desire based on an image. The circumstance of the project, i.e. the low-budget and thermal performances, would discourage the adoption of such features. At that point, it was not clear how the programme would be implemented. Furthermore, it is unlikely that locals knew such technical aspects of building. Some anchors were necessary to bring people in contact with the reality of the project. Indeed, when people were faced with everyday situations, they could express accurate and useful insight. Such was the case with the position of the temple, the entrance to the site, and, in later stages, with insight about internal space and door arrangement.

As a second step of analysis, the three key elements affecting lay-expert interaction are related to communication and design. In particular:

“In which way does [column element] influence [row element] in the Vellore project?”

Table 34 “Matrix B”. Table of synthesis of the key factors in place at Vellore and how they affected lay-expert communication and the development of design.

		Communication	Learning / Design development
Stage and duration of participation	Throughout (from beginning to construction).	Organizing participation throughout all design phases while ensuring efficiency required: Multi-level engagement. First, group dialogue, then small-group and individual discussions. Two-sided communication. Ideas had to be challenged when they were considered not fit for the project.	Engaging citizens throughout the process allowed a constant control that the evolution of design would satisfy the Vellore community. It also provided designers opportunities for learning.
Tools and methods	Public meetings.	Used to draw out and understand the aspirations of the Vellore community.	Group meetings not very useful. Dialogue with families brought to the surface certain cultural factors to inform the project.
	Flags (used on site).	Used to mark the land and ground the discussion on reality.	Central element for the elaboration of the vision masterplan and partial output of the process.
	Patterns and the pattern language.	Provided the basis for a discussion about the project.	Used as a roadmap / verbal masterplan to develop a design. Useful as a learning tool for the architects. Repository of empirical knowledge derived from ethnographic research.
Sources of reference		The PL provided the basis for discussions, the boundaries of the project and its various parts.	X
	The local built environment.	X	The observation of the local built environment informed the architects on how people used space in Vellore.
	Modern architecture.	During a first plenary meeting locals mentioned modern concrete houses as examples of what they wanted.	X

Due to the experimental nature of design process and the date of its execution, the Vellore housing project is not as well documented as other case studies in this research. Unlike charrette-based case studies, transcripts of interviews are not available. Unlike Eishin and Mexicali, the design team did not develop a fully-structured Pattern Language. Despite the relative scarcity of primary data sources, two papers and an interview with the leading architect of the project shed light on some important aspect of the knowledge generation process.

4.8.5.1 The nature of communication

The continuous nature of participation in place at Vellore was reflected in multiple public meetings occurring at different stages of the design process. From site layout to the construction of houses, the architects and the local community had plenty of opportunities to exchange feedback and suggest amendments to the project. To implement this degree of participation while preserving efficiency, decisions had to be agreed as the design evolved. For this reason, communication was two-sided, so that good ideas could be integrated into the project, while bad ideas were challenged. This approach emerged in the aftermath of initial meetings with large groups of citizens. Davis recalls that they were not very productive and that it might have been best to scale the dialogue down. Efficiency was also guaranteed by involving large groups at the beginning of the process, and small groups during later stages of design. With this regard, the architects were helped by local customs of societal organisation. The village had their local leaders, and their participation was especially fruitful during site layout, as they were legitimised to take decisions for the whole community.

The communication between the architects and the local community was verbal and referenced to reality. Initial meetings discouraged the design team from indulging in talks about “visions and values”. Instead, practice suggested that the most meaningful exchange of ideas took place on site. This discovery led architects to elevate the product of design at the centre of the process. At Vellore, space played an important role in extracting local knowledge. By relating everyday activities to the project site, members of the local community could meaningfully participate in the design process.

“The details are as important for the participatory process as are the “big moves” [...] because it’s the details that people know about that we don’t know about.” (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

In the development of the site layout, the architects would walk the site with small groups of rickshaw drivers and ask simple questions pointing to the site itself. “Where is the entrance to the site?”,

“Where is the temple?”. These questions were enhanced by the space in front of them. In other words, the complexity of the verbal discussion might have been reduced by the physical contact with reality. As Davis recalls in the interview excerpt above, this kind of interactions was the most fruitful.

The Vellore project suggests that non-experts are better equipped to discuss the reality of a project, as opposed to general, abstract themes. It was the contact with "the everyday", e.g. domestic and public life in the village, that triggered local knowledge to surface and confront expertise. Consider two episodes described in previous paragraphs. When the discussion was focused on the image of the house, locals expressed preferences for flat-roof, concrete houses. Pursuing this idea would have led to an inadequate design, due to low budget and climate. Yet, locals provided useful insight about the temple and interior space. Inputs from religious practice and domestic life informed the position of the temple and door alignment. In this context, the pattern language was not directly used to support a dialogue with the local community. In fact, the language was not circulated among the locals. Instead, the pattern language was used by the design team to establish a shared pool of knowledge about Vellore’s physical and social environment.

“The patterns were mostly to do with site layout. So, they were used more at the beginning, and they did not have much to do with house design.” (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Furthermore, unlike the other two case studies presented in this research, the Vellore pattern language was not fully developed. In describing the PL, Davis recalls:

“Certainly, it has “Title”, it has “Sketch”. [...] not so much with the “Problem-Solution”, but when you read it, you’ll see that somehow it is in there. Not “connections with other patterns”, no. That’s not there. So [...] it’s certainly more than just design guidelines...because when you will read it, you will realize the social reason for the patterns [...] But it’s not formulated in the format of the pattern. But Tom knows about the Pattern Language, and he was cognizant of it when he did the work” (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

The hybrid nature of Patterns and the lack of a network structure might have been caused by the explorative nature of the ethnographies. Patterns emerged from the empirical observation by two Americans in a culturally different context. The primary function of patterns was to synthesise

information about how locals used space. As a consequence, comprehensiveness was more important than structure.

4.8.5.2 The process of co-learning: how participation influenced design

At Vellore, the continuous interaction between architects and members of the local community offered numerous opportunities for learning. These opportunities depended in large part on the interplay of three factors: (1) the pattern language, (2) the step-by-step pace of the design process, and (3) the constant reference to reality.

First, the pattern language. At Vellore, the thirty-five patterns were drafted by two architects before any public meeting. For two months, they explored the region around Vellore doing ethnographic research.

“In between January and March...Tom and Paul did this pattern investigation, where they went to look at villages and slums and came up with this Pattern Language. And that’s what was used for the site layout when we came back in March”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

The language was a repository of observations. It codified how local communities used space to organise their lives and perform daily activities.

For example, pattern #16: ANIMAL PLACES describes the relationship between families and animals, i.e. cows and buffalos.

“Cows and buffalos are family, and are cared-for, washed, fed, looked after, and housed as such. Cattle are not stray, and especially during milk-yielding periods are supervised 100% of the time. [...] These are valuable, income-producing beasts and the buffalo-owner wants to keep an eye on his beast. So security is also a big issue. Hence the ideal location for cattle-sheds are at the end of dead-ends [...] where there is only one way out and many eyes are on your cow. Or else out in back of a private, walled compound”. (Excerpt from the Vellore Pattern Language document 1992:42)

This excerpt from the pattern details the importance of cattle for low-income families in the Vellore region, while putting forth some spatial implications. Cows are important for the livelihood of people. In their observations on several villages, the architects noticed a recurring solution: to organize a shed in an outdoor, well-protected corner. Figure 60 includes sketches of three spatial options to solve the problem of cattle supervision.

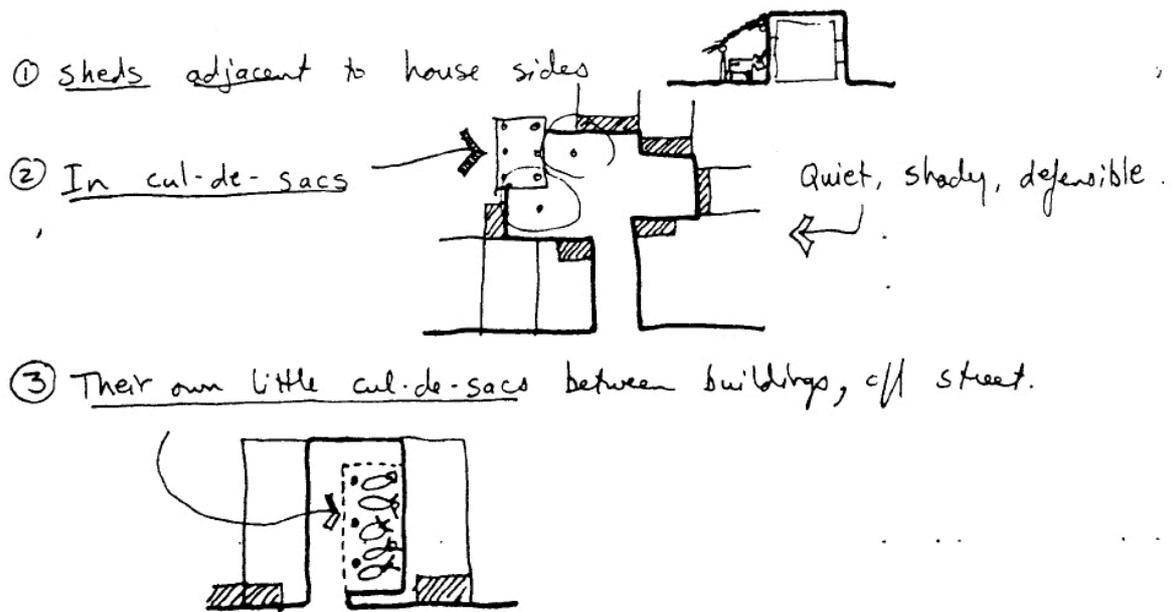


Figure 60. Pattern #16: ANIMAL PLACES. Sketches describing three alternative ways to solve the problem of cattle supervision observed in the Vellore region. Courtesy of Davis, Week, and Moses.

Another salient example is pattern #11: A CITY OF ROWHOUSES (Figure 61).

“Vellore is a city of rowhouses. [...] 50% of houses are built in lines with party walls. The beautiful Vellore houses are no longer being built with classic porches, pillars, and pitched tiled roofs, but the principle of the courtyard, the porch, and the open back continue”. (Davis, Week, & Moses, 1993:28)

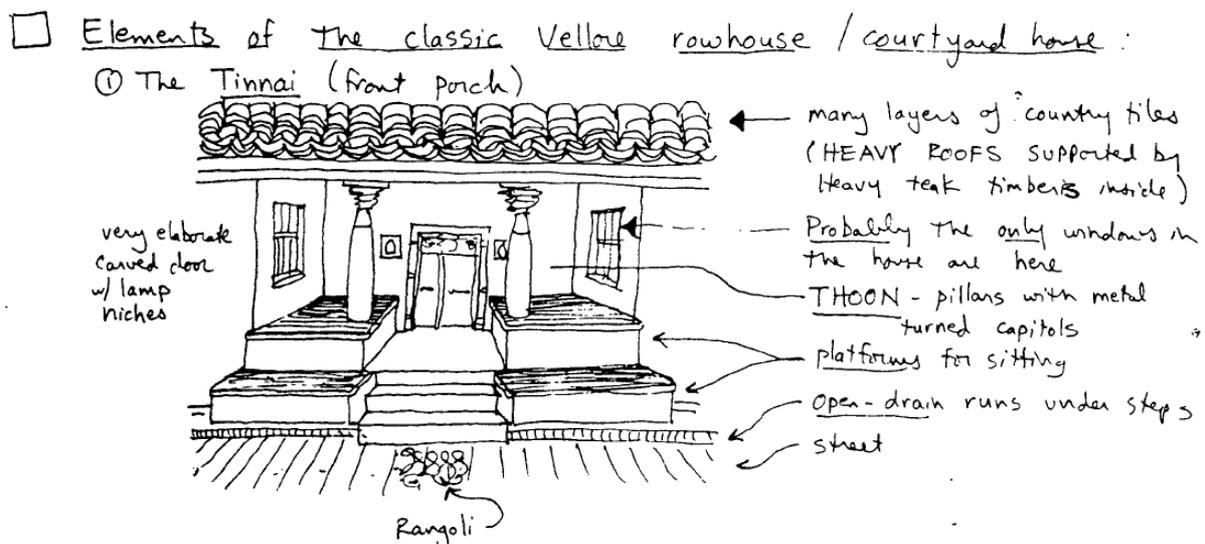


Figure 61. A CITY OF ROWHOUSES: Sketch illustrating a typical front porch of Vellore. Courtesy of Davis, Week, and Moses.

Other patterns include studies of streets, cul-de-sacs, and bazaars. Through sketches, descriptions and schemes, the architect built a library of guidelines grounded in empirical evidence. As such, the pattern language served as a tool to bridge research and action. On the one hand, it includes fragments of sociological research. On the other hand, it provided a framework for design. For these reasons, the design team used the language to have a general idea of the local context, its culture and some peculiar spatial features. Davis recalls that the pattern language served to guide the phase of site layout.

“The patterns were mostly to do with site layout...so they were used more at the beginning...and they did not have much to do with house design”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

As far as the local community is concerned, the pattern language was never distributed among the families. Regardless, the architects used the information contained in the language to discuss with the families and fix the site layout. This dialogic process was fostered by a step-by-step design process taking place on site. Major decisions were taken on site thanks to informal conversations with village leaders. Although there is no record of such conversations, Davis provides an account of how conversations informed design.

“We started to talk about very specific things, like where is the temple, or [...] things like that - and they were [in a] position to answer the question. And they could say where the temple was. It can't be facing a house specifically; it has - they have to be in the so called “rounded” and circumambulate the temple. So, at that point, once real stuff was introduced, the discussion had to do with that real stuff, and not with more general issues of what's your vision and what's your image”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

The architects did not separate design, site layout and construction phase. Instead, they broke down the project into general parts: layout of the streets, entrance to the site, the position of the temple and shrines, divisions of the plot, etc. In so doing, they reduced the complexity of the interaction, as the local community had to focus on one thing at a time. Furthermore, proximity to the project site and with reality enabled local knowledge to surface. The use of sticks and marking flags ensured that the housing cluster could be visualised during the site layout phase.

The design and construction of houses provide further evidence of the learning process in place at Vellore. In this last phase of design, the pattern language was not as useful as a step-by-step, reality-based interaction. The following episode is a meaningful example of what the architects learned from the local community.

As already mentioned, houses were small in size, due to the low construction costs. To ensure an efficient design process, the architects developed three layout schemes. Each family had to choose their favourite as the basis for internal arrangement, which was entirely under their control. Due to the small size of their house, internal variations were limited to door and window arrangement, and not much else. During construction work, designers discussed with the A. family about the position of two doors. The family wanted the entrance door on the left side, while the rear door on the right side. If doors were to be built in this way, space would be fragmented by a diagonal circulation pattern. Architects understand this as a problem and usually align doors on the same side, to allow linear circulation. When Davis discussed this point with the family, however, the family insisted on having diagonally arranged doors. According to them, a diagonal arrangement would have created two active corners; one for the children, one for the parents (Figure 62). In other words, to design a proper room, a well-established architectural norm had to be broken.

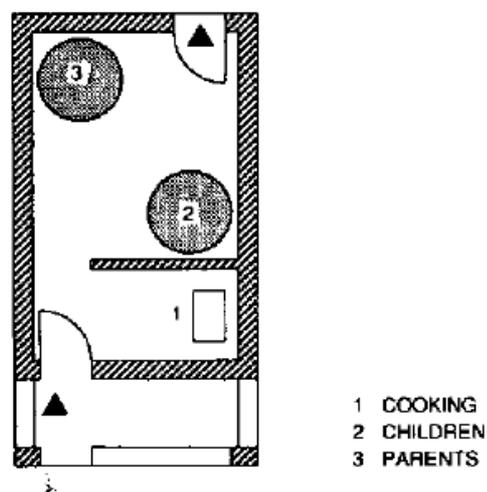


Figure 62. Floor plan of the house of the A. family. The plan shows how a diagonal alignment of doors creates two active spaces. Courtesy of Davis, Week, and Moses.

Davis and colleagues would have rightfully operated under a set of assumptions derived from western education and practice. Through continuous dialogue with locals, they could test the limits of such assumptions, as in the case of personal space:

“[In India] personal space is much more close than it is in the US, or Italy, [...] where we tend to be further apart from each other. In India people can be very, very close; and so very small corners of a room that is 10X10 [feet, i.e. 3X3 m] can easily be seen as a place where [...] particular activities could take place; whereas in our cultures - US, Italy, Germany - a 10X10 [feet, i.e. 3X3 m] room is very small, even for a single activity.” (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

These episodes highlight how false assumptions may emerge throughout a design process. In particular, when architects operate in a foreign context. In the case of Vellore, all architects were educated in Western countries. Even if one of them was originally from India, they were not familiar with how low-income families of that region would use space. A continuous engagement allowed designers to double check their assumptions, even the less controversial (e.g. door alignment). Asking the right question at the right time was a good strategy to overcome critical issues.

In this framework, Patterns were useful tools to synthesise and share fieldwork observations. They equipped designers with an initial pool of knowledge about how locals use space. Thanks to this initial framework of reference, conversations with locals yielded fruitful insights. In fact, in the Vellore projects, the validity of patterns depended on how close they captured the implicit knowledge and wisdom of the local community. In other words, it was through participation that their content was validated (or confuted). More than patterns, however, it was a continuous interaction on site that ultimately enabled local knowledge to emerge. Reality, both as a verbal and a physical reference, seems to have played an important role in enabling people to participate effectively. The pattern language served the purpose to orient the architects towards local custom. The step by step process enabled the right questions to emerge at the right time. Flags and walkabouts were instrumental in connecting people to reality and allowing them to imagine the spatial nature of the project.

4.8.6 Partial findings from the Vellore case study

In light of what has been discussed throughout the Vellore chapter, the following arguments emerge:

About the stage and duration of participation

- An early stage general discussion may reveal public feelings about the project. However, certain topics may emerge only as the masterplan is constructed and revealed to public scrutiny.

Hence:

- Continuous participation provides learning opportunities not only at the beginning of the process, but also during later stages of design.
- To support continuous participation, designers have to rely on different techniques across different stages of design.

About the methods and tools adopted during the process of participation

- The pattern language functioned as a key artifact to connect research and action. On the one hand, it is a repository of information collected via ethnographic research. On the other hand, it provides a framework to dialogue and design.
- Marking flags and walkabouts on site are useful tools to connect people with a virtual reality.
- Relevance is attributed by the architects, who filter and integrate citizens' inputs in the design process on the basis of expertise.

About the referential cognitive objects

- In general, non-experts tend not to discuss in abstract terms. In fact, they rely on “anchors” to articulate their thoughts.
- In the absence of any explicit anchor, non-experts refer to personal images of desired outcomes, regardless of their appropriateness for the design task. This is common during early, exploratory stages of design.
- As the project develops, the image of a design emerges as a common referential object. Non-experts use this emerging object as an anchor to ground their ideas and suggestions (e.g. a masterplan, a building).
- Reality acts as a powerful referential object, or anchor. In particular, if participation deals with real problems involving everyday life and habits, non-experts are more likely to provide relevant feedback.

- In the presence of a strong cultural gap between designers and citizens, engaging citizens with reference to reality may yield novel information. In some cases, this insight may subvert some design assumptions.

About learning, knowledge generation, and design

- Architects' knowledge deficiency is proportional to the cultural gap between designers and citizens. When designing in a foreign context, designers need extra information to inform a sensitive design¹⁴.
- Preliminary research, i.e. ethnographies, is necessary to understand the local context and prepare to design with the local community.
- The bulk of information collected via ethnographies or similar investigation may be sufficient to address a sensitive design.
- Participation confirms, expands, or confutes architects' initial assumptions, as well as the appropriateness of certain design solutions.
- A preliminary understanding of local modes of living is the foundation to fruitfully engage in participation in a foreign context.
- Local knowledge is elicited by (1) reference to reality, and (2) a step-by-step design process.
- In a design-oriented participatory process, the extent of democratic choice is limited by the feasibility of people's requests.

¹⁴ A sensitive design is one which caters to a local culture and mirrors local habits and everyday life dynamics.

4.9 Eishin



Figure 63. Location of the project site in Eishin. Source: Open Street Map (left) and Google Maps (right). Accessed 3 November 2017.

4.9.1 Decision to undertake a project: definition of goals, budget, experts, and preliminary analyses

Around 1980, the Eishin high school was in need of a larger campus. The school was a private institution located in Musashino-shi, in the West of Tokyo. Due to the high cost of the land, the new campus ought to be relocated further away from the city. Together with high school facilities, the new campus had to include a new university. In this context, the school administration appointed Mr Hosoi, the managing director, to develop the project. It was Mr Hosoi that reached out to Alexander and the Center for Environmental Structure (CES) of Berkeley in the USA. Mr Hosoi was aware that the construction of a new campus could have provided an opportunity to address bigger educational questions. For example, one of the fundamental policies of the Eishin school was “involvement”. Teacher and students should have been part of the design process. When he attempted to find an architect to fulfil this request, however, Mr Hosoi received many refusals. No Japanese office was willing to fully and deliberately work in a participatory manner. After one year of research, Mr Hosoi stumbled upon *The Oregon Experiment*, a book by the CES describing the project for the University of Oregon campus. After he read the book, Mr Hosoi wrote to Alexander, and after several meetings and discussion, the project started. The CES signed a contract and obtained full responsibility for the project.

4.9.2 Engaging the local community: interviews and discussions

The Eishin project began with the development of a Pattern Language, i.e. “a verbal picture of the school and college” (Alexander et al., 2012:120). Members of the CES spent about five months engaging students, teachers and administrators in creating it. Each meeting lasted about one hour and involved talking one-on-one about dreams and hopes for the new campus.

“There were about 100 people [...]. The teachers, all the administrating people, all the staff, and about 30-40 students were involved and interviews for about 1 hour, more or less. And it was not a fully formatted interview. [...] we had some key questions. The key questions were [about] what they really imagined, they wanted to have at the new campus. And that was the key focus, so that we completely could understand what the real vision, the real dreams of the users were. And these dreams later were incorporated in the pattern language”. (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

The interviews were set up so as members of the school communities could express deep desires and feelings through visions. Often, the architects had to encourage interviewees to make an effort, close eyes, and express their visions. As a result, the architects obtained such statements as:

“I see the new campus surrounded by some fence or wall.”

“I see a main assembly hall that in particular symbolizes the overall community of high school and college. It is the locus for major events such as the fall festival, or lectures for the college”.

“The heart and most important center of the college is the research center and the library.”

The collection of these statements constituted the basis for a preliminary Pattern Language.

4.9.3 Development of a pattern language

As a result of the conversations with the Eishin community, the team of architects drafted the first PL:

1. The new campus will consist of an outer precinct with all the sport fields, gardens and outer buildings, and an inner precinct with all the buildings, high school and college activities.
2. The inner precinct of the school is made up of seven major entities.

3. The entrance street, which connects the outer boundary to the inner boundary.
4. The main yard, which contains the great hall.
5. The ta-noji center, which contains two narrow crossing streets, all the communal functions, and the college departments.
6. The home base street, which contains the individual home base buildings, and the common space for high school students.
7. The college cloister which contains the library, and the special college functions such as research center.
8. The lawn which is shared by the high school and the college.
9. The gymnasium, which stands at the end of the home base street, and forms its head.

As Alexander and Neis stress, these nine points were not created by sociological research, nor by making a list of what people spoke about (Alexander et al., 2012:123). This first “crude language” was a general vision of the campus, a description of its global structure. The crude language provided a starting point to develop the campus further. Some teachers and faculty members made some sketches based on these Patterns. The sketches have been lost, but they helped the architects understand how individuals responded to the first Pattern Language. In the following weeks, the architects worked to make the crude language more precise, and physically coherent. This process was based on trial and error. The architects generated several site layouts following the nine rules of the language, without specific reference to the project site at Iruma-shi. At that point, the school was still negotiating the acquisition of the land, and its size and boundaries were still not defined. The exercise was meant to assess the archetypal structure of the pattern language, i.e. its consistency in face of unknown spatial conditions. Some teachers participated in this exercise, too (Figure 64).

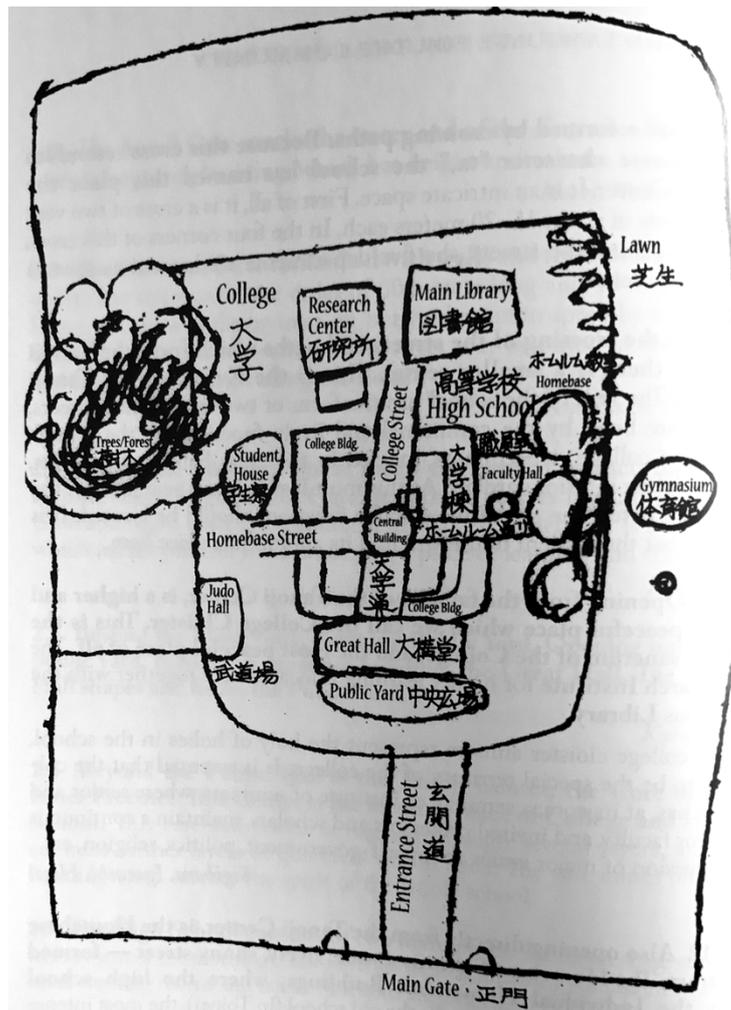


Figure 64. A sketch made by a school teacher of Eishin. The sketch was inspired by the first crude language. Source: Alexander et al. (2012).

Once the language was refined so that it could generate coherent plans, the architects met with the Building Committee of the Eishin school. In these meetings, further specifications were laid out, i.e. functional separations between school and campus, materials, and meaning of specific buildings.

Afterwards, a new round of interviews with the school community was organised. One-on-one discussions were held with the teachers, faculty and staff members, and about 30 students. The goal of these interviews was to provide the details for the larger patterns. Three architects from the CES spent a month speaking to the Eishin community, with mixed results. They would record and transcribe the conversations and then synthesise the main points. Not all conversations were fruitful. Some teachers were sceptics. Others would make out-of-scale requests.

After weeks of work, the architects synthesised the material from the conversations into a new version of the pattern language. The new language contained 110 patterns defining the key aspects of the campus and its social and educational life.

The pattern language was divided into the following headlines, each pertaining to a specific aspect of the campus:

Table 35. The final pattern language adopted at Eishin.

ID	Thematic area	Number of patterns
1	Global character of the campus	5
2	The inner precinct	14
3	The buildings of the inner precinct	12
4	The streets of the inner precinct	15
5	The outer precinct	25
6	Features of the inner precinct	22
7	Special outdoor details	8
8	Interior building character	9

The pattern language was printed and circulated among student, teachers, and school staff. At a further plenary discussion with the Building Committee, the pattern language was approved by voting.

4.9.4 Site layout

The site layout works began in September 1982. The pattern language acted as a verbal masterplan, providing guidelines for the site layout. However, the process of arranging the land required further considerations, i.e. dimensions, views, slopes, sun path, etc. Instead of drawing plans in the office, the architects developed the campus layout directly on site. In fact, as Neis recounts, it was a recursive process involving fieldwork and drafting:

“In the morning, we would go to the site and test out ideas, and see how we can actually come to some conclusions that patterns, ideas, and visions can be settled, take on the concrete form. So, then we were moving bamboo sticks with flags around, to find out locations of buildings, paths, squares and streets until it looked good and then we would go and measure these locations. Then we were recording our designs on the land in particular drawings. They were not drawings made in the office; they were made on the site. What happened on the site was then recorded on the spot in drawings, and these drawings always had pointed at the same spots where the bamboo sticks were located]. After that in the evenings, we went [...] back to the office, where we looked at the model and tested the new designs and adapted designs within the large physical model. If what we had done on the site was actually correct, or was good, or was a step forward then we incorporated it into the day’s design work. With new questions and ideas, we started the same process again in the morning, going to the site,

recording and working with the model, for about two months”. (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

A team of architects from the CES was deployed in Japan for the duration of the project. Others worked from the CES offices in California. Physical site model was built in both locations, to reflect progressive changes in the overall site layout. During the fieldwork at Iruma-shi (Figure 65), teachers and students were engaged in plenary meetings and walkabouts. In particular, whenever important decisions had to be taken, the architects made sure to consult some members of the Eishin community.

“Sometimes we have to work on our own to make sure that we do the right thing. However, then, quite often you don’t really know, and then you also wonder: “Maybe it’s good to have some participants with us, because they can help us to get input. [But the answer is really: Do this design work in a way that is productive and answers the question on the geometry and functionality of wholeness”. (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5).



Figure 65. The tea field at Iruma-shi before the campus was built. The photo was taken during the process of site layout. The flags indicate relevant points, e.g. corners of buildings or public spaces. Source: Alexander et al. (2012)

After almost one year of work, discussions, and compromises, in June 1983 the site layout was ready. All flags were in the right place to mark building corners and other key spatial elements (Figure 2). The relative position of each flag was registered and transferred to paper. It was only at this stage that the first comprehensive and precise plan was drawn (Figure 66-68).

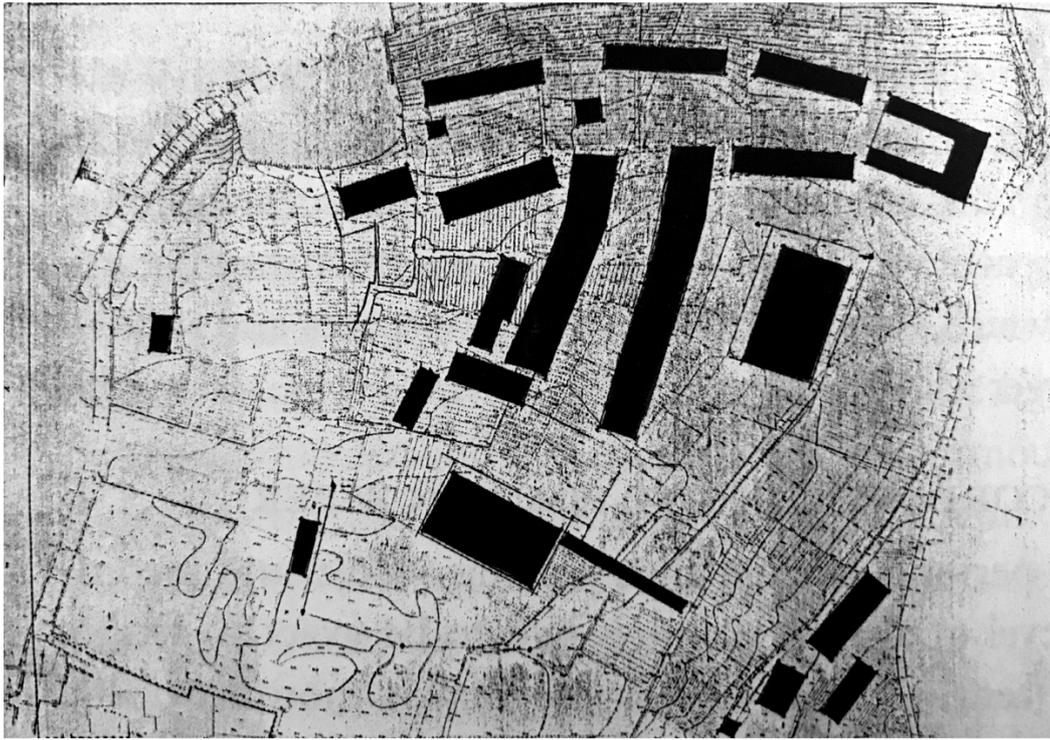


Figure 66. Final site plan of the Eishin campus. The drawing was drafted after all flags had been placed on site. Their relative positions were measured and triangulated. In the original plan buildings are not highlighted in black. Source: Alexander et al. (2012).

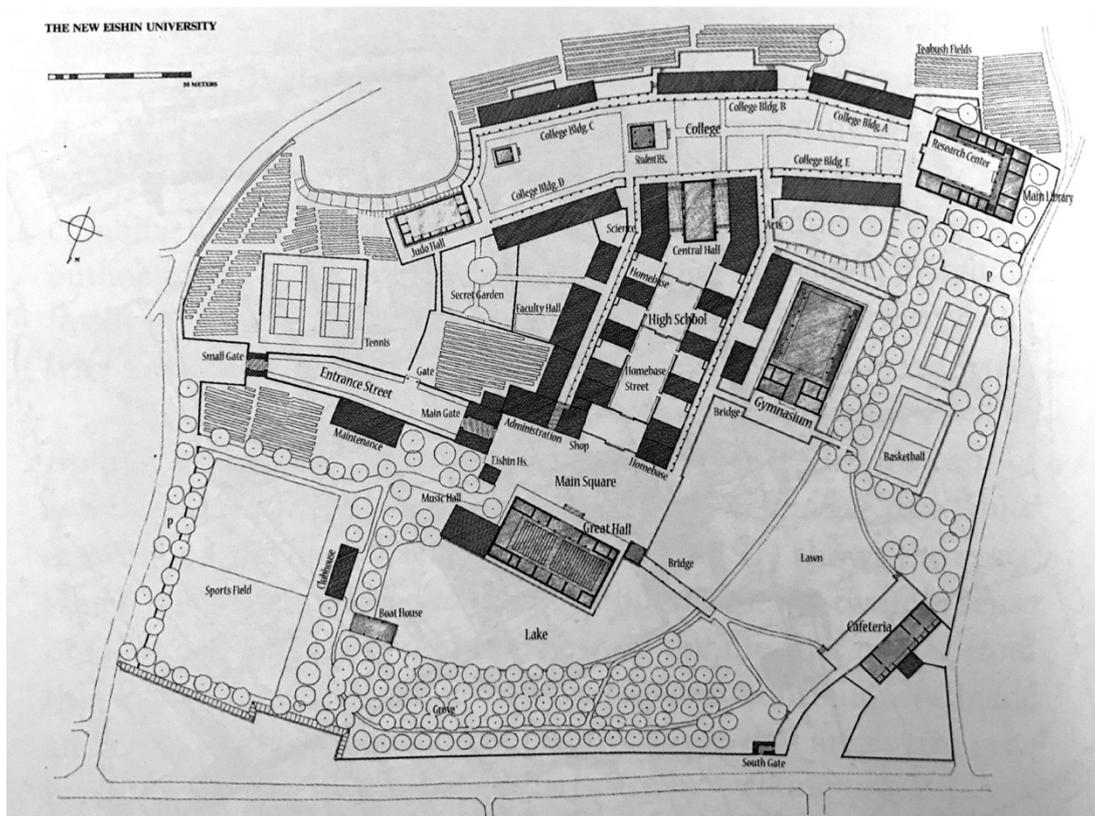


Figure 67. The Eishin campus. This plan was drafted after project completion. Source: Alexander et al. (2012).

4.9.5 Construction works: building together

Once the layout was determined, the CES team designed all individual buildings. The pattern language provided the guiding principles for this phase. In many cases, patterns contained details about program requirements. For example:

“6.17 Two Examination Halls, have space in them for lectures to a hundred students, or for showing films, also for formal examinations. These examination halls might be quite special places, perhaps upstairs, light and memorable. There is need for two of these lecture halls”.

“8.4 All homebase classrooms will have big windows facing south. If possible, the glare from these windows may be modified by the existence of a gallery, about 1 meter away from the window. Sliding screens, translucent, run parallel to window”.

“8.5 Many rooms have traditional gallery spaces to one side, where light comes in beyond, and shines through screens”.

As already discussed in a previous section, the pattern language was constructed with the help of the Eishin community. Nevertheless, small groups of teachers and students were involved again in the design of each building. The development of the library provides a salient example of how citizen inputs were integrated into the design workflow.

First, architects would imagine the rough shape, volume and quality of the building. The characteristics of the site and the pattern language would help them in this task. For example, the library was meant to be the end point of a sequence. The farthest place from the main entrance. This inspired Alexander to sketch a U-shaped building, which would be a place of stillness and contemplation. The sketch provided a general volume and shaped for further elaboration (Figure 68).

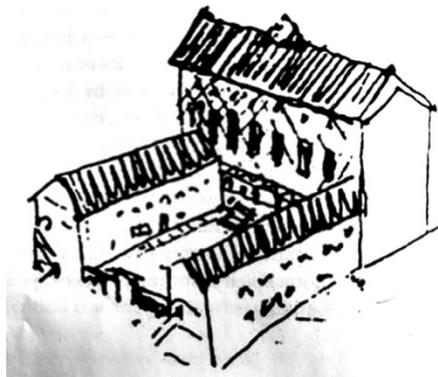


Figure 68. Alexander's preliminary sketch of the library. Source: Alexander et al. (2012).

Second, users were involved in defining the details of the general shape of the building. In the case of the library, Hosoi provided a complete description of the Library building. Because of its verbal nature, fragments of feelings and imagination were intertwined with more “objective” spatial features. Such description contained the necessary inputs to develop the initial sketch by Alexander.

Third, a 1:50 model of the library was prepared to translate ideas and description into reality and concreteness (Figure 69).



Figure 69. 1:50 model of the campus library. Source: Alexander et al. (2012).

This sequence of steps was adopted for all buildings, albeit with some variations. The development of the Home Base Street buildings was decided with the help of the chemistry and the mathematics teachers. Using chairs and furniture from the old school, the architects organized two mock-up sessions to understand how to design the buildings. During these sessions, a certain classroom layout emerged as ideal for the teachers. The architects were not sure whether direct sunlight was ideal, as traditional Japanese buildings tend to have indirect, soft light flowing through paper shoji. In fact, the teachers asked for big windows for direct sunlight. The architects recorded such preferences and integrated them into the design of the building.

Another example of user-informed design was the addition of the arcades on the back of the Home Base Street buildings. On the one hand, a continuous arcade would have created a positive space. On the other hand, the teachers emphasized that they would have preferred to walk from building to building without getting wet (Figure 70).



Figure 70. The arcade on the back of the Home Base Street buildings. Source: Alexander et al. (2012).

As for the Home Base Street buildings, the architects operated with the help of full-scale mock-up, and 1:50 models. As Alexander and Neis state:

“Every single building on the campus was built several times over, at a scale of 1:50 in our offices. These models were not presentation models, made after the design was clear, to explain the building to another person. [...] Sometimes, when particular spaces inside the building were unclear, we also made more detailed models of the interiors, usually on a scale of 1:20”. (Alexander et al., 2012:248,249)

After many months of work and challenges, the project was completed in February 1985. To this day, the campus is operative (Figure 71).



Figure 71. Photos of the Eishin campus. Source: Alexander et al. (2012).

4.9.6 Lay-expert interaction: knowledge generation and the evolution of design

The first level of investigation is aimed at revealing interconnections between the three factors influencing lay-expert interaction. In particular:

“In which way does [column element] influence [row element] in the Eishin project?”

Table 36. “Matrix A”. Table of relationships between the three key factors affecting lay-expert interaction in the Eishin project.

		Stage and duration of participation	Tools and methods	Sources of reference
Stage and duration of participation	Long (several years) and throughout (from beginning to construction).	X	Each stage of design required different tools to sustain meaningful interaction. To engage citizens in the construction phase, flags and mockups were needed.	Continuous engagement enabled the transition between several referential objects (each person’s idea of campus) into one, illustrated by the pattern language.
Tools and methods	One-on-one interviews	X	X	Individual interviews enabled individual referential objects to become explicit.
	Flags (used on site) and mockups.	Flags and mockups enabled people to influence design at the building scale.	X	Flags planted on site and mockups provided a reference to understand the boundaries and proportions of the buildings.
	Patterns and the pattern language.	The pattern language enabled people to influence design at the building and interior scale.	X	The pattern language provided a shared referential object in the form of a verbal description.
Sources of reference		X	X	X
	Modern architecture.	X	X	X

Mr Hosoi, the initiator of the Eishin project, wanted the campus to be shaped by the school community. To realise his dream, he selected a group of architects who not only shared his trust in user design but could implement it. To make sure that inputs from the school community would influence design at all scales, the architects employed a non-traditional methodology. Continuous participation was ensured by the timely adoption of the proper tools.

At the beginning of the process, the architects used individual interviews to construct a general vision for the campus. A first, rough pattern language was the verbal recipient of multiple streams of ideas. As the process progressed, the campus had to be defined in precise terms. The rough pattern language was articulated with specific guidelines defined together with selected members of the Eishin community. Participants were asked to review, edit, and approve the full version of the pattern language so that it could be used to build. Finally, to obtain inputs about buildings and interior rooms, the architects relied on marking flags and full-scale mock-ups. Besides tools and methods, the gradual pace of the design and construction processes enabled continuous participation. Furthermore, participation sustained by different tools at different times affected the sources of references used by the members of the school community to interact with one another and the architecture team. A shared referential object was constructed as the process progressed.

At the beginning of the process, individual interviews revealed idiosyncratic images of how the campus ought to look like. The architects streamlined all wishes and ideas into a coherent set of guidelines, i.e. the pattern language. In it, fragments of ideas and wishes are organised and put in relationship with one another. The language acted as a shared referential object, a common framework within which further discussions could take place. The evolution of a rough language to a well-refined language is indicative of the discussions and negotiations in place at Eishin.

Once the pattern language was approved by majority vote, the architects implemented its guidelines on site, with the help of marking flags and mock-ups. Flags allowed students and staff members to visualise the position and size of each building. Thanks to that, participants could provide additional inputs at the building scale. Mock-ups allowed discussions at the detail level, such as colours and material to be used for constructions.

As a second step of analysis, the three key elements affecting lay-expert interaction are related to communication and design. In particular:

“In which way does [column element] influence [row element] in the Eishin project?”

Table 37. “Matrix B”. Table of synthesis of the key factors in place at Eishin and how they affected lay-expert communication and the development of design.

		Communication	Learning / Design development
Stage and duration of participation	Long (several years) and throughout (from beginning to construction).	Organizing participation throughout all design phases while ensuring efficiency required: Multi-level engagement. First, 100 people, then small-group discussions. Two-sided communication. Ideas had to be challenged when they were considered not fit for the project.	A continuous and thorough engagement allowed architects to control that campus would meet the Eishin community expectations. The progressive design and construction phase also provided designers multiple opportunities for learning at various design scales.
Tools and methods	One-on-one interviews	Used to draw out and understand the needs and desires of the Eishin community. Prevented group biases.	Contributed to the development of the PL
	Flags (used on site) and mock-ups.	Used to mark the land and ground the discussion on reality	X
	Patterns and the pattern language.	The pattern language translated collective aspiration into an intelligible vision made of interconnected guidelines. Provided the basis for a discussion about the project.	The pattern language breaks down the vision of the campus into parts. Citizens and experts can focus their discussions on small parts.
Sources of reference		The pattern language was a loose verbal description of the emerging campus. It established a shared referential object for experts and the Eishin community.	Used as a roadmap / verbal masterplan to develop a physical design.
	Modern architecture.	In the initial stage of design, several members of the Eishin community made references to examples of modern, concrete educational architecture.	X

4.9.6.1 *The nature of communication*

To fulfil Mr Hosoi's wish for a campus designed by the Eishin community, the architects engaged teachers, students, and staff members throughout the whole design process. In other words, architects and non-experts exchanged information at all stages of design, from the development of a concept to the definition of interior details. To ensure efficiency, the architect organised a multi-level communication campaign. Neis describes it as a pyramid:

“At the beginning, there were much more people, and the more and more the process developed, there were more particularly interested people involved. [...] then we could talk really...we could go into the business at a much more deeper level, rather than having to explain to many people what we were doing.” (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

While early discussions involved hundreds of people, as the design progressed, communication occurred with small groups or selected individuals. The logic behind this strategy was to engage the whole community for the definition of the masterplan. However, decisions on individual buildings and classrooms were left to whom would use them. So, once the community reached consensus on the overall image of the new campus, the architects discussed with small groups of people to shape individual buildings. For example, the Judo Hall was designed by the gym teachers and the members of the Judo club. The cafeteria was influenced by the student. Teachers were in charge of laying out classrooms. Despite the large number of people engaged at the beginning of the process, the architects relied on one-on-one interviews. The goal of the architect was to draw out individual needs and expectations for the project. Interviews were also designed to counteract the negative effects of group dynamics. As Neis points out:

“[...] when you are in a group, you are already sort of in a group mode; many people just follow what others say. We really tried to avoid that, at the beginning.” (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

In this first phase, communication was meant to be one-sided, from the public to the architects. After all, students and faculty members were free to express their desires for the new campus. However, two issues arose, and architects had to interfere in the communication process. A first issue was the reluctance of some people to speak out. Cultural differences might have caused part of this:

“In America people would tell you freely what they think [...]. But in Japan it is the opposite. Before they tell you something, you really have to get it out of them. It’s like...they would say - well - “Oh yeah, you know better: you are an architect, you have done this many times...”. (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

Another hypothesis put forth in the book is the idea that people did not think that what they had to say would be taken seriously.

“It was almost impossible for teachers to say anything they really felt about the matter, or to take seriously the fact that they were being asked. [...] it was hard for them to imagine a world in which their own feelings might be taken seriously”. (Alexander et al., 2012)

A second problem was that the content of people’s replies did not satisfy the architects. When asked about their ideal campus, many people would say something generic about numbers, classroom size, and similar facts. In general, the architects noted a trend to refer to “modern-day Japan”, where “most schools are massive concrete boxes, with an asphalt playground on one side”. The architects were not looking for pre-digested aesthetic images experienced by the participants. Nor quantitative data about performance or requirements. Instead, they wanted people to express something deeper and related to their feelings. By reading the wording and style of the first pattern language, it is possible to claim that the architects were seeking “true dreamlike atmospheres” (Alexander et al., 2012:119). To address both issues, the architects encouraged people to express simple desires, while holding them in high regard (Alexander et al., 2012:118). After all faculty members were interviewed, the architects created a crude language including people’s inputs.

“We recorded those [interviews], and wrote 1-2 pages of each of those. And they then were already - sort of - written in a way that a pattern might have come out of it. But writing the pattern language itself was a longer process. That was something that was - of course - completely up to us, and of course the director, Mr. Hosoi, was involved”. (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

The crude language was then circulated and discussed in plenary sessions. To articulate the detail of the language, the architects engaged small groups and individuals concerned with specific aspects of the campus. Students and teachers were asked to contribute to the definition of specific patterns. In this context, the pattern language provided both a shared referential object and the boundaries within

which conversation could take place. The existence of a set of guidelines describing the overall vision of the campus guaranteed that individual wishes would not prevaricate over collective interest. An example from a later stage of design illustrates this point:

“In order to accommodate everybody, space [...] had to be distributed in a way that people were not disadvantaged. But the gymnasium teachers, they wanted huge spaces. [...] And that was so expensive, and didn’t even fit into this landscape that we designed - that the rest of the school designed -, so they became a little bit...too demanding, [...] and we had to refuse, because if they wanted to dominate the design [...] That was not the overall idea”. (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

When the final pattern language was discussed and approved by majority vote, the design process carried on directly on site. At this stage, the public was involved in the definition of public space and the position and construction of buildings. The architects relied on marking flags to materialize the volume of buildings and interact with students and faculty members. The position of flags in the site grounded the communication to reality. The step-by-step approach enabled communication to proceed seamlessly. Neis’ account of a regular day of work sheds light on the communication process on site:

“In the morning, we would go to the site and test out things and see how we can actually come to some conclusions that things can be settled. So then we were moving sticks and then we would go measuring. [...]. Then we were...recording in particular drawings. They were not drawings made in the office; they were drawings made on the site [...] and these drawings always had points [...] where the sticks [were]. And then we could see the buildings became the spaces, and so on. And then we went [...] back to the office, where we looked at the model. And test it with the model. If what we had done in the site was actually correct, or was good, or was a step forward. And then, once we had tested it, we [...] decided we would stop [...]. And then we were deciding ‘what we should test the next day?’”. (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

Once buildings were placed on site, the Eishin community was also involved in decisions pertaining materials, colours, and details through full-scale mock-ups. This last phase of participation occurred in small groups working on specific topics. The criteria for participation was pertinence: the music teacher was responsible to influence the music room, the students helped to shape the cafeteria, etc.

4.9.6.2 The process of co-learning: how participation influenced design

Overall, the architects were in total control of the design process. By contrast, their powers exceeded the boundary of standard design processes. The Center for Environmental Structure was even responsible for construction works. Despite the apparent absolute power of the design team, the process was permeated by participation at all stages. Through frequent interaction, the Eishin community could check the quality of design and hold the architects accountable. In fact, many episodes from the book and the interview with Arch. Neis emphasises the constant presence of Mr Hosoi, even during private meetings. Besides questions of power and accountability, participation ensured students and staff members to influence the evolution of the design of the campus. In fact, the accruing of powers in the hands of the architects might have been a necessary prerequisite to ensure that the campus would reflect community aspirations. At the same time, from a designer perspective, participation provided multiple learning opportunities.

Two elements sustained this kind of continuous interaction: (1) the progressive pace of the design process and (2) a set of tools that oriented discussions towards reality, namely pattern languages, the marking flags, and mock-ups. The design process began with interviews with all members of the Eishin community. At this stage, the discussion produced general inputs on how people imagined the new campus. It was the duty of the architects to put together all these instances into a pattern language.

The first crude pattern language was produced in the aftermath of the first round of one-on-one interviews. It was an attempt to sort out and organise information into a coherent framework which would act as a referential object for further work. The patterns of this crude language included a description of a general vision of a campus constructed by people's wishes. The following quotes transcribed from the book are examples of inputs that made up some of the initial patterns:

“The main entrance is critical to the character of the whole campus, its placement on the edge of the site must be done with great care. I see the main entrance as a gate, where I can greet students and teachers in the morning”.

“I see the new campus surrounded by some fence or wall.”

“I see white walls, wooden columns, and heavy wood”.

“Somewhere I see a pond, possibly close to the college area.”

“The heart and most important centre of the college is the research centre and the library”.

The first language is referred to as “crude” by the architects because its prescriptions were too vague to be directly implemented. Indeed, the first language was a comprehensive description of the campus in nine statements. Nevertheless, the first batch of patterns was the basis for further discussion among experts and between experts and the public.

“So, we took the first nine-point, crude language [...] and worked on it until it began to express and generate a physical structure which was coherent. To do this, we tried to generate different campus plans with the language. [...] By tests of this kind we were able to ask ourselves where the language was problematic, inconsistent, or incoherent. During this work, we also asked the teachers themselves to use early versions of the language to generate physical campus plans”. (Alexander et al., 2012:124)

The problems of inconsistency and incoherency described by Alexander in the excerpt above refers to a practical issue: the degree to which patterns are useful tools for communication and design vis à vis mere descriptions of the desired outcome. Although representative of people’s input, the first crude language as it was, was not useful for later stages of design. Patterns needed to be reviewed in light of seven principles: relationship, spatiality, reliability, consistency, inconsistency, completeness, coherence (Alexander et al., 2012:124,125). Only architects could address these issues in light of their expertise. The process of “refinement of the language” was followed by a further round of discussions with members of the Eishin community. If the first wave of interviews resulted in the definition of a general, verbal description of a campus, the second influenced the project at a smaller, accurate scale. As already described in the “Nature of communication” section above, at this stage the architects had discussions with small groups or individual teachers. These conversations provided different kinds of inputs. For example, the clinic room teacher provided suggestions for the light in the health room. The music teacher suggested designing with as much wood as possible. He also requested two music rooms. The gymnastic teacher suggested adding female gymnastic to the curriculum. The principal expressed his concerns that so many inputs could not fit together. Again, the architects were in charge of listening and incorporating people’s input into the design of the campus. In practice, this was done by editing and expanding the original pattern language. While the first crude language was comprised of nine short and general sentences, the second version of the language was articulated into 110 detailed patterns, organized into eight categories according to the scale of the project, e.g. public space, buildings, materials and colours, etc.

The patterns cover what Alexander calls “generic kind of centres” (Alexander et al., 2012:151). They describe the campus and its parts, so as one can imagine how the parts and the whole function and are related to one another. For example, certain patterns describe individual buildings and some nested spaces:

“6.12 The Science Lab Building contains a Physics Lab, a Chemistry Lab, Two Preparation Rooms, and a Small Lecture Room.”

“6.3 The College Departments, arranged around their gardens, each contains about six seminar rooms, individual rooms for professors, and common rooms where students can read and study”.

Some describe spatial features and their context, albeit with no specific dimensions:

“4.1 The Public Yard has a gravel surface, with stone paths crossing it. It is informal and quite in character”.

“5.6 The different sports fields, gardens and outbuildings, make up a chain of Alternating Spaces”.

“7.5 Somewhere there is a small carp pond, with very ancient fish in it”.

Others indicate spatial qualities to be realized in the campus:

“8.5 Many rooms have traditional gallery spaces to one side, where light comes in beyond, and shines through screens”.

“8.6 The classrooms and the rooms are furnished, with very solid, massive wooden desks, which several students share”.

In the book *Battle*, the authors indicate the names of those who contributed to the development of each pattern. The language was a document constructed by the joint effort of architects and the school community.

Once the pattern language was approved, the architects involved individual members of the school community during site layout and construction. Discussions were focused on specific issues highlighted by patterns. However, although patterns included detailed descriptions of the key parts of the campus, their implementation involved further decisions. The gap between patterns and the physical objects that they described created a space of negotiation for the community to influence. Involvement took place on site, with the help of both the pattern language, marking flags, and mock-ups. Both marking flags and mock-ups helped architects and the public to visualise the buildings in

their full size and proportion before they were erected. Alexander and Neis provide plenty of examples of user-informed design.

“I mean it was so many things you learned from them through a number of experiments by working together. “Which is better: is it better to have the bike rack inside the entrance, or is it better outside!?” Well, we had to test it, because there were different people thinking differently. But then you went to the site, checked it out, and then it was clear what was better. So, together we learned a lot.” (Arch. H. J. Neis, personal communication, March 25, 2017-Interview #5)

To understand the extent to which citizens influenced the final design, one has to observe pictures of the campus and see to what extent it includes patterns. Indeed, the design process was devised under two assumptions: (1) that patterns were containers of people’s aspirations, and (2) that architects would implement them in their original and complete form.

4.9.7 Partial findings from the Eishin case study

The Eishin campus is perhaps the largest architecture project developed following the tenets of the pattern language theory. Furthermore, it is also one of the most comprehensive processes of user-generated patterns. As such, it provides a comprehensive picture of the relationship between the pattern language and participation. The following paragraphs summarise the main findings from the Eishin case study.

About the stage and duration of participation

- #E1. The duration, degree, and nature of participation depends strongly on the client.
- #E2. To be efficient, participatory design requires different number of people at different stages. In particular, later stages of design are more efficient when small groups of people are involved.
- #E3. Thorough participation requires a two-way mode of communication. Feedback needs to be prompt.

About the methods and tools adopted during the process of participation

- #E4. Individual interviews are powerful tools to draw out desired insight from non-experts.
- #E5. The pattern language functions as a key artifact to streamline the aspiration of a community into a framework for design.
- #E6. When elevated at the center of the design process, the pattern language acts as a verbal masterplan. A framework within which the local community could integrate their insight.

Likewise,

- #E7. The pattern language is a verbal tool to gradually develop and define a project. As the project progress, the pattern language becomes more rich in details and is prone to include quantities and specific data.
- #E8. Before it can be used for design purposes, a pattern language needs to be managed by a team of experts searching for inconsistencies and contradictions.
- #E9. The relevance of citizens' ideas and suggestions is attributed by the architects, who filter and integrate citizens' inputs in the design process on the basis of expertise.
- #E10. Marking flags and walkabouts on site are useful tools to connect people with a virtual reality.

About the referential cognitive objects

- #E12. In general, the project site and reality are referential objects throughout a design process.
- #E13. The pattern language is a written account of a possible future reality. As such, the pattern language functions as a referential object to discuss key aspects of design.
- #E14. On-site design supported by marking flags enable a reality-based discussion.

- #E15. Mock-ups and full-scale details are useful tools to discuss about building details, i.e. colours, materials, proportions, etc.

About learning, knowledge generation, and design

- #E16. Different sub-communities hold relevant information about specific aspects of the project. If the goal of participation is to foster learning, it is important that architects ask specific questions to proper people.
- #E17. Discussion with the public supported by the pattern language and the contact with reality provided the framework for learning and improving design.
- #E18. The gap between patterns and the physical objects that they describe created a space of negotiation for the community to influence.

PART III

Rethinking Participation: A Theory of Lay-Expert Interaction

5. Results

One of the primary goals of this work is to explain the dynamics of lay-expert interaction underlying participatory design processes. According to the initial hypothesis put forth in Paragraph 1.1, lay-expert interaction in participatory design processes is influenced by: (1) the stage and duration of participation; (2) the methods and tools employed to sustain participation; and (3) the sources of references used by citizens.

- *Stage and duration* pertains to the spatiotemporal dimension of participation, i.e. “when” and “where” participation takes place throughout a design process.
- *Methods and tools* entails the infrastructure sustaining participation, e.g. the sequence of activities and the artefacts adopted to implement a participatory design.
- *Sources of reference* indicates the cognitive substrate underlying citizens’ inputs, i.e. “what” citizens refer to during public workshops.

The hypothesis is illustrated in the conceptual model of Figure 72.

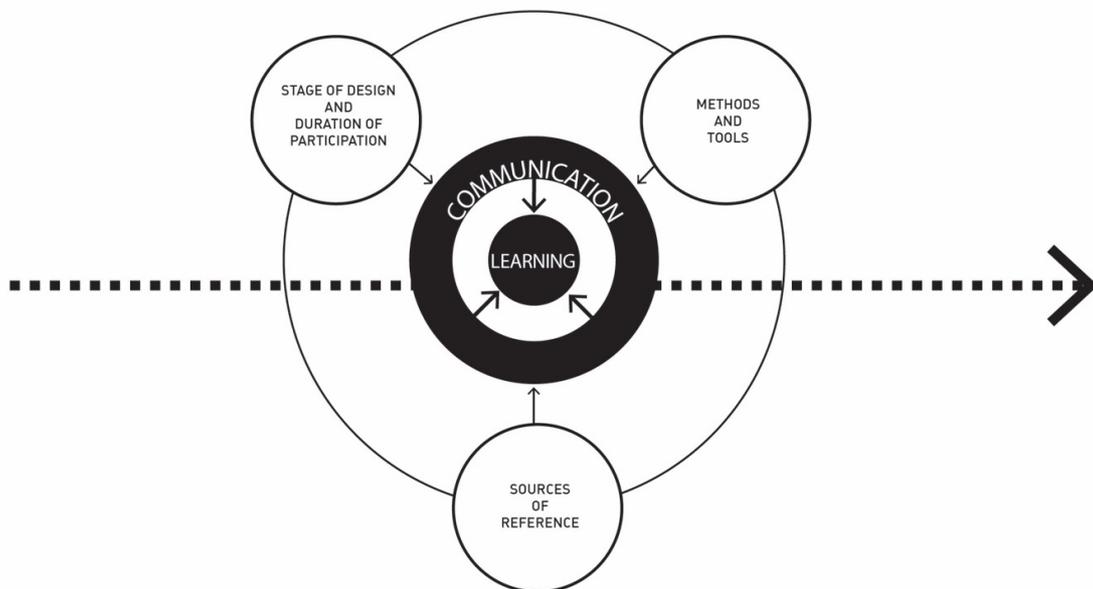


Figure 72. Conceptual diagram illustrating the three factors affecting lay-expert interaction and mutual learning during participatory design processes.

This chapter exhibits the results obtained adopting the analytical framework explained in Paragraph 3.2.3.3. The results are organised into three parts. The first part (Paragraph 5.1) includes the comparative analysis of the three charrette projects of Scarborough, Newbury, and Cowes. The

second part (Paragraph 5.2) presents the results from the three pattern language projects of Mexicali, Vellore, and Eishin. Finally, the third part (Paragraph 5.3) includes results from an overarching analysis of the six projects.

5.1 Lay-expert interaction using *charrettes*: results from the Scarborough, Newbury, and Cowes projects

This section exhibits the results of the comparative analysis of the Scarborough, Newbury, and Cowes projects, following Eisenhardt's (1989) and Yin's (2011) principle of pattern matching. Case studies provide the background to understand lay-expert interaction and knowledge generation processes. Each case study has yielded a set of theoretical claims, i.e. a list of statements describing a relationship or a mechanism that has been observed in one case study. Such theoretical claims are arranged in a comparative matrix (Matrix C, Table 38). The matrix implements the principle of "pattern matching", i.e. it records whether one claim that is valid for one case study is also valid for another case study. "Validity" is determined by the evidence found in primary and secondary data sources and is marked by the colour code system of the matrix. A green cell indicates the presence of evidence supporting a specific claim. Yellow indicates "absence of evidence". Red indicates the presence of "evidence against" a specific claim. The matrix reveals overarching trends and relationships appearing across case studies carried out with charrettes. Overall, this investigation sheds light on the internal dynamics of participatory design organised through public workshops. The ensuing discussion follows the three key topics of "Stage and duration of participation", "Methods and tools", "Referential cognitive objects", and "Learning, knowledge generation, and design". The chapter ends with a set of methodological recommendations to optimise charrette-based participatory design.

Table 38. “Matrix C”. A comparative analysis among the three charrette projects of Scarborough, Newbury, and Cowes. Cells filled with a code, e.g. N1, indicate that a claim was expressed in a similar way in another case study.

Category	Code	Claim	True for Scarborough	True for Newbury	True for Cowes
Stage and duration of participation.	S1	To obtain reliable and robust information by engaging citizens for a short period of time requires multiple iterations of a charrette.			
	N1	Participation at an early stage of design is bound to generate (1) relevant and detailed insight about local problems and (2) generic descriptions concerning the future development of design.			
	C1	Participation at an early stage of design is bound to generate (1) relevant and detailed insight about local problems and (2) generic descriptions concerning the future development of design.	N1	N1	
	C2	An early stage brainstorming session reveals most of the problems of the site, including public opinions on the project. However, certain topics may emerge only as the masterplan is constructed and revealed to public scrutiny			
Methods and tools.	S2	Multiple rounds of brainstorming by different groups of citizens produce consensus over a limited number of problems.			
	S3	Multiple rounds of brainstorming by different groups of citizens result in a large number of diverging solutions and visions for the future.			
	S4	In order to bring citizens’ inputs into design, it is necessary to rely on documents of synthesis. Such documents, and in particular lists, tables, and diagrams, organize otherwise chaotic information into a legible structure.			
	N2	Brief post-it sessions based on broad questions (e.g. problems, dreams, solutions) are effective modes to elicit inputs from a large audience in a short time.			
	N3	Regardless of the relevance of the inputs produced, early stages of design benefit from brainstorming sessions.			
	N4	The process of synthesis of the key points emerged from the public event provides an opportunity to attribute relevance to local inputs.			
	N5	Tables or lists of synthesis are key artifacts for participatory design. On the one hand, they streamline citizen inputs in a form that is suitable for design purpose. On the other hand, they provide a referential object for the future development of a project. As such, they are vital components in the workflow of participatory design.			

	C3	Brief post-it sessions based on broad questions (e.g. problems, dreams, solutions) are effective modes to elicit inputs from a large audience in a short time.	N2	N2	
	C4	To keep track of community inputs throughout the design process, experts rely on lists and tables.			
	C5	The process of synthesis of the key points emerged from the public event provides an opportunity to attribute relevance to local inputs.	N4	N4	
	C6	Relevance is attributed by the architects, who filter and organize citizens' inputs on the basis of expertise.			
	C7	The "Issues and Ideas" and "Key Themes" lists are meant to surrogate the interests of the local community in the architects' office.			

Referential cognitive objects.	S5	During problem-setting phases of design, the project site acts as a shared referential object upon which citizens bound their knowledge claims.			
	S6	As a design process progress, citizens rely on the documents illustrating an emerging design to guide their thoughts and feedback.			
	N6	During early stages of design and in the lack of project proposals, the only shared referential object is the local environment. The local environment refers to both the physical and the social fabric encompassing the project site.			
	N7	When the public is engaged in early stages of design to frame the design problem, citizens naturally refer to the project site to ground their inputs. Although not all inputs are related to the project site, the most relevant are.			
	N8	When the public is engaged in early stages of design to come up with design ideas, citizens base their answers on personal, idiosyncratic references.			
	N9	As the project develops and is made public through reports, images, and sketches, the project itself becomes a shared referential object.			
	C8	During early stages of design and in the lack of project proposals, the only shared referential object is the local environment. The local environment refers to both the physical and the social fabric encompassing the project site.	N6	N6	
	C9	Citizens use "anchors" to ground their claims. A masterplan proposal act as an anchor. Prior to the development of a masterplan proposal, the project site act as a natural anchor.			
	C10	Documents and material describing a project act as referential objects. By consulting them, non-experts can ground comments and feedback in the absence of experts.			

Learning, knowledge generation and design.	S7	Non-experts produce more relevant insight when they discuss problems, rather than design solutions. Relevance is measured by the degree to which inputs are realistically to integrate in a design.			
	S8	Expertise determined the relevance of local inputs. Experts acted as gatekeepers of applied knowledge.			
	S9	The iteration of participatory workshops improves the quality and reliability of information generated by the public.			
	S10	Verbal communication between experts and citizens may produce abstract, unviable suggestions. Working together to produce maps and sketches help overcome this problem.			
	N10	Following open questions on architectural issues, non-experts generate several types of inputs: information, opinions, value judgments, and wishful thoughts. In some instances, different types of inputs may appear intertwined.			
	N11	In order for inputs to be useful for design purpose, they need to be turned into applied knowledge.			
	N12	The transformation of inputs into applied knowledge does not follow a democratic principle. Rather it is governed by a Darwinian principle. Inputs are not selected proportionally to their occurrence, but to the extent that they are relevant for the project.			
	N13	Experts are in charge of assessing the relevance of citizen inputs. They rely on expertise to transform inputs into applied knowledge, i.e. knowledge serving design purpose.			
	C11	When a masterplan is defined, citizens focus their comments on its weaknesses.			
	C12	In a participatory design process, the extent of democratic choice is limited by the feasibility of people's requests			

5.1.1 Stage and duration of participation: iterations and the power of the collective.

Despite unfolding under different circumstances, the three projects followed a similar methodological path. Participation was organised through several public events throughout a design process. A first workshop, e.g. the Community Planning Weekend (CPW), was set up at the beginning of the design process before any masterplan proposal was put forth. Then, a series of public exhibitions, e.g. Community Forums (CFs) were organised in the time frame between the initial CPW and the planning submission. CFs took place at regular intervals and were meant to update the public on the evolution of a project and to collect feedback. Evidence from planning documents and interviews reveals the primary role of the CPW in fostering citizens information and local knowledge. Indeed, the sequence of masterplans presented at Newbury and Cowes reveals that the main design ideas were fixed in the aftermath of the CPW. For example, in both projects, the general layout and distribution of functions

across the site did not change throughout the design process. The discussion in place during Community Forums, on the other hand, did not yield structural changes to the plan. Instead, it produced minor amendments to the plans. In the case of Newbury, for example, the shape and height of the buildings facing the train station (Block H and G – ref.) were debated during a CF.

Hence, even though each project was characterized by several CFs and only one CPW, the main design ideas were sorted out during the latter. Indeed, the learning process seems to have occurred at the beginning of the process. In particular, learning was the result of multiple iterations of collaborative brainstorming (e.g. “Post-it sessions”), and spatial design sessions (e.g. “Hands-on Planning” sessions). The underlying idea of this methodology is that architects “do not get it right the first time”, so they need an iterative workshop to construct the bedrock for a project confidently.

According to Arch. L., an early involvement is necessary to optimise a design process, not only because it brings about learning when it is most needed, but also because it encourages public collaboration:

“Often, things that people want would have been perfectly easy to incorporate into the design if you had known it when you started. So, to find out at the beginning, it avoids problems and creates harmony”. (Arch. L, personal communication, July 11, 2017- Interview #1)

In fact, besides fostering knowledge, engaging the public at an initial phase contributes to building trust with the local community (i.e. “harmony”). Both experts from JTP claimed that community trust is essential in the long-term span of a design process. Trust encourages people to have a positive attitude towards the project, even in the face of unavoidable, yet necessary, unpopular decisions. An early involvement often succeeds in mitigating public conflict by engaging people with the rationale underlying specific design solutions.

“When the event starts it is often seen as a “us and then” thing. They are the community, and we are the big bad representative of the developer.” (Arch. L, personal communication, July 11, 2017- Interview #1)

In fact, both architects noticed a correlation between public involvement and their positive attitude towards the project. In general, people who attend both the CPW and CFs are more likely to be positively engaged than people who attend any CFs, but not any CPW. In describing his long experience with charrettes, Arch. L. explains:

“Some of the most negative people were those who had not been at the event and started to raise all of the questions [about] decisions made not by us, but together with the community [...]”. (Arch. L, personal communication, July 11, 2017- Interview #1)

The regular occurrence of this phenomenon can be indirectly observed in the careful planning of report-back presentations. Report-back presentations are activities in which the designers explain the advancement of the design process through slides and posters. These activities usually take place at the beginning of each CF and public exhibitions.

“There will always be people who turn up at the final presentation who have not been there, and therefore they did not understand the process. And that is why, one of the reasons that we need to be careful about the length of our presentations. Because we really feel we have to show this working process” (Arch. L, personal communication, July 11, 2017- Interview #1)

Indeed, the posters exhibited at Medina Yard and Cowes are rich in historical facts, diagrams, and sketches. The large number of posters and the detailed quality of the presentations mirrors the designers’ necessity to explain the rationale underpinning the choices illustrated in the masterplan.

5.1.2 Tools and methods for participation: the dual nature of artefacts in sustaining and organizing communication.

The design method adopted in the three projects at Scarborough, Newbury, and Cowes relies on a limited number of recurring artefacts, e.g. sticky notes, maps, sketches, lists and tables, posters, and slides. Some of these artefacts are used during the initial Community Planning Weekend. For example, sticky notes are used to collect short inputs from the public during brainstorming sessions, while maps and sketches are central to the “Hands-on planning” workshop.

Other artefacts were used by the design team to synthesise and organise public input into a legible form. Such is the case of the “Issues and Actions” and the “Key Themes” list.

Finally, posters and slides are used to communicate design ideas during Community Forums, report-back presentations, and public exhibitions. This synthetic description indicates the double function of artefacts. On the one hand, artefacts are the outcome (or output) of discursive processes. On the other hand, artefacts support the production of discourses. Overall, artefacts play a primary role in lay-expert communication. This section addresses these three claims by providing converging evidence from both document analysis and expert interviews. During the first part of the three Community Planning Weekends, citizens were asked to write ideas and opinions on sticky notes. At

first glance, the use of sticky notes seems to be merely motivated by their utility, as they allow the efficient engagement of large groups in a limited time frame. However, according to the architects, sticky notes served another purpose, namely to reveal diverging opinions. Indeed, as sticky notes were collected, they were read out loud, so that:

“people who would have written their notes saying “A” suddenly realize there are other people in the community saying “B” or “C” or “D”, and they realize that it’s not just them, but there are other points of view that can totally contradict what they think.” (Arch. L, personal communication, July 11, 2017- Interview #1)

Transcripts of the “Dreams” and “Solutions” notes confirm this claim. In particular, the morphology of the Newbury dream diagram (ref) reveals a multitude of views related, but not limited to, more green spaces, diverse cultural activities, and easy accessibility. The variety of ideas is reflected not only in the large numbers of categories but also in the number of comment per category (e.g. “count” axis). This fact can also be appreciated by comparing the “dream” diagrams with the “problem” diagram (Figure 74, page 218). In the three projects investigated, people seem to agree on certain major problems (few categories, larger count), while disagreeing on how to transform the site (many categories, fewer count). By reading out loud the content of sticky notes, the designers aim at starting a plenary debate to trigger the emergence of local knowledge. Furthermore, the sticky note format allows input to be orderly collected and preserved. In all projects, as the debate unfolded, members of the design team arranged the sticky notes in clusters onto a paper wall, in a first attempt to systematise the bulk of inputs. By the end of the “post-it session”, the architects and the public had figured out a set of central topics that need to be addressed by the project.

The second stage of a CPW was the “Hands-on Planning” workshop, where groups of citizens worked together with architects on spatial concepts. One of the advantages of working with maps and sketches is that citizens are encouraged to reflect on how their ideas could be implemented in space. In other words, the use of maps introduced useful constraints to the discussion, so that people could experience by themselves the feasibility and appropriateness of their ideas.

“Frequently, words and images are inconsistent, because when people speak they may use buzzwords and rhetorical figures, and so on. However, when they are asked to sketch and work on maps, they realize what can and what cannot be done”. (Arch. C, personal communication, May 6, 2017- Interview #2)

The “Hands-on Planning” workshop took place around thematic tables, where each group was assigned a specific design task, e.g. "green spaces", "public spaces", and "access and mobility". However, the maps retrieved from Scarborough, Newbury, and Cowes indicates that groups developed comprehensive urban concepts, beyond their assigned topic.

“The Hands-on Planning can go through separate series of stages if there’s time. [...] the six tables present, and then each group, by seeing what the others had done, when they get back to their table, they might say: ‘We want to develop this further, that other group had a good idea, didn’t they? Let’s try have that into ours’. Or they might realize that their idea didn’t work, so they change it”. (Arch. L, personal communication, July 11, 2017- Interview #1)

Like the post-it discussion, the underlying goal of “Hands-on Planning” sessions was to foster a positive and constructive debate around the project. The following episode from the architect’s experience reveals how “Hands-on Planning” workshops encouraged diverging opinions to meet. During a general discussion about living inside or outside a city centre, the architect witnessed this exchange of ideas between an elderly and a young student.

“And the old man [...] said: ‘Who would possibly want to live [in the city centre]? It’s noisy and there’s a lot of stuff going on all the time!’. And the student said: *“Well, I’d love to live there! That’s exactly where I’d like to live. I wouldn’t want to live in the sort of quiet suburban area”.* (Arch. L, personal communication, July 11, 2017- Interview #1)

To sum up, both the “Post-it” session and the “Hands-on Planning” workshops are tools to promote discussion. Through the use of artefacts, such as sticky notes and maps, they enable diverging views to meet and address the physical nature of architecture and urban design. In other words, post-its, maps, and sketches sustain and shape a design-oriented conversation. In fact, neither the post-its nor the maps produced during the three public events analysed were directly translated into a masterplan, disproving the hypothesis that the content of sticky notes and “Hands-on Planning” maps are useful in themselves. The alluvial diagrams from Scarborough and Newbury (REF, REF) indicate that the architects did not plan on the basis of post-its. Rather, they relied on other kinds of artefacts to inform design, e.g. the Consensus Masterplan, the “Key Themes”, and the “Issues and Actions” lists. Both documents were produced in the aftermath of the Community Planning Weekend. After the last round

of the “Hands-on Planning” session, the architects synthesised the key discussion points using the “Consensus and Dilemmas” method.

“So, ‘consensus’ is: everyone around the table has to say what the main things they thought that were agreed. And there’s always that challenge, to say it in a way that is literally correct. So, if ‘everyone wanted the road to be closed’ we would say ‘No! Not everybody said it’. But if you say it in a different way, if you say, ‘there was a strong consensus that the closure of the road would be beneficial to the masterplan’, then it’s alright”. (Arch. L, personal communication, July 11, 2017- Interview #1)

The Consensus Masterplan, the “Key Themes”, and the “Issues and Actions” lists are also used during the first report-back presentation, to show to the public how their inputs influenced design. Drawing from one of the initial claims, the three documents are both outputs of the discussion in place at the Community Planning Weekend, and inputs to foster feedback during the report-back presentation. The following diagram illustrates the relationship between all artefacts discussed so far (Figure 74).

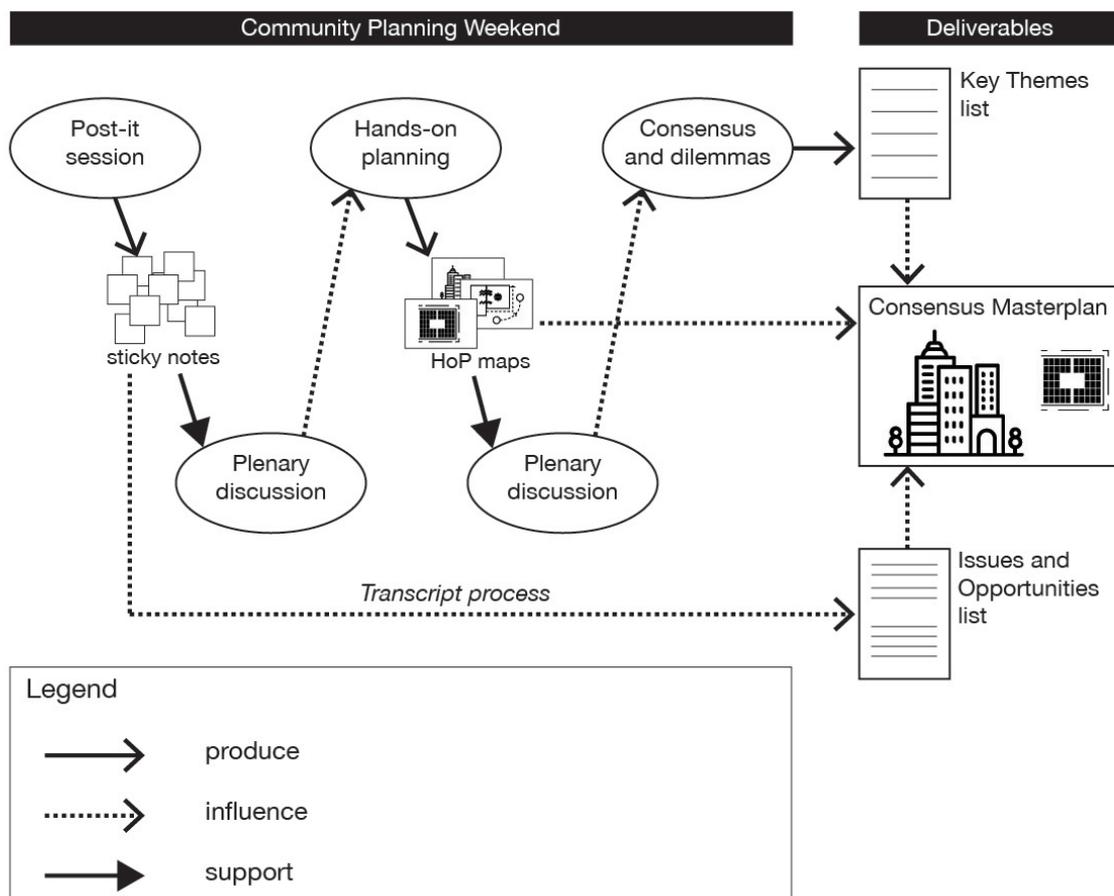


Figure 73. Diagram illustrating the relationship between artefacts and processes during a typical charrette workshop.

A final question concerning artefacts and communication is the role of slides, posters, and physical models during public exhibitions. These public events are organized to communicate the state of advancement of the project. As already mentioned in PREVIOUS SECTION, one of the goals of these events is to educate people on the rationale underpinning the masterplan.

Hence, the architects have to produce a large number of explicative posters and slides in support of the masterplan.

“Although we also have to remember that even those who attended are often only there for part of it, and not for all of the two days, for instance. Therefore, they may have gaps in their knowledge. So, we do have to end up with a pretty comprehensive explanation of the workshops, stages, and the different outcome that people were involved in the discussion, even for the final presentation.” (Arch. L, personal communication, July 11, 2017- Interview #1)

While this section explained the double role of artefacts throughout the design process, the next section attempts to shed light on how such artefacts tap into local knowledge and individual, and collective, sources of reference.

5.1.3 Sources of reference: from individual experiences to a collectively produced space.

To investigate the sources of reference used by citizens, it is necessary to analyse two documentary sources: (1) the transcripts of the sticky notes from the “post-it session” and (2) the maps produced during the Hands-on Planning workshops.

Transcripts are verbatim records of people’s comments and, therefore, can be considered proxies for their thoughts. Transcripts allow a dual investigation. On the one hand, individual comments reflect individual sources of reference. On the other hand, a taxonomic study of the entire set of comments provides an outlook on collective sources of references.

At this point, a caveat is necessary to clarify the goals of this sub-investigation better. As already discussed in the previous section (Paragraph 5.1.2), sticky notes were meant to foster plenary discussions between architects and the public. Consequently, the outcome of such analysis should not be focused on the relevance of individual sticky notes’ comments for the development of the project. Rather, it is meant to shed light on how citizens react to open-ended questions in the absence of any pre-defined proposed masterplan. In particular, this enquiry reveals the emergence of some common referential objects across different projects.

5.1.3.1 Sources of references during initial Post-it, brainstorming sessions

In the three case studies, the first interaction between experts and citizens was a collaborative brainstorming, i.e. the “Post-it session”. After a brief introduction to the project, the architects asked three general questions, along the lines of: “What are the problems of [this place]?”, “How do you envision [this place] in a positive future?”, and “Which solutions can be implemented in [this place] to transform it into a dreamlike place?”. The public was, therefore, encouraged to express their thoughts without any imposed boundary. Indeed, the three consultation processes took place before any design proposal was put forth and, therefore, such inputs are unbiased reflections of one’s ideas, expectations, and wishes.

On first thought, one may think that freedom brings a large number of diverse inputs. In fact, evidence reveals a nuanced reality across the “Problems”, “Dreams”, and “Solutions” brainstorming rounds. Transcripts of the Newbury and Scarborough post-it sessions record converging ideas in the “Problems” group and diverging ideas on “Solutions” and “Dreams” groups (Figure 74). Converging ideas are represented by a small number of categories with a large count of inputs. Diverging ideas are represented by many categories made of fewer comments.

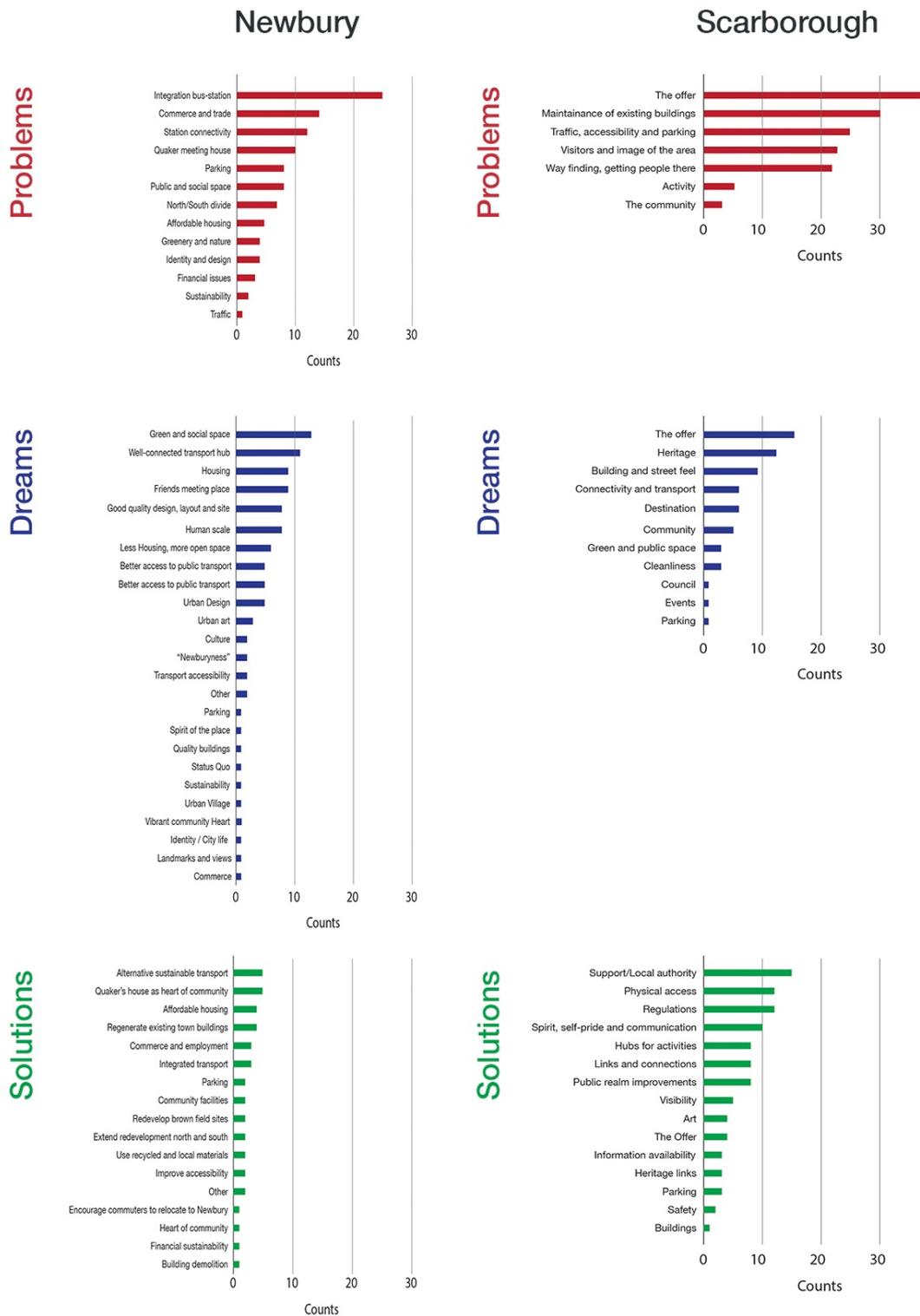


Figure 74. Comparison of the “problems”, “dreams”, and “solutions” diagrams from Newbury (left) and Scarborough (right).

Besides converging and diverging ideas, the bar charts reveal another phenomenon. Recurring inputs seems to indicate collective themes, e.g. problems that are shared by large portions of citizens. For example, the most recurring key issues at Newbury were the integration of the bus station with the train station, the connectivity of the train station with the town, the Quaker’s House future, and the

future of local commerce and retail. At Scarborough, people expressed concerns about the lack of offer along the Eastborough Street, the image of the area, traffic, and connectivity. The overlapping of a limited number of topics suggests the existence of a natural shared referential object, i.e. a common framework onto which people attach their remarks. An analysis of the “Problems” sticky notes from Scarborough and Newbury reveals that the project site is a common referential object. For example, consider these quotes from Newbury:

“Congestion and parking”.

“What future for Newbury Quakers?”

“Frequency of buses to station”.

“Lack of affordable housing. Seems to be promised (Park Way) but yet to happen”.

And these quotes from Scarborough:

“Shabby building fronts”.

“The state of the local neighbourhood needs improving”.

“Argos building”.

“Lighting needs improvement”.

The majority of reoccurring comments in the “Problems” discussion describe some specific spatial attributes of the project site, e.g. the building fronts, a street, or a specific building. On the other hand, when people were encouraged to think about “dreams” and “solutions”, they did not refer to the project site as much as they did during the “problem phase” (Figure 75).

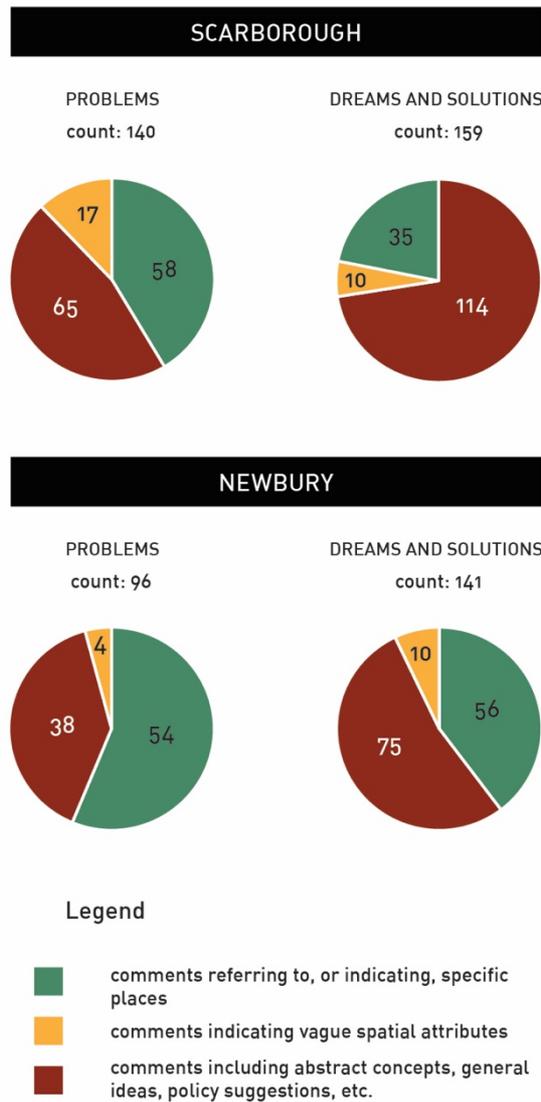


Figure 75. Comparative text analysis of the Scarborough and Newbury post-its. The pie charts highlights whether citizens related their input to certain spatial entities, e.g. a building, a square, an intersection, etc.

Instead, when dealing with “Dreams” about, and “Solutions” for, the project site, citizens spoke about other kinds of referential sources, which are difficult to generalise. In fact, such referential sources appear personal reflection of citizens’ own unique experience and fascination with other places.

As a consequence, citizens tended to communicate through general visions:

*“A pleasant well-designed area, with good housing and car park (multi-storey), plenty of green space – the new to exist alongside the old (Friends Meeting House and garden)”,
“Imagining that I am elderly and disabled. I would like there to be ground floor disable-friendly living space with excellent facilities to get to the station and the town in my buggy. I would like a mixed community with a community space where I could take coffee, meet friends, entertain my grandchildren & I would like to have AFFORDABLE ACCOMMODATION for*

my grandchildren". (Quotes from Newbury. Transcript from sticky notes used during the CPW *charrette* workshop)

"Noisy, full of happy locals/visitors/traders"; "There's a continental feel, with cafes spilling onto the streets and planting"; "More greenery, flowers seating, wider pavements and café culture"; "A destination for tourists and residents. Something iconic". (Quotes from Scarborough. Transcript from sticky notes used during the CPW *charrette* workshop)

Or, they describe the positive features of cities they have visited and heard of:

"If you come to station there will actually be trains at station. Australia has closed nearly all rail passenger services except suburban. Otherwise you are lucky to have one a day – only two on Sydney – Melbourne??"; "The new village in Market Street is something to behold, not quite the Guggenheim in Bilbao or Abu Dhabi, but the community house in the quiet part of the village has a quiet walled garden and light airy centre. The housing is rather like the UEA building (pyramidal in style – no one overlooked). Its trees and quiet spaces are great. Wish you were here. Paul". (Quotes from Newbury. Transcript from sticky notes used during the CPW *charrette* workshop)

"Make it like the successful market elsewhere (e.g. Santiago de Chile; Grand Souk, Istanbul, Covent Garden)"; "Covent Garden feel and ambience". (Quotes from Scarborough. Transcript from sticky notes used during the CPW *charrette* workshop)

Another difference between the "Problem", "Dreams", and "Solutions" comments is the level of resolution expressed in the language. "Problems" are frequently more accurately formulated than "dreams" and "solutions". Indeed, there seems to be a correlation between the accuracy of the comment and its reference to a specific object in space. This phenomenon occurred more often during discussions about "problems". For example:

"Market Street - what happens whilst building is happening? Thomas Merriman Court? Baptist Church?"; "Cheap Street and the Kennet Centre are on their knees!"; "Bring life to Cheap Street and Bartholomew Street"; "Connection between bus station and railway station". (Quotes from Newbury. Transcript from sticky notes used during the CPW *charrette* workshop)

“Church needs updating”; “Perception that the town centre ends at St. Nicholas Street”; “The block building Argos is depressing. Needs to be removed to form a square. Much needed in the town”; “Poor handrails on steps in alleys. Too dark and dirty”. (Quotes from Scarborough. Transcript from sticky notes used during the CPW *charrette* workshop)

Conversely, dreams and solutions were often expressed in general terms, sometimes using buzzwords and abstract concepts.

“We must have some affordable housing”; “Start with the Quaker garden and build around it as the centre to the whole “village”, remembering urban WILDLIFE too!” ““Pedestrian Zone” – NOT!”; “Sustainable housing”; “Community centre?”. (Quotes from Newbury. Transcript from sticky notes used during the CPW *charrette* workshop)

“Creative, imaginative thinking into designs”; “Happy people”; “Encourage the community to change”; “Good things do happen here. Shout about them!”. (Quotes from Scarborough. Transcript from sticky notes used during the CPW *charrette* workshop)

To sum up, in the Scarborough, Newbury, and Cowes projects, citizens participated in open-end brainstorming sessions about urban design by relying on their own experience with the project site and other places. When a discussion would deal with the problems of the site, individual experiences would overlap on most topics because people would spontaneously relate their experience to a common framework: the reality of the project site. When a discussion would deal with future expectations, a shared framework of reference lacks and, therefore, people express diverging wishes drawing from personal experiences, e.g. places they visited or personal utopias.

These findings are consistent with the evidence from two interviews with the experts. Both architects from JTP recognise that citizens “are the experts of the area” (*Arch. C, personal communication, May 6, 2017- Interview #2*), and “[...] they are experts of the details of their area. But they may not be experts about alternatives!”. (*Arch. L, personal communication, July 11, 2017- Interview #1*).

5.1.3.2 Sources of references during Hands-on planning workshops

Following Post-it, brainstorming sessions, citizens and architects engaged in collaborative “Hands-on Planning” workshops. The workshops allowed citizens to partake in the development of spatial concepts on blank site maps. The site maps provided the spatial boundaries within which citizens

could relate their ideas and suggestions. Additionally, each group could obtain new input from the other groups, thanks to the iterative nature of the workshop. Citizens were encouraged to present their work to other citizens and, through this process, they could reflect on the appropriateness and relevance of their ideas.

“[During a “Hands-on Planning” session] the six tables present, and then each group, by seeing what the others had done, when they get back to their table, they might say: ‘we want to develop this further, that other group had a good idea, didn’t they? Let’s try have that into ours’. Or they might realize that their idea didn’t work, so they change it.” (Arch. L, personal communication, July 11, 2017- Interview #1)

5.1.3.3 Towards a common framework of reference

Overall, the interactive nature of charrettes seems to influence people’s attitudes towards the project. On the one hand, “Post-it” sessions would be paramount to connect citizens: by communicating with other people, individuals would step out of their own confirmation biases and expand their awareness over certain topics. On the other hand, “Hands-on Planning” workshops would connect people with the spatial nature of the site and its physical constraints. Space would force citizens to reconsider their suggestions in light of what is implementable.

In particular, in the three projects analysed, plenary discussions and “Hands-on Planning” workshops were functional to the progressive establishment of a shared framework of reference, where citizens could effectively attach ideas and suggestions from their individual experiences.

All “Hands-on Planning” workshop analysed resulted in the production of several masterplans that were shared by small groups of citizens. It was only with the definition of a Consensus Masterplan by the designers that a collectively recognised referential object could be established. “Collective”, because it incorporates elements from the many “Hands-on-Planning”-generated masterplans. “Recognized”, because it was produced by the expertise of the architects.

The Consensus Masterplan was presented shortly after the Community Planning Weekend through maps, sketches, diagrams, and other visual and verbal material. During Community Forums, citizens used the proposed masterplan as a reference to ground their feedback. In particular, the architects illustrated the masterplan through maps, sketches, diagrams, and models. Instead of suggesting brand new features, people were inclined to change what was already proposed. For example, the community of Newbury asked the architects to “improve the visibility and accessibility of the ‘gateway’ to Station Walk linking the station to the town centre” and to reduce the height of

two buildings. At Cowes, citizens suggested to reduce the height of a tower and to improve the quota of marine employment.

To sum up, the nature of public inputs seems to depend on the space of negotiation allowed at each design stage. In the context of urban design, “space of negotiation” can be defined as the set of alternative design features that can be realistically and efficiently implemented within a pre-defined programme. In general, early stages of design are characterized by an ample space of negotiation; while later stages of design are characterised by narrow space of negotiation. Indeed, broad decisions have to be fixed to proceed further with small-scale decisions. So, for example, building blocks must be placed within a pre-defined street layout. The three charrette projects analysed lacked a pre-existing proposal at the time of each CPW. In fact, the CPW workshops served to explore different alternatives for the three masterplans, by reaching consensus on certain large-scale decisions. In all cases, the architects did not provide citizens with visual material to bias their views. The only visual artefact introduced in the workshop was a set of blank maps of the project site. They were used during the Hands-on Planning session to encourage citizens to assess the feasibility of their ideas critically. As a result of this dialogic process, citizens and experts jointly reduced the space of negotiation of the project by drafting sketches and maps. The Consensus Masterplan sealed the process by collecting inputs from the general discussion and the Hands-on Planning maps. The Consensus Masterplan introduced certain structural features onto the site, thus creating a clear space of negotiation for further discussion. At the following Community Forums in place at Newbury and Cowes, citizens were provided with extensive material to illustrate the masterplan proposals. Through maps, sketches, physical models, and diagrams, they were encouraged to discuss within the boundaries of the newly defined space of negotiation. As a result, while CPW produced a variety of proactive and novel inputs, CFs were focused on agreement or disagreement of what was already produced by collective inputs.

5.2 Lay-expert interaction using pattern languages: results from the Mexicali, Eishin, and Vellore projects

This section exhibits a cross-case analysis of the three pattern language projects of Mexicali, Eishin, and Vellore. A comparative analysis is necessary to reveal overarching trends and relationships appearing across similar case studies, i.e. carried out with similar methodologies.

The theoretical claims emerging from each case study are arranged in a comparative matrix (Table 39). Each claim is a statement describing a relationship or a phenomenon that has been observed in one case study (e.g. Mexicali is coded “M”, Eishin is coded “E”, and Vellore is coded “V”).

The matrix records whether one claim that is valid for one case study is also valid for another case study, or not. A claim is valid for another case study if it reflects an observed trend, a relationship, or a phenomenon. A colour code system indicates validity on the basis of the evidence available. A green cell indicates the presence of evidence. Yellow indicates “no evidence”. Red indicates “evidence against”. The matrix provides an overview organised in the key topics of “Stage and duration of participation”, “Methods and tools”, “Referential cognitive objects”, and “Learning, knowledge generation, and design”. Such categories reflect those hypothesised in the early chapters of this work and provide a structure for a further discussion.

Table 39. “Matrix C”. A comparative analysis among the three pattern language projects of Mexicali, Eishin, and Vellore. Cells filled with a code, e.g. M1, indicate that a claim was expressed in a similar way in another case study.

Category	Code	Claim	True for Mexicali	True for Eishin	True for Vellore
Stage and duration of participation.	M1	The scope, degree and duration of participation depends chiefly on the political agenda.			
	M2	Throughout participation requires non-traditional power and responsibility structures.			
	M3	Throughout participation remains efficient if communication is two-way and feedback is prompt.			
	E1	The duration, degree, and nature of participation depends strongly on the client.	M1		M1
	E2	To be efficient, participatory design requires different number of people at different stages. In particular, later stages of design are more efficient when small groups of people are involved.			
	E3	Thorough participation requires a two-way mode of communication. Feedback needs to be prompt.			
	V1	An early stage general discussion may reveal public feelings about the project. However, certain topics may emerge only as the masterplan is constructed and revealed to public scrutiny.			
	V2	Continuous participation provides learning opportunities not only at the beginning of the process, but also during later stages of design.			
	V3	To support continuous participation, designers have to rely on different techniques across different stages of design.			
Methods and tools.	M4	The pattern language informs non-experts on key aspects of design.			
	M5	Experts can charge a pattern language with their own intents. As such, the pattern language may be used as a tool to communicate a set of intent to the public.			
	M6	The effectiveness of the pattern language is corroborated by piecemeal participation and on-site design.			
	M8	To be effectively translated into a physical design, the pattern language needs to be managed by experts.			
	E4	Individual interviews are powerful tools to draw out desired insight from non-experts.			
	E5	The pattern language functions as a key artifact to streamline the aspiration of a community into a framework for design.			
	E6	When elevated at the center of the design process, the pattern language acts as a verbal masterplan. A framework within which the local community could integrate their insight.			
	E7	The pattern language is a verbal tool to gradually develop and define a project. As the project progress, the pattern language becomes more rich in details and is prone to include quantities and specific data.			
	E8	Before it can be used for design purposes, a pattern language needs to be managed by a team of experts searching for inconsistencies and contradictions.	M8		M8
E9	The relevance of citizens ideas and suggestions is attributed by the architects, who filter and integrate citizens’ inputs in the design process on the basis of expertise.				

	E10	Marking flags and walkabouts on site are useful tools to connect people with a virtual reality.			
	V4	The pattern language functioned as a key artifact to connect research and action. On the one hand, it is a repository of information (collected via ethnographic research). On the other hand, it provides a framework to dialogue and design.			
	V5	Marking flags and walkabouts on site are useful tools to connect people with a virtual reality.	E10	E10	
	V6	Relevance is attributed by the architects, who filter and integrate citizens' inputs in the design process on the basis of expertise.	E9	E9	

Referential cognitive objects.	M9	Non-experts need inputs and referential objects to meaningfully engage in the design process.			
	M10	Reality is a natural referential object. The contact with patterns of everyday life encourages non-expert to partake in the design process.			
	M11	The pattern language can be fabricated to suggest a possible, future realities. As a consequence, the pattern language creates a shared framework to discuss what is still not real.			
	E11	In general, the project site and reality are referential objects throughout a design process.	M10		M10
	E12	The pattern language is a written account of a possible future reality. As such, the pattern language functions as a referential object to discuss key aspects of design.	M11		M11
	E13	On-site design supported by marking flags enable a reality-based discussion.			
	E14	Mockups and full-scale details are useful tools to discuss about building details, i.e. colors, materials, proportions, etc.			
	V7	In general, non-experts are tend not to discuss in abstract terms. In fact, they rely on "anchors" to articulate their thoughts.			
	V8	In the absence of any explicit anchor, non-experts refer to personal images of desired outcomes, regardless of their appropriateness for the design task. This is common during early, exploratory stages of design.			
	V9	As the project develops, the image of a design emerges as a common referential object. Non-experts use this emerging object as an anchor to ground their ideas and suggestions (e.g. a masterplan, a building).			
	V10	Reality acts as a powerful referential object, or anchor. In particular, if participation deals with real problems involving everyday life and habits, non-experts are more likely to provide relevant feedback.			
	V11	In the presence of a strong cultural gap between designers and citizens, engaging citizens with reference to reality may yield novel information. In some cases, this insight may subvert some design assumptions.			

Learning, knowledge generation and design.	M12	In participatory design, experts have ultimate control on the implementation of ideas.			
	M13	Lay-expert interaction is more effective when it is based on small parts of a whole task.			
	E15	Different sub-communities hold relevant information about specific aspects of the project. If the goal of participation is to foster learning, it is important that architects ask specific questions to proper people.			

	E16	Discussion with the public supported by the pattern language and the contact with reality provided the framework for learning and improving design.			
	E17	The gap between patterns and the physical objects that they describe created a space of negotiation for the community to influence.			
	V12	Architects' knowledge deficiency is proportional to the cultural gap between designers and citizens. When designing in a foreign context, designers need extra information to inform a sensitive design			
	V13	Preliminary research, i.e. ethnographies, is necessary to understand the local context and prepare to design with the local community.			
	V14	The bulk of information collected via ethnographies or similar investigation may be sufficient to address a sensitive design.			
	V15	Participation confirms, expands, or confutes architects' initial assumptions, as well as the appropriateness of certain design solutions.			
	V16	A preliminary understanding of local modes of living is the foundation to fruitfully engage in participation in a foreign context.	V13	V13	
	V17	Local knowledge is elicited by (1) reference to reality, and (2) a step-by-step design process.			

In the three case studies investigated in this research, the pattern language was part of a larger design methodology designed to fulfil specific goals. Speaking about his experience in Mexicali, Davis recalls:

“I think our real emphasis was not with the Pattern Language at all. [...] The experiment really had much more to do with the construction system and the relationship between the construction system and the design, and the ability of the people to understand construction”.
(Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

Likewise, at Vellore the focus was to deliver low-cost housing that would respond to the local context and cater to local traditions. At Eishin, the client wanted to develop a campus from a collective vision. In all three projects, the general goal was to enact participation at all levels of design, from early conceptualisations to the definition of details, materials, and internal layout. At Mexicali and Vellore, the architects experimented with user construction, too.

Under this perspective, the pattern language was only one aspect of a broader paradigm of design being tested by the Center for Environmental Structure (CES). According to this paradigm, design and construction were intertwined and implemented in a step-by-step procedure. Public participation was continuous throughout the whole design process and decisions were taken as the project developed. Alexander and Neis call this design paradigm: “System A”, and oppose it to the mainstream design paradigm characterised by a more rigid separation of design phases, “System B”.

A comprehensive description of the two systems and their methodological, philosophical, and moral implications can be found in the book. (Alexander et al., 2012). As far as this research is concerned, the Eishin, Mexicali, and Vellore projects can be considered as three instantiations of “System A”. From a procedural standpoint, the implementation of System A at Eishin, Vellore, and Mexicali required architects to accrue powers and independence from the client and local authorities. (Alexander et al., 2012). Centralization of powers and independence were necessary conditions for the full integration of the pattern language into the design process. Without these special grants, the workflow devised by the CES would have been disrupted. In particular, the architects would have had to separate design and construction, thus impairing some of the potential benefits of participation. For example, a recurring phenomenon across case studies was late-stage participation. Once big decisions about site layout were fixed, the members of the public were engaged in deciding small-scale adjustments, such as the position of an entry point or a street. This process was carried out on site, following the prescriptions of patterns and with the help of marking flags. At Mexicali, for example, families took decisions about the main entrance to their house and the position and features of their kitchens. At Vellore, community leaders walked the site with the architects and decided about the entrance to the site and the position of the temple. At Eishin, groups of teachers would experiment with internal layout of classrooms. At that stage, none of the features mentioned above was fixed on paper. In fact, the rationale of the “architect-builder” was to avoid the artificial constraints of technical drawings. In general, most buildings at Mexicali, Vellore and Eishin were only defined as construction progressed and were built before drawn. Had the architects been required to produce drawings ahead of time and build following their measurements, these instances of late-stage participation would not have been possible; or, at least, might not have influenced design. Beyond issues of power, the aforementioned examples highlight the three features governing the participatory design at Eishin, Mexicali, and Vellore: (1) a step-by-step design process, (2) on-site involvement, and (3) the use of the pattern language and other tools to ground discussion in a common framework of reference.

The interplay of these three features explains how participation affected design in the three projects analysed. Likewise, it provides a framework to understand the process of communication and knowledge generation.

5.2.1 Stage and duration of participation: piecemeal design and pyramidal involvement

The three case studies present similar patterns of involvement, which can be described as “pyramidal”. At the beginning of each project, the architects engaged large groups of citizens in group discussions. These talks were paramount to establish a first contact between the architects and the

local community. They also served to communicate the goals of the project and understand whether they would fulfil public aspirations. As major design decisions were fixed, the architects worked with smaller groups of citizens (or individuals) to determine the general site layout and, finally, to develop individual buildings.

Evidence suggests that the “pyramidal” organisation of participation was dictated by two factors: the need for efficiency and the principle of pertinence. “Efficiency” pertains to complete a design process without unnecessary slowdown and waste of resources. “Pertinence” means to enable citizens to take design decisions proportionally to their stake on certain parts of the masterplan. According to the contracts, the architects had to work extensively with the local communities, while ensuring quality in the outcome. This required to balance the need for broad involvement and efficiency in the process. The background stories from Eishin, Vellore, and Mexicali reveals an emphasis on participation from the side of the client. As a general rule, participation is synonymous with large groups. However, decisions are taken faster by small groups. Organizing participation in sessions of large and small groups (i.e. in a multi-level, or “pyramidal” way) was an effective solution to this conundrum.

“So, I think [participation] was relevant at all levels, but it was more like a pyramid: at the beginning, there were many more people, and the more and more the process developed, there were more particularly interested people involved. And that happened a lot because then we could [...] go into the business at a much more deeper way, rather than having to explain to a lot of people what we were actually doing”. (Arch. Hans Neis, personal communication, February 25, 2017- Interview #5)

Neis’ testimony refers to the Eishin project. The last sentence is a strong argument in favour of a multi-level, pyramidal involvement. As a design process progresses, certain decisions must be fixed to proceed further. Hence, large-group participation at all times would have required (1) extra time to update everyone on the latest decisions, and (2) increase the risk of conflicts over decisions already made. Both situations might have significantly slowed down the process. Similar reasons can be attributed to the set-up of the Mexicali and Vellore processes, although the risks involved in a slowdown might have been less remarkable due to the lower complexity involved. While Eishin was a large, contested, poly-functional campus used by a numerous and diverse community; Vellore and Mexicali were relatively small social housing projects destined to needful families. In fact, at Mexicali and Vellore, evidence suggests that a multi-level participation was mainly due to the “principle of pertinence”. In both projects, the common land was shaped by the whole community

through group meetings. The design of the individual houses, however, was in control of the individual families. In both projects, particular attention was paid in the definition of the boundaries between public and private space. Such decisions were crucial to move on from large-group to small-group participation without conflicts. At Eishin, the “principle of pertinence” followed another logic, since the “public-private” dichotomy characterising the Vellore and Mexicali projects did not apply to the campus. Instead, the general layout of the campus was constructed and approved by the community as a whole using group voting, while individual buildings were developed together with small focus groups of teachers, administrators, and students, according to their affiliation. For example, the math teachers worked on the shape of ordinary classrooms; the music teacher defined the details of the music room; the students, the cafeteria, etc. In this example, pertinence is associated with the proclivity of specific social groups to use, and know about, specific spaces. Neis and Davis mentioned another advantage of small-group interaction, namely productivity. In recalling their experiences at Eishin and Vellore, both architects claimed that large-group meetings were unproductive, while one-on-one discussions yielded better outcomes. This topic is explored in depth in the next paragraph.

In conclusion, to implement multi-level, pyramidal participation, the architects had to devise a step-by-step design process. The division of a process into smaller bits was paramount to order participation in the most suitable form. By fostering participation at all stages, the architects elicited continuous public feedback to control the progress of the project, and its adherence to the initial goals.

The following section explores the tools and strategies that supported this kind of step-by-step, multi-level participatory design process.

5.2.2 Tools and methods for participation: the pattern language, flags, and the contact with reality

Three artefacts were used by the architects throughout and across the three case studies: (1) the pattern language, (2) marking flags, and (3) full-scale mock-ups. The use of these artefacts enabled the kind of piecemeal participatory design explained in Paragraph 5.2.1, while fostering the emergence of learning through local knowledge explained in Paragraph 5.2.3. In particular, a piecemeal design process was mirrored and supported by the structure of the pattern language, while marking flags and full-scale mock-ups focused lay-expert interaction into the reality of the emerging product of design. On the one hand, patterns are verbal guidelines that divide a project into its constituent parts. This allowed experts and citizens to simplify conversations, by focusing on one issue at a time. On the other hand, patterns provide practical instructions to develop spatial structures, e.g. a building or the layout of a neighbourhood. When patterns were written and reviewed correctly, e.g. at Eishin

(Alexander et al., 2012:124-127), they dictate a logical sequence to build a specific object. Additionally, at Mexicali and Eishin, each pattern, i.e. each step of the sequence, was raised as an arena for negotiation.

Reduction of complexity and breakdown of a project are common attributes of the pattern languages used in the three case studies. The investigation of the Mexicali, Eishin, and Vellore projects reveals variations in the development and integration the pattern language in the design workflow. These differences depended on multiple overlapping factors, e.g. the intents of the client, the time and resources allocated for the project, and the complexity of the design task. At Vellore, patterns were constructed by the architects from ethnographic research before any public meeting. The architects used the pattern structure as a framework to systematise their observations. Indeed, unlike the Mexicali and Eishin pattern language, the Vellore language appears as a systematic collection of field notes (Figure 76). Arch. D. himself points to the peculiar nature of the patterns employed at Vellore.

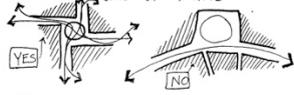
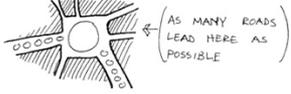
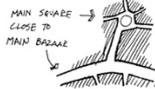
“Certainly, [the Vellore pattern language] has “Title”, it has “Sketch”. It has not so much with the “Problem-Solution”, but when you read it, you’ll see that somehow it is in there. Not “connections with other patterns”, no. That’s not there. So, it’s certainly more than just design guidelines, because when you will read it, you will realize the social reason for the patterns”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

The architects used the patterns as an atlas of guidelines to understand the local environment and prepare to have a meaningful discussion with the local community. At Mexicali, the architects selected a set of patterns from their prior research. Such patterns were concise, and their selection mirrored the architects’ intent for the project, e.g. to create a housing cluster around a plot of shared land. The families then approved the language and implemented for the definition of the public space. At Eishin, patterns were inspired by extensive interviews with the local community. Further meetings changed and refined the language, which was then implemented following a democratic voting.

Such idiosyncrasies in the definition and implementation of the pattern languages are reflected in the “Methods and tools” section of Table 39 (i.e. the yellow and red cells). Because each project was conducted with a different methodology, it is not possible to infer any causal claim on the pattern language. However, the comparative analysis of the three case studies reveals the flexible nature of the pattern language as a tool for participatory design.

ONE MAIN SQUARE

RULES:

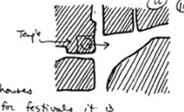
- The main square is a through-traffic place, and not a cul-de-sac or alone to side of traffic.
 
- At least 12 major roads must come into it, along with several smaller lanes & alleys, so that traffic will be maximized through the square.
 
- It should be close to the Main Bazaar. If not just off of it, then it should be connected to Bazaar by a generous, important road of not too long a length. (Festival Processions will go through Bazaar, & Square & connecting roads)
 

- Flow of traffic through square should have good alleys but be fairly cross-crossed with traffic lines!
 
- Views through the square are limited, & important roads take curves or turns as they pass through.
 
- This will be the largest open space in Rickeshapuram & should be very well defined on edges & greens & pickups straightened by:
 - A The Big Temple (see #13 - Temples)
 - B Trees (see #14 - Trees)
 - C Water Source (see #15 - water source #37 - Cedma water supply)
 - D CEDMA CLINIC & SCHOOL (see #38 - #39)
- The Main Square has "lively Edges."
 - plot frontages rather than plot sides, & as many as poss.
 - sitting places under trees
 - water sources
 - shops, vendors, porches, other, trees
 - max. number roads & lanes leading out
- It is the right size; big enough to accommodate festivals, but not so big that it becomes dull. Thoughts on size of square:

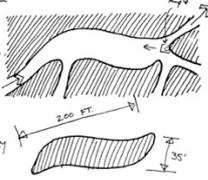
4 SQUARES COMPARED:

- INDRANAGAR Slum, Main Square**

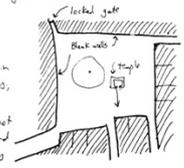
Shape: Triangle
 Size: app. 5,000 sq. ft.
 Contents: Temple, pump, trees, 10 houses
 Comments: nice feeling, cozy, but for festivals it is considered too small. (important temple here)


- Nice Square Near Indranagar Slum**

Shape: Sausage
 Size: app. 8,000 sq. ft.
 Contents: 2 temples, huge trees, 4 shops, 13 houses, 3 small lanes, 1 major thru-roadway, pump.
 Comments: very close to our size & scale - a lovely square


- Bad Square - Main Square in Koval Maniyam Slum**

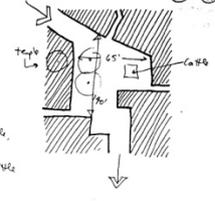
Shape: Square
 Size: app. 18,000 sq. ft.
 Contents: huge tree, temple, many swings, 8 houses, 1 main road entrance & 4 lanes, water pump.
 Comments: too big, traffic is not thru, house sides instead of house fronts, 2 sides are blank wall, fitting, completely wrong as failed. Few lively edges.



- Temple Square in Vellore, Vellore**

Shape: 

Size: about 9,000 sq. ft.
 Contents: temple, big tree, pump, 8 houses, 2 shops, wheelright's shop + 2 workshops + 2 small stalls, 2 main roads + 3 alleys.
 Comments: every inch is used - a little quicker, but proportions seem just right, very lively edges (hardly you must see this wheelright's shop!)



IMPLICATIONS

Size: The main square should probably be not ~~too~~ much larger than 8,000 sq. ft., but not more than 10-12,000 sq. ft. (8,000 is way too big)

Shape: is not so important as long as rules about angle, lively edges, & definition are met

Contents: probably the main temple will be here, along with a important water supply & some great trees & a shop or two - maybe a post box & a flag

Figure 76. Four pages from the Vellore pattern language. The hand writing and the sketches reflect the explorative nature of such patterns, drafted by the designers during a preliminary ethnographic research in Vellore. Courtesy of Davis, Week, and Moses.

Regardless of how pattern languages would come about, using them to design required following a sequence of patterns, from the big scale to the small scale. Hence, in all three projects, the pattern language acted as a verbal masterplan, guiding the architects throughout all design and construction steps. Moreover, the implementation of each pattern was a moment for public consultation. For example, during the construction phase of the Mexicali houses, the patterns pertaining to the internal layout were implemented adapting to each family needs and wishes. A detailed description of such

personalisation process can be found in the fourth chapter of *The Production of Houses* (Alexander et al., 1985:157-208), while the highly diverse house plans produced represent concrete evidence of the outcome of this approach (Figure 77).

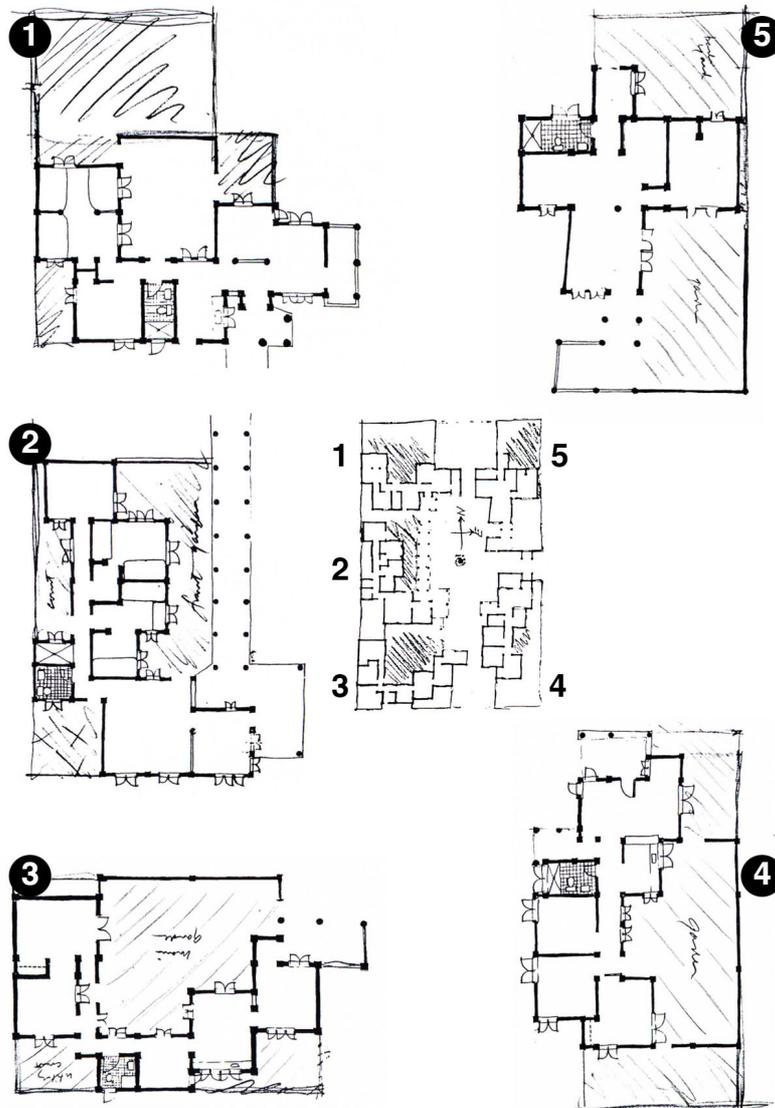


Figure 77. House plans for the five houses in Mexicali. Source: Alexander et al. (2012).

Similar remarks can be made for the Eishin project. The twelfth chapter of *Battles* (Alexander et al., 2012:219-260) includes several examples of user influence in the definition of the buildings of the campus, as well as their conflictual nature, e.g. the Judo Hall example.

From another standpoint, implementing patterns marked the transition from design to construction. In all three case studies, the architects conducted this phase on site, in the presence of small groups of citizens, and with the help of flags to mark the land (Figure 78).



Figure 78. Two pictures from Eishin (left) and Vellore (right). Flags, sticks, and ropes were used to implement patterns on site by marking the corners of the buildings. Courtesy of Alexander, Neis, Davis, Week, and Moses.

Flags were necessary to convey the size of buildings in relationship to the site. With a bit of imagination, citizens could see how the physical environment would be transformed and suggest modifications. Only when a consensus was reached did the architects mark the positions of the flags on paper and prepare technical drawings. Similarly, mock-ups and on-site walkabouts helped to make decisions about the construction details.

5.2.3 Sources of reference: reality, realities, and imagination

A step-by-step approach to design, the pattern language, marking flags, and mock-ups served to coordinate a design-oriented communication between architects and local communities. To understand how these tools influenced the input provided by the public, it is necessary to delve into the sources of references used throughout a design process. Evidence suggests that reality was a recurring source of reference throughout the participatory process. “Reality” assumed different connotations for each project. For example, the “reality” of Mexicali and Vellore was the everyday domestic life of people; at Eishin, students and teachers tapped into their experience with school environments. The pattern language, marking flags, and – at Mexicali and Eishin – full-scale mock-ups served to bring reality into the participatory process as a source of reference. In particular, the focus on reality seems to have empowered the Eishin, Mexicali, and Vellore communities to participate in a meaningful way, since the input elicited during public discussions influenced part of the final products of design. In some instances, experts noticed an inclination of non-experts to provide useful and sophisticated insight only when reality was part of the discussion. This phenomenon occurred across case studies and different stages of design, as explained in the following sections.

5.2.3.1 Sources of references during initial conversations

In preliminary stages of design, participation was used as an exploratory tool by the design teams of Eishin and Vellore. Their goal was to understand local aspirations and the extent by which they could be fulfilled. One-to-one interviews (Eishin) and group meetings (Vellore) took place before any design decision was fixed. Evidence from expert interviews and literary sources suggests that, in the absence of initial input, non-experts communicated through images from their own experience and expectations. For example, many from the Vellore community expressed the wish to have flat-roof, concrete houses, like those owned by the rich from the neighbouring city. At Eishin, a common image emerging from interviews was modern Japanese high school concrete buildings.

“It was difficult for many teachers to give a description of an ideal campus. At first, they stared blankly, or said something general about classroom size. In the context of present-day Japan, where most schools are massive concrete boxes, with an asphalt playground on one side, it was hard to overcome this difficulty. Even the old Eishin School in Musashino-shi, where these talks with teachers and students took place, was that kind of place”. (Alexander et al., 2012:118)

These initial sources of reference produced unreliable ideas that had to be soon dismissed by the architects. About the Vellore project, Davis mentions that behind the powerful image of modern architecture lied problems of insulation and budget.

“The budget for the houses was actually determined by how much money these people could pay each week for a certain period of time. And that amount of money was not much, and what that meant was that they couldn’t really have these concrete houses with flat roofs, because they would just be much too expensive”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

Neis and Alexander wrote similar remarks about the Eishin project. The client, Mr Hosoi, reached out to the CES because he imagined a campus that would not look like concrete, functional architecture. Thus, the architects attempted to push the members of the local community to expand their initial referential objects.

“In addition to holding the people being interviewed in very high regard, it was necessary to insist that they leave the constraints of what they had experienced so far in the classroom,

and get to their deep feelings. [...] When this happened, their answers were profoundly useful". (Alexander et al., 2012:118)

Overall, the lack of a shared framework of reference in preliminary stages of design brought about idiosyncratic, subjective “realities” in all three projects. In general, the architects had to deal with these realities with caution because they tended to produce non-viable ideas.

5.2.3.2 Sources of references during design phases

In practice, no design process is ever straightforward but requires multiple iterations. However, as a design develops, decisions have to be fixed and become the basis for further discussions. For example, a site layout must be defined before buildings can be planned, so that the latter would fit into the former. Likewise, to arrange a kitchen in a house, one must first place the entrance and have a sense of the whole. In the Eishin and Mexicali projects, general ideas were fixed in a pattern language in the form of generic descriptions. The language (a document) provided the public with a framework of reference that was used in two ways: (1) to grasp the overall image of the project and (2) to ground individual input and comments. The dialogue between experts and communities was focused on improving the pattern language, which acted as a shared repository of design-knowledge. As further input enriched the pattern language, the architects and the local community could flesh out a shared vision for each project. The most detailed description of how the pattern language fostered local knowledge is an account from Eishin. In particular, the transition from the general “crude language” to the exhaustive “final language”. Indeed, traces of input from the school community were integrated into some patterns. For example, Mr Oginawa, a faculty member of Eishin, contributed to the definition of pattern #1.3 for the definition of the inner precinct of the college (ibidem, 133). Mr Kurahashi and Mr Tomizu helped define some of the patterns on the entrance gate, e.g. #2.1, #2.3, #2.4, and #2.5 (ibidem, 133-134).

“And these streams [of ideas] later were incorporated in the pattern language, and whenever somebody’s stream was very directly translated into the pattern language, their name would appear at the bottom of each pattern. And that’s still in the book”. (Arch. H. J. Neis, personal communication, March 25, 2017- Interview #5)

The pattern language in itself was not always sufficient to foster relevant feedback from the public. The site layout for the Mexicali housing cluster, for example, was developed almost exclusively by the architects, although it was communicated via a set of patterns. Three data sources, e.g. Davis

(Interview #4), Alexander et al. (1985), and Ruesjas (1997), mention that families did not respond with significant input to the pattern language. However, when the families were on-site, at a later stage of design, they could take viable decisions about site layout. A possible explanation for this phenomenon is the relative brevity of the Mexicali project and its primary focus on the development of the individual houses. Unlike at Eishin, the architects did not employ long campaigns of interviews to construct the pattern language. Instead, the pattern language was chosen before public engagement, and it was explained via group meetings. At Vellore, site layout was also decided without direct mediation of the pattern language. In fact, the local community did not interact with it at all. The language was used by the architects to understand the main features of the Indian villages of that region. Layout decisions were taken on site, via a recursive process of consultation with local leaders. Questions like “Where is the entrance to the site?”, “Where is the temple”, (Arch. H. Davis, personal communication, January 21, 2017- Interview #3) informed the architects about spatial relationships to be put in place to cater to local traditions. As Davis recalls:

“And anything that’s said, or talked about, with respect to patterns needs to be talked about in a way that is very real. For example, the position of the temple relative to the main square. People would say: “Yes, the temple cannot face a house [because] you have to be able to circumambulate the temple”. They can talk about that. [However], any more abstract way of describing it, it wouldn’t make sense. So, to the extent that [the focus of the discussion] is real, and particularly if you can simulate it on the site, then it becomes ok to talk about”.
(Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

So, if at Vellore relevant inputs emerged without direct contact with the pattern language, the language was not the only, nor the primary referential object for non-experts to participate meaningfully. In fact, reality was the chief source of reference underpinning meaningful input. Under this perspective, the pattern language served to capture the vision of an intelligible verbal reality.

5.2.3.3 Sources of references during later construction phases

The final stage of design involved the development and construction of individual buildings. In the case of Vellore and Mexicali, the project involved low-cost houses. At Eishin, the architect designed the main hall, the library, the classrooms, the Judo Hall, and other educational and service facilities. In all three case studies, this process was carried out on-site, through small-group, public discussions, and the help of marking flags. At Eishin, the architects also relied on full-scale mock-ups of building elements. The adoption of such strategies was meant to complement pattern languages by projecting

a virtual reality on site. Thanks to these tools and methods, architects and locals had a general preview of the campus and the housing clusters. Flags were placed according to the guidelines from the pattern language, and people could interact on the spot to suggest amendments. Overall, it was the contact with their new, emerging houses that fostered relevant inputs from the locals.

5.3 A conceptual framework to understand the general problem of lay-expert interaction.

While the initial hypothesis seems to be validated by converging empirical evidence at different levels of analysis, e.g. within-case analysis (Paragraphs 4.3.5, 4.4.8, 4.5.7 for the *charrettes* projects and Paragraphs 4.7.5, 4.8.5, and 4.9.6 for the pattern language projects) and cross-case analyses (Paragraph 5.1 and Paragraph 5.2), it is not sufficient to explain the general mechanisms governing lay-expert interaction acting across all case studies, regardless of the specific methodology adopted. Building on the partial results obtained from the analysis of the charrettes and pattern language case studies, this paragraph attempts to cover this gap by outlining a general theory of lay-expert interaction.

The main thesis of this work is articulated in four arguments:

- 1. Knowledge generation in participatory design is sustained by multiple feedback loops (FLs) involving citizens, designers, and other stakeholders.**
- 2. The arrangement and sequence of FLs within a design process govern the quality of mutual learning and the attitude of citizens towards the project.**
- 3. Each FL is based on the production and upgrade of artefacts that convey partial or integral representations of the product of design.**
- 4. The production of artefacts mirrors and reflects a transition from individual, imaginary realities towards one unique, collectively shared reality. The transition process entails mutual learning.**

The four arguments upgrade the initial model by emphasising the interconnections among its components and by unveiling its mechanisms. In the following paragraphs, each argument is discussed and expanded with evidence from the six case studies.

5.3.1 FIRST ARGUMENT: Knowledge generation in participatory design is sustained by multiple feedback loops (FLs) involving citizens, designers, and other stakeholders

A feedback loop (FL) can be defined as a system that relies on external inputs to improve itself. In practice, FLs take place during public events, where experts and citizens exchange input for influencing the evolution of design. The six case studies exhibit different examples of how FLs were incorporated in the design process.

5.3.1.1 Evidence from the charrette projects

In all JTP projects, feedback loops occurred during all Community Planning Weekends and Community Forums. In fact: their methodology relied on a sophisticated system of nested FLs, which can be illustrated by the following diagram (Figure 79).

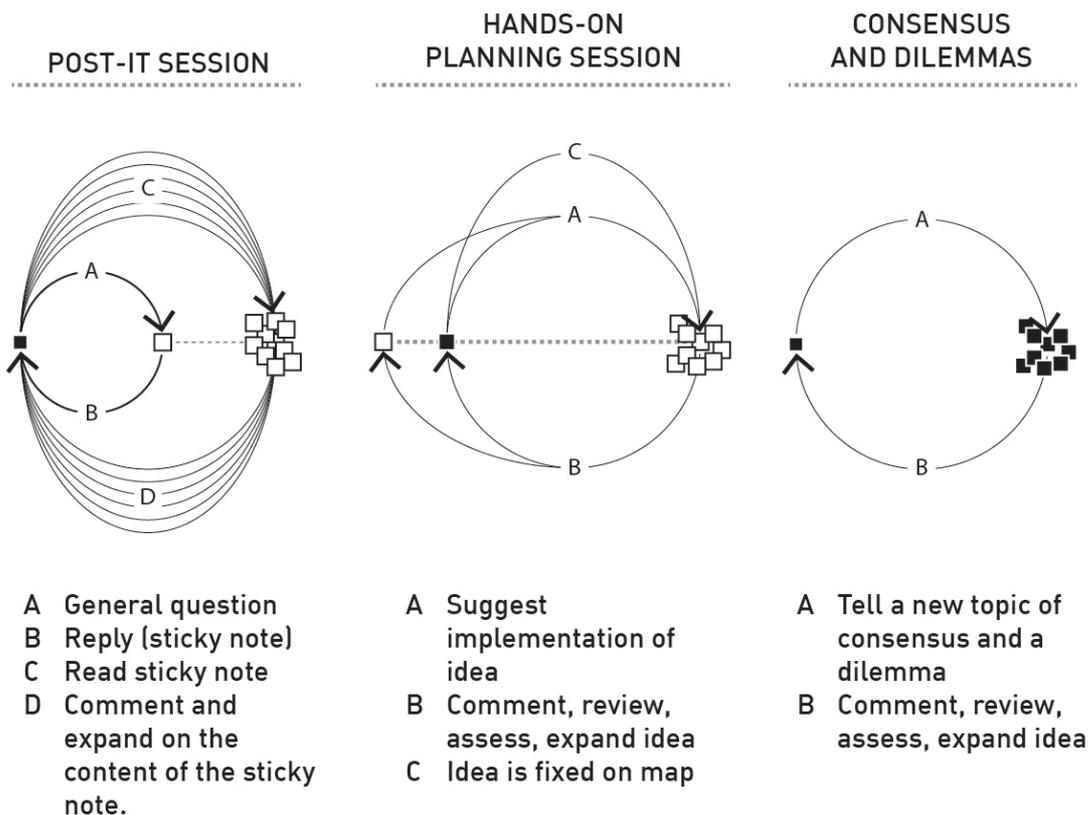


Figure 79. Representation of the feedback loops in place during the three main events of a Community Planning charrette: the post-it brainstorming session, the hands-on planning workshop, and the “consensus and dilemmas” session.

The “Post-It” session

The team of designers began the process of engagement by asking general questions about problems with the site and expectations for the projects. The response of the citizens can be considered the primary input of the first feedback loop. The plenary discussion that follows, e.g. the “Post-it Session”, unfolded as an exchange of information, ideas, complaints, and preferences. Although at this stage the architects listened more than spoke, this discussion followed the definition of a feedback loop because each member of the audience provides and receives feedback from other members (Figure 80).

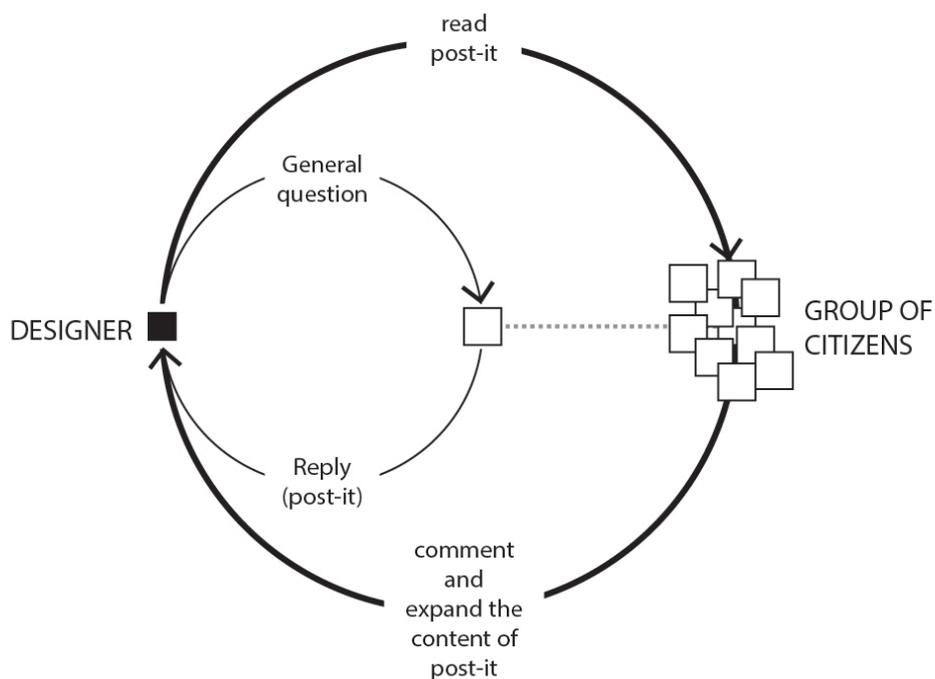


Figure 80. *The feedback loop associated with the post-it brainstorming session.*

The “Hands-on Planning” session

The second feedback loop occurred during the “Hands-on Planning” workshop, shortly after the “Post-it” session. Experts and citizens worked in groups and exchanged inputs on the basis of the previously discussed topics, with the goal to incorporate ideas and suggestions onto a map. During this phase, one or two experts supervised the activity of each group and participated in the development of a map (Figure 81).

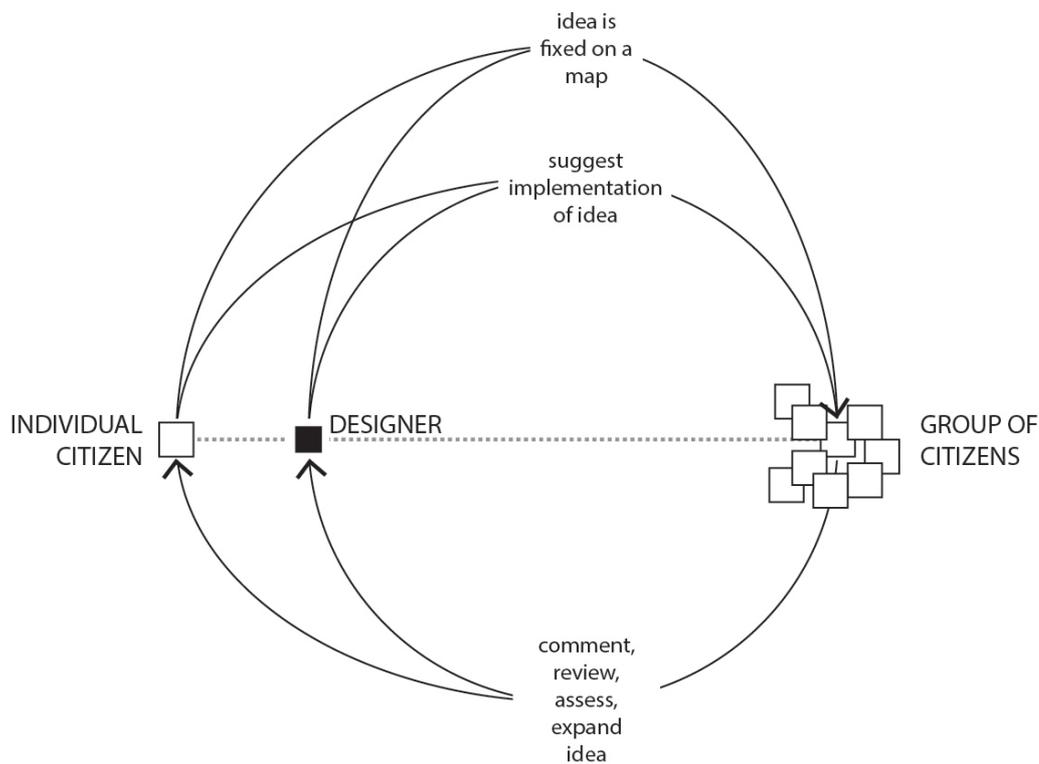


Figure 81. *The feedback loop associated with the hands-on planning (Hands-on Planning) workshop.*

Figure 81 illustrates the anatomy of the feedback loop in place during a typical Hands-on planning session (Hands-on Planning). The loop is highly simplified, as the Hands-on Planning does not follow a rigid protocol. The author observed about twelve work tables from two projects and recalls a variety of different situations. For example, citizens were not equally distributed around the tables, since everyone could choose which group to join. As a result, some groups had ten, or even twenty people, while others had only a few. Within each group, some citizens were more proactive and some more passive. Some were more inclined to suggest new ideas; others would add their perspective and expand on them; while others would just listen to the discussion. As a general observed trend, most of the sketching was done by the architects, although citizens could also add signs and symbols. The

map would progressively show the outcome of the group discussion, while providing a reference for new discussions. When the second feedback loop would end, the architects would re-staged the same two FLs with other participants.

“The process of iteration in place over the Community Planning Weekend serves to build an understanding of some recurring topics”. (Arch. C, personal communication, May 6, 2017- Interview #2)

Arch. L. provides an exhaustive explanation of how Hands-on Planning sessions foster learning:

“By having six tables or so, going at the same time, you generate different alternatives and even if you start with different themes (e.g. one about “green space”, one about “transport”, one about “community”, one about “housing”, whatever they are going to be), in the end they [citizens] all talk about everything and we are perfectly happy with that. Then you can start to see the various things that are appearing” (Arch. L, personal communication, July 11, 2017- Interview #1)

The “Consensus and Dilemmas” session

By the end of the second day of a regular Community Planning Weekend, the design team would collect a large number of input embedded in sticky notes and “Hands-on Planning” maps. Besides these artefacts, however, each architect witnessed a countless number of feedback loops, where inputs were discussed and contextualised together with the local community. Before these ideas would be translated into a design, however, all designers and other stakeholders would gather to discuss “Consensus and Dilemmas”.

“everyone around the table has to say the main things they thought that were agreed. And there’s always that challenge, to say it in a way that is literally correct. So, if someone says: ‘everyone wanted the road to be closed’ we would say ‘No! Not everybody said it’. But if you say it in a different way, if you say, “there was a strong consensus that the closure of the road would be beneficial to the masterplan”, then it’s alright”. (Arch. L, personal communication, July 11, 2017- Interview #1)

This discussion group can be considered a feedback loop because experts would shape their arguments from other experts’ arguments. The “Consensus and Dilemmas” workshop marks the end of the larger FL that is the Community Planning Weekend (Figure 82).

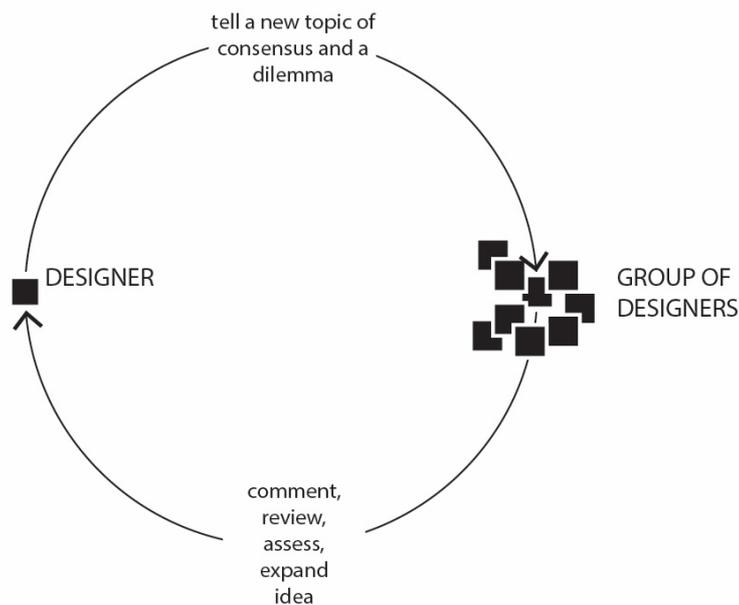


Figure 82. *The feedback loop associated with the “consensus and dilemmas” session.*

Aftermath of the Community Planning Weekend: the role of Community Forums

In their office, the design team produced the necessary material to report-back to the local community. In the three case studies, this process took place within 3-4 days after the Community Planning Weekend. The interactive nature of the Report-Back presentation provided the opportunity to enact another feedback loop. On the one hand, the design team explained to the public how the CPW had influenced their masterplan proposal. On the other hand, the public was encouraged to comment and suggests amendments (Figure 83).

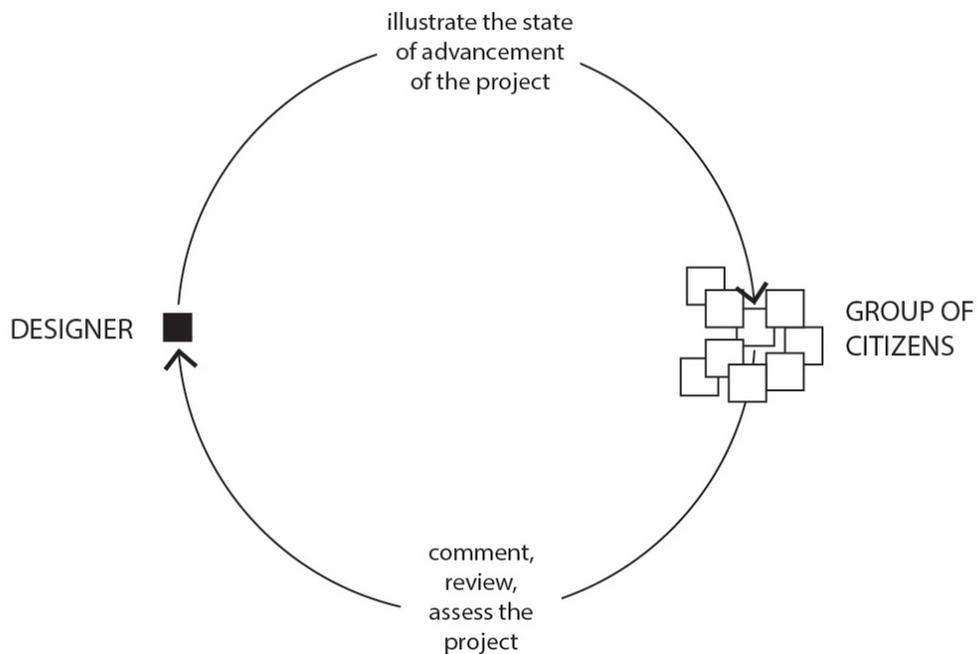


Figure 83. The feedback loop associated with the Community Forums.

Following the Report Back presentation, in fact, the architects developed a design proposal in their office. This solo work was alternated with public meetings, i.e. Community Forums, characterised by a system of feedback similar to the one described in Figure 6. Each Community Forum serves the architects to present the state of advancement of a design and receive feedback to improve it.

Overall, through the Community Planning Weekend first, and several Community Forums then, a charrette-based participatory design process can be conceptualised as a sequence of several FLs aimed to (1) understand and communicating the design task and (2) come up with a shared design solution.

5.3.1.2 Evidence from the pattern language projects

Unlike JTP's Scarborough, Newbury, and Cowes projects, the group of architects working with the pattern language at Vellore, Mexicali, and Eishin did not follow a standard design protocol. For starters, the three projects were carried out by different groups of people at different times of evolution of the Pattern theory, e.g. 1975, 1985, 1992.

The three modes of construction of the pattern language mirrored the different stages of evolution of the Pattern theory throughout the years, the personal interests of the architects involved, and the goals and circumstances of each project. The Vellore language, for example, was the result of ethnographic research and the local community barely altered it. Hence, the pattern language was not generated out of a public feedback loop; at least not as it is understood in this research. The Mexicali language was based on some design principles studied by the Center for Environmental Structure. As already mentioned in the Mexicali chapter. The design team attempted to involve the five Mexican families to edit the language, but they did not succeed. Finally, the Eishin language was constructed after months of one-on-one interviews with the school community. As the architects note:

“The pattern language was not created by sociological ‘research’, nor was it done by making a list of what people spoke about. Rather, it was a poetic vision [...] which tried to flesh out in architectural language and in three dimensions, a physical world whose inner meaning corresponded to the meaning conveyed to us by teachers, staff, and students, and by them to one another, as discussion of the nature of the school began”. (Alexander et al., 2012:123)

The design team worked with the students and faculty members to develop a specific pattern language for the campus. This strategy was based on extensive interviews. The definition of "feedback loop" used in this research may be problematic to encompass interviews, since interviews are usually based on one-sided communication. Yet, the narrative of the project suggests that, in fact, the interviews in place at Eishin were based on a system of feedback. In the book (Battles), the architects emphasise their active role during the interviews.

“In addition to holding the people being interviewed in very high regard, it was necessary to insist that they leave the constraint of what they had experienced so far [...] and get to their deepest feelings.” (Alexander et al., 2012:118-119).

The interview campaign involved dozens of people in a one-on-one format. This interaction resulted in a crude pattern language (Alexander et al., 2012:122,123), that was later discussed with all students

and faculty members. The language was approved by the majority vote after a discussion, e.g. a feedback loop involving the community at large.

Overall, after a pattern language was established, the design processes continue as a series of feedback loops as described in Figure 84. This system was set up on site, thanks to the principles of “incremental design” and “architect-builder”. By the time they had to define the layout of the site layout and its buildings, the design teams did not have a set of predefined technical drawings to be implemented. Instead, they had a “design code”, e.g. a sequence of logical steps to produce a design.

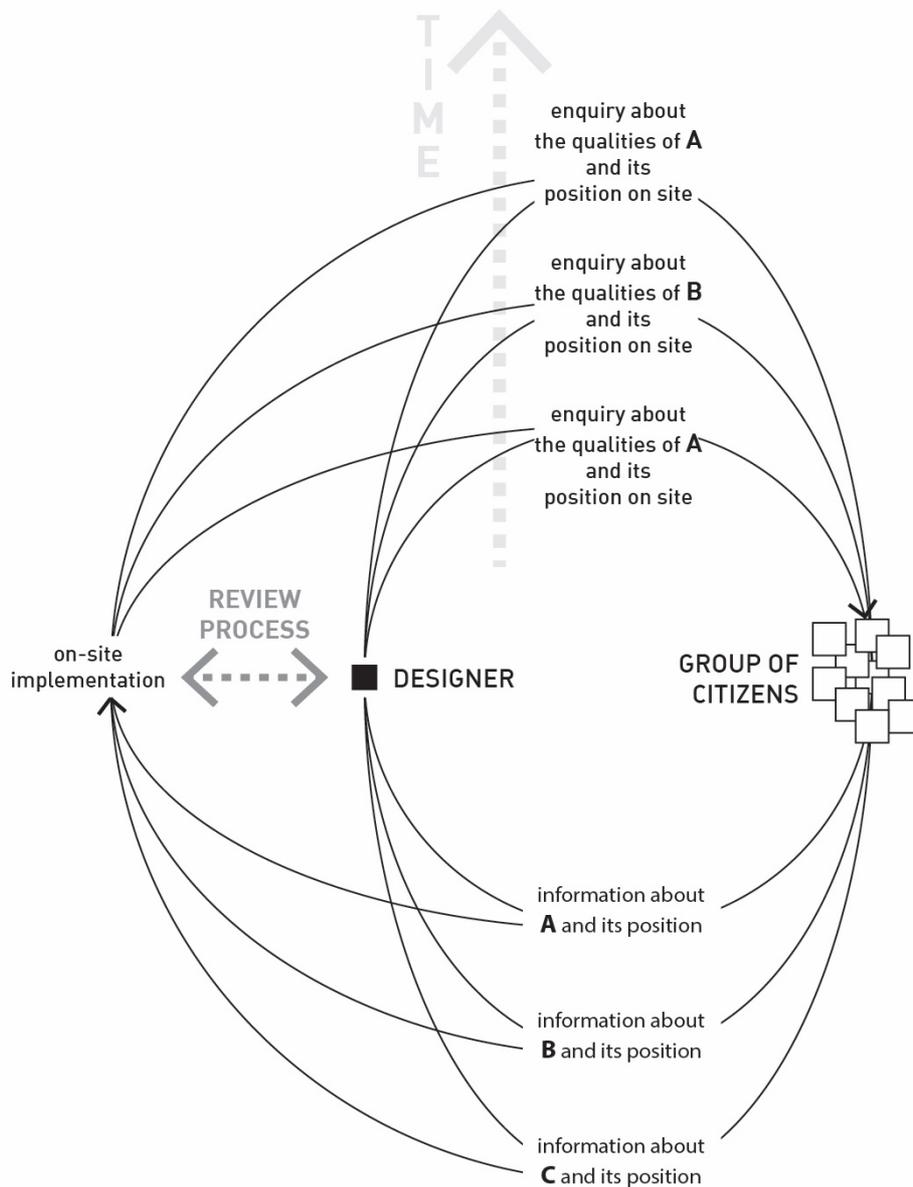


Figure 84. The feedback loop associated with the pattern language implementation phase.

The letters A, B, and C represents the sequence of guidelines to generate the structure of the site. The following extract from the Vellore project clarifies how the real process fit into the model described in Figure 84.

“It was not like we proposed the site layout to them. Actually, we were on the site together with families [...]. Of course, we would make suggestions, but [...] they would tell us things about the temple [...] and we were working on it together. [...] We went through various elements of a possible plan like, we would say: “Where is the entrance to the site? Where is the temple? where is this? Where is that?” In other words, we would actually go through a series of issues and have a conversation about it, and then together we came up with [...] the site plan. [It] was a very interactive process”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

In the cases of Mexicali and Eishin, the design steps (i.e. the letters in the diagram) coincided loosely with the patterns. In both cases, the architects had to test the quality of the pattern language in advance to ensure the right sequence for implementation. Thus, design and construction were carried out simultaneously through countless feedback loops on site. Each feedback loop was centred on a single pattern and was partook by small groups of experts and citizens.

The six projects analysed differ regarding design methods, budget, program, location, cultural settings, and date. Despite such differences, feedback loops seem an invariant pattern of interaction to describe lay-expert interaction aimed at designing. Thus, a process of participatory design can be conceptualised as a sequence of multiple FLs, whereby experts and citizens exchange inputs to influence a product of design. Within this broad definition, each project is characterised by a diverse set of feedback loops, as the analysis on charrettes and pattern language projects has revealed.

Finally, the projects carried out with the pattern language emphasize two compelling features: (1) feedback loops can be established on site and (2) when they encompass design and construction, self-construction emerges.

5.3.2 SECOND ARGUMENT: The arrangement and sequence of FLs within a design process govern the quality of mutual learning and the attitude of citizens towards the project

This section develops the second part of the thesis to understand how these feedback loops come into existence and under which circumstance they foster learning.

Feedback loops are established through the organisation of participation. Before the start of any design process, a client would reach out to a team of expert. In participatory design, the appointment of a design team would be influenced not only by their experience and reputation but also by the extent to which their design methods would meet the client goals. During preliminary meetings, the client and the architects would discuss and define goals, roles, responsibilities, resources, and deadlines. Clients might not be fully aware of methodological matters, and one of the tasks of designers would be to advise the optimal strategy to achieve specific goals.

“In this phase, the architects lay out a timeline with the number of charrettes and public events”. (Arch. C, personal communication, May 6, 2017- Interview #2)

The outcome of this negotiation process would determine the structure of participation, e.g. the sequence of activities (methods and tools) to be implemented throughout a project (stage and duration). For example, preliminary negotiations allowed the CES to obtain total control over the Mexicali process and adopt the principles of architect-builder and self-construction. Likewise, at Eishin, negotiations occurred during the development of the campus. In the end, the designers managed to acquire full responsibility for the project. In all six case studies, the establishment of public workshops, i.e. feedback loops, throughout a design process followed two principles: to optimise design and to build trust with the local community. “Optimize design” pertains to the acquisition of the proper knowledge at the right time, i.e. learning. “Building trust” translates into an honest and positive attitude towards the project.

5.3.2.1 Evidence from the charrette projects

According to JTP, “optimising design” is related to understanding the local context through the eyes of the local community. Arch. L. explained that, in his experience, initial ideas always change when citizens get engaged because dialogue brings new information into the design process. To invest time and resources on a design concept before meeting with the public would be an unproductive strategy. Thus, JTP would begin their projects with a Community Planning Weekend, to reach out to citizens

as soon as possible. Early involvement also played a role in building trust, mainly because the architects would be open about their agenda.

“When we advertise the project, we say: ‘We want your ideas. Please come and contribute. You can help to design the future of your place’, and all too many people come along and say: ‘Where’s the exhibition? What are your proposals?’. And we say; ‘Well, there aren’t any proposals. We are here to talk with you!’. ‘That can’t be true. You must have one in your back pocket’. And the fact is, all we really have in our back pocket is a few calculations and simple sketches so that we can get a rough idea of the kind of things that might work. But nothing has been worked out”. (Arch. L, personal communication, July 11, 2017- Interview #1)

Community Planning Weekends were the event at which JTP architects collected most inputs to fix the structural elements of a project. Although valid for all projects, this trend was more evident in the cases of Newbury and Cowes. Unlike at Scarborough, the projects of Newbury and Cowes underwent a series of amendments over the course of several Community Forums. The maps show that the main features, e.g. program, street pattern, the location of public spaces, and the actualisation of the key themes, were all fixed in the first Consensus Masterplan. One explanation for the asymmetrical role of Community Planning Weekend and Community Forums lies in their different epistemological value. Both experts from JTP mentioned that citizens are the expert of the place, but they need support to understand how to solve spatial problems.

“They know their place because they live in it. Participation is a way to get that knowledge”. (Arch. C, personal communication, May 6, 2017- Interview #2)

“We say: “You are the experts, not us! But, on the other hand, they are experts of the details of their area but may not be experts about alternatives. So, we often introduce what we call ‘seeing is believing’ to suggest ideas as part of the process”. (Arch. L, personal communication, July 11, 2017- Interview #1)

Evidence from the transcripts of the post-it sessions corroborates these assumptions. The two alluvial diagrams reveal that, compared to the “Solution” phase, the “Problem” brainstorming session generates a higher ratio of inputs that feed into the consensus masterplan (Figure 85 and Figure 86). Under these time-tested epistemological assumptions, the architects would need to learn about the project site, its social and cultural substrate, and the aspiration of its community. A big event set at

the beginning of the process served to collect such kind information to lay out a good project. Many smaller exhibition events scattered throughout a design process served as a double-check for its state of advancement. To reduce the significance of Community Forums to control mechanisms, however, would be short-sighted. Community Forums played a significant role in maintaining the trust of the local community by keeping the conversation alive. From a conversation with the experts, trust seems to be related to the general attitude towards the project. Lack of trust often translates to negative bias and antagonism. Conversely, the presence of trust is accompanied by a positive and constructive attitude. The following anecdote from a project of urban development highlights the many aspects of this problem.

“There were people who hadn’t come to the public planning event itself, but showed up at the exhibition, and they were much more likely to be negative. Luckily there were plenty of people who had been at the event whom we knew and we had a good relationship with them, and they were much more positive about it all. Some of the most negative people were those who hadn’t been at the event and started to raise all of the questions [about] decisions made not by us, but together with the community. There will always be people who turn up at the final presentation who haven’t been there, and therefore did not understand the process”. (Arch. L, personal communication, July 11, 2017- Interview #1)

To manage a project for a long time (e.g. one or more years) that affects thousands, while keeping an open design process, required constant feedback loops between the designers and the local community.

“And that’s one of the reasons we need to be careful about the length of our presentations; because we really feel we have to show them the working process. We also have to remember that even those who attended are often only there for part of it, and not for all of the two days, for instance, and therefore may also have gaps in their knowledge”. (Arch. L, personal communication, July 11, 2017- Interview #1)

NEWBURY PROJECT - "PROBLEMS"

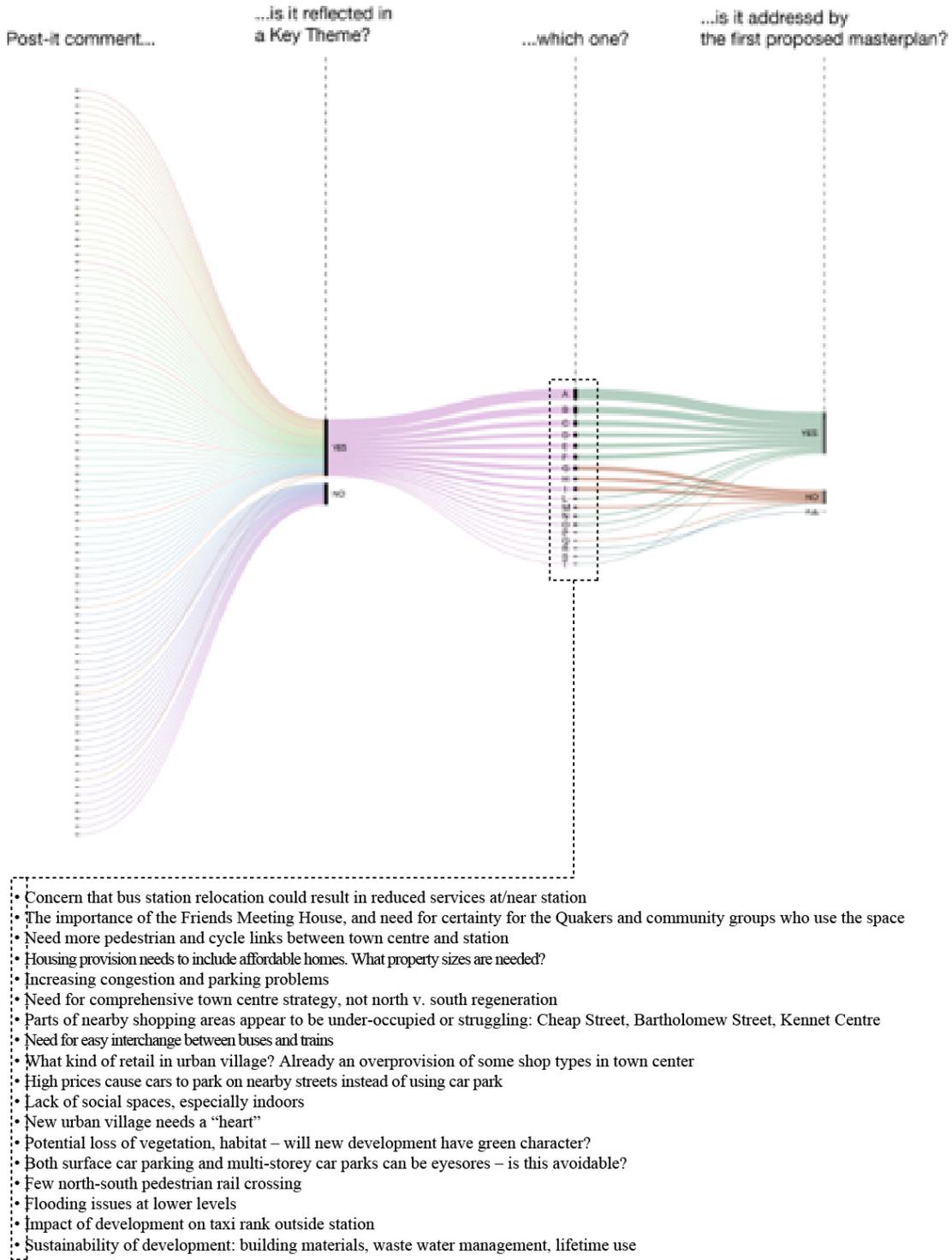


Figure 85. Alluvial diagram mapping the process of knowledge generation at Newbury. In particular, the diagram reveals how many of the initial "Problems" comments put forth by the citizens were translated into action plans, e.g. the list of Key Themes and the first proposed masterplan.

NEWBURY PROJECT - "SOLUTIONS"

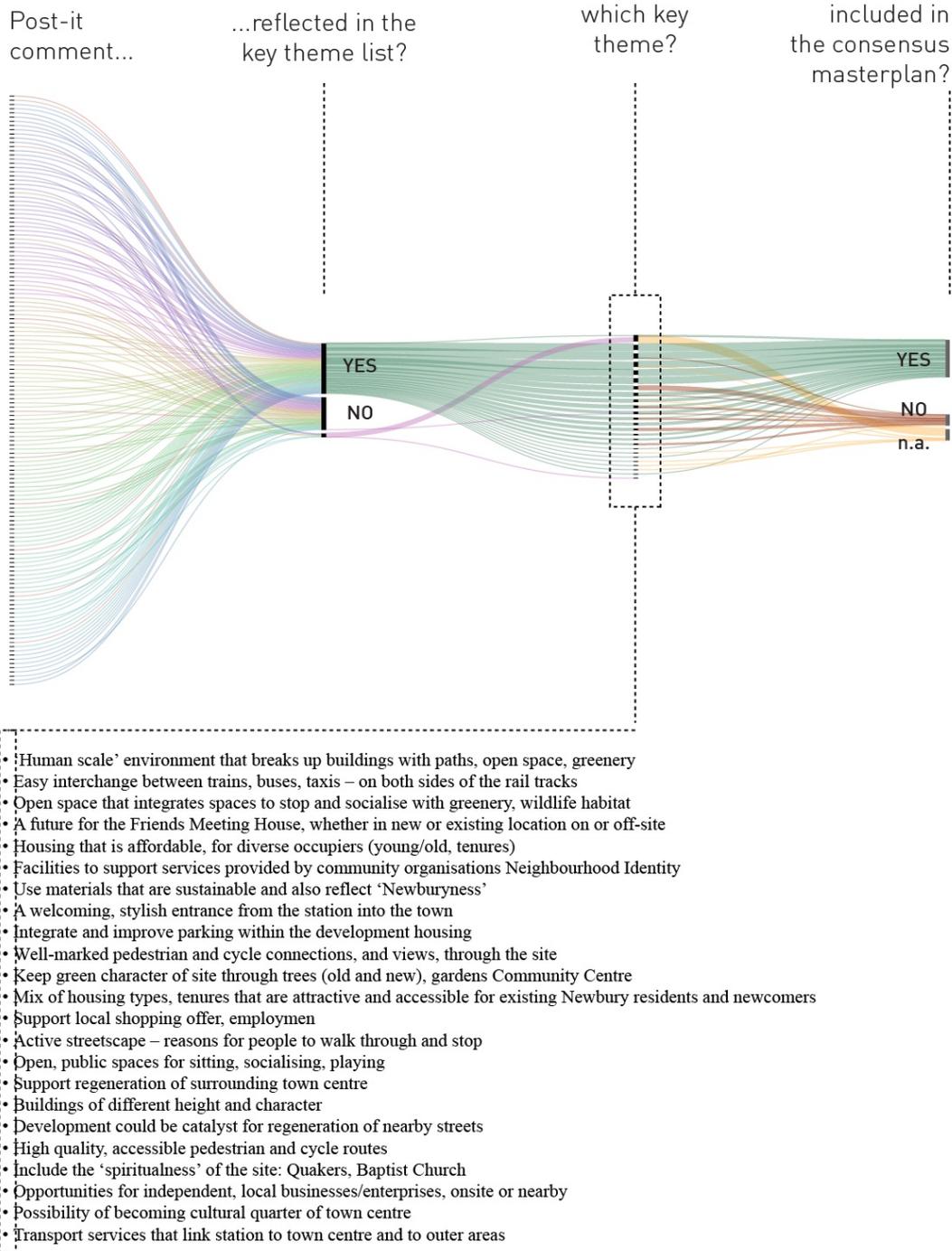


Figure 86. Alluvial diagram mapping the process of knowledge generation at Newbury. In particular, the diagram reveals how many of the initial "Solutions" comments put forth by the citizens were translated into action plans, e.g. the list of Key Themes and the first proposed masterplan.

5.3.2.2 Evidence from the pattern language projects

By accruing power through negotiation with the client and local authorities, the CES designers did not have to follow a strict sequence of pre-defined public events. Instead, they adopted a design approach grounded on three principles: (1) step-by-step design-construction; (2) on-site participation; and (3) a multi-level, pyramidal involvement. Thanks to this organisation, the architects could set up countless small-group consultation events, e.g. feedback loops, as the design unfolded, according to emerging needs. A similar pattern of involvement characterises all three case studies. First, a verbal masterplan is defined (e.g. the pattern language). Then, the site layout is defined in concert with the local community at large and by the on-site implementation of patterns. Finally, the interior layout of individual buildings is defined together with small groups from the local community. Aside from Eishin, where the pattern language was the outcome of an extensive campaign of interviews, the Vellore and Mexicali patterns were defined by the architects. The site layout and the individual buildings were developed in a participatory manner from the pattern language.

“[At Vellore] we did the basic layout of the site on the site, with the families. That involved the laying out of a main street, the entrance to the project, the location of some major entities - like the temple - the clinic, the school, and so forth. And that was done with the families”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

“[The Mexicali process] was designed so that decisions could be directly taken on the site by the families”. (Arch. H. Davis, personal communication, February 2, 2017- Interview #4)

The organisation in place at Vellore, Eishin, and Mexicali fostered learning by establishing countless feedback loops focused on specific topics, e.g. the entrance to the site, the main street, the sequence of public spaces, etc. At Vellore, this approach enabled the architects to learn some important aspects of the local culture. The examples of the door alignment and the position of the temple are revealing of how participation can bridge the knowledge deficit between different cultures. The intervention of citizens corrected some ill-placed expert assumptions which might have resulted in a non-optimal design solution. At Mexicali, the sequence of feedback loops to design the internal layout of the houses was directly responsible for their distinctive plans. In this example, the architects did not learn general principles of spatial organisation of “the Mexican house”. Instead, they learned about the specific needs of the five families involved.

At Eishin, thanks to this system of on-site, step-by-step process, the architects could outsource the design of each building to the people most knowledgeable about it. The music teachers partook the definition of the interior of the music rooms, e.g. the optimal material to reflect and absorb soundwaves. The student provided information about the leisure space.

To sum up, evidence from the six case studies reveals that feedback loops are associated with opportunities to learn key insight from the local community. As such, experienced designers tend to deploy public events, e.g. workshops and interviews, to maximize learning. Learning expectations, however, depend on the experience and belief of the design team, as well as the specific nature of a design task. This fact explains the different approaches of JTP and the CES in the six projects analysed. The former, a British office active in three familiar settings, was seeking consensus building and information about the local context. The latter, a USA-based group, operating in culturally different environments, needed extra information on how to shape buildings to meet communities' needs.

In general, public meetings organised at an early stage of design seems to be helpful to (1) collectively define the design problem, and (2) understand the qualities and shortcomings of the project site. Conversely, a later-stage engagement, supported by on-site design, may bring essential information about the product of design. Aside from learning, a continuous involvement through multiple public events allows citizens to observe the evolution of a project, from a conceptual entity to a virtual representation of a product of design (Paragraph 5.3.3).

Overall, keeping the local community engaged throughout a design process leads to learning, building trust, and serves to maintain a positive public attitude towards the project.

5.3.3 THIRD ARGUMENT: Each feedback loop is based on the production and upgrade of artefacts that convey partial or integral representations of the product of design

The previous paragraphs have outlined the structure of a participatory process. In particular, the first claim provides the bedrock for a theory of participatory urban design by conceptualising participation as a series of feedback loops. The second claim argues that the establishment of feedback loops is negotiated by the stakeholders of a project and their deployment in a design process determines the quality of learning enjoyed by the designers. This paragraph explores (1) what happens within each feedback loop, (2) how learning unfolds, and (2) how disorderly input is turned into relevant, applied knowledge.

The central argument is that artefacts play a central role in mediating the communication between designers and citizens. Artefacts are used and produced within each feedback loop; they foster the emergence of knowledge, and their development mirrors the evolution of design. Before delving into specific examples to corroborate this argument, however, it is necessary to establish a definition of "artefact". In this research, artefacts are physical, human-made objects that support a design activity. Examples of artefacts from the six case studies are maps, post-its, the pattern language in its written form, wooden models, visual rendering, sketches, mock-ups, and marking flags. Regardless of the methodology employed to design, all feedback loops across all case studies are characterized by the presence of one, or more, artefacts. In particular, during any feedback loop, citizens and experts would produce artefacts to sustain and foster a dialogue around the product of design. At each loop, information is collected and upgraded through the upgrading of artefacts. Figure 10 illustrates these dynamics as a dual process of knowledge generation and implementation.

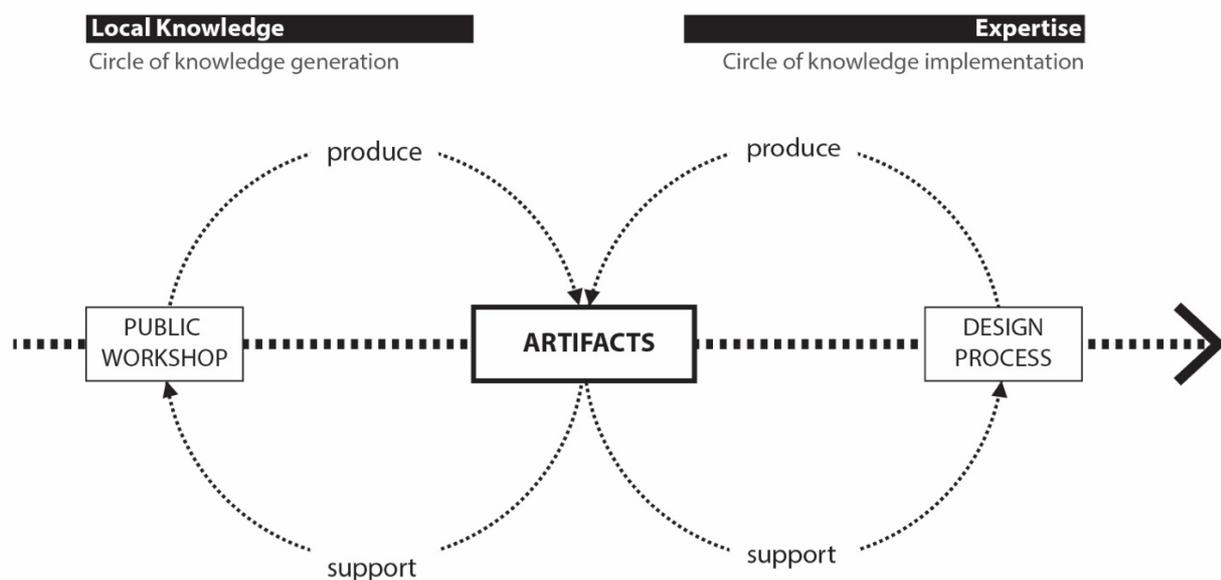


Figure 87. Diagram representing the central role of artifacts in supporting a design-oriented discussion between designers and citizens, as well as the synthesis of local knowledge and expertise.

The “Circle of knowledge generation” (Figure 87, right) is related to the act of “making sense together”, i.e. when citizens and experts work out how to develop a project. The “Circle of knowledge implementation” (Figure 87, left) refers to the action of selecting relevant information out of all input available. Unlike knowledge generation, knowledge implementation processes must be supported by expertise. The following sections present relevant evidence from the experience of JTP and the CES.

5.3.3.1 Evidence from the charrette projects

All JTP’s Community Planning Weekends began with a public brainstorming session. As a response to the experts’ open questions, citizens wrote down comments on sticky notes. The notes were then read out loud and publicly discussed. Because of their physical nature, post-its could be collected and reviewed by experts. From these comments, the architects developed the Issues and Actions lists, one of the deliverables for the client. During the Hands-on Planning session, soon after the plenary discussion, mixed groups of experts and citizens worked on blank maps of the area. Their ideas exchange led to the development of spatial strategies for the site, which were then represented on maps. As a Community Planning Weekend ended, the experts drafted a series of documents to collect and synthesise information, e.g. the Key Themes list and the Consensus Masterplan. In London, the architects would refer to the Key Themes list, the Consensus Masterplan, and the Issues and Actions list to develop a masterplan. Technical drawings, visual renderings, diagrams, and sketches were produced to represent the masterplan and to report it back to the local community. Indeed, these documents constituted the focus of all subsequent exhibitions and Community Forums. During the initial brainstorming phase of a charrette, a discussion around sticky notes expanded on their content.

“People who would have written their notes saying “A” suddenly realize there are other people in the community saying “B” or “C” or “D”, and they realize that [...] there are other points of view that can totally contradict what they think. [...] They become a bit quieter and we often feel as if we are “holding up a mirror to the community”, that now we are reflecting back what they are saying and it’s a learning process for all of them”.

This first plenary discussion acted as a mechanism of preliminary selection of “good information”, i.e. information that is relevant to the design process. During “Hands-on Planning” session, the groups were encouraged to produce diagrams and maps to present to their peers. Simultaneously, maps forced people to think in terms of space, and ground their ideas onto the project site.

“[Through] the hands-on-planning, [...] people can start to see [the project] visually, rather than verbally. And, of course, some people are more wordy and other people are more image-people. So, it does require a good grounding of different ways of learning about things”.
(Arch. L, personal communication, July 11, 2017- Interview #1)

This second group discussion acts a secondary mechanism of selection of useful information. By the end of the multiple “Post-It” and “Hands-on Planning” sessions, the architects would fix their individual understanding of the local situation into a general framework: the “Key Themes” list. The list would be drafted in the aftermath of the “Consensus and Dilemmas” session, partook by all members of the design team. The “Consensus and Dilemmas” session is yet another information selection mechanism. In fact, it is at this stage, and through expertise, that information becomes knowledge (“Circle of Knowledge Implementation”, Figure 87).

5.3.3.2 Evidence from the pattern language projects

As already mentioned in a previous paragraph, the CES adopted three different protocols to carry out the projects at Vellore, Eishin, and Mexicali. Despite the different paths to establish a pattern language, a similar sequence of activities governed site layout and house construction in the three projects. The underlying rationale for all projects was to follow the pattern language as a verbal masterplan. The discussion of each pattern embodied a feedback loop since the process involved members of the local communities. By establishing a progression of feedback loops on site, decisions could be taken collectively and implemented by the architects and the construction team. The implementation of a pattern language, however, required the identification of a system of centres existing on the site (Alexander et al., 2012:168). After all, patterns are not strict guidelines; but descriptions of centres. To design with patterns, the design team, a mixed group of architects and locals, had to rely on flags and sticks to mark the land and materialise the centres.

The CES approach relied on patterns and pattern languages to guide design activities on site. In this sense, each project is characterised by two phases: the construction of the pattern language, and its implementation by marking the land with flags. At Vellore and Mexicali, the pattern language was the product of social and spatial analyses. At Eishin, the patterns were developed together with the Eishin community after a gradual process of upgrade. The first version, named the “crude language”, was drafted out of a long process of interviews with the Eishin community. Initial questions were meant to investigate the aspirations of students, teachers, and staff members, and how they imagined their new campus. The input provided by the locals were put together into a set of nine patterns (Alexander et al., 2012:122,123).

The second round of interview was based on the crude language, which was made circulated among the locals. Each feedback loop brought a new layer of details, which enriched the previous version of the language. Through this process, people could focus on specific aspects of the campus, and provide extra information regarding its parts. As a result, the crude language developed into the final pattern language. From nine, one-sentence patterns describing the campus in general terms, the design team drafted a comprehensive language of 110, well-defined patterns. The upgrade of the pattern language reflects the progressive learning of the Eishin community. As a pattern language was accepted by the community, the process moved to the site, through a system of design-construction. Major decisions were made together with small groups and individual families. For example, the entrance to the Vellore housing cluster was decided by the village leaders; the internal layout of the Mexicali houses, by the families; and the key points of the Eishin campus by the faculty members. Discussion occurred on site, with the help of marking flags and full-scale mockups of specific building elements. By observing how buildings and streets would participate in the definition of space, people could provide extra information and preferences. Several examples presented in the case studies chapter reveal an interconnection among feedback loops, learning, and artefacts. Across case studies, instances of learning seem to be related to the capacity of artefacts to convey the development of the product of design to the public. Perhaps, artefacts trigger learning in virtue of their intelligible nature and their reference to a possible reality. The blank maps during Hands-on Planning sessions, for example, forced people to question the viability of their ideas by contextualising them into space. Marking flags and mockups have a similar effect because they shed any doubt of the mind and reveal how space may look like when a pattern is implemented.

The six case studies provide evidence of another phenomenon. Learning does not manifest only as a process of acquisition of new information that benefits designers. Instead, it is a broader “social” phenomenon. For example, when the content of the sticky notes is read out loud during a charrette, citizens get exposed to different ideas coming from other citizens. As a consequence, they realise that the whole community may not share their wishes and that other points of view may be clashing with theirs. At Eishin, the athletic teacher realised that his department could not be granted all the large facilities that he requested unless everyone else paid the price for a disrupted site layout. Likewise, the Judo teacher had to accept a smaller Judo hall, so that other buildings could be accommodated in positive spaces (Alexander et al., 2012:250-254). The topic of “social learning” suggests that artefacts mirror and reflect the transition from individual needs to collective needs. This claim is part of the fourth and last argument of this thesis and will be developed in the next paragraph.

5.3.4 FOURTH ARGUMENT: The production of artefacts mirrors and reflects a transition from individual, imaginary realities towards one unique, collectively shared reality. The transition process entails mutual learning

In essence, a process of participatory design entails a transition from countless, idiosyncratic and imaginary realities to a unique, shared and concrete reality. To develop such reality, citizen and experts engage in a dialogic process of mutual learning and mutual understanding that is instantiated in the production of artefacts, e.g. pattern languages, lists, plans, and technical drawings.

This paragraph explores this issue by explaining (1) some general mechanisms whereby local input is elicited, managed, and streamlined into a unique design, and (2) the emergence of mutual learning. From a methodological standpoint, while it is impossible to reconstruct every dialogue occurring during each stage of each project, documents from the six case studies and interviews provide some cues on the nature of people input.

5.3.4.1 Evidence from the charrette projects

Transcripts from the “Post-It” sessions from Newbury and Scarborough are a primary source for this kind of investigation. Because citizens were involved at an early stage of design and in the absence of a predefined proposal, their replies were only biased by their self-interest. Thus, the comments found on sticky notes can be considered both proxies for peoples’ unfiltered thoughts, and partial accounts for their individual “realities”.

These transcripts lend themselves to a twofold analysis, i.e. at the micro and macro level. At the micro level, original comments are telling of individual thought patterns. Far from providing pure knowledge claims (Rydin, 2007), a qualitative taxonomic analysis indicates that the inputs shared by citizens are a bundle of information, ideas, values, and preferences. At the macro level, it is possible to spot the collective themes of a community. Collective themes appear when many individuals cite similar referential objects, e.g. “the image of Eastborough” (Paragraph 4.3.2) or the fear that the connection between the train and bus station would be severed (Paragraph 4.4.2).

Collective themes are represented in the top categories of the bar charts of Figure 89. The number of categories and the count of comments across different charts reveals that the collective themes in the “problem” set are shared by a larger number of citizens than those pertaining “dreams” or “solution”. In other words, while a relative majority of citizens seems to agree on a limited number of urban problems, there is no consensus of how the project should develop. This phenomenon brings about two questions: (1) why do independent groups of citizens provide similar input about the

problem of the site? And (2) is this information reliable for a design activity? Two quotes from two architects from JTP prompt answers for both questions.

“Citizens are the experts of the place. They know their place because they live in it”. (Arch. C, personal communication, May 6, 2017- Interview #2)

“We [think]: “You are the experts, not us!”. *But, on the other hand, they are experts of the details of their area but may not be experts about alternatives”.* (Arch. L, personal communication, July 11, 2017- Interview #1)

The idea that citizens are the experts of the place should not be surprising. Their collective experience with the urban environment would explain why part of their input overlaps on the “problem” category. A different level of analysis focused on the sources of reference used by citizens expands on this point. The analysis divides input into three categories: (1) comments referring to, or indicating, specific places, e.g. the project site, or other spatial entities; (2) comments indicating vague, spatial attributes, e.g. the proportion of a building; and (3) comments which do not fit into the first two categories, i.e. that include non-spatial, conceptual remarks, or complaints. This taxonomical analysis is plotted on four pie charts (Figure 88).

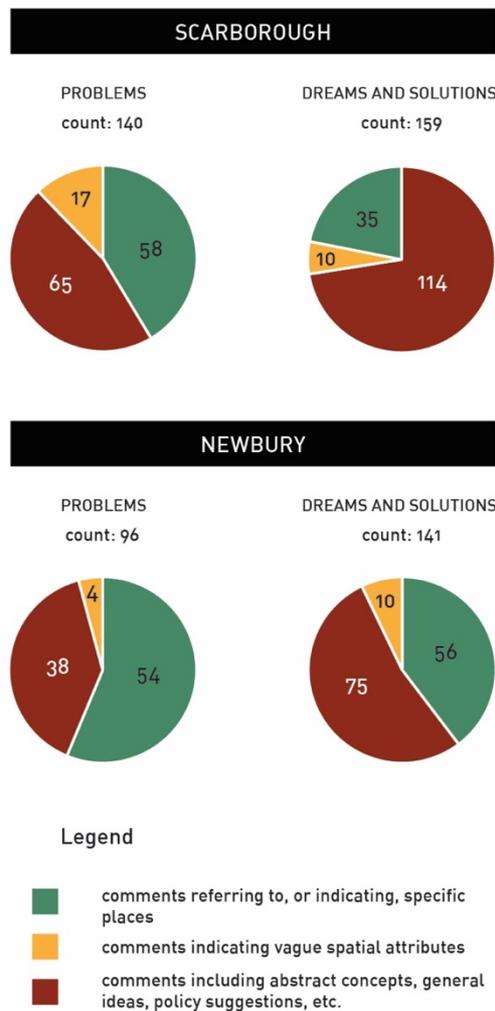


Figure 88. Pie charts representing the share of citizens’ comments related to specific (or vague) places. Elaborated from the post-it transcripts from the Scarborough and Newbury Community Planning Weekend, “Post-it session” workshops.

The pie charts from the Scarborough and Newbury projects reveals that citizens tend to mention the physical environment more often when they speak about “Problems” than when they speak about “Dreams” and “Solutions”. The difference is especially stark in the case of Scarborough (Figure 88, above). Perhaps, citizens thought that the problem of Eastborough could be better addressed with policies, rather than with spatial solutions. In general, the adherence to the spatial reality of the site seems to determine the relevance of citizens input, i.e. their importance for the design activity. In the methodology employed by JTP, the “Key Themes” list can be considered indicators of information reliability, since the Themes are the set of principles guiding a project. The two alluvial diagrams of knowledge generation from Newbury and Scarborough map this phenomenon.

In both case studies, the number of post-its mirrored by one or more Key Themes is higher in the “Problem” diagram and lower for the “Dreams” and “Solution” diagram. The diagrams below(Figure 89) suggests a correlation between problem definition, the reference to reality, and relevance of the

information. Indeed, citizens generated a large ratio of relevant information about the “Problems” of the site, i.e. “reality as it is”. Conversely, their input on “Dreams” and “Solutions”, i.e. “potential future realities” was less relevant.

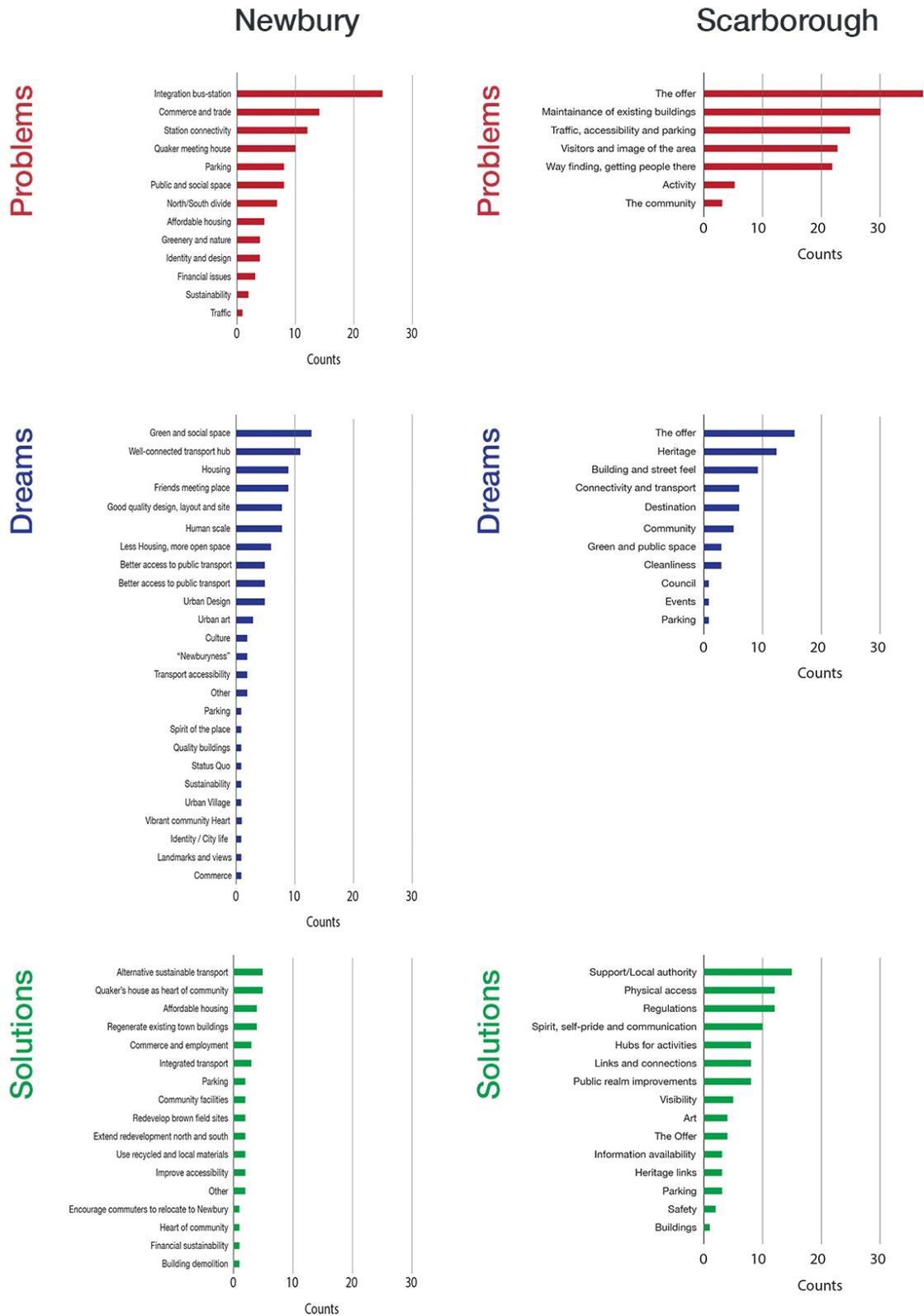


Figure 89. Bar charts of the “problems”, “dreams”, and “solutions” comments expressed at Scarborough and Newbury. Elaborated from the post-it transcripts from the Scarborough and Newbury Community Planning Weekend, “Post-it session” workshops. The full-sized diagrams can be found in Chapter 4.3 and Chapter 4.4.

5.3.4.2 Evidence from the pattern language projects

The correlation between the relevance of input and reality is also manifested in the Vellore and Mexicali projects. In both cases, public involvement began with a discussion over the product of design, since the client had already fixed the program (e.g. housing) and the boundaries of project sites. Early group meetings were set to understand how families envisioned their own house, i.e. a “Dream” session, using JTP language. The meetings turned out unproductive, either because locals did not understand how to reply (Ruesjas, 1997), or because they would mention vague and unviable options (Davis et al., 1993). Although such meetings were unsuccessful, Davis recalls that even the most illiterate citizen of Vellore could engage in a profound way during the later phase of design-construction, when the dialogue was shifted from abstract objects to reality.

“We started to talk about very specific things, like the position of the temple and [we] positioned them to answer the question. And they could say where the temple was - it can't be facing a house specifically; [and people must be able to] circumambulate the temple”. (Davis et al., 1993)

In some instances, the team of architects was even surprised by the level of sophistication demonstrated by the families in explaining how their house should look like. One example reported by Davis and colleagues is the question of the door alignment. Following the principles of good internal layout taught in western universities, the architects intended to place two confronting doors along the same line, to minimise the circulation space from the kitchen to the bedroom. This strategy would have left a larger portion of the room free for any recreational use, as shown in Figure 90. Discussions about this plan were conducted in concert with families, on-site, as the design team had devised a system of flags and poles to visualise the general structure of the site layout. When locals understood what the architects wanted to do, they asked for another layout: one in which confronting doors would be placed in a diagonal line. This disagreement generated a discussion on the basis that locals could not understand the benefits of a linear alignment of doors because of their lack of architectural education. In fact, the family wanted to explain to the architects how they would better use space. By aligning doors diagonally, the circulation realm divides a rectangular room into two smaller spaces, located at opposite corners. That would have allowed not one, but two diverse activities to take place in one room (Figure 91).

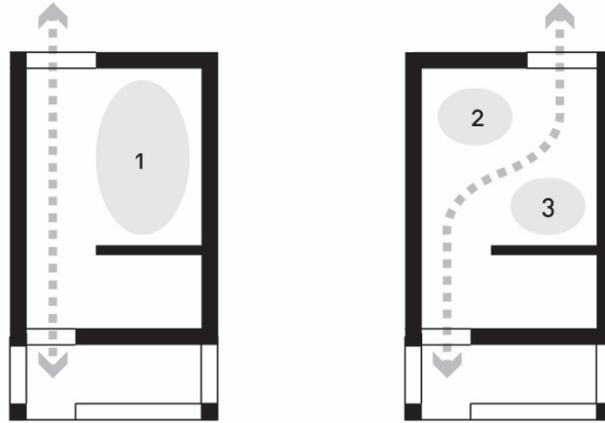


Figure 90. Schematic representation of a house type proposed for the Vellore housing project. Left: functional diagram according to Western-education principles. The two doors are aligned to create a large space (1). Right: functional diagram preferred by one of the families of Vellore engaged in the design process. By “misaligning” the doors, the room gain two functional spaces (2 and 3). Courtesy of Davis, Week, and Moses. Adapted from Davis et al, (1993).

Similarly, at Mexicali, the most productive interaction with families occurred when the product of design was made visible on the site through marking flags. The diversity in the house plans is revealing of this phenomenon (Figure 92). Regardless of the stage of design (e.g. problem setting or implementation of design) and the cultural setting (e.g. the UK, India, Mexico, Japan), evidence collected from multiple sources across six case studies indicate that non-experts rely on their experience and a contact with reality to partake in participatory design.

The six case studies indicate that “experience” and “reality” may take on different instantiations across design phases. When the citizens of Scarborough, Newbury, and Cowes were engaged in site analysis, they grounded their input on their experience with, and in, the project site. The project site, in its spatial, aesthetics, and social dimensions, presented itself as a shared reality. Conversely, when the conversation shifted towards the future of the project site, i.e. during the “Dreams” and “Solution” phases of the post-it session, a shared reality did not exist yet, because the architects did not have a pre-defined, comprehensive proposal. This open-ended enquiry resulted in the production of fragments of scattered “realities”, represented by the diverse visions for the future of each site (Figure 11, “dreams” and “solutions” charts).

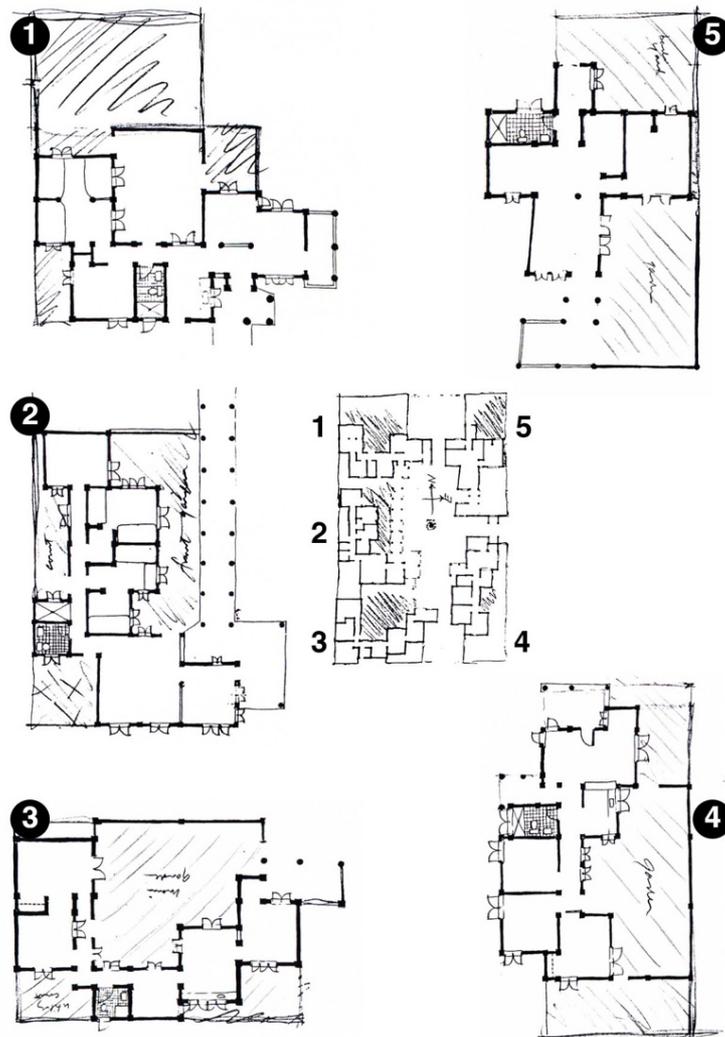


Figure 91. Floor plans of the five houses built at Mexicali. The difference in size and arrangement of the rooms mirrors the different needs, preferences, and expectations of the five families involved. (1) Julio Rodrigues' house; (2) Emma Cosio's house (3) Jose Tapia's House; (4) Makaria Reyes' house (5) Lilia Duran's house. Source: Alexander et al (1985).

In the cases of Mexicali, Eishin, and Vellore, the local communities were not engaged in the definition of “Problems”, but in the construction of “Dreams”, e.g. the product of design. Early discussions based on general and abstract questions allowed various images of “realities” to surface, e.g. modern, flat-roofed, concrete houses for Vellore; and modern Japanese concrete blocks for the Eishin campus. However, when the product of design was “put at the centre of the dialogue”, locals could tap into their experience and participate in a meaningful way. The families of Mexicali took control of the interior layout of their houses, according to their way of living and aspirations. The rickshaw drivers could help the architects place the temple and the shrines within the street layout of the Vellore housing project. The Eishin community could indicate the spatial requirements of the Japanese educational culture.

To sum up, when citizens were engaged with a direct link to reality, their input was more likely to include novel or relevant information that has value for design. On the contrary, when the reality was not made explicit, non-citizens drew from their ideas of how reality should be, i.e. on multiple, imaginary realities. While vital for the exploratory aspect of a design process, this material was not reliable in itself for two reasons. First, from an epistemological standpoint, this kind of input was often impossible to implement into a design. Taxonomic analyses of post-it transcripts highlight that a large number of comments from the charrettes were either vague, unsubstantiated, unfeasible, or unintelligible. Similarly, the initial ideas of the Vellore rickshaw drivers and the Eishin communities exceeded the budget and targets of the respective projects. Second, participation was a channel whereby people could promote their agenda and preferences. As a result, individual's wish could clash with others' and with the collective good. For example, a typical issue faced by JTP when working on new urban development is related to "the view". Often, citizens oppose to new housing because their view on the landscape would be compromised. However, nobody has a right to a view, and – arguably - national housing and economic goals ought to be negotiated elsewhere. At Eishin, the conflict between individuals and the collective emerged during the land allocation of Eishin. The book documents that the athletic professors demanded extra space for some sport facilities. To fulfil their request, however, would have undermined the spatial structure of the campus, as agreed on by the rest of the Eishin community.

6. Discussion

This research has attempted to develop a theory to explain the mechanisms underlying lay-expert interaction and knowledge generation processes in participatory architecture and urban design. Theoretical inferences were build up from a qualitative investigation of six projects of participatory design executed by experienced architects adopting two design methods based on public workshops, e.g., charrettes and pattern languages, to reconcile individual and collective interest, as well as to foster the emergence of relevant knowledge amidst a wide array of input. On the one hand, charrettes are well-established techniques to operationalise participatory design. On the other hand, the choice of studying pattern languages (Alexander, 1979; Alexander et al., 1977), a less known design methodology, was determined by a secondary research goal: to understand whether patterns are “boundary objects” (Star & Griesemer, 1989), e.g., cognitive tools that favour interdisciplinary communication. The findings of this research, which have been presented in Chapter 5, provide relevant insight on the topic of public participation and participatory design not only as a fair approach to decision-making but also as a tool to tap into the local knowledge of a community in search of relevant information to inform design.

Despite idiosyncrasies in the results due to the specific nature of each case study, comparative analyses unveiled some general mechanisms governing lay-expert interaction within participatory design processes. In particular, this research argues that participatory design can be explained as an organised system of multiple feedback loops taking place during public meetings and deployed throughout a design process. These feedback loops are the source of mutual learning between experts and citizens and are supported by, and aimed at, the production and improvement of specific artefacts (e.g., maps, the pattern language, sticky notes, etc.). In turn, feedback loops can be used to control the sources of references used by citizens during lay-expert communication (e.g., reality, the project site, the product of design, etc.), thus maximising learning outcomes. Finally, this research shed light on the relationship between patterns, pattern languages, and boundary objects.

This chapter aims at (1) discussing the findings of this study in light of the existing body of literature on participatory design and knowledge management; (2) explaining the implications and (3) limits of this research, and (4) providing methodological recommendations based on the pattern language to optimize a process of participatory design while enabling a better learning from a local community.

6.1 The findings and the literature

The results of this research contribute to integrate knowledge management theories into architectural and participatory urban design theories by expanding the validity domain of the former into the latter, and vice versa. First, the theory of knowledge communities, i.e. CoPs and CoIs ((Eden, 1998)) can be used to describe the relationship between designers and citizens during participatory urban design processes. By explaining the factors affecting lay-expert interactions, this study has articulated the nature and relevance of expertise and local knowledge. In particular, it is argued that complex design problems demand early-stage and/or late-stage learning to cope with the uncertainty of problem-definition or problem-solving activities. In practice, early-stage and late-stage learning take place through participatory events aimed at establishing feedback loops at crucial points of a design process.

This first point of discussion pertains to “learning”, and is introduced in Paragraph 6.1.1.

A second outcome of this study is the central role of artefacts in participatory design processes. Artefacts are objects that are used to study and fix design ideas, e.g. verbal lists, maps, diagrams, visual renderings. Artefacts support participatory process by providing an objective basis for design-oriented discussions. Since the evidence collected from the six case studies analysed suggests that the capacity of artefacts in soliciting positive feedback from citizens is linked to their capacity to convey an image of the product of design, the author argues for a truce between proponents of visual and verbal tools ((Soliva & Hunziker, 2009); (K. Al-Kodmany, 1999)) by advocating their use at different stages of design. Verbal tools are more effective at early stages of design, while visual tools are best at later stages of design. This second point of discussion is presented in Paragraph 6.1.2.

Finally, one of the key challenges in lay-expert communication emerging from this study lies in-between early and later stages of design, when multiple, abstract verbal intents need to be assessed, filtered, and translated into a unique, spatial reality. Current practices of participatory planning and design do not seem concerned, nor equipped to deal with this phase, since experts are expected to know how to execute a plan on the basis of a set of verbal guidelines and, therefore, they do not expect to learn anything useful from citizens. While these assumptions are safe under ordinary design projects, they may be misplaced under unusual design conditions, e.g. international cooperation and North-South development projects. The pattern language theory and its real-world implementations suggests that patterns may be used as practical boundary objects to engage citizens in a “middle ground”, i.e. a space of negotiation where citizens can partake in the development a comprehensive verbal masterplan (e.g. the pattern language) using simple, design-oriented spatial prescriptions (e.g.

patterns) to help experts contextualise their knowledge. This last point of discussion is presented in Paragraph 6.1.3.

6.1.1 About learning and the knowledge of communities.

The epistemological angle adopted in this research to study processes of participatory design stems from three assumptions. First, citizens are repositories of a distributed local knowledge (Corburn, 2003; Rydin, 2007). Second, part of such knowledge is vital to addressing a design problem (Edelenbos et al., 2011; Fischer, 2001; Rittel & Webber, 1973). Third, public participation is the only way for experts to get exposed to local knowledge (Friedmann, 1973). One of the implications of these assumptions is that, when appropriately done, participation can foster mutual learning, i.e. the emergence of novel and relevant information from the local community engaged in a design activity. The theory illustrated in Chapter 5.3 builds on the empirical evidence from the six case studies presented in Chapter 4 to explain the factors affecting lay-expert communication and learning throughout participatory design processes. However consistent across the six case studies, the theory does not capture the nature, circumstances, and implications of the instances of mutual learning examined, which may be essential to discuss in this section.

6.1.1.1 Early-stage and late-stage learning

Secondary data sources and expert interviews reveal instances of learning occurring in all six projects, although at different stages of the design process. Using Van der Meer’s framework (2013), a design process can be conceptualised as an iterative process comprising of three design tasks: (1) understanding the problem, (2) generating ideas, and (3) planning for action.

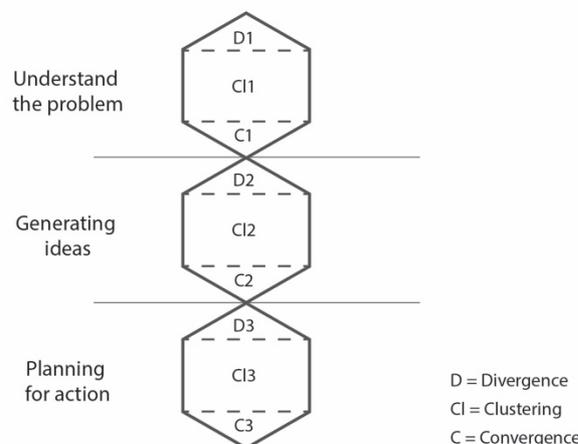


Figure 92. The three stages of design. Adapted from Van der Meer (2013).

A different focus characterises each task. For example, when citizens and experts join forces to “understand the problem”, they must look at the project site in search for problems to solve and potentials to harness. When they engage in “ideas generation” activities, experts and citizens formulate alternative design solutions, while evaluating their viability, appropriateness towards the goals of the project and the budget, and their aptness to address the spatial and social problems of the site. Finally, the “planning for action” phase involves all activities aimed at the development and construction of the product of design. In this framework, the two families of projects are characterised by two learning patterns, e.g. “early learning” and “late learning”, which can be explained by the interplay of the socio-cultural context of each project and the experience and expectations of the architects. On the one hand, the three charrette projects exhibit instances of “early-stage learning”. The workshops in place at Scarborough, Newbury, and Cowes were initiated by an English architecture office operating in three British towns according to British planning rules. Acting in such a “familiar” environment, the architects might not have needed input on how to design (e.g. “generating ideas” or “planning for action” phases; Van der Meer 2013). Rather, they sought insight into the state of the art of the project site, as well as the public perceptions and expectations surrounding it (e.g. “understanding the problem” phase). This idea is substantiated by the two British architects interviewed, who remarked that “[Citizens] are the experts, not us! But, on the other hand, they are experts of the details of their area but may not be experts about alternatives.” (*Arch. L, personal communication, July 11, 2017- Interview #1*).

In this sense, charrettes are meant to encourage learning at the earliest stage, to construct a robust evidence base to inform the development of a masterplan. So, although the architect organised participation as a sequence of regular events throughout each design process, the initial charrettes were longer and yielded more input.

On the other hand, the pattern language projects exhibit instances of “late-stage learning”.

The Mexicali, Vellore, and Eishin projects were carried out by groups of American-educated architects in cooperation with local communities from different socio-cultural contexts, e.g. from Mexico, India, and Japan, respectively. Regardless of the expectations of the designers, significant unexpected information from the locals emerged during later stages of design, e.g. “planning for action” phase. In fact, the initial group meetings of Vellore and Mexicali as “unsuccessful” or “non-productive”. Some of the novel, relevant insights obtained through dialogue with the local communities were used to correct the false assumptions of the designers. For example, the architects were not fully aware that the typology of temples on the Vellore site had to be surrounded by a circular, walkable street. Likewise, discussion with the Eishin faculty members shed lights on some

of the social dimensions of Japanese education, e.g. the morning “greeting ritual” at the gate of the school. Other insights were not as fundamental per se, but they enabled the members of local communities to take control of the design of their spaces. Examples of this kind of input can be found in the three projects; however, their effect on the final design is stronger in the case of Mexicali, where each house mirrors the needs, expectations, and character of each family.

Overall, early-stage learning seems to be the natural outcome of charrettes as intensive, iterative, and collective brainstorming and hands-on planning sessions. As such, charrettes seem to foster learning during initial design phases, i.e. during tasks of “understand the problem” and “generate alternatives”. Conversely, the collaborative implementation of the pattern language on site, supported by marking flags may be helpful to collect insight during later stages of design, i.e. when the task is to “generate alternatives” and “plan for action”.

6.1.1.2 About feedback loops

Early and late learning come about thanks to the establishment of two-way communication channels, i.e. through multiple feedback loops.

The theory introduced in this research argues that feedback loops ensure the generation of relevant design-knowledge because they provide the proper harmonisation of expert and lay knowledge. On the one hand, expert knowledge consists of general and robust principles of actions which may not fit all contexts. On the other hand, citizens’ lay knowledge seems to be grounded on local norms, but may not produce viable claims. Feedback loops provide mutual validation of knowledge, i.e. the production of context-sensitive, robust principles of action. Thanks to this “contextualization process”, citizens become aware of both the feasibility of their ideas and the existence of new design alternatives. On the other hand, experts may benefit from inputs of local knowledge to understand which design solutions best fit in the local context. Under this perspective, public participation in architectural design is not only a tool for learning new information. It is also a controlling mechanism to validate assumptions and design actions progressively.

The findings outlined in this paragraph intersect with, the current body of literature on *charrettes* as tools for community learning. Charest and Lucas (2008) emphasise the short-term, intense quality of *charrettes* as central factors to explain the interpersonal development of knowledge occurring in public forums. In their experiment with interior design students, Emily and Mc Laughlin (2013) expands on this point, by making a case for the value of iteration:

“multiple comparisons of outcomes of a charrette exercise at more than one stage have much merit and offer a methodology for gauging knowledge growth and an increased self-awareness”. (Emily, 2013)

Most of the studies mentioned above, however, investigated *charrettes* taking place in university design studios, involving teachers as experts, and students as quasi-experts. Observations from this research expand the validity of such findings to the field of participatory design, where designers are experts and citizens are non-experts. Furthermore, unlike university-based experiments, the *charrette* analysed were meant to inform real-world, commissioned projects. This fact corroborates the robustness of these recurring findings, for if the learning outcomes of *charrettes* were not of quality, they would not have been implemented in further official technical documents. As far as the pattern language is concerned, there are currently no referential studies to relate the “late learning” hypothesis.

6.1.2 About the role of artefacts throughout a design process

6.1.2.1 Artefacts as proxies for reality

Despite the specific methodology employed to organise participation and the stage of design in which it takes place, non-experts need reality-based referential objects to engage in fruitful design-oriented conversations with experts characterised by mutual learning. Artefacts are the media that provide designers and citizens with objective, yet malleable, referential objects about (1) the project site and (2) the product of design. The project site is evoked by site maps, while the product of design is described through a variety of objects, e.g. masterplans, the pattern language, sketches and diagrams, physical models. Indeed, the project site can only be “evoked”, because it pertains to “reality as it is”. On the other hand, the product of design can only be “described” by artefacts conveying the image of a future reality, e.g. one that includes the planned transformation of space. As such, maps, sketches, physical models, and the pattern language itself are proxies for design intents. Because different artefacts include more or less comprehensive and detailed descriptions of a product of design, they are used in various stages of design. A design team busy “understanding the problem” of a place or a community may need site maps and tool sustaining brainstorming activities. For example, the site maps used during the Hands-on Planning sessions of *charrettes* helped citizens to contextualize their ideas, an argument consistent with Emily and Mc Laughlin (2013) observations. The physical constraints revealed by the map served also to understand the viability of their proposals, as well as their compatibility with the goals of the project.

“Frequently, words and images are inconsistent, because when people speak, they may use buzzwords and rhetorical figures, and so on. However, when they are asked to sketch and work on maps, they realise what can and what cannot be done”. (Arch. C, personal communication, May 6, 2017- Interview #2)

This idea is corroborated by Charest and Lucas (2008):

“Design can then become a discussion around the set of artifacts generated rather than an attempted discussion that involves the instructor struggling to see the design process in each student’s head and/or attempting to decipher the hand gestures that seem to accompany conversations when no artifacts exist to discuss.” (Charest & Lucas, 2008:8)

Early design stages of “idea generation” require general, low-resolution descriptions, such as lists of intents, summary tables, and "rough" patterns. As a design process progresses towards “planning for actions”, however, plans and ideas need to be communicated with a higher degree of resolution and specificity, e.g. through technical drawings, detailed illustrations. Arguably, a comprehensive pattern language would not have sufficed to support a late-stage design satisfactorily. In fact, patterns were always used in conjunction with marking flags to establish on-site design-construction at Eishin, Vellore, and Mexicali. By marking the land where buildings ought to be, the architect constructed a “virtual reality”, rendering patterns visible into space. This idea mirrors standard practices of design, whereby preliminary schemes are always less detailed than later construction documents.

These observations lead to two non-exclusive conclusions. First, non-experts are better equipped to deal with real objects, as opposed to abstractions. Second, non-experts need initial inputs and/or limits to effectively and meaningfully participate in a design process, providing novel and relevant information. Under this perspective, artefacts are vital to knowledge generation processes because they are bridges between reality and imagination.

6.1.2.2 Learning, knowledge, and the challenges of communication

One of the findings of this research is the difficulty faced by citizens in articulating what they already know in the absence of external stimuli, e.g. artefacts. This observation is consistent with Polanyi’s theory of tacit and explicit knowledge (Polanyi, 1958, 1966), whereby individuals know more than they can tell, and Nonaka’s conceptualisation of the four modes of knowledge creation (Nonaka, 1994; Nonaka & Takeuchi, 1995). Nonaka builds on Polanyi’s theory to explain how the processes

to convert tacit knowledge (i.e. what is known by the individual but cannot be easily articulated) into explicit knowledge (i.e. what can be articulated and shared) through an interactive process based on socialisation, combination, externalisation, and internalisation. In particular, Nonaka uses the metaphor of the ascending “spiral of knowledge” (Figure 95) to emphasises the importance of groups in triggering knowledge creation processes. As various individuals interact with other individuals, their input overlap and enrich the total pool of knowledge (Nonaka & Konno, 1998; Nonaka & Takeuchi, 1995).

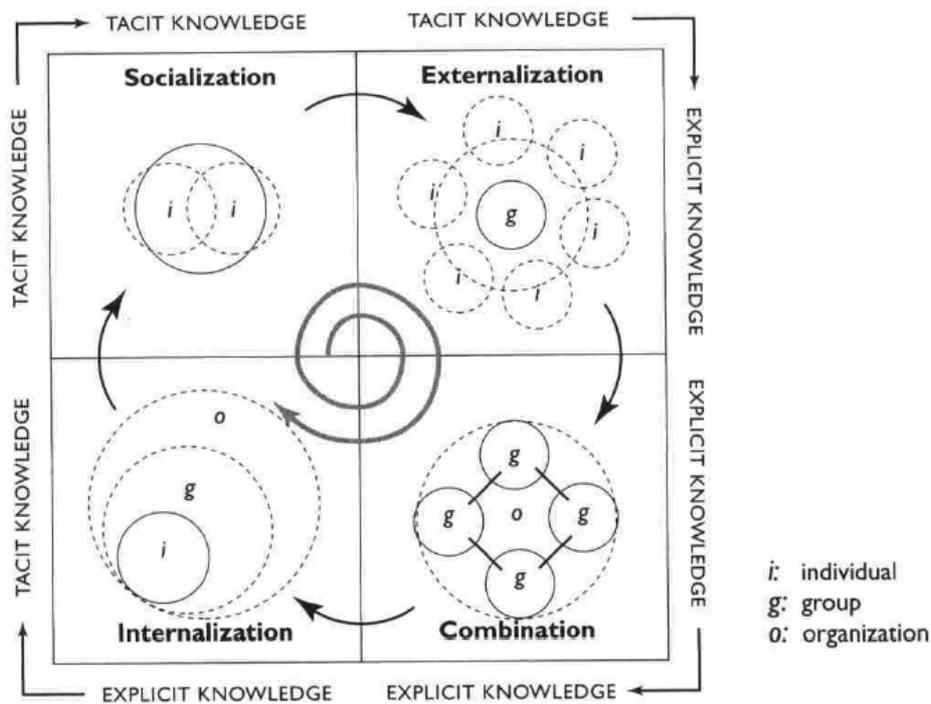


Figure 93. The spiral of knowledge generation. Source: Nonaka and Konno (1998).

“Socialization” is based on the proximity of individuals, such as when designers and citizens meet face-to-face. “Externalization” takes place when an individual, e.g. a citizen, expresses a thought to the group. In the six projects explored, this process entails verbal or visual communication and the production of artefacts to fix ideas. As individual claims are expressed in their explicit form, they can be aggregated and assessed by the group. This phase is referred to as “combination”, and, in the six case studies, was instantiated in the production of other kinds of artefacts, e.g. pattern, and lists of synthesis (the “Issues and Actions” and “Key Themes” list). Notably, the combination of individual input of explicit knowledge is meant to create a pool of collective explicit knowledge which – the author suggests – becomes part of an organisation. Finally, the newly generated explicit knowledge is bound to influence the tacit knowledge of individuals through a process of “internalisation”, which can be associated with the exposure of citizens to new artefacts, e.g. maps and renderings.

The notion of the “spiral of knowledge generation” (Nonaka & Konno, 1998, figure 1) mirrors one of the central arguments of this research, namely that participatory design processes can be conceptualised as a sequence of collective feedback loops based on the discussion-production of artefacts.

6.1.2.3 The “anchoring effect”

The cognitive power of artefacts in fostering meaningful input seems to be related to the so-called “anchoring effect”. The anchoring effect is the phenomenon by which an individual expresses an idea based on preliminary information, thus “anchoring” her idea onto it. A typical example is the presentation of clear and comprehensive masterplan proposal in town halls, whereby maps, renderings, and diagrams act as focal points for discussions. During later Community Forums at Newbury and Cowes, the proposed masterplan was revealed through visual objects, e.g. maps, schemes, renderings. At that stage, the discussion was focused on the amendments to the designers’ proposals, not on the introduction of brand new features. Specific examples of feedback can be found in the case studies chapters. The on-site design-construction method adopted at Mexicali, Vellore, and Eishin seems to leverage on this same principle. On the one hand, patterns and pattern languages acted as “anchors” to focus the lay-expert discussion. At Eishin, in particular, the structure of patterns coordinated the input of dozens of participants around the same framework. On the other hand, the adoption of marking flags to implement patterns in space was successful insofar as people could relate their input to them. Instances of the anchoring effect were observed not only in the six design processes analysed, but also emerged from background interviews with architects and experts of public participation, as well as from first-hand observations on other public workshops. For example, the author conducted an experimental public workshop to redesign a public square in a small town near Bonn in Germany. The central goal of the project was to generate new ideas for the development of the main square. However, because the workshop was set up after a local architect had exhibited his proposal, most participants kept referring to such features throughout the hands-on planning sessions. As a result, the workshop fell short of its goals, as the generation of new ideas was offset by the undesired review process of another design proposal. The existence of the anchoring effect was also confirmed by Mr P. during an interview conducted in the aftermath of the analysis of the six case studies. In his 15-year-long experience as a facilitator of large urban projects in Italy, he recalls many examples of how the premature disclosure of design ideas had constrained public discussions.

The existence of the anchoring effect brings about methodological implications. As a general rule, during early design stages, when and if the design problem needs to be explored, architects should not share any visual representations of a design proposal. Citizens would naturally ground their inputs into such solution, thus crippling the exploratory function of lay-expert discussion. As a design process progresses, when certain decisions are fixed, architects can, and should, rely on a diverse set of increasingly detailed artefacts, e.g. pattern languages, maps, visual renderings, and physical models.

6.1.3 About patterns, pattern languages and boundary objects

Among the several artefacts used to support the six projects investigated, this research has focused on patterns and pattern languages (Alexander, 1979; Alexander et al., 1977). Indeed, one of the goals of this work has been to search for empirical evidence to support and expand on the claim that patterns are boundary objects supporting interdisciplinary communication (Star & Griesemer, 1989).

In general, a pattern-language-based design methodology relies on patterns as repositories of knowledge claims. Patterns can emerge from citizens' ideas (Eishin), from architects' expertise (Mexicali), or from ethnographic research and observations of the local environment (Vellore). Regardless of their origin, patterns and pattern languages were used as verbal referential objects, conveying a salient image of a future reality. As such, they provided a clear and ordered framework to organise public discussions and negotiations.

6.1.3.1 Are patterns boundary objects?

The argument would be that patterns and pattern languages are boundary objects because they surrogate the significant features of a product of design before it is represented in a visual and detailed form. As such, they allow non-experts to focus on what has to be designed and understand how they can contribute. Likewise, patterns enable architects to enquire citizens only on the key aspects of a project. Indeed, interviews with two leading architects of the three projects and several written accounts suggest that patterns were helpful to sustain fruitful conversations with the public about the product of design. In fact, the initial absence of any referential object at Vellore and Mexicali was correlated with less productive meetings.

A promising feature of patterns is their integration in a step-by-step design-construction system. In this sense, patterns can be used to dictate the sequence of steps to follow to achieve a good design. When these steps, e.g. the content of the patterns, is made explicit and worded in a lay-understandable fashion, patterns can also be implemented by non-experts, i.e. members of a

community. All three pattern language projects investigated in this thesis have been carried out with this system. In particular, the Mexicali houses provide a striking example of how individual choices on the implementation of the same pattern language produced significantly different outcomes.

In general, patterns and pattern languages seem to perform as boundary objects during participatory design, insofar as they communicate complex messages, e.g. the image of an architectural entity, through a set of short and simple sentences. However, the kind and quality of evidence collected do not allow a final and robust answer to the question: “Are patterns boundary objects?”. On the one hand, the reconstruction of the workflow in place at Eishin, Vellore, and Mexicali reveals some qualities of patterns that resonates with the original definition of boundary objects, as well as with their capacity to coordinate the work of a diverse Community of Interest. Indeed, both architects interviewed agreed that patterns made it easy for them to communicate architectural issues to the local communities. The successful integration of citizens inputs at various scales, most evident in the house plans of Mexicali and the character of the Eishin campus, may be a proof of the capacity of patterns to transform relevant lay input into specific design features. On the other hand, however, because patterns were always used in conjunction with other tools, it is not possible to infer a principle of causality linking the presence of patterns with the fostering of meaningful input, thus weakening the argument that they are boundary objects. In fact, at Eishin and Mexicali, patterns were implemented with the help of marking flags, while at Vellore, the community of rickshaw drivers provided relevant information only on-site, in the presence of the emerging housing clusters. The overlapping of multiple tools supporting dialogue gives rise to uncertainty about the specific role of patterns in facilitating lay-expert interaction.

Perhaps, a final answer to this question might emerge from research conducted in a controlled environment. In this context, Marshall (2013) and Cai’s (2010) experiments with Architecture students provide better insight into the cognitive aspects of design using patterns. In particular, Cai observed two groups of students working on the same design task using pattern languages vs traditional approaches, e.g. urban morphology. In reporting the experiment, Cai noticed that the primary challenge for the students was to frame the design problem adequately. In his observation, this task was completed faster by the group using the pattern language. Cai’s posits that this phenomenon may be caused by the ambiguous and ill-defined nature of patterns. “Ambiguity” leaves room for negotiation, which seems associated with a better problem-framing activity.

“The vagueness and openness of PL allow designers to stay on a more abstract level, which makes the problem definition easier than sticking to the physical forms too quickly from the beginning” (Cai, 2010)

Interestingly, “vagueness” and “openness” are adjectives which are often associated with the concept of “boundary object”. In their seminal paper, Star and Griesemer (1989) use the following description to explain the “Ideal type” boundary object:

“This is an object such as a diagram, atlas or other description which in fact does not accurately describe the details of any one locality or thing. It is abstracted from all domains, and may be fairly vague. However, it is adaptable to a local site precisely because it is fairly vague; it serves as a means of communicating and cooperating symbolically - a 'good enough' road map for all parties”. (Star & Griesemer, 1989:410)

6.1.3.2 Lists of synthesis and patterns: a qualitative comparison between the two

Besides being alleged boundary objects, patterns seem to act as both explicit and open repositories of knowledge, as well as general frameworks to create a shared vision for the future of the site.

These features are particularly evident in the projects of Mexicali and Eishin. In the former project, the architects chose a pattern language that would mirror their initial design intent, e.g. to build a 5-house cluster around a shared common space. In the latter, the patterns were developed as the outcome of multiple interviews. Because patterns could be edited, they ended up including traces of local culture and environment, e.g. at Vellore. Patterns, however, are not the only entity including key knowledge specific to a certain site, culture and project. For example, the architects working on the three *charrette* projects addressed this issue by drafting lists of synthesis, e.g. the “Issues and Actions” and the “Key Themes” lists. In fact, the process of writing such lists of synthesis seems to be as time-consuming as the process of pattern writing, since it involves working on the results of multiple brainstorming and hands-on planning sessions partook by hundreds of citizens. As far as this thesis is concerned, it is not possible, nor productive, to determine with scientific rigour which technique performs best, e.g. lists of synthesis and pattern languages. In fact, this research has argued that “tools and methods” play only a partial role in explaining the complex phenomenon of lay-expert interaction and mutual learning.

6.1.3.3 Patterns as in-between artefacts: new opportunities for learning

The main difference between patterns and lists of synthesis – as they were used in the six projects analysed - lies in the relationship that such artefacts have with space and reality. Patterns and pattern language seem to emerge as verbal descriptions of spatial structures that need to convey and enable certain social situations or activities. Lists of synthesis, on the other hands, are broader in scope and

may entail non-spatial prescriptions, e.g. suggestions for social policies or statements of intent. This difference seems to be due to both the design stage that patterns and lists are meant to support, and to the architects' diverse approach to design. On the one hand, the lists were written at the beginning of the design process to include a synthesis of the public discussion and to understand the fundamental topics to be addressed by the masterplan. On the other hand, patterns were developed as surrogates for technical drawings, to be used for on-site design-construction activities.

Hence, lists and patterns contain a different degree of resolutions, whereby the former is more general than the latter. From a methodological standpoint, patterns were used to facilitate discussion at a mid-stage of design, providing a flexible space of negotiation (Table 40).

Table 40. The three stages of design. Task, learning focus and supporting artefact. Adapted from Van der Meer (2013).

Design task	Learning focus	Supporting artefact
Understanding the problem	Project site, cultural norms, community expectations.	Site map, lists of intents, rough patterns.
Generating ideas	Contextualization of expertise	Pattern Languages
Planning for action	Product of design	Technical drawings, physical models, pattern languages + marking flags (on-site)

6.1.3.4 The principle underlying a meaningful participation

Instead of providing a clear answer on the nature and function of patterns, this thesis has emphasised the boundary-object-like role of multiple artefacts, including marking flags, site maps, physical models, and sketches. In particular, their positive contribution to lay-expert communication seems to be related to their capacity to link the design task with reality at different stages of design.

In conclusion, (1) citizens seems to be not very good at articulating what they know (2) in the absence of reality-based referential objects. Evidence in support of the first conclusion is found in the narrative of the three design processes. The architects observed multiple instances of learning when the object of design was elevated at the centre of the discussion.

“What I learned in this process [...] is that it’s the details, which architects often think that they know about and they can deal with after the participation is finished, the details are as important for the participatory process as are the big moves of site layout and so forth. Because it’s the details that people know about that we don’t know about. [...] I think that, if

the the site is is made real, then people are in a position to participate and they can make actual decisions”. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

The second conclusion is an extension of the first and is laden with methodological implication. The local communities of Vellore and Eishin were enquired at the beginning of a design process. The architects only asked them how they would envision the product of design, without any external stimuli. The outcome of these meeting could not be realistically used to design. However, when locals were asked to provide feedback on an emerging design, their insights were remarkable.

“We tried to have these big meetings, to ask questions about this and that, but...I don’t remember those being very effective. [...] What was effective was dealing with individuals and - also - dealing with reality. (Arch. H. Davis, personal communication, January 21, 2017- Interview #3)

Hence, tools like patterns, flags, and mock-ups adopted for on-site, continuous participation have a positive effect on participatory design because they empower citizens with the capacity to sustain dialogue with designers at a mid-stage of design; one which is usually inaccessible to citizens. In so doing, the evidence collected from Mexicali, Vellore, and Eishin suggests that citizens can support experts by contextualising their knowledge and, simultaneously, influence a product of design.

6.2 Implications of the research

6.2.1 Learning from citizens

This research has shed light on the epistemological dimension of participatory design and its potential to help designers come up with a more informed design. At the beginning of this chapter, it has been argued that participation can bring local knowledge to the surface, thus activating mutual learning. In particular, artefacts play a crucial role in fostering learning opportunities by engaging local communities with the right connection with reality, at the right degree of resolution, at the right time. While this idea seems to be corroborated by empirical evidence from all six case studies investigated, as well as from additional interviews with relevant stakeholder, a final point of discussion ought to touch on the procedural implications of these findings. In fact, outside the experimental environment of research, designers have to square participation with other aspects of a design process, e.g. budget, regulations, client requests, etc. In this context, it may be worthwhile to understand under which circumstances would public participation be effective as a learning mechanism.

As a general rule, experts should set up public meetings at those design phases when their uncertainty is higher. The “early learning” and “late learning” patterns discussed in Paragraph 6.1.1.1 reflect the informational gap expected by the design teams from JTP and the CES. On the one hand, if experts lack crucial information about the social dimension of the project site, it may be wise to set up a *charrette* before the development of any proposal. On the other hand, if the architects need a double-check on the assumptions underpinning a product of design, it is recommendable to interact with a local community throughout later stages of design.

The real challenge is to understand whether local inputs are needed at all. After all, architects are experts, and it is natural that they may think to know how to solve a design problem correctly. This idea has been discussed by Lane (2005) using the concept of “planning paradigm” to explain why a learning-oriented participation is not necessary if architects think of themselves as “omniscient”. Besides an act of humbleness, how can architects assess whether their existing knowledge and assumptions are sufficient to address the “next new challenge”? While this question may provide the input for another piece of research, the outcome of this work points to one scenario in which experts should be wary of their knowledge, namely North-South cooperation.

6.2.1.1 The cultural gap: prospects for North-South cooperation design activities

North-South cooperation describes a situation in which experts from a developed country are called to intervene in a developing country, using their technical expertise to solve complex problems. Typical examples of North-South cooperation are slum upgrading, infrastructure, and sanitation development (Fyhr, 2012; Huchzermeyer, 2011; Jones, 2012; Roy, 2005). In these circumstances, the presence of a stark cultural gap between designers and local communities may be accompanied by the risk of false assumptions from the side of the designers, which may negatively affect the final design.

The Mexicali, Vellore, and Eishin projects have revealed that experts lacked key information not on at the large scale, e.g. the programme or the preferred housing typology, but at the small scale, i.e. the details of the physical environment. Thus, when architects operate in a culturally-diverse environment, it may be advisable to engage local communities throughout the project, using methods and artefacts that emphasise dialogue on the small-scale of the project. Since non-experts seem to be better equipped to deal with reality, a fruitful conversation should be grounded on boundary objects. Indeed, exchanging ideas on a pattern language or on site, with the help of marking flags and mock-ups may yield relevant insight.

Overall, when the cultural gap between experts and local communities is significant, it is recommendable to set up more interactions throughout the design process (e.g. Eishin, Vellore), at

different stages of design. This strategy should enable various assumptions to be validated or dismissed.

6.2.2 Re-thinking participation

Besides theoretical claims and insight on the nature of lay-expert communication and learning, this research provides a new outlook on the very concept of public participation in architectural and urban design. Devoid of its political implications, a new definition of participation arises:

“Participation is the common development of a shared reality”.

Under this perspective, the goal of architects and planning institutions should be not merely to cater to the interests of individual citizens but to create the condition to develop a shared vision through the meaningful exchange of ideas, values, and knowledge. For communication to be meaningful, citizens should be not only empowered with the proper tools to engage in democratic and productive discussions but also made bear responsibility on the complex reality of a project. In practical term, it is essential that citizens be aware of the negotiation base of every project. Citizens should understand that their needs matter, but cannot dominate those of other citizens. From a procedural standpoint, this aim must be supported by tools and methods that enable architects and citizens to integrate individual requests within a shared framework.

Ultimately, if participation is a process aimed at developing a shared vision for the future of a neighbourhood, a city, or a region, the following questions arise:

- Should architects and planning institutions actively push for citizens to participate regardless of the political conflict involved?
- Where is the border between collective and individual interest? Which tools do architects have to address this issue?
- Do personal interests always have to subdue to a general collective interest, whether at the scale of the local community or the national level?

This research cannot provide answers to these questions, partly because they exceed the realm of architecture and design, and partly because their exploration requires a different methodology, different case studies, and a different expertise than the one possessed by the author.

6.3 Limits of the research

Lay-expert interaction in participatory design is a broad and multifaceted topic, which cannot be exhausted by one work of research. For starters, it is located at the intersection of several disciplinary fields. For example, “lay-expert interactions” can be addressed by organizational theorists (Nonaka, 1994; Nonaka & Konno, 1998; Nonaka & Takeuchi, 1995; Nonaka & von Krogh, 2009), political scientists (Dean, 2017; Bent Flyvbjerg, 1998b) feminism scholars (Green, Thompson, & Griffiths, 2002; Whelan, 2001, 2007) planners and architects (Faludi, 1973; Friedmann, 1987, 1993). Among all these angles, this research has adopted a design-centred outlook to participation as an epistemic tool. This choice, motivated by the background and interest of the author, as well as by the scarcity of similar studies on architectural and urban design, has come with some trade-offs.

First, the study does not emphasize how conflicts and power relationships influence design.

The projects analysed do not display significant levels of conflict among experts, citizens, and other actors involved. In fact, the criteria adopted for case study selection excluded high-conflictual projects. This aspect represents a significant limitation since participation often comes about as a way to level power and provide a formal arena for conflict. As a consequence, a large number of documented projects of participatory design involve a certain degree of conflict, which is bound to affect the “rationality” of the design discourse (B. Flyvbjerg, 2006). From another standpoint, however, by investigating non-controversial project, it has been possible to observe exchanges of knowledge and instances of learning with little, or no, political or protest bias. The low-conflictual nature of the case studies has also made it possible to develop a core theory to explain how experts and citizens interact and learn.

Second, the study is designer-centered, i.e. little data comes from citizens.

The six case studies have been reconstructed by extracting data from interviews with four architects, documents, and narratives from books, scientific papers, and press articles. Unfortunately, it was not possible to inquire the citizens involved in each design process; an issue that emerged during the research process. Indeed, the six case studies took place in four countries, over five decades, and involved dozens - if not hundreds – of citizens each.

Third, the number and kind of case studies under investigation does not allow the corroboration of certain theoretical inferences.

As outlined in Chapter 3, case studies were selected according to a set of criteria. On the one hand, the number of projects selected had to be large enough to allow cross-case analysis and pattern matching (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Yin, 2011). On the other hand, a large number of case studies could not have been addressed with the necessary depth. In the end, six case studies seemed a reasonable number to cater to both needs. Certain inferences put forth in the Chapter 5 and, especially, in the previous sections of this discussion, cannot be tested by the analysis of six projects alone. For example, the idea that learning expectations are higher in the presence of a significant cultural gap between experts and citizens needs validation from further case studies.

Although the factors above may have reduced the domain of validity of its findings, this research has produced the core of a theory of participatory architecture and urban design which may be tested, validated, and expanded by further studies.

6.4 Lessons for practitioners

The final section of this work is meant to provide evidence-based recommendations to improve the chances of learning from a local community during public workshops. The following paragraphs focus on the two methodologies encountered during case study analysis: *charrettes* and pattern languages.

6.4.1 Recommendations for users of *charrettes*

The projects of Scarborough, Newbury, and Cowes provide sources of lessons for users of *charrettes*. Data from direct observations, semi-structured interviews with experts, and document analysis converged on six recurring trends.

First, lay-expert interaction through *charrettes* is articulated across multiple public events, where ideas are generated through dialogue and iteration. In particular, the central assumptions underlying a project, i.e. the definition of the design problem, are generated during a first public event (e.g. the Community Planning Weekend) and reviewed during later exhibitions (e.g. Community Forums). Overall, communication is both verbal and supported by visual material, e.g. maps and sketches. Iteration is used to validate observations and correct errors.

Second, artefacts produced during, or as a result of, participatory events are pivotal to the unfolding of participatory design in two ways. On the one hand, artefacts represent design ideas as they are fixed during the dialogic process. On the other hand, they support the dialogic process during

public events. Lay-expert and lay-lay communication are governed by a continuous reference to such artefacts in virtue of their capacity to convey and concretise the attributes of the product of design.

Third, citizens inputs are streamlined into design through a set of documents of synthesis. The production of such documents is preceded by an extensive process of validation of ideas and suggestions carried out by experts and citizens together.

Fourth, citizens rely on their experience to generate inputs. In particular, when the discussion is focused on local issues, citizens use the project site to ground experiential claims. As a result, comments about problems are usually targeted to specific spatial objects (e.g. buildings and streets). When the discussion involves ideas for the future, in the absence of external stimuli (e.g. a masterplan proposal), citizens rely on idiosyncratic sources of reference. In these instances, citizens usually adopt a vague language.

Fifth, the public needs to be continuously updated about previously taken decisions, a precaution necessary because of the diverse audience showing up at each following public meeting. People who are not aware of the rationale behind particular design decisions display a less constructive attitude and tend to question collectively taken decisions. This phenomenon can hinder a participatory process and must be addressed through careful explanations at each public meeting, especially before submitting a planning application.

Sixth, the nature of public input depends on the space of negotiation inherent to a design phase.

Empirical knowledge from this comparative analysis provides methodological suggestions for practitioners who are interested in engaging local communities through *charrettes* and public events. In particular, the following recommendations are meant to maximise the learning opportunities using *charrettes*, while promoting community building.

- Divide the design process into stages, each defined by a specific space of negotiation. Organize one public meeting per stage. Be honest with the public about what can, or cannot, be done. Adopt an open attitude and focus on the positive attributes of the site.
- Engage the local community at an early stage of design, prior to any proposal is developed. Explore problems and opportunities of the area through open-end brainstorming sessions. Maintain a neutral and positive attitude to encourage participation.

- Adopt the “principle of iteration” during public workshops. In other words, run a same public brainstorming session at least twice, (ideally more times) to understand which topics recur within a community and validate initial assumptions.
- Engage the local community through “Hands-on Planning” workshops to promote awareness of the feasibility of certain ideas. Let people understand first-hand why certain ideas work, while others do not. To minimise conflict and maximise understanding, organise “Hands-on Planning” workshops after open-end brainstorming sessions, but before fixing major decisions.
- Use the principle of synthesis to streamline people’s inputs into planning documents. In practice, write verbal lists to highlight problems and solutions and draft diagrammatic maps to fix major spatial structures.
- Rely on multiple artefacts to communicate a masterplan and its features. Recap the logic underpinning significant decisions, e.g. street patterns and building functions, and emphasise if such decisions were taken collectively.

6.4.2 Recommendations for users of the pattern language

The projects at Eishin, Vellore, and Mexicali have provided insight on how pattern languages can be used in participatory design to foster mutual learning and integrate relevant instances of local knowledge into a design. From a procedural standpoint, despite methodological differences, the design teams in charge of the three projects divided the design process into three stages.

First, development of a shared understanding of the design task. This phase can be conducted through interviews, group meetings, or even ethnographic research. This stage should be aimed at the production of a general pattern language, i.e. a collection of guidelines to orient the design process. The pattern language should then be communicated to, and discussed with, the local community with the intent to improve it.

Second, definition of a site layout. In the three projects analysed, this process was conducted on site with the participation of small groups of locals. Flags were used to mark key spots of the land to understand the volume of the buildings and their relationship with one another. It was at this stage that the first technical drawings of the area were drafted.

Third, building construction. Buildings were designed on site, consulting pertinent members of the local community. Families would design their own house at Vellore and Mexicali. Teachers would help in the internal layout of classrooms, while students would decide on the cafeteria of the campus. The pattern language would be used as a compass for discussion, i.e. a set of guidelines to focus on significant spatial relationships to be implemented.

As already discussed, the three pattern language projects were based on exceptional circumstances, thanks to which the architects could implement on-site design of the site layout and its constituent buildings. This was possible thanks to the special authorisations and responsibilities negotiated by the architects prior, or during, the design processes. In normal planning settings, however, such circumstances are unlikely to occur. In fact, the conflicts emerged as the Eishin project unfolded are telling of the power struggles surrounding planning endeavours, as well as of the challenges that negotiations to alter their status quo may entail. Under ordinary circumstances, how can planners and designers integrate the pattern language in their design methodologies? The following six points attempt to propose some practical suggestions that can be implemented in ordinary planning circumstances.

- At the beginning of a design process and once the general goals of the problems are defined, e.g. the design program, engage the local community in focus groups and interviews with the intent to develop a preliminary pattern language. The language should be articulated as a general description of the design intent, i.e. it should convey an architectural image of a viable product of design. In case of low-budget situations, or when it is not possible to organise a campaign of interviews, patterns can be developed through ethnographic research.
- Make the pattern language known to as many people from the local community as possible. Use patterns as primary communication tools, i.e. as referential objects, during plenary conversations. At initial stages of a design process, a pattern language need not be finely-grained. In fact, a low-resolution, yet comprehensive pattern language would suffice to govern a meaningful design-oriented discussion with a local community.
- After a reasonable timeframe to allow discussion and due amendments, set a date to officially approve the preliminary pattern language using democratic tools, e.g. a majority vote system. Once a pattern language is approved, the language becomes the “verbal masterplan” for future design stages.

- Once a pattern language is collectively approved, use it during public discussions as a “compass for collective needs”. In practice, individual, or small-group, demands can be integrated into a design only to the extent that they do not alter the overall structure of the pattern language.
- Expand the original language with new patterns to define the critical features of the product of design that were not encompassed by the initial, low-resolution language. Carry out this phase with selected members of the local community, following the “principle of pertinence”, e.g. involve who has a stake, or specialized knowledge, on particular aspects of the design.
- If possible, set up a workshop where architects and small-size groups test the pattern language on site, using marking flags. Alternatively, simulate an “on-site” design using maps and imagination. If this phase yields relevant information from the local community, repeat it.

6.5 A new methodology?

While the two previous paragraphs have outlined a set of practical recommendations within each methodological family, this section is aimed at discussing a way to integrate pattern languages and *charrettes* to create a new methodology for participatory design. *Charrettes* and pattern languages can be integrated into a unique design methodology that relies on public participation throughout all stages of design. Such a methodology is built on the finding of this research and is designed to maximise the learning opportunities embedded in participatory design by establishing the right feedback loops, supported by the right artefact, at the right time.

The following table outlines the main steps of the integrated methodology (e.g. “Design activity” column) across the three design stages (Van der Meer, 2013).

Table 41. Summary of the three stages of the proposed methodology.

Design task	Focus	Design activity	Supporting artefact
Understanding the problem	Project site	Multiple collective brainstorming sessions + hands-on planning workshop (e.g. <i>charrette</i>)	Post-its and site map
Generating ideas	Project site and product of design		Development of a first pattern language as a verbal masterplan (to be discussed and approved by majority vote)
		Collective implementation of the pattern language, i.e. transformation of the verbal masterplan into a visual masterplan	Pattern languages + EITHER marking flags on-site, OR collaborative sketching session on paper.
Planning for action	Product of design		Preparation of the technical documents

- At the beginning of a design process, set up a public *charrette* to explore the social and spatial problems of the site, with respect to the client agenda. Engage the public in general discussions about challenges and opportunities using multiple brainstorming sessions and with little or no limitations. At this stage, do not disclose potential design ideas to avoid the negative consequences of “the anchoring effect”. Be open to learn and challenge initial assumptions. Through hands-on planning workshops, allow citizens to explore the spatial implications of their ideas; this process should encourage them to weight the value of their own ideas against their feasibility.
- Fix recurring ideas and topics in a datasheet, e.g. a “Key Theme” list, and set up an in-depth discussion with both citizens and experts aimed at understanding their potential effects on design. Use the list to develop an initial set of rough patterns, i.e. a “crude language”, made of a few, well-articulated sentences describing a general spatial vision for the project. The crude language would act as a vague, preliminary framework of reference to discuss the development of alternative design solutions for the product of design, e.g. a residential masterplan.
- Distribute the crude language to citizens and set up a discussion workshop. The structure of the pattern language would be comprised of several key aspects of the project, e.g. the main

square, the size and shape of buildings, the relationship between public and private space. Let citizens vote the crude language and seek approval by majority vote.

- From this point on, use the masterplan as a verbal masterplan. Establish a further *charrette* to develop the crude language without violating its major patterns. For example, if the crude language would describe the vision of a compact development of 4-storeys, mixed-use buildings surrounded by lakes and trees, nobody should successfully suggest adding single-family houses. Each key topic, included in each pattern, can be elevated as a space of negotiation for smaller groups of citizens. Each group would discuss a specific topic, thus improving and expanding on the original crude language. Test patterns on space using site maps and diagrams.
- Integrate citizens input into a final pattern language, e.g. made of dozens of patterns.
- Translate the pattern language into a visual material, e.g. technical maps, sketches, and renderings.

7. Conclusions

According to advocates of participation, citizens should decide on the future of their environment. Although desirable in principle, in practice this aspiration presents two intertwined issues: one political and one epistemological. From a political standpoint, within the general notion of “citizens”, in fact, lie individuals, or sub-groups of citizens, who hold different expectations from a particular project. These expectations depend on their judgment over the use of space and the choice of functions to be implemented. For example, at Cowes, a group of citizens wanted the old crane to be demolished; while others thought of it as a landmark of the marine heritage of the city. At Eishin, a group of teachers requested a track field and a larger gym hall, although that would have reduced the size of other facilities. Individual aspirations must be reconciled with collective needs and the exclusionary nature of a project. While several contradicting Ideas can coexist in mind, any act of architecture or urban design produces one physical reality. So, either a crane is retained as a focal point for the main square of the new development, or it is torn down. Either the Judo Hall is large, or the public can enjoy a larger green space around the campus facilities. Public participation should ensure that such physical reality is shared by designers, stakeholders, and the local community. The epistemological issue touches on the kind and quality of citizen input. What do citizens bring to the discussion? Are they capable of understanding the complexity of planning and act accordingly? The relevance of this question may be proportional to one’s scepticism towards the involvement of non-experts into technical issues.

This research has explored these two issues by investigating six projects of architectural and urban design carried out according to two participatory approaches, e.g. design *charrettes* and pattern languages. Documents, technical drawings, observations, press releases, and interviews with experts were used to reconstruct the design processes in place at Scarborough, Newbury, Cowes, Eishin, Vellore, and Mexicali. Individual-case, and cross-case qualitative analyses brought to the fore recurring patterns of interaction and mechanisms governing participatory design.

The empirical evidence collected served to develop a theory for participatory architecture and urban design to explain how experts and citizens interact during public workshops, using *charrettes* and pattern languages as primary modes of communications. The theory emphasises the role of time (e.g. “stage and duration” of participation), artefacts (e.g. “tools and methods” sustaining participation), and the objects referred to by citizens (e.g. “sources of reference”) in affecting participatory design processes. In particular, through the interplay of feedback loops, artefact, and an

open, positive attitude, designers and citizens can work together towards the transition from idiosyncratic, individual realities to a shared, unique reality.

When participation is continuous and grounded in reality, mutual learning is bound to happen. On the one hand, designers can learn from people about the quality of the site and – in specific contexts – from the cultural norms underlying public and private spaces. On the other hand, through public workshops, citizens are exposed to the exclusive nature of design, to other people’s legitimate needs, and to the fact that, ultimately, “one reality” has to be established through empathy and mutual understanding.

To sum up, the learning potential embedded in participation mirrors the capacity of a local community to provide valid feedback to improve the quality of design. This capacity is not limited to the epistemological quality of the information collected through public meetings. It also pertains to its collective (i.e. political) quality, whereby individual wishes do not harm collective needs.

8. Bibliography

- Abelson, J., Forest, P.-G., Eyles, J., Smith, P., Martin, E., & Gauvin, F.-P. (2003). Deliberations about deliberative methods: issues in the design and evaluation of public participation processes. *Social Science & Medicine*, 57(2), 239-251.
- Al-Kodmany, K. (1999). Using visualization techniques for enhancing public participation in planning and design: Process, implementation, and evaluation. *Landscape and Urban Planning*, 45(1), 37-45.
- Al-Kodmany, K. (2001). Online tools for public participation. *Government Information Quarterly*, 18(4), 329-341.
- Alavi, M., & Leidner, D. E. (2001). Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues. *Management Information Systems*, 25(1), 107-136.
- Alexander, C. (1965) *A City is Not a Tree*.
- Alexander, C. (1975). *The oregon experiment* (Vol. 3): Center for Environmental Struc.
- Alexander, C. (1979). *The timeless way of building* (Vol. 1): New York: Oxford University Press.
- Alexander, C. (2017). *A city is not a tree*: Sustasis Press/Off The Common Books.
- Alexander, C., Davis, H., Martinez, J., & Corner, D. (1985). *The production of houses* (Vol. 4): Oxford University Press on Demand.
- Alexander, C., Ishikawa, S., Silverstein, M., i Ramió, J. R., Jacobson, M., & Fiksdahl-King, I. (1977). *A pattern language*: Gustavo Gili.
- Alexander, C., Neis, H. J., & Alexander, M. M. (2012). *The battle for the life and beauty of the earth: a struggle between two world-systems*: Oxford University Press.
- Algotino, A. (2008). L'Osservatorio per il collegamento ferroviario Torino-Lione come case study sulla democrazia e sul dissenso. *Democrazia e Diritto*.
- Ambrosini, V., & Bowman, C. (2001). Tacit Knowledge: Some Suggestions for Operationalization. (September).
- Arias, E., Eden, H., Fischer, G., Gorman, A., & Scharff, E. (2000). Transcending the individual human mind—creating shared understanding through collaborative design. *ACM Trans. Comput.-Hum. Interact.*, 7(1), 84-113.

- Arias, E. G., Eden, H., & Fischer, G. (2015). The Envisionment and Discovery Collaboratory (EDC): explorations in human-centered informatics. *Synthesis Lectures On Human-Centered Informatics*, 1(1), i-216.
- Arias, E. G., & Fischer, G. (2000). Boundary Objects: Their Role in Articulating the Task at Hand and Making Information Relevant to It Center for LifeLong Learning & Design and Institute of Cognitive Science Department of Computer Science , and College of Architecture and Planning Univers. *Architecture*, 1-8.
- Arnstein, S. R. (1969). A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*, 35(4), 216-224.
- Bacon, F. (2000). *Francis Bacon: the new organon*: Cambridge University Press.
- Baxter, P., & Jack, S. (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers. *The Qualitative Report 544-The Qualitative Report Volume 13 Number 4 December 2008*, 13(4), 544-559.
- Beierle, T. C., & Cayford, J. (2002). *Democracy in practice: Public participation in environmental decisions*: Resources for the Future.
- Bhatt, G. D. (2001). Knowledge management in organizations: examining the interaction between technologies, techniques, and people. *Journal of Knowledge Management*, 5(1), 68-75.
- Boano, C., & Kelling, E. (2013). Toward an architecture of dissensus: Design politics in South-East Asia. *Footprint: Delft Architecture Theory Journal*, 7(2), 41-61.
- Bobbio, L. (2006). Tipi di preferenze, tipi di deliberazione.
- Bobbio, L., & Pomatto, G. (2008). Modelli di coinvolgimento dei cittadini nelle scelte pubbliche 1. 1-38.
- Box, R. C. (1997). *Citizen governance: Leading American communities into the 21st century*: Sage Publications.
- Brabham, D. C. (2009). Crowdsourcing the public participation process for planning projects. *Planning Theory*, 8(3), 242-262.
- Brand, R., & Gaffikin, F. (2007). Collaborative Planning in an Uncollaborative World. *Planning Theory*, 6(3), 282-313.
- Bruner, J. (1996). Frames for thinking. *Modes of thought: Explorations in culture and cognition*, 93-105.
- Bucchi, M., & Neresini, F. (2007). Science and Public Participation. *Science And Technology*(1), 449-472.

- Bugs, G. (2012). Assessment of online PPGIS study cases in urban planning. *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 7333 LNCS(PART 1), 477-490.
- Callon, M. (2001). *Acting in an Uncertain World An Essay on Technical Democracy*.
- Cama, R. (2009). *Evidence-based healthcare design*: John Wiley & Sons.
- Carlile, P. R. (2002). A pragmatic view of knowledge and boundaries: Boundary objects in new product development. *Organization science*, 13(4), 442-455.
- Carmona, M., & Tiesdell, S. (2007). *Urban design reader*: Routledge.
- Cerezo, J. a. L., & González, M. (1996). Lay Knowledge and Public Participation in Technological and Environmental. *Society for Philosophy and Technology*, 2(1), 53-72.
- Charest, R. M., & Lucas, P. L. (2008). *Charrette: A High Performance Vehicle for Learning in the Design Studio*.
- Corburn, J. (2003). Bringing Local Knowledge into Environmental Decision Making. *Journal of Planning Education and Research*, 22, 420-433.
- Davidoff, P. (1965). Advocacy and Pluralism in Planning. *Journal of the American Institute of Planners*, 31(4), 331-338. doi:10.1080/01944366508978187
- Davis, H. (2006) Architectural education and vernacular building. *Vernacular architecture in the 21st century: Theory, education and practice*. Taylor & Francis. 1-13.
- Davis, H., Week, D., & Moses, P. (1993). The Village Meets the City. *Architecture Plus Design*, 10(2), 51.
- Dean, R. J. (2017). Beyond radicalism and resignation: the competing logics for public participation in policy decisions. *Policy & Politics*, 45(2), 213-230.
- Douglas, M., & Wildavsky, A. (1983). *Risk and culture: An essay on the selection of technological and environmental dangers*: Univ of California Press.
- Durant, J., Bauer, M., Gaskell, G., Midden, C., Liakopoulos, M., & Scholten, L. (2000). Two cultures of public understanding of science and technology in Europe. *Between understanding and trust: The public, science and technology*, 131-156.
- Edelenbos, J., van Buuren, A., & van Schie, N. (2011). Co-producing knowledge: Joint knowledge production between experts, bureaucrats and stakeholders in Dutch water management projects. *Environmental Science and Policy*, 14(6), 675-684.
- Eden, S. (1998). Environmental issues: knowledge, uncertainty and the environment. *Progress in Human Geography*, 22(3), 425-432.

- Eisenhardt, K. M. (1989). Building Theories from Case Study Research Published by : Academy of Management Stable URL : <http://www.jstor.org/stable/258557> Linked references are available on JSTOR for this article : Building Theories from Case Study Research. *14*(4), 532-550.
- Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal*, *50*(1), 25-32.
- Emily, A. M. (2013). Design charrette as methodology for student learning assessment relative to building safety and security. *Journal of Interior Design*, *38*(2), 35-46.
- Eppler, M. J. (2011). What is an effective knowledge visualization? Insights from a review of seminal concepts. *Proceedings of the International Conference on Information Visualisation*, 349-354.
- Eppler, M. J., & Burkhard, R. a. (2007). Visual representations in knowledge management: framework and cases. *Journal of Knowledge Management*, *11*(4), 112-122.
- Ertiö, T. (2013). M-participation : the emergence of participatory planning applications. *Research Briefings*.
- Evans-Cowley, J., & Hollander, J. (2010). The new generation of public participation: Internet-based participation tools. *Planning Practice & Research*, *25*(3), 397-408.
- Faludi, A. (1973). Planning Theory. Urban and Regional Planning Series: Pergamon Press.
- Fearon, J. D. (1998). Deliberation as discussion. *Deliberative democracy*, *44*, 56.
- Fedi, A., & Mannarini, T. (2008). Oltre il Nimby. La dimensione psico-sociale della protesta contro le opere sgradite. *FrancoAngeli, Milano*.
- Fischer, G. (2001). Communities of Interest : Learning through the Interaction of Multiple Knowledge Systems. *Communities*, *1*, 1-13.
- Fischer, G., Giaccardi, E., Eden, H., Sugimoto, M., & Ye, Y. (2005). Beyond binary choices: Integrating individual and social creativity. *International Journal of Human Computer Studies*, *63*(4-5 SPEC. ISS.), 482-512.
- Fischer, G., & Redmiles, D. (2008). Transdisciplinary education and collaboration. *Contribution to the*.
- Flick, U. (2004). Triangulation in qualitative research. *A companion to qualitative research*, 178-183.
- Flyvbjerg, B. (1998a). Habermas and Foucault: Thinkers for Civil Society? *The British Journal of Sociology*, *49*(2), 210-233.
- Flyvbjerg, B. (1998b). *Rationality and power: Democracy in practice*: University of Chicago press.

- Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12(2), 219-245.
- Fominykh, M., Prasolova-Førland, E., Divitini, M., & Petersen, S. A. (2016). Boundary objects in collaborative work and learning. *Information Systems Frontiers*, 18(1), 85-102.
- Forester, J. (1988). *Planning in the Face of Power*: Univ of California Press.
- Forester, J. (1999). *The deliberative practitioner: encouraging participatory planning processes* (Vol. 49).
- Fraser, N. (1990). Rethinking the public sphere: A contribution to the critique of actually existing democracy. *Social text*(25/26), 56-80.
- Fredericks, J., & Foth, M. (2013). Augmenting public participation: enhancing planning outcomes through the use of social media and web 2.0. *Australian planner*, 50(3), 244-256.
- Frey, L. R., Botan, C. H., & Kreps, G. L. (2000). Textual analysis. *Investigating Communication: An Introduction to Research Methods*, 514-514.
- Friedmann, J. (1973). *Retracking america; a theory of transactive planning*.
- Friedmann, J. (1987). *Planning in the public domain: From knowledge to action*: Princeton University Press.
- Friedmann, J. (1993). Toward a Non-Euclidian Mode of Planning. *Journal of the American Planning Association*, 59(4), 482-485.
- Fromm, D., & Bosselmann, P. (1984). Mexicali Revisited: Seven Years Later. *Berkeley Planning Journal*, 26(1), 217-220.
- Fyhr, K. (2012). *Participation in Upgrading of Informal Settlements*.
- Geertz, C., & Knowledge, L. (1983). *Further Essays in Interpretive Anthropology* (Vol. 21): New York: Basic Books.
- Gerring, J. (2004). What is a case study and what is it good for? *American political science review*, 98(2), 341-354.
- Gherardi, S. (2009). *Organizational knowledge: The texture of workplace learning*: John Wiley & Sons.
- Giddens, A. (1994). *Beyond left and right: The future of radical politics*: Stanford University Press.
- Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The qualitative report*, 8(4), 597-606.

- Grabher, G., & Ibert, O. (2014). Virtual hybrid communities show that you don't have to meet face-to-face to advance great ideas. *LSE American Politics and Policy*.
- Green, E. E., Thompson, D., & Griffiths, F. (2002). Narratives of risk: women at midlife, medical 'experts' and health technologies. *Health, risk & society*, 4(3), 273-286.
- Habermas, J. (1984). *The theory of communicative action, volume I*. Boston: Beacon.
- Haklay, M., & Weber, P. (2008). Openstreetmap: User-generated street maps. *IEEE Pervasive Computing*, 7(4), 12-18.
- Hall, P. (1988). *Cities of tomorrow*: Blackwell Publishers.
- Hautala, J., & Jauhiainen, J. S. (2014). Spatio-temporal processes of knowledge creation. *Research Policy*, 43(4), 655-668.
- Healey, P. (1992). Planning through turn in planning The communicative theory. 63(2), 143-162.
- Hildreth, P. M., & Kimble, C. (2004). *Knowledge networks: Innovation through communities of practice*: Igi Global.
- Huchzermeyer, M. (2011). *Cities with slums: From informal settlement eradication to a right to the city in Africa*: Juta Academic.
- Hudson, B. M., Galloway, T. D., & Kaufman, J. L. (1979). Comparison of current planning theories: Counterparts and contradictions. *Journal of the American Planning Association*, 45(4), 387-398.
- Innes, J. E. (1998). Information in communicative planning. *Journal of the American Planning Association*, 64(1), 52-63.
- Innes, J. E., & Booher, D. E. (2005). *Reframing Public Participation : Strategies for the 21st Century*.
- Irvin, R. a., & Stansbury, J. (2004). Citizen Participation in Decision Making: Is It Worth the Effort? *Public Administration Review*, 64(1), 55-65.
- Irwin, A. (1995). *Citizen science: A study of people, expertise and sustainable development*: Psychology Press.
- Irwin, A., & Michael, M. (2003). *Science, social theory & public knowledge*: McGraw-Hill Education (UK).
- Jacobs, J. (2016). *The death and life of great American cities*: Vintage.
- Jones, B. G. (2012). 'Bankable Slums': the global politics of slum upgrading. *Third World Quarterly*, 33(5), 769-789.

- King, C. S., Feltey, K. M., & Susel, B. O. N. (1998). The question of participation: Toward authentic public participation in public administration. *Public Administration Review*, 317-326.
- Kirsh, D. (2009). Knowledge, Explicit and Implicit. 397-402.
- Krefting, L. (1991). Rigor in qualitative research: The assessment of trustworthiness. *American journal of occupational therapy*, 45(3), 214-222.
- Lane, M. B. (2005). Public Participation in Planning: an intellectual history. *Australian Geographer*, 36(3), 283-299.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry* (Vol. 75): Sage.
- Marres, N. (2007). The issues deserve more credit: Pragmatist contributions to the study of public involvement in controversy. *Social Studies of Science*, 37(5), 759-780.
- Marshall, S. (2013). Complex Design, Creative Challenge and Cognitive Constraint: Experience of Students' Use of A Pattern Language. 'Complexity, Cognition, Urban Planning and Design' Conference.
- Martin, G. P. (2008). 'Ordinary people only': Knowledge, representativeness, and the publics of public participation in healthcare. *Sociology of Health and Illness*, 30(1), 35-54.
- Mason, J. (2002). *Qualitative Researching*.
- Merriam, S. B. (1988). *Case study research in education: A qualitative approach*: Jossey-Bass.
- Mooney, G. H., & Blackwell, S. H. (2004). Whose health service is it anyway? Community values in healthcare. *Medical Journal of Australia*, 180(2), 76.
- Mueller, F. C., & Ibert, O. (2015). (Re-) sources of innovation: Understanding and comparing time-spatial innovation dynamics through the lens of communities of practice. *Geoforum*, 65, 338-350.
- Newig, J., Pahl-wostl, C., & Sigel, K. (2005). Jens Newig 1 *, Claudia Pahl-Wostl 1 and Katja Sigel 2. *European Environment*, 343(15), 333-343.
- Nohl, A.-M. (2010). Narrative interview and documentary interpretation: B. Budrich.
- Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation. *Knowledge Creation Diffusion Utilization*, 5(1), 14-37.
- Nonaka, I., & Konno, N. (1998). The concept of "ba": Building a foundation for knowledge creation. *California management review*, 40(3), 40-54.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*: Oxford university press.

- Nonaka, I., & von Krogh, G. (2009). Organization Science. *Organizational Science*, 20(3), 635-652.
- Novy, J., & Peters, D. (2012). Railway station mega-projects as public controversies: The case of Stuttgart 21. *Built Environment*, 38(1), 128-145.
- Oldfield, A. (1990). *Citizenship and community: Civic republicanism and the modern world*: Routledge.
- Orland, B., Budthimedhee, K., & Uusitalo, J. (2001). Considering virtual worlds as representations of landscape realities and as tools for landscape planning. *Landscape and Urban Planning*, 54(1), 139-148.
- Patton, M. Q. (2005). *Qualitative research*: Wiley Online Library.
- Pellizzoni, L. (2003). Uncertainty and participatory democracy. *Environmental Values*, 12(2), 195-224.
- Peng, C. (1994). Exploring communication in collaborative design: co-operative architectural modelling. *Design Studies*, 15(1), 19-44.
- Petts, J. (1997). The public—expert interface in local waste management decisions: expertise, credibility and process. *Public Understanding of Science*, 6(4), 359-381.
- Petts, J., & Brooks, C. (2006). Expert conceptualisations of the role of lay knowledge in environmental decisionmaking: Challenges for deliberative democracy. *Environment and Planning A*, 38(6), 1045-1059.
- Polanyi, M. (1958). *Personal Knowledge - Towards a Post-Critical Philosophy*.
- Polanyi, M. (1966). The logic of tacit inference. *Philosophy*, 41(155), 1-18.
- Pretty, J. (1995). Participatory Learning for Sustainable Agriculture. 23(8), 1247-1263.
- Renn, O., Webler, T., & Wiedemann, P. M. (1995). *Fairness and competence in citizen participation: Evaluating models for environmental discourse* (Vol. 10): Springer Science & Business Media.
- Rittel, H. (1984). Second-generation design methods. *Developments in design methodology*, 317-327.
- Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4 (December 1969), 155-169.
- Rolfe, G. (2006). Validity, trustworthiness and rigour: quality and the idea of qualitative research. *Journal of advanced nursing*, 53(3), 304-310.
- Rowe, G., & Frewer, L. J. (2000). Public Participation Methods: A Framework for Evaluation. *Science, Technology & Human Values*, 25(1), 3-29.

- Rowe, G., & Frewer, L. J. (2004). Evaluating Public-Participation Exercises: A Research Agenda. *Science, Technology & Human Values*, 29(4), 512-556.
- Roy, A. (2005). Urban informality: toward an epistemology of planning. *Journal of the American Planning Association*, 71(2), 147-158.
- Ruesjas, A. L. (1997). *The Mexicali Experimental Project: An Analysis of its Changes*.
- Rydin, Y. (2007). Re-examining the role of knowledge within planning theory'. 6(1), 52-68.
- Rydin, Y., Bleahu, A., Davies, M., Dávila, J. D., Friel, S., De Grandis, G., . . . Howden-Chapman, P. (2012). Shaping cities for health: complexity and the planning of urban environments in the 21st century. *Lancet*, 379(9831), 2079.
- Sailer, K., Budgen, a., Lonsdale, N., Turner, a., & Penn, a. (2008). Evidence-based design: theoretical and practical reflections of an emerging approach in office architecture. *Design Research Society Conference*(July), 1-16.
- Salinas, N., Duany, M., Mehaffy, M. W., Mehta, G., Quintero, F. M., Petit, P., . . . Strano, E. (2011). Peer to Peer Urbanism. 1-116.
- Sandercock, L. (1997). *Towards cosmopolis: Planning for multicultural cities*: Academy Press.
- Sanoff, H. (2000). *Community participation methods in design and planning*: John Wiley & Sons.
- Sanoff, H. (2010). *Democratic Design: Participation Case Studies in Urban and Small Town Environments*.
- Schneekloth, L. H., & Shibley, R. G. (1995). *Placemaking: The art and practice of building communities*: Wiley.
- Schweizer, P.-J., Renn, O., Köck, W., Bovet, J., Benighaus, C., Scheel, O., & Schröter, R. (2016). Public participation for infrastructure planning in the context of the German "Energiewende". *Utilities Policy*, 43, 206-209.
- Seltzer, E., & Mahmoudi, D. (2012). Citizen Participation, Open Innovation, and Crowdsourcing: Challenges and Opportunities for Planning. *Journal of Planning Literature*, 28(1), 3-18.
- Shannak, R. O., Masa'deh, R. e., & Akour, M. A. (2001). Knowledge Management Strategy Building: Literature Review. *MIS Quarterly*, 25(1), 107-136.
- Simão, A., Densham, P. J., & Haklay, M. (2009). Web-based GIS for collaborative planning and public participation: An application to the strategic planning of wind farm sites. *Journal of Environmental Management*, 90(6), 2027-2040.

- Sokoloff, H., Steinberg, H., & Pyser, S. (2005). Deliberative city planning on the Philadelphia waterfront. *The deliberative democracy handbook: strategies for effective civic engagement in the 21st century*, 185-196.
- Soliva, R., & Hunziker, M. (2009). Beyond the visual dimension: Using ideal type narratives to analyse people's assessments of landscape scenarios. *Land Use Policy*, 26(2), 284-294.
- Star, S. L. (2010). This is Not a Boundary Object: Reflections on the Origin of a Concept. *Science, Technology & Human Values*, 35(5), 601-617.
- Star, S. L., & Griesemer, J. R. (1989). Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-39. *Social Studies of Science*, 19(3), 387-420.
- Sternberg, E. (2000). An Integrative Theory of Urban Design. *Journal of the American Planning Association*, 66(3), 265-278.
- Talen, E. (2007). Bottom-Up GIS. *Journal of the American Planning Association*, 66(3), 279-294.
- Tress, B., & Tress, G. (2003). Scenario visualisation for participatory landscape planning—a study from Denmark. *Landscape and Urban Planning*, 64(3), 161-178.
- Ulrich, R. S. (2006). Essay: evidence-based health-care architecture. *The Lancet*, 368, S38-S39.
- Ulrich, R. S., Zimring, C., Zhu, X., DuBose, J., Seo, H.-B., Choi, Y.-S., . . . Joseph, A. (2008). A review of the research literature on evidence-based healthcare design. *HERD: Health Environments Research & Design Journal*, 1(3), 61-125.
- Webler, T., Kastenholz, H., & Renn, O. (1995). Public participation in impact assessment: a social learning perspective. *Environmental Impact Assessment Review*, 15(5), 443-463.
- Weinberger, A., Stegmann, K., & Fischer, F. (2007). Knowledge convergence in collaborative learning: Concepts and assessment. *Learning and Instruction*, 17(4), 416-426.
- Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems thinker*, 9(5), 2-3.
- Wenger, E. (2000). Communities of practice and social learning systems. *Organization*, 7(2), 225-246.
- Wenger, E., McDermott, R. A., & Snyder, W. (2002). *Cultivating communities of practice: A guide to managing knowledge*: Harvard Business Press.
- Wenger, E. C., & Snyder, W. M. (2000). Communities of practice: The organizational frontier. *Harvard business review*, 78(1), 139-146.
- Whelan, E. (2001). Politics by other means: Feminism and mainstream science studies. *Canadian Journal of Sociology/Cahiers canadiens de sociologie*, 535-581.

- Whelan, E. (2007). 'No one agrees except for those of us who have it': endometriosis patients as an epistemological community. *Sociology of health & illness*, 29(7), 957-982.
- Whittemore, A. H. (2015). Practitioners Theorize, Too. *Journal of Planning Education and Research*, 35(1), 76-85.
- Wynne, B. (1991). Knowledges in Context. *Science, Technology & Human Values*, 16(1), 111-121.
- Yearley, S. (2000a). Making systematic sense of public discontents with expert knowledge: two analytical approaches and a case study. *Public Understanding of Science*, 9(2), 105-122.
- Yearley, S. (2000b). WHAT DOES SCIENCE MEAN IN THE "PUBLIC UNDERSTANDING OF SCIENCE"? *Between understanding and trust: The public, science and technology*, 151.
- Yin, R. K. (1984). Applied social research methods series Case study research: Design and methods.
- Yin, R. K. (2003). Case study research: design and methods, Applied social research methods series. Thousand Oaks, CA: Sage Publications, Inc. Afacan, Y., & Erbug, C.(2009). An interdisciplinary heuristic evaluation method for universal building design. *Journal of Applied Ergonomics*, 40, 731-744.
- Yin, R. K. (2011). *Applications of case study research*: Sage.
- Zack, M. H. (1999). Managing Codified Knowledge. *Sloan Management Review*, 40(4), 45-58.

9. Appendix - transcripts of the interviews

9.1 Interview #1

Phone interview, July 11, 2017.

Interviewer: Aurelio David (author – A).

Interviewee: Arch F.L. (Architect at JTP. Part of the design team at Newbury – FL).

A: How clients approach you? [...] Beyond your reputation and experience, why do they choose you? Do you think this has something to do with your approach with charrettes and Community Planning Weekend. Can you please elaborate on that?

FL: Yeah. Well, I think it's a mixture. There are some clients who are really interested in the idea of working in this way. And others who, perhaps, that we had already worked with, that we may have introduced to the idea that this is a good way to work. [...] But it may be that, because they have had good experiences doing it in the past, they then...it might be a reason why they give us another job. Because they appreciate that it's a good way to do it. And that's in the UK, and sometimes there is more appetite from abroad, but not really. [...] I think in Germany it has been because of the involvement of A. and his network of people. I mean, the Germans are more interested in doing it [participation], but possibly have fewer German architects who would naturally work that way. So, we often add a component that they don't otherwise have.

None of it is clear cut. It's kind of a variety of things. Also, one of the reason may be “concern about doing it”, as opposed to selecting us, is because clients like to be in control. And they think that if [INAUDIBLE] the public what they want, that that would be a bad outcome, because people would ask unreasonable things and get angry. And then we need to reassure them that, no, it's just not like that. People are generally reasonable. They may start off with unrealistic ideas, but actually through the process of workshops [...] the public generally gain confidence and trust that this is a real process that is being done seriously and not just what we call “a tick-box exercise”, as sometimes done by other companies who then claim to have consulted, when they actually had no intention of taking on board any of the community's suggestions. And Hopefully you've seen that this is how it works.

A: Yes. I actually have. [...] I may show you some diagrams to show how many of the inputs you [elaborated in the project]. Indeed, there is a correspondence between what people ask - the reasonable

things, at least - and how you manage to implement them. So actually, I have plenty of evidence on that. And what you're adding is consistent with that. So, I am glad about that.

FL: The background is that, in years gone by, there was a sort of trust in the belief that architects were professional people who would do a good job. But, particularly after the war and the Sixties and Seventies, architects were able to get up to all sorts of things with new ideas, supposedly clever. But then some bad results developed. That's one of the reason why Prince Charles said: "Architecture is too important to leave to the professionals", and as a result oppositions groups and protesters started to develop. Even now, there have been people who are professional protesters. They go around the country to lead the opposition, and it's understandable why they do that. It also means that when we do our work, [...] the initial reaction will be negative. The idea that they need to have a battle. And it takes them a while to realize that we are listening; we are not trying to be unreasonable. There will be some constraints and things that have to be delivered. But we are not trying to steamroll people into something that they don't want.

A: You are touching on a lot of topics I hope to get into in the next 10-15 minutes. And one of them is "constraints", because one thing I was noticing was that - of course you have space of negotiation and you can do a lot of things. But there are also some things you cannot do, simply because there's not within the boundaries of what is allowed, or the budget. So, my question is: how do these boundaries of what you can and cannot do as architects come about? Are they predefined by the client and authorities, or do they change as you negotiate and speak with the public?

FL: It's a good question, and I think there are many different scenarios. For instance, we have a planning process that allocates land for development. If that is achieved, i.e. if the land is allocated to development, that means something can really happen. Usually the number of units and dwellings that go onto that - because it has mainly to do with residential, because residential is one of the most difficult topic people are most likely to protest against, at least in this country. They accept that other people need some place to live, and if it's on their doorstep, well, that's a reality! Do you know the expression NIMBY? "Not in My Backyard". People just try and stop it. Mainly on the ground of traffic. That's the biggest reason...because of cars and traffic. But if it's already allocated, then it's quite an easy job for us, because we say, "You live here, but the land next to you is allocated, so something will happen. There's no point to having us to not do it, because it will happen. But we want to do it as well as possible to benefit you". People have opposition to development, but they don't realize there can be benefits for them. [They usually tell us] "the schools are full already, and

now there will be more people”. And we tell them, “No. The whole planning process says that new schools will be built, often on site. There will be social facilities, such as schools, doctor surgeries, green space”. So, there are many positives that people can get which they don’t realize is already part of the UK’s statutory planning process and is not necessarily the process in other countries. So, generally we are quite liberal and ahead of many other countries. [...]

The other scenario where we had success is when the land is not allocated, but the planning process is vulnerable to developers. Basically, a local authority has to have enough houses in the pipeline to meet the government requirements. And if they haven’t got enough houses, then another developer can come along and say: “You haven’t got enough houses. I want to build some”. And in effect it’s a very difficult thing for the local authority to prevent. Even if they refuse it, usually at the higher level, when it goes to the Planning Inspectorate, they will say, “No, this has to be built, this has to be made available because the council has not got enough housing”. So, in one interesting example we did it with Community Planning and people accepted it that this could actually be a good thing. So. they were in favor of it.

Then the other kind of constraint may come from the client, who says “I want to get this many units on the site” and that maybe a larger number that the people would want, but also “That’s the only way it’s financially viable for us to do the project. To get this number of units”. And people usually find that problematic. Typically, the concern is that we are going to build too high. People feel that if the buildings are too tall, that makes them bad, and then the question is to analyse it a bit and say: “Why? What difference does it make? Obviously if it overshadows existing buildings, that would be undesirable, but we have regulations about that. If it blocks views, that’s a difficult one, because nobody has a right to a view. And just because they can look out and see a green space does not mean that they have always the right to. But, of course, they like it, and some accept that this is something that will change their experience. Other accepts that they have no choice. And then the question is: “If the building that blocks their view is taller or lower, that also may not make any difference. But in principle people don’t like to see that things are too high. [...]

A: [...] I’d like to add another aspect. How do you decide how many times to involve citizens in the organization of a process? Do you agree with the client on a certain number of Community Forums, exhibitions, Community Planning Weekends. How does it work usually?

FL: Yes, it’s kind of like that. I think you know our process quite well. We explain the process to the client and what we want to do. As you know, there is an amount of initial preparation that we do. And there’s this community animation phase, which is to gather information about what the community

needs, their concerns, and so on. So, this is an informal first phase, which is very useful. Then there is the event itself, and usually it is that one event, unless it's such a big place that we have to go and do it in different places just to cover all different groups. That can happen, but it's relatively rare. Mostly it is in an individual location. And then, you have already mentioned Forums. It depends on the reality of the development, how many times we need to meet. And whether there is a wide range of topics that need to be involved. It can also be influenced by the engagement and interest of the community. As you may have seen, it may start with difficulty, but usually we have generated a pretty good relationship at the end, when people are interested and see the benefits and want to know more about how that can be developed further. So, I can't really give you any numbers. There can be different topics, so there can be forums about landscape or traffic, or architecture style. And there could be several of each. [...].

A: [CONFIDENTIAL]

F: You mentioned those divisions as well, but they are part of the process, and we have to use our judgment, really, as to what's needed and why. And, I think one of the interesting things is - we have a good example of it recently at a project in a place called [CONFIDENTIAL], where we had a very successful Community Planning event, with not many people objecting to it. And that was great, and it generated the masterplan and what the whole thing could be like. It's a relatively small site and with about 80 dwellings, nearly all of them flats. [The event] was extremely positive, and then when we had the exhibition, there were two things: [...] everybody liked the sketches that we had done by us, JTP; but it was always the case that some local architects would actually design the planning application. And they went for a much more modern style that we had done. So, there were two issues when the exhibition took place. There were people who hadn't come to the public planning event itself, but showed up at the exhibition, and they were much more likely to be negative. Luckily there were plenty of people who had been at the event whom we knew and we had a good relationship with them, and they were much more positive about it all. Although even they maybe had doubts about the style of the architecture. Some of the most negative people were those who hadn't been at the event and started to raise all of the questions [about] decisions made not by us, but together with the community [...].

A: So, there is a sort of negative bias by people who do not participate, or who show up randomly, whereas people that were part of the conversation feel a bit more positive and accepting of - maybe - controversial issues.

FL: Yes. I think there's another aspect to it [...]. There will always be people who turn up at the final presentation who haven't been there, and therefore did not understand the process. And that's one of the reasons we need to be careful about the length of our presentations; because we really feel we have to show them the working process. There are the people who attended who, perhaps, have less need to be convinced that there was a good engagement and participatory process going on. We also have to remember that even those who attended are often only there for part of it, and not for all of the two days, for instance, and therefore may also have gaps in their knowledge. So, we do have to end up with a pretty comprehensive explanation of the workshops, stages, and the different outcome that people were involved in the discussion, even for the final presentation. So that's a first stage: they didn't participate, but at least they saw the final presentation and they saw a lot of participation happened before they turned up. And there is yet another group who neither participated nor saw the final presentation, who need even more persuading later in the process.

A: This lead me to the next question [...]. I am also interested in the way you communicate with citizens. As you have mentioned, there's really several channels that you use. On the one hand, there's sketches, maps, and presentations. And the question is: to whom you are communicating? Because some people come to the Community Planning event, which - in my understanding - is where you get the bulk of inputs from the people [...] but also there's other people who interact, in one way of the other and - because of your planning system - the client or you have to upload some documents online and there need to be a time in which people can submit comments, as emails.

FL: [...] One of the things that is always of interest is: we do these events and people get quite animated and sometimes annoyed about some things. We have to continually remind them that we are doing this voluntarily. This is before any design has started. We are coming and talking to them. And some of them are already criticizing us for all the things we are not going to do. We have to keep saying: "We don't even need to be doing this, and most architects won't do it, because when we submit our planning application, that's the official time for them to be consulted". Which is what you're saying. So, the planning application - you use the expression "done online" - but not everybody can use a computer. So, it is also exhibited in the local authority and other places they can find out about what we are planning to do. And there is - as you say - a statutory consultation period, that has all sorts of aspect to it as well. But the fact that we are coming along and doing out of choice, they often still don't grasp in the same in the way as when we advertise the project, we say: "[...] We want your ideas. Please come and contribute. You can help to design the future of your place", and all too

many people come along and say: “Where’s the exhibition? What are your proposals?”. And we say; “Well, there aren’t any proposals. We are here to talk with you!”. “Oh! That can’t be true. you must have one in your back pocket”. There’s this incredible level of suspicion [...]. And the fact is, all we really have in our back pocket is a few calculations and simple sketches so that we can get a rough idea of the kind of thing that might work. But nothing has been worked out. Not because we are angels, but because it would be a waste of time to do too much work when we know that all sorts of things are going to be different by the time we get properly engaged with it. The whole point about doing it is that we know that there are going to be objections. There will always be objections! So, you know that there can be problems in the future, and if the client spends a lot of money doing the design and pays us to do a design; and then they are going to change it - and that’s when you have an argument because the client doesn’t want to pay more to do a new design. Whereas if you found out more at the beginning...often things that people want would have been perfectly easy to incorporate in the design if you had known it when you started. So, finding out at the beginning avoids problems and creates harmony. Also, are negatives that you avoid but you nearly always find positives that you didn’t know about, which themselves contribute to the process in all sorts of ways.

A: This actually touches on the last point I’d like to discuss with you about: [...] learning. Because I guess one of the things you may stumble upon while designing and consulting people is that there are things you could not have known, unless you spoke with people. Can you elaborate on that? Ideally about the projects you’ve been working on.

FL: Well, one thing that comes to mind; we were working in the [CONFIDENTIAL]. It was a masterplanning project. It was a very long time ago, probably in 1994-1995. [...] People were telling us about the problems and that there were lots of restaurants and fish and chips places - perhaps because it’s an island - and there was a lot of cooking oil that dropped. It was produced and had to be taken away with vans. And it had to be taken to some depot and the people explained that there was a problem of the road, a narrow road and that the cooking oil would spill out of the lorry and spill all over the road. And this was a problem. [...] And you wouldn’t have known. Therefore, you would have to re-plan the road. [...] I do have hundreds of examples, and I am thinking about what the most interesting ones are. You often find about the history of the place, names or stories that are quite interesting; and you can tap into those. It helps everybody to understand. So, at Newbury, we asked people to think about what makes “Newburyness”. What is the town’s character? Anything that contributes to that is positive. There was definitely learning at Newbury. Were you there the whole time? Or did you come for only part of it?

A: No, actually I was not even in touch with you, I guess. So, I have just read documents...

FL: Right. So, the thing is: the project was a joint venture with the railway authorities and the developer-client, and the local authority, whose office is right next to the site. [...] We had done a lot of feasibility and viability work in advance. Much more than normal. But we had always known that there was a group of Quakers on the site. And that they had the "Meeting House" there, and the Quakers are really nice people, who care about the world and people, and they are Christians, but not in any kind of fundamentalist way. I have a very positive attitude towards everything they do. And we had been told that they were there. And the client kept on saying: "Well, don't worry about them - we can find a way to sort it out. We have a little area around one site that was allocated to them". And actually, they owned the land as well. And somehow, as a result of the publicity that had gone out in advance, and the invitations for the people to come. Whether it was, perhaps, our faults, I don't know - whether we should have noticed it - but the Quaker's land, which should have been outlined in the middle of the site, we should have shown a red outline of their land. And, apart from the fact that it would have been the right thing to do anyway, it was kind of stupid because it meant that these very peaceful and nice people were now very angry, because they thought that they had been written off history and that we did not care about them. And they came to complain about the way we had dealt with it. And I was actually one of the first people to be accosted on this topic, which I think it was ok, because it completely reassured them. I was one of the people who understood the most of that situation. Other team members might not have even known what the issue was, or the process by which we considered it. So, I had to just say: "We are really sorry. You really should have shown that. We have absolutely no intention or agenda to try and sideline you" and we feel it's a very positive thing, because they have a kind of spiritual angle, and lots of places have things like churches to represent that. And the idea that one of the mixed-uses could be a spiritual and caring place is a rather good thing to add within an urban environment. So, luckily, it was possible to calm them down quite quickly. I think by the end of the day they invited us to have tea and cakes in their existing place. And then it fundamentally changed the layout as well. We had had a site [...] where it was complicated to work out the circulation routes, and it was an interesting project because it was so urban. It was between the railway station and the town center. The town center had its own challenges of all kinds and the routes that you would take could be interpreted in many different ways. So, right to the very beginning of our design work we had a single route through the middle. But then, subsequently, we came up with the idea that we could have one by the side. And it turned out that the one to the side would blast right through these people's land. And we have taken that into account by shoving across

it. But we haven't actually said - no, this is a real constraint. But by the time the Quakers turned up, we realized that it was very much a constraint! [...] It wasn't feasible to have a route along that side of the site, because of their land. And that led to a better design in any case with one main route, and there were big level changes [...]. If you only have one route, then you are going to solve it once. Whereas if you have two [routes], you have got to solve it twice. The other thing that was interesting is that the client began to understand that these people had the right to be there. So, [...] we sort of showed the client the masterplan that incorporated their own bit of land, and it's possible to say: if they [the Quakers] were not there, then we could have another five dwellings. And if they remain, we cannot have these houses. But the client said, "That's alright, we can manage without those five", and the layout of the masterplan had the flexibility and what we call "robustness". So, it was a choice: it no longer needed to be an argument. [...] They had been told that they could be relocated somewhere else, if they wanted to. And so, this created a new dynamic which was: if you want to go somewhere else, that's fine. But if you want to stay here, that's also fine. So, it became their choice, not a battle about what could happen. And that worked very well, because the client accepted that they may remain there and had calculated that they could afford to have fewer houses. Also, not increasing the number of houses introduces some advantages - designing in enough car parking space is always a problem, and if you build fewer houses, you need fewer car parking spaces. I actually don't know [...], because we are no longer involved with the project, [...] I think in the end the Quakers decided to move. I don't know, maybe because of a better offer. So, I thought that was an interesting process of how the design changed in order to accommodate a problem, but in a way to turn it into not a problem, but into a choice. And I think that's the kind of thing most people never understand; that you could never possibly negotiate that situation other than in the interactive participatory way, where trust was built and people began to understand the issues from all sides. And the clients were there. As you see, it's a very fast process if you do it like that. If you want to come to that conclusion, I guarantee: it takes months or more, and you would probably never reach that outcome. Because everything is so rigid the other way.

A: Also, it had to go through a participatory process, because otherwise it may have been: ok, you do that because I tell you. And I wonder if one of the advantages of doing participation is that - by bringing people together - you put them in contact with others. You make it real, so that their decisions have an impact on the space that other people share. And I wonder if that's one of the reason why people that come, and come again, they are a bit more positive, also in light of negative things.

FL: [Maybe you learn architecture or urban planning?]. We say: “You are the experts, not us!”. But, on the other hand, they are experts of the details of their area but may not be experts about alternatives. So, we often introduce what we call “seeing is believing” to suggest ideas as part of the process of the Forums. We actually take them on visits to look at and learn from other places.

One example is [CONFIDENTIAL], one of the most successful landmark project which caused people to listen to the idea of working in a participatory manner. People who lived nearby - there was a development where people already lived, and they were upset that something new would be built nearby with lot of more units - and I think it’s the one where people said: “Oh, if you are going to change it, I am not going to come back. Forget it! I have to somewhere else to live”. And then, later, when they see what it [the new development] is like, they want to come back, after all. They just didn’t have the trust about that. But also, the other aspect of it is that, when the event starts it’s often seen as a “us and them” thing. They are the community and we are the big bad representatives of the developer. They often think that we are the developers and we have to say “No, we are not. We are the consultants of the developers” We are here to work in the way that we think it’s right. The developers are there as well. They often give the introduction at the beginning. But it definitely tends to start as a “we are the enemy and they are the good people”.

And one of the things is that in their lives - not surprisingly - people like to talk and spend time with those who agree with them. You gravitate to the people who want and think the same things as you do. Whether it’s politics or football, or anything you tend to do that. And therefore, they don’t know so much about what other people are thinking. And they think that they are right. They think: “That is true, because I believe it”. It’s the anonymous characteristic of the post-it workshop (for example), where people write things down and we read them out, and nobody knows who said it. But what it means is that people who would have written their notes saying “A” suddenly realize there are other people in the community saying “B” or “C” or “D”, and they realize that it’s not just them, but there are other points of view that can totally contradict what they think. But they somehow recognize that other members of the community have the right to say these things as well. They become a bit quieter and we often feel as if we are “holding up a mirror to the community”, that now we are reflecting back what they are saying and it’s a learning process for all of them. And again, you asked me about learning. It was in [CONFIDENTIAL], which was a town extension, which is quite interesting. There was quite a lot of opposition because it involved this expression that was coined - which was called “The roll back of the green belt”. If you call it “invading” or “destroying” the green belt, that would be bad. But by calling it “rolling back” sounds like a massive process, but has exactly the same effect. So that’s why this project had a lot of people objecting at the beginning outside. Although someone came into the building and started working with us a bit. [During this workshop] I sat at the table and

there were two very nice people. One was old and one was young, a student from Cardiff University. And we were talking about more urban places to live, that some people like to live in a flat that looks onto a square whilst others like quiet places. And the old man - he was very nice - said: "Who would possibly want to live there? It's noisy and there's a lot of stuff going on all the time!". And the student said: "Well, I'd love to live there! That's exactly where I'd like to live. I wouldn't want to live in the sort of quiet suburban area". And that's just one snapshot of two different opinions about what's good. It made complete sense, and each of them learned from the other.

A: That's interesting, because I am focused more on learning between the architects and the people, but as you mention it's not just that: learning is also between the people.

FL: It's more important! It's more important between the people. The learning that we get from the people is a kind of bonus, which we hope will happen and will be as good as possible. But I think the change in attitude between the community and its different sectors is more important, because it gets them to understand what's going on. On the one hand, it helps them to settle their differences and to be a bit more tolerant about different ways of doing things. On the other hand, people very often need [...] other people with the same opinions and aspirations and so they create new coalitions. They suddenly realize that they've got new people who can join their group or contribute in many ways. And that's fantastic! That's what we call "building community", helping them to realize those opportunities. One good example about learning and contributions at [CONFIDENTIAL]. It was a military building that no longer required the military purposes, but it had quite a lot of rather good buildings on the site and the thing that was exceptional about it - the local authority had a brief [...] so the whole place should become employment. But they allowed about 20 houses along one edge because a neighboring site, which had previously been a hospital was redeveloped and very unpopular about the way it was done. The neighboring site had been turned into commuter housing, for people that wouldn't really be contributing very much to the community. They would get their car every morning and drive to London. And there was no positivity about it at all. And our client had bought the site on the basis that they could build 20 houses on it. So, they got it for a very low amount of money. And they knew about us, and we went to the local authority and said "We'd like to develop the site, and if we can do it as an urban village, that means mixed-use environment, and with participatory planning. would it be possible for us to have a different development? More units". And they said "ok, we will give it a go" but it was important that there would be mixed-uses. And on that phase, we managed to get 340 dwellings on the site, instead of 20. A big difference, financially. And it meant the client was incredibly generous with the other uses that would happen on the site, because

they made so much money out of the process. And that's one of the reasons why people really back up. Anyways, one of the people who turned up at the event was a vet. He said, "I would like to open a vet surgery on this site", and one of the buildings was allocated for doing that. And he has his vet surgery and was very successful. That was definitely a huge contribution of somebody who came along with a positive reason why they wanted to use one of the buildings. And it was made possible - again - in seconds!

[CONFIDENTIAL]

A: I only have one last question about methods. As far as I understood, one of the key documents or key objects that make it possible for you to take the inputs of the people and translate it into design is the Issues and Actions list and Key Themes and the Consensus Masterplan, which you produce in the aftermath of the Community Planning Event, and I guess it's something you use to develop a project when you are in London. [...]

F: Well, as you know the Issues and Actions [...] is primarily a verbal process - the post-it note process, because that's how it's set up, to try and pick out what the main issues are. And then when we do the hands-on-planning, that takes it to a different level where people can start to see it visually, rather than verbally. And, of course, some people are more wordy and other people are more image-people. So, it does require a good grounding of different ways of learning about things, and then, the hands-on-planning has this excellent characteristic, which I think it's so strong about it, - that by having six or so workshops going at the same time, you generate different alternatives and even if you start with different themes (e.g. one about "green space", one about "transport", one about "community", one about "housing", whatever they are going to be), in the end they all talk about everything and we are perfectly happy with that. Then you can start to see the various things that are appearing that the different sketch designs have in common. So, when you do the Report Back, which - as you know - are always done by the participants, usually - some people are "naturals", and you think they should have been doing it all their life. Other people are not as good as they think they are and start saying stuff and then they kind of lose the plot. But we are there to help them getting it right. But then when it all gets reported back, you can start to see the things that they all have in common and the things that are unique and - again - one of the fundamental principles we have is to work inclusively. So, rather than saying: "This one is better. Your stuff doesn't work" we try to say: "This one probably works better there, but your idea is still a good one, and maybe we can incorporate it over here, instead". [...] And so, that process of seeing what's emerging is very good, and in some

cases, we actually manage to produce what we call a consensus masterplan during the workshops themselves. By the way, sometimes - as you would have seen the Hands-on Planning can go through separate series of stages if there's time. [...] the six tables present, and then each group, by seeing what the others had done, when they get back to their table, they might say: "we want to develop this further, that other group had a good idea, didn't they? Let's try have that into ours". Or they might realize that their idea didn't work, so they change it. Sometimes we can arrive at some kind of consensus plan during the event. Sometimes we manage to do it at the event. More often we do it afterwards, when we start working and we produce our own plan. But we are always very much are guided by all of those considerations. Sometimes something comes along of a technical nature, about roads for example, that the traffic engineer persuades us that it has to be different. Or that there may be a flooding issue that we realize is more significant than we thought. So, all of that leads into the consensus masterplan in the end. And the Key Themes is our way of analyzing and summarizing all the workshops and all the quotations we heard people say and ideas that they put forward. Sometimes someone says something that encapsulates a whole load of ideas, because of the way they said it. One of the things that feeds in to the Key Themes, and that ultimately gets written, is that on the Saturday evening, usually we have something to eat [...] and we discuss "Consensus and Dilemmas". That's what we nearly always do. So, "consensus" is: everyone around the table has to say the main things they thought that were agreed. And there's always that challenge, to say it in a way that is literally correct. So, if someone says "everyone wanted the road to be closed" we would say "No! Not everybody said it". But if you say it in a different way, if you say, "there was a strong consensus that the closure of the road would be beneficial to the masterplan", then it's alright. So, the way that you say it is as much important as what you say. So usually each person is asked to come up with three consensus ideas. And that in itself is an interesting process, because maybe there are 15 people around the table. And the first people start saying things and the other people think "Oh, I was going to say that. Now I have to think of something else" Or they just say, "I agree", or maybe they say it in a different way. And then the "dilemmas" are the things that people are not clear about. So, there's very useful techniques for trying to crystalize the issue, one way or the other. And I think writing up the Key Themes is very helpful because it will say, e.g. "although people were concerned about this or that, there was an understanding that if you did it this way anyway, there would be other benefits. So, there would be this sort of balancing. Not to ignore or pretend, the way that politicians just say what they want and ignore the uncomfortable reality. We try to be as fair as possible with a slight slant towards positivity. Towards the outcome that we think are better because we feel that's alright. And, it's really important to remember that this was just a voluntary participatory process. People who want to object, they are going to have the whole process ahead of them for weeks before the planning

application is submitted, where they can say whatever they like. But this is our attempt to set things in a good direction that would work well into the future. So, I think that's one of the reason we do it that way. Typically, the masterplan is improved because of all that process. And there is nearly always a strong recognition. So, I mentioned the one in [CONFIDENTIAL], where I talked about the exhibition, and the people who hadn't been there at the event; but there was also the problem of the style of the architecture. Well, everybody agreed completely that the basic layout of the site was exactly as had been agreed at the event. It's the style of the architecture that was different, which is what they had problems with. When I say, "everybody agreed", there was one issue which had to do with some existing building that were somewhat historical in the front of the site, which we assumed everybody would want to have retained. But it turned out that not everybody thought that they needed to be retained. Of the two, some people said that one should be retained but not the other. But then other people said "no, the other should be retained but not the first one". So, there was a wide range of views about that. In the end, the client decided to get rid of both of them, which was not a bad thing to do. There were enough voices who said that and actually, the conservation officer from the local authority agreed that it was ok. And that's unusual. Normally they would be trying to keep such buildings. But in this case, it was ok for it to be done, which really strengthen the argument much more. But, subsequently there have been some people objecting about the fact that it was being removed, and we said "The event was there for you. It was an opportunity to object. There have been further opportunities to object and if it was really such a big issue, you could have built a group of objectives to insist that it doesn't happen. But it really wasn't reality. We from the start thought of it that they ought to be kept [...] So, it was interesting in terms of "changing attitude".

A: Thanks for the conversation.

9.2 Interview #2

Summary of phone interview¹⁵, July 11, 2017.

Interviewer: Aurelio David (author – A).

Interviewee: Arch C.C (Architect at JTP. Part of the design team at Cowes and Scarborough – CC).

A: First of all, how do clients approach you? In general, besides your long experience and reputation, is it because they like the charrette approach?

CC: Different clients have different requests. Some clients reach out to JTP because they are looking for specific skills, such as placemaking or participatory design. Others simply want to hire an architecture office. In some other cases, e.g. certain kinds of projects, participation is mandatory by law, and therefore JTP is asked to lead the process. In general, even when the client does not request participation, JTP suggests implementing it anyways for its benefits.

In some cases, a project was already undertaken without participation, but circumstances forced the client to start over and address design with participation.

A: Do you discuss with the client on the kind of participation they expect and how many charrette and community forums to deploy?

CC: Yes. Usually the client is not fully aware of what can be done with a community. So, the client and JTP work together to organize public events throughout the design process according to the specific nature of the project. In this phase, the architects lay out a timeline with the number of charrettes and public events. Furthermore, if the project requires so, the architects visit the site to understand its capacity, i.e. constraints and opportunities. In some cases, the architects or other consultants perform technical analyses on site. For example, environmental surveys, flooding risk assessments, etc. The knowledge collected in this phase can help the consultation process because some of the main topics of discussions can be anticipated. But not always.

Another benefit of preliminary site investigation is to get aware of its opportunities, which must be emphasized during charrettes.

¹⁵ The audio recording of this interview was damaged so exact transcripts do not exist. However, the author has summarized the key point of the conversation onto a notebook.

A: What are some general rules you use to communicate with citizens?

CC: Being there is the key. Being there allows architects to collect relevant information by honestly discussing with the local community. JTP uses a reiterative process of analysis and synthesis of information. Indeed, during any CPW, the experts run twice or three times the same workshop format, namely a post-it brainstorming session and a Hands-on Planning session. By listening to some recurring topics, the architects construct a reliable image of the site, its problems and potentials.

A: How do you usually integrate people's diverse inputs into a coherent design? What are the main challenges? For example, the fact that you design in London for months after a CPW...does it mean that you need to fix ideas in the aftermath of the CPW? How do you use the Issues and Actions / Opportunities list and the other material when in London?

CC: It's a process of analysis and synthesis. Experience plays a role, of course. The process of collecting information (post-its, maps, sketches, and discussions) and transposing them into a coherent design can be described by the "funnel" metaphor.

In general, the architects need to work out an honest message of what people say. That's a combination of words (e.g. post-its, verbal discussion) and images (sketches, Hands-on-Planning maps). Frequently, words and images are inconsistent, because when people speak they may use buzzwords and rhetorical figures, and so on. However, when they are asked to sketch and work on maps, they realize what can and what cannot be done. That's why JTP promotes a Hands-on Planning session.

The material collected for two days synthesized into two main documents: (1) Key Themes list and (2) consensus masterplan. The two documents complement each other. Prior to this, post-its are transcribed and clustered in sub-categories. They are then put together into the Issues and Actions list. The Issues and Actions list is the basis for the key themes and the consensus masterplan. The two documents are also the material presented to the report back presentation (two or three days after the CPW). Staging a report back presentation soon after the CPW event enables the public to remember the main points of discussion occurring at the event.

In general, report-back is a crucial aspect of JTP's methodology of participation. In one sense, it is also part of a broader ethic to design: to report back means to re-involve citizens and let them understand how their insight have shaped design. Without that, any public meeting would be pointless, or just a "communication event".

Report-back is a topic connected with “feedback loops”. The underpinning idea is that architects “do not get it right the first time”, so they need multiple iterations to build confidence about the orientation of a project. Citizens need to be there (at the Community Forums, for example) and the architects need to (1) help them remember the general conversation, and (2) guide them through the evolution of the project.

An example from Medina Yard. The process run for several years, and extensive consultation was in place. Obviously, at some point in time, certain decisions had to be fixed in order to proceed with others. So, certain decisions were fixed on paper after proper consultation. At some point, however, some people protested some already debated issues, e.g. parking. In particular, the issue was that the old residents could not have a private garage or parking spot due to the morphology and legacy of Cowes. The new buildings, on the other hand, would have been equipped with private lots, so that new residents could park their car comfortably. The old residents (participants) complained.

How are feedback loops created? JTP relies on three events:

1. Repetition and iteration of hands-on planning sessions and post-its sessions
2. Team working on consensus masterplan
3. Report-back presentation and further collection of feedback.

The process of iteration in place over the CPW serves to build an understanding on some recurring topics. In some Hands-on Planning events, working groups working independently came to similar design arrangements, as they all felt that that was the best solution. Such is the case at Winchester, for the relocation of the bus station (e.g. permaculture principles. “Follow natural forces and act at the borders of such forces”).

A: In your experience, how much do you learn from citizens? Can you recall some examples of learning?

CC: Citizens are the experts of the place. They know their place because they live in it. Participation is a way to get that knowledge.

Two key themes are:

1. Building capacity
2. “Hold up the mirror”

Both are related to the empowerment of the local community and foster their design abilities. Through participation and placemaking, people learn to look at their community and their environment with different eyes. Sometimes it’s thanks to the architects’ perspective that they realize how

beautiful/interesting their surroundings are. “Look at that landscape!”, “How lucky you are to have this!”, etc.

So, part of the job of a placemaker is to emphasize the assets of a community, so that citizens know what they have already. Again, it’s a matter of communicating opportunities.

Positivity is another key attribute of communication. When citizens feel positive, they become more active and things start to happen.

Another important aspect is the role of experts and expertise. Architects hold certain assumptions as a result of their knowledge. It’s about things that seems obvious for experts but are not for laymen. By looking at a place to the lenses of placemaking, it is possible to bring people to see a place differently.

9.3 Interview #3

Phone interview, March 25, 2017.

Interviewer: Aurelio David (author – A).

Interviewee: Arch HansJoachim Neis (part of the design team of the Eishin project - HN).

A: First of all, I'd like to discuss about your involvement in the Eishin project. What was your role in the process and how did you get involved?

HN: Well, I was the executive architect of the project and I was involved as a member of the Center for Environmental Structure (CES), which is a Non-for-Profit Organization headed by Christopher Alexander.

A: When you were in Japan, how did you and your colleagues organize the interaction with the local community? Did you organize any formal events or was it more like informal dialogues throughout the whole process?

HN: The process was set up pretty clearly by Mr Hosoi, who was the executive director of the overall school organization, the Eishin organization in Tokyo. He came to us to request that we design by involving all the users and using the principles of patterns and participation. So, that set the tone from the beginning. That means that, from the beginning, patterns and participation were the main rules of the game and that's what we pursued, of course. We introduced a lot of principles later on, but the pattern language and participation were the two principles that were applied throughout the design process, as an integrated system from the very beginning to the very end.

A: So, would you say that you were called to lead this project because of these theories you were developing in California? Was that what the client wanted to begin with?

HN: Yes. Mr Hosoi had read "The Oregon Experiment", in which six principles of a new theory of design were laid out and the two most important ones are Patterns and Participation, that he identified along others, like "Organic Order" and "Diagnosis". But the two most important ones that he wanted to have applied were "Patterns" and "Participation" and that's how he got to know them: from the book "The Oregon Experiment".

A: Can you describe a bit the process of interaction with citizens and your communication with them?

HN: Well, when you talk about the community I think you are talking about the Eishin Community. The Eishin community already had a school in Tokyo and they wanted to expand the university by establishing a school to combine High School and University. To do that, they needed a new campus and at the time when we started we didn't have a piece of land yet. However, it was quite clear that it had to be a little bit more to the edge of Tokyo because the land was extremely expensive at the time. That meant that another community would also be involved but we didn't know that community, yet. The local community of other people that were at the relocation, so I am going to talk about the Eishin community, because I am sure that's what you are asking. So, Chris [Alexander] talked with the directors and other people during his visits in Tokyo. He talked about patterns and then, later, I and Ingrid [King] joined and talked to many more people. At this stage, our communication followed the method of interviews. There were about 100 people, such as teachers, administrating people, and staff members. Also, we talked with about 30-40 students for about 1 hour each, more or less. These interviews were not structured. They were more like conversations around some key questions. The key questions, such as what they imagined for a campus and what they wanted to have. That was the key focus so that we could understand what the real vision, the real "streams" of the users were. These streams were later incorporated in the Eishin pattern language and whenever somebody's stream was very directly translated into the PL, their name would appear at the bottom of each pattern. And that's still in the book. We had also a lot of sketches. However, because the sketches were so many, in the book, we decided not to include them. Also, I think the pattern language as such, as a written piece, was already 40 pages, so that would have been a whole book on its own. That's how we started working with the pattern language.

A: So, if I understood correctly, you interviewed the people and from these interviews you developed a pattern language. Am I right?

HN: That's correct, yes.

A: Which means that you did not go to Japan with a predetermined design idea. You developed it throughout the design process by engaging with the community of Eishin.

HN: Yes, directly. Of course, the people from Eishin, the directors, and the people of the board had already defined the idea in the larger sense. They knew that they needed a new campus, a High School,

and a college. And that was the larger pattern, if you want. That was defined at the higher level. Not by us. Our job was to detail this general programme and make it work.

A: Ok. You said there were around 100 people involved in this initial phase. Did you engage them through individual interviews?

HN: Yes.

A: Did you also set up group work activities at some point?

HN: Yes, but not in the initial phase. In the initial phase, it was more a matter of engaging individual people because the purpose was really to get [INAUDIBLE] their visions. When you are in a group, you are already in a “group-like” mode and many people just follow what others say. We really tried to avoid that at the beginning. Later on, it was different. When people knew what they wanted, then you could have much more group meetings but you have to really know when to use what method.

A: What kind of feedback did you expect people to give you at the very beginning *vs* what did you expect from them in later stages? You mentioned something about “dreams” and “visions” for the campus...

HN: Yes, we expected that they give us their visions, and we got a lot of them. However, it was not easy to achieve this goal because of cultural differences. In America people would tell you freely what they think, although it may be not be very deep. In Japan, it is the opposite. Before they tell you something, you really have to get it out of them. They would say: “Oh yeah, you know better: you are an architect, you have done this many times”. And we would say: “Well, we really would like to know from you, about what you wish. We would like to then materialize it!”. In Japan, it wasn't easy to get this out of the people so that's why we relied on personal interviews. And they were very successful. For example, we said to them: “Tell us the most simple thing you [INAUDIBLE], any simple thing [INAUDIBLE]”. Some people didn't want to say: “I would like to have some flower beds, on the way to inside” I mean, that's something very - not so important, but it is a dream! It is very important! Or somebody else would say (that was the current school director): “Well, I would like to have meadows, a meadow where everybody could meet for larger events and have these ceremonies”. That's a very clear vision. Both of what I have just told you was then realized. These visions were considered and became patterns.

A: Were there some cultural differences that had to be overcome?

HN: Yes, that's - in order to find out what actually the visions were. I think also what they probably wanted to tell us anyway but they were shy, and it was not part of their culture to just come out with this stuff.

A: How did you handle this kind of information? Because I think that - well, tell me if I am wrong – I think that not that everything that came out of their mouth could be implemented, right?

HN: Yes, that's right. But it was still carefully recorded. Like you are recording your interview right now, we recorded those and wrote about 1-2 pages of each of those. In this process, the transcripts then were already - sort of - written in a way that a pattern might have come out of it. Writing the pattern language itself was a longer process, though. That was something that was - of course - completely up to us and of course the director - this Hosoi - was involved.

A: So...how long did the interviews and community outreach campaign last?

HN: It took us three months before we could have an initial report and show an initial language. But that was not the final language. It was more the kind of language that would come out of it to show people how the process would work. So, we told them: "Well, this is not the final thing." The final pattern language came a little bit later.

A: Did you educate locals about some urban principles before the process of consultation?

HN: Well, if you consider the existing patterns in the "A Pattern Language" and in the "Oregon Experiment" books, which many of the Eishin people knew, then of course we educated them a lot with principles. Indeed, they were encouraged to use the patterns included in these three different books and select some that they thought might be helpful. In that sense, yes. But, as I have just mentioned, during the interviews we *intentionally* tried to not talk too much about patterns because we wanted their visions; we wanted to start from what they wanted, not from what's in the Pattern books.

A: So, that means that you did not influence them before you interviewed them. Did you distribute the pattern language after the interviews, though?

HN: No, the pattern language book was actually circulating before we even arrived there. It was what Mr Hosoi told the school community: “Here’s the pattern book (which was translated in Japanese) and here’s the “Oregon Experiment”. Please read it. That’s the kind of things these designers are working with”

A: Do you recall any examples of people that clearly had read the pattern language and could have conversation at a more sophisticated level?

HN: Oh, yeah! Absolutely. Several teachers, actually. For example, the math teacher, the physics teacher [INAUDIBLE], and other teachers. The mathematic teacher later became the president of the school. I met him much later, 5-6 years ago. So, yeah, there were quite enough people who were quite sophisticated.

A: And do you think it was because they read the book?

HN: Well, I think they were intelligent people anyways and they read the book because they were intelligent and really wanted to participate. They took the notion of participation very seriously and - as you probably already know - participation was throughout at very different levels. It was done permanently.

A: So, in order to achieve this very deep level of participation, did you have to work on site?

HN: Yes. We worked at very different levels. We worked on site, we even stayed at the site there. They were coming and helping and we did our [INAUDIBLE] according to the pattern language that was developed. They really put [INAUDIBLE] just for the sake of understand of where [INAUDIBLE] first gate, second gate, and the main trail, and you see the lake, and then to the left side is the high school part, and then in further up is the college part, and on the right side is the great hall, and next to the great hall is the music hall. You could describe the campus already as if it was there and then you could change it according to what was preferred on the site. And that was done a lot with the community. Earlier you were asking about large groups of people coming together; well, those were opportunities for people to come together, and we also did design works with them. We

worked with the model and we worked with them making in-plans because the patterns had to be translated into physical plans. I mean, patterns are *not* physical plans. So, it was a pretty sophisticated process.

A: I am starting to envision this workflow. Did you recall certain moments in which you learned something new from the community that you would not have learned, or done properly, if you had not involved the local community?

HN: Yes, I have just mentioned the pattern language formulation because at that stage we learned large numbers of things that they wanted. Besides that, it was so many things we learned from them through a number of experiments by working together. For example, we asked them: “Which is better: is it better to have the bike rack inside the entrance, or is it better outside?”. Well, we had to test this hypothesis because there were different people thinking differently. But then, when you went to the site and checked it out, it was clear what was better. Together we learned a lot. And you could do this with color experiments, with construction experiments, with layout experiments, and, especially, with exterior landscape experiments, since we were in the middle of tea fields. What could we do with all of that? So, yeah, we learned something together all the time. Of course, we are professionals and we know a lot of things but in terms of adjusting to all of these detailed [INAUDIBLE] that people feel good about, you better do this together with the people who actually live and work there. This way, you can combine your knowledge with their knowledge.

A: When do you think learning from your side was more relevant? Was it at the very beginning, when you were talking about general issues, or was it when you were on site and were talking about details and adjustment of the patterns?

H: I think it was actually relevant at all levels. At the beginning, there were many more people involved because at the beginning it was very important that the 100 people were actually involved. Later on, when it came to particular elements, like checking the site, sometimes there were only 1 or 2 teachers coming on the site, and then, at others event, there were 20 people, when it became more formal and seeing that this can be approved, also by large numbers by the faculty. So, I think it was relevant at all levels, but it was more like a pyramid: at the beginning, there were many more people, and the more and more the process developed, there were more particularly interested people involved. And that happened a lot because then we could really go into the business at a much more deeper level, rather than having to explain to a lot of people what we were actually doing. So, yeah,

I think that worked at all levels. Or, for example, when we designed the individual buildings, we translated them from patterns into a real design object. For the cafeteria, we talked with students and they told us that they didn't like these big halls. They liked more different kinds of [INAUDIBLE], and smaller rooms and so what we did was to design for different groups of people according to what they wanted. Through this process, we learned something. That's what we did. So, there were many examples of learning. I could tell you, at least, a thousand examples.

A: So, because the interaction was very throughout, you could actually adjust the design according to the desires of the people.

HN: Yes, we tried to accommodate them in a way that we could work together. Because there are also examples when we did not accommodate some wishes because of some extra factors. For example, the pattern language itself had to be translate into a space budget, e.g. how much space is available and how much money is available to pay for this. In order to accommodate everybody's wish, space also had to be distributed in a way that people were not disadvantaged. But the gymnasium teachers, they wanted huge spaces; they wanted huge [INAUDIBLE] with the swimming pool at the bottom, and the [INAUDIBLE] at the top. Or the other way around, I am not quite sure now. And that was so expensive, and didn't even fit into this landscape that we designed - that the rest of the school designed. So, the gym teachers became a little bit too demanding, with much too much cost and so, we had to refuse because they wanted to dominate the design by having this stuff built and that was just not the overall idea of the project. So, things like this happened.

A: So, would you say that one of the reason why you could not fulfil or accommodate to their desires was either because of financial or spatial constraints. Do you recall other examples that explain other reasons why you could not cater to certain desires?

HN: Yes, I do. For example, when we designed the Homebase street we were paying extreme attention to how space felt or did not feel. And when you go to the site, you can also feel it. It's not so difficult, when you pay attention to that. Now then; people wanted to make the other side of the Homebase street, where there was a path going up to the tree pass, up to the college. And that had to be balanced very well. When some teachers requested to have [INAUDIBLE] with small each side, which together was - like - 40 to 50 cm. However, they couldn't understand that that was not feasible because they were not spatially educated enough to conceive it in their minds. Even if they sort of recognise it when we told them, they still insisted that the street had to be larger. In that circumstance

we said: “Well, I am sorry”, because there were some limits to that too, you know. So, that was purely spatial argument and had nothing to do with huge costs, although it might have been a little bit more expensive. It was not a financial reason. It was simply that the spaces were not good.

A: I understand. Actually, one of the goals of my research is to understand the limits of listening to the people and challenging their views. So, what kinds of tools or media did you use to have a dialogue with them and facilitate your conversation with the local community?

HN: Well, there are a lot of them. First of all, the pattern language and participation are principles that you can use at the same time. Then, we had models in Berkeley and [INAUDIBLE] you could walk in to in Tokyo, and - of course - plans and drawings, and then we had the site. So, let me just give you an account of a regular day of work. In the morning, we would go to the site, test out things and see how we could actually come to some conclusions. To do so, we were moving sticks and then we would go measuring. And then, the measure [INAUDIBLE]. Then, we were recording it in particular drawings. They were not drawings made in the office; they were drawings made on the site [INAUDIBLE]. Finally, the stuff that happened on the site was recorded in particular drawings, and these drawings always had points where the sticks [were]. And then we could see the buildings became spaces. And then we went back to the office, where we looked at the model. And test it with the model. If what we had done in the site was actually correct, or was good, or was a step forward. And then, once we had tested it, we would decide that at the end of the day or in the evening. Of course, once we fixed some decisions, we would stop. And then, we would decide what we would test the next day by going to the site and doing the same thing again. That could take forever and in various form, but now I am talking about the phase where we [INAUDIBLE] the exact location of the buildings on the site, and spaces in between, and the streets [INAUDIBLE] or [INAUDIBLE] small past the university of the interior courtyard of the library, and research centre, and so on. So, it was a very detailed works directly on the site, supported by drawings, and then also supported and tested on the model, and that was like a process that was done endlessly.

A: Was this process supported by some patterns?

HN: Yes, the pattern language was always the basis for that, obviously. The pattern language was the central thing, but a pattern language is not a design object. So, we had to translate the pattern language into a designs object. And I am not here talking about the inside of the buildings. I am talking about the urban structure. I am talking about the volumetric structure and the spaces in between, the lake

where the [INAUDIBLE] are. That's what I am describing right now. There were lots of processes that we had to go through but the pattern language was always the basis of what we tried to achieve.

A: So, the pattern language was the guiding principle. It was not holy but what you were following throughout your design activity.

HN: Yes. But let me just tell you also that, when it gets down to new hypotheses, like: "doing this layout on the site", there are new principles that come into the game and that you also have to use. The pattern language and participation were not sufficient, although we couldn't explain this too much to the participants. In essence, they all could understand it when they felt the site. But there were principles that needed to be learned, such as the concepts of "centres" and "fields of centres". That really is spatial theory. Patterns are functions, they are not necessarily spatial. They tell you what you want, they might give you a quality, but you cannot make space out of them. You have to understand another principle. And that principle became much more important in the actual design process. But still, the patterns [INAUDIBLE]. That means you have to mix things more and more [INAUDIBLE]. It gets more complicated.

A: And what about the people? Where were the people during an ordinary day of work?

HN: Well, first, it was very important for us to know what we had to do. Sometimes, we had to work on our own to make sure that we did the right thing. But then, quite often we did not really know what to do, and we would think: "Maybe it's good to have some participants with us, because they can help us [INAUDIBLE]". But the key message here is: do this in a way that is productive. If [participation] is used just for the sake of it, that can be also counterproductive. At times, it works quite well. For example, Mr Hosoi was quite often there. Several teachers, and especially also the design committee was there. Often, there were about 4-5-6-7 people. And then, not all of them came; only one or two came and we would look at particular design aspects. As I said, participation was continuously done, but we also had to make sure that it would work.

A: So, I guess it could not be predicted whether – for example - on a Wednesday you would ask people to come or not, because it depended on how the process would unfold, right?

H: Yes, yes. But we also had more regular schedule, Once a week, we would invite all people to check the progress of the process. This had to be arranged because they had their other job, too. They

could not be there everyday, anyway. But the process was rather relaxed, and very productive, I must say.

A: Sure. During these meetings, how did you interact with the people? Was it by about modifying the pattern language, moving sticks, and doing these on-site experiments? If people were not really looking at the drawings, what kinds of things they had as references points to communicate with you their ideas?

HN: Well, I haven't talked about that phase yet, the definition of the interiors of the buildings. Of course, we had lots of sketches and drawings. But when we worked on the site, we would ask them: "Where's the main entrance? We have to find the main entrance... Where are the main spaces?", and so on. That's what we did. But that was a more complex process because the exterior was already pretty much defined, and now it was the interior - we ought to do that, you know. And...that involved a lot of sketches, in addition to going to the site, and model. But, the sketches were the main means for the regular user to participate.

A: The sketches?

HN: The people, from the sketches. Yeah. So that...they had the pattern, they tried to work with the pattern and put it into the...big sketch for the interior, and we - at the same time - worked with using the [INAUDIBLE] centres approach, so that became together. I mean, other than the gymnasium teachers...of course, it didn't quite work, you know. But, how we - for example - decide...we suddenly [INAUDIBLE] a whole new building. That's called the central hall, because the students wanted a place where they could actually be during the break times. And we designed a whole new building for them, although it was not an expensive one because it was open. It was not acclimatized. That's called the central building.

A: With respect to the pattern language, would you say that the pattern language helped people to participate? Did the pattern language make participation more meaningful by enabling them to converse with you more properly?

HN: Well, not only that. I think it was the [INAUDIBLE] of doing that, because there was also a cultural and a language barrier. Let's not forget this. One amazing thing is that, even in a different culture and country, you can actually apply this and it works, because it actually gives you a starting

point to set up the design process in a way that is not defined beforehand. That is actually emerging out of what these different people want, and accommodate in the best way that we can. We tried to [INAUDIBLE] become actions. In this process, for example, it turned out to be...I don't think [INAUDIBLE], because I don't think we could have done it with pattern. I think the users helped us to actually get to that level of quality, because many of these details and these visions [INAUDIBLE]. I am just talking about the environment, and building. Because that's what professionals [INAUDIBLE] wants to go there. So, I consider for any buildings that have a lot of people, it's probably the best kind of way of doing it. If you have technical buildings you still can do it, but it is not as critical, because in technical buildings there are usually only a few engineers, and so it is more - you know - you can do it, too. But it's not as critical. But any place where lots of people are, I think this is the way to do it.

A: So, the pattern language played a role. It was not maybe the only element that was supporting and helping the conversation, but it was important. What do you think about this?

HN: I think it was the most important element, in the sense that it set the tone. It started the project, and it was there throughout the project. Patterns and Participation. Those two together. They made the project work. Other principles can be introduced later, like "centres" and "fields of centres". They are not necessarily to be communicated to the users; you don't want to overburden them with spatial stuff that they have no [INAUDIBLE] to cave into. But later on, you must bring these ideas in the project in a way that they actually create the [INAUDIBLE] of the spatial material, and colour, and quality. But the patterns were there throughout. If you don't see the patterns at the end, going to the finished campus, well, then something we didn't do quite right. But, this director who wanted to have the big lawn, where he could read. Well, this lawn is there. It's right there between the cafeteria and the lake.

A: So, the pattern language can be considered a way to express in architectural terms what people can express in various other forms, correct?

H: Well, it's not only like this. It's more like - even in terms of pattern design - you need to bring on what the space is. Is the space good or not good? I think the theory of "centres" and "fields of centres", does not stop anywhere. It applies to any of these principles.

9.4 Interview #4

Phone interview, February 2, 2017.

Interviewer: Aurelio David (author – A).

Interviewee: Arch Howard Davis (part of the design team of the Mexicali project - H).

A: About the project in Mexicali. What was your role in the process and how did you get involved?

H: Well I have been working with Chris Alexander and there was kind of an understanding that I would be involved with the project, and...I had graduated from the Architecture School the year before. [Feedback problem with audio...I turn down the volume of my laptop] I had graduated from Architecture School, and then there was an understanding that we would work together. Then I went to Europe for about 7 months, and then I came back to New York and I spent a few months in New York, and then I went back to Berkeley. And right about at that time, Chris [Alexander] got this project in Mexico. So, it was assumed that I would be involved with it. We did a couple of months of work in Berkeley to prepare for the project. We did various construction experiments and then we went to Mexico. I think that was at the beginning of - maybe – September or October. I don't remember exactly. It was the year 1975.

A: And when did the project terminate?

H: About a year later. It was about a year later that we left. Some of the construction was still going on but we actually left about a year later. I think, it might have been the end of October, in 1976.

A: Ok. What about the communication with the local community? Did you use any specific formal technique to engage them or was it more like informal conversations?

H: Well, it was...I don't know what you mean "formal" / "informal". I mean, there were formal meetings at which things were decided and worked out, regarding the various permissions, and money, and all of that. And then a lot of informal meetings, but no...you know...so it was a combination, I think, formal meetings as the project progressed. There were not design charrettes. We didn't do that. We were directly with the families on the site [INAUDIBLE] to the design of the houses. But we didn't have formal charrettes because all the work, actually, took place on the ground. And actually, there were no drawings done at all. I mean, there might have been little sketches that we would draw

on a piece of wood, to try and work out a building detail, but there were no architectural drawings of the project done until the whole thing was finished. And the drawings that were done represented what had been built rather than what of should be built. So, all the layout, all the decisions took place on the ground in 3 dimensions, in full-scale 3 dimensions.

A: How long did the process of participation last? At what stage of the design did you involve the community?

H: It was continuous. I mean, it was from the beginning to the end. And people were completely in charge. There were discussions, obviously, and we had maybe a somewhat larger role in the layout of the overall site plan. But still, this was happening *with* the people. And then, when it came with the design of the individual houses, the families had a larger role than we did. Definitely a much larger role than they had in the development of the site plan. But participation was continuous from the beginning to the end. That was the whole point of this project. Even the word “participation” somehow does not make that much sense because it was a process that was designed so that decisions could be directly taken on the site and by the families.

A: What could ensure this kind of process?

H: The main thing was the way that the building system was developed so that everything that was done could be visualized in terms of its impacts on the building and on the site. For example, we would stand in the corners of the rooms, place a stick (a vertical piece of wood) and walk around to make sure to see where the shape of that room felt best. And then that stick was punted into the ground, and that was it: that was actually the corner of the room. Then, the construction system was designed so that those points would not be moved, so that those points did not have to be measured again. Those points were actually incorporated into the construction system itself. So, this [INAUDIBLE] process with [INAUDIBLE] translating something onto paper and then back - back to the ground. What we did on the ground became part of the building. The technique was one in which there was a direct translation of people visions and [INAUDIBLE] into the construction without an intermediary of drawings.

A: So, when you talk about this process with the sticks, do you mean that people were part of this conversation?

H: Yes. More so with the design of the houses themselves than with the design of the overall site plan. [In the latter], they were part of it and we were working together. But in the case of the houses, it was their decisions that were taken seriously. I mean, certainly there were cases when things had to be pointed out to them. For example, when their plan lacked a door or two rooms were in a position where you can't get into one of them. You know what I mean? So, obviously we had a role to play. But it was really their decision about what to do. And so, if they said: "We want a room larger than another" and another family said: "Well we want *the other* room larger!", that was ok. We would ask them why and check that out, but their reasons for doing things was taken very seriously.

A: How many locals were actively engaged in the process of design?

H: There was a group of students, about 10, who were chosen to work directly with the families during the design and the construction phases. And then there were 5 families. And within each family, it was the adults who were involved in the design. Four of the families had both parents and in one of them there was just the mother.

A: Did you educate locals about some architectural concepts before the project began?

H: Well, the students were architecture students, so they knew about architecture. With the families, there were not general talks about architecture. We just got right into it. We certainly talked about ideas, about how they would work, and we explained to them what the Pattern Language was, the one that we had chosen. But it was really getting right down to it and doing the work.

A: What kind of feedback did you expect locals to provide before the process started, and what kind of feedback did you get during the process?

H: I am not sure what you mean by "feedback". Do you mean feedback about the decision that were being made or just general comments about the process?

A: I mean both, but more the first.

H: Well, basically the kind of questions we asked were questions that came directly out of design decisions that had to be made. We took patterns from the printed book. No, the book had not yet been even printed, but it was basically those patterns. And we would ask questions like: "Where you live?"

or explain a pattern like ENTRANCE TRANSITION: this idea of having transitions between the public realm and the house. “Where is that? How does it work? How do we do that?”. Or, if there was a central space within the house - I don’t remember what the pattern is, maybe COMMON AREA AT THE HEART – we would ask: “Where is that?” So, we actually asked questions and ask them to make decisions that were based directly on the patterns that were in the Pattern Language. And the feedback that they gave, was the answers to those questions.

A: It was more about: “Where do we put this pattern?” or: “Do you agree with this pattern?”?

H: Very good question. I think it was both because in some cases it was not so explicitly asked: “Do you agree or not?”. But there were cases where the lives of the families were so clearly expressed that they had to be taken seriously. For example, there was one man, a family man. He was a barber and he was going to work at home so he needed a little room in the house that was a barbershop. And it was included. I don’t remember if there was a pattern that said BARBERSHOP IN THE HOUSE or even SHOP IN HOUSE. But somehow it was clear that he needed that. I mean, he must have made it clear in the initial conversation that that was part of his life and that he needed a barbershop and he got one. So, I think that the conversation was open enough so that they could express their own needs strongly enough so that they could actually design it. Even the COMMON AREA AT THE HEART pattern. The Mexicali houses were small houses - bigger than others in Mexico but small by American standards. Anyways, there was one woman who was very clear about wanting larger rooms for her children. I think that there was a sense in the project that maybe came from us that the bedrooms should be very small compared to the main room. But she decided that the bedrooms would be larger and the main room was smaller. Because there was a kind of overall limit about square feet, which varied from family to family, but everyone knew that the more they built, the more the building would cost. This was part of the picture. But this woman decided very clearly about having larger rooms for the children because she really wanted a place for the children to do their homework and a sense of place for these kids. So, in her house the kids’ rooms were larger and the common room was smaller. In these discussions, somewhat the individual needs of the families came out quite strongly.

A: And that was despite of the use of patterns, right? It was more of a conversation rather than: “Look at these patterns and tell me how you feel about them”, correct?

H: Yes, I think so because, obviously, to talk about the size of the room, the existence of a barber shop, or the existence of a special room for a brother; those general needs had to have been discussed

in order for this to happen. So, I don't remember exactly whether those general things were discussed before the patterns, before the design itself started, or in the course of the design. Certainly, there was enough opportunities midway in the process to make those needs clear.

A: Do you think this was due to you being actually on site? That was – maybe - one of the reasons why you could receive feedback almost daily, or during construction?

H: Oh, absolutely! When you are faced with something real, like: “the corner of the room is *there*”, people are going to react strongly because it's about to be built and they know whether this is good or not good. I think that being there and being in the middle of construction was very important. But it wasn't in any way an abstract exercise.

A: I have read on the book “The Production of Houses” a paragraph that describes your challenges in getting people to modify the original Pattern Language, especially the patterns of the site layout. Why do you think this happened?

H: I don't remember asking them to modify the Pattern Language. I have to read that paragraph again. I think our real emphasis was not with the Pattern Language at all. If you consider the project as an experiment, the experiment really had much more to do with the construction system and the relationship between the construction system and the design, and the ability of the people to build these houses and understand construction. The sense that Chris [Alexander] had was that the Pattern Language and the use of the Pattern Language was understood and he was seeing the project as a means to casting out new ideas about construction.

A: So, so you think that the Pattern Language was not even pushed into the project as something to be debated, even? it was just - there.

H: Oh, absolutely! I think that's true. I mean, as I said, the families' needs were certainly taken into account because it was really their decisions. But I don't think that the Pattern Language itself was that much of an issue.

A: Did you face some difficulties in communicating with locals?

H: I don't think so. I don't think that there were difficulties in communicating. The language was a bit of an issue because I was learning Spanish as we were going along - with Don and Jenny. Chris [Alexander]'s Spanish was a little better than ours, although he was not there as much as we were. In fact, our communication with the families - at least in the beginning - was through the students, who knew both English and Spanish. The students were the link between us and the families. As the project went on my Spanish levelled up a lot so I could talk to the families directly in Spanish. It was the case that we didn't really start constructing the houses until several months into the project because we worked on this experimental building to devise the construction system. We knew that we had to get the construction system worked out before we could build the houses. We got to Mexicali in October and it was probably not until February or March that we could start the construction of the houses.

A: So, you first arrived in Mexicali in October, then you came back to the US to prepare the system, and then you went back to Mexicali again to construct?

H: No, when we went there we were there. We first went to Berkeley for a couple of months but then we moved to Mexicali. At that point, all constructions and experiments happened in Mexicali. Chris made a trip initially to work out the contracts, but I did not go until we moved there for the year. Then we came back for short times, but didn't really come back to work until after the project was over. When I went to Mexicali, I was there.

A: You are referring to the "Builder's Yard", aren't you?

H: Yes, it happened there. On the site.

A: Besides these language barriers, did you encounter some cultural differences? For example, between how the people in Mexicali were living and the way you [Americans] lived that could have posed a threat to the project, if you did not engage with them?

H: I think there were some of those issues. I think that if we had done in Mexicali what Chris [Alexander] and his people had done in Peru (to really focus on the Patterns and the cultural content of the patterns), the buildings might have been different but I don't know how. Mexicali as a place doesn't have long cultural traditions. The city itself was formed only in 1898, so it's a modern city and very few houses are based on the traditional Mexican courtyard house (the courtyard and the

rooms around it). It's really American houses and it was American tract-houses that the families really wanted. The design process involved blending American houses and what we imagined to be traditional Mexican houses.

A: Since I am also interested in the topic of the "mental images" upheld by citizens when they engage with architects, do you think that they - these people in Mexicali - did not have such different image on how to live compared to what you as architects, or people from the US, could have had?

H: I don't know. I don't think the cultural gap was that strong as it was - let's say - in India [Vellore]. I think these people were low-middle class government workers and they saw themselves as modern people. And they just wanted a house. And I think their image of a house was the American suburban house. That would be my guess.

A: And did you see traces of this in their conversations?

H: No, I don't recall, I don't recall. In a couple of houses, we designed small courtyards and I don't remember there being resistance to this idea. I don't think people didn't like that idea. I think they thought it was a good idea and that's the only thing that tells me that there was not that much difference. I don't know whether they were going along with it because of the thought: "Well, this is the way I am going to get a house; let these crazy Americans do whatever they want because this is how I am going to get a house", or whether they actually felt that it was a good idea. I am not sure. The cultural content of the design was not something that we were paying attention that much. It just wasn't the issue. And I think that as long as the process of house layout was going smoothly, and as long as people were satisfied with what was happening, I think we were very content to let the process go on. And not trying to understand on a deeper level, from a cultural point of view.

A: In this context, do you recall any misunderstanding with the people that led you to change something in the site or house layout? Or did the process go smoothly all the way?

H: I don't remember anything like that. I don't know. At some point, we had a discussion with Emma Cosio about the size of the children rooms. She was very clear about what she needed and there must have been some discussions about making those rooms smaller but and she was very clear about wanting them to be bigger. But beyond that, I just don't remember any disagreement. The one thing that didn't work out at all - you know the plan of the project, with the five houses?

A: Yes.

H: Well, there is a big one in the middle that was actually Emma Cosio's. She was the single woman with ten children! Ten children!

A: Ten children?

H: Ten children. And what happened there was the failure of the common land, the big courtyard in the middle. She, for some reasons - I don't remember how it worked out - but she got the site that was right in the middle and there was no way to enter her house from the street. She had to enter her house through the common land and that common land was to belong to all five families. But eventually the common land *de facto* became her land, because you entered through that land to her house and the ten children used that land as their own room. The other families didn't like it, because it was supposed to be a common land. They ended up shaping their houses with the entrances towards the streets, instead of towards the common land. And apart from that, people really liked their houses but the idea of the common land belonging to all 5 houses didn't work. The reason it did not work was because of this asymmetrical situation, whereby one family dominated the common land because of these kids, and the fact that it was the only way to get into her house.

A: Do you remember how the decision of placing this house there, assigning it to her, and developing this common land in this way came into being? Was it through a process of mutual consent?

H: Yes, it was a process of mutual consent. The families were not just assigned a piece of land. I think they chose it and there might have been a bit of discussion, but it wasn't just that. It was mutual consent. I think what happened was that the implication of her position was not sufficiently understood at the time the choices were made.

A: What about having a common land? Was it a shared decision?

H: Well, the decision to have the common land didn't come from the families. It came from us. But they were along with it because they thought it was a good idea. The other four families were really sweet people, very nice people. They were jolly, and laughing and friendly and they just liked the whole idea and they were going along with it. Emma, the woman with the ten children, she was from

the beginning not very cooperative. She didn't come to do her work (they all had to contribute with their own labour to the construction of the buildings) and it was a very difficult situation with Emma from the very beginning. But the others were very delightful, actually.

A: I have a last question, and then I will interrupt the recording. Do you have any other stories about how people could participate, and were able to be meaningful in their opinions?

H: I think that the difference was that with the land, right...of the overall site...I think that there were lots of discussions. There were discussions about the common land, there were discussions about parking because there were at least two little parking spaces on the edges. As a result of that a little sketch was drawn to show the position of the common land that divided the sites from each other, that showed the positions of the parking, and then that was presented and agreed to by the families. Then, each family had their own site, upon which they would design their own house. And that was much more up to the families than to us. In other words, they would work directly with the students, working with us and design the house. And we were watching and making sure that things were going ok but we did not make judgments about "Is this...is this architecture or not?" We did want to make sure that patterns were being followed and operated but the details of the houses were not something that we fostered. We didn't foster that.

A: How did you use the Pattern Language in this project? What was the role of the Pattern Language in the whole process?

H: The families had a Pattern Language and, as they were designing their houses, the students were working directly with them. The students would present the families with the sequence of patterns, like: "First we are going to lay out the position of the houses and decide the relationship between the house and the courtyard. Then we put the front door". There was a sequence and they would be designing on the basis of that sequence, one step at a time. It was a direct relationship where decisions were based on the patterns of the families and on the sequence which we had set up. During this process, we would ask the question: "Where do you want the house?" And discussions would follow [INAUDIBLE]. It wasn't as if the question was just in the vacuum but it was about practical issues, such as "What does it mean to have a door here? What does it mean to have it there?". At a certain point, things started to be put into the ground and the actual layout started to emerge.

A: Do you think that the Pattern Language helped the conversation?

H: It was essential. It was the whole basis for the conversation. It was the whole structure of the conversation. The structure of what happened came out of the patterns and the sequence of the patterns. Without it, there would have been nothing.

A: Yes. I see also it's a bit different from the project in Vellore.

H: Yes, it is, it is...because the houses were bigger, there were more decisions made for each one [INAUDIBLE].

9.5 Interview #5

Phone interview, January 21, 2017.

Interviewer: Aurelio David (author – A).

Interviewee: Arch Howard Davis (part of the design team of the Vellore project - H).

A: What was your role in the process, and how did you get involved?

H: Well, let me start with the second question. I have a student in Oregon, who was from South India and his father-in-law is the head of a local community organization in the city of Madras - (Chennai). Paul - the student - was finishing his thesis and he was about to go back to India and he told me that his father-in-law was doing this project in Vellore with cycle rickshaw drivers and that maybe I could be involved and I was interested. So, I said: “Absolutely, yes!”. So, he went back to India and the father-in-law agreed and that it might be a good idea for me to be involved, and so I went to India and met the father-in-law and we agreed that I would do essentially this project. So, the initiation of my involvement really was through a student who was connected to the client.

A: Paul Moses.

H: Paul Moses, yes.

A: What about the process of participation? How did you organize the communication with the local community? Did you refer to any formal technique, like *charrettes* or public workshop, or was the engagement spontaneous, as the project progressed?

H: there were various things that happened. During the first visit - if I remember right - there was a community meeting with the clients. At this meeting, we had conversations with them about how they saw the project, how they saw their own houses and asked them questions about their own visions of the project. Then, there were also visits to the site. That happened with the people, with the clients. There were sessions but there were also investigations of the patterns that involved looking at the houses in which there were. Those investigations were intended to help develop a pattern language. Then, there were session where the clients and the leaders of the community were on site with us for the on-site layout of the settlement. And then, then there were sessions where the individual families laid out their own houses and began to participate in the construction. Although in this case the

families did not actually do a lot of the work of the structure. So, the involvement was not continuous but it was varied over the time of the project. In other words, it ranged from meetings, to discussions about the patterns, and - and actual work on site to layout the project.

A: And how long did the process last?

H: Well, that's a good question, because the whole project - I mean, from the point that we began our involvement to the time it ended - was something like 3 years, I think. It was a while because the construction and the flow of money was not that continuous. So, things took time to get going. And so, things didn't happen very fast, let me put it that way.

A: But when you say "3 years", you mean the overall process? And do you recall when and how many times did you meet with people?

H: Well, my involvement wasn't every day. I was not there continuously for three years. So, I put together a team. Paul, he was by then back in India and he was there continuously. David Week, who would come up from Australia. He came a total of three trips to India and he was very important in the project. And then Tom Curr, another former student from Oregon. At that time, he was living in India and he was running in a housing NGO up in Puna - which is near Bombay - and he came down to Vellore every time I was there. I came only maybe twice a year, for a couple of weeks, and otherwise we were dealing with the project at long distance by FAX and - we didn't have emails yet - but we were dealing with it by FAXs and actually service mail. So, we kind of set up the process and did major work in terms of settlement layout. But then Paul, who was based in Chennai at that time, he would make more regular trips to Vellore and during the time that the families were laying out the houses, he was there more often or more continuously.

A: How frequently were the families involved in the design process throughout the three years?

H: Well, that's a good question. I can't give a percentage but it was very high. During the preparation of drawings, families were not that involved. It just didn't take much to prepare any drawings that we used and in fact the builders didn't need drawings. They would stand there, on the site, with their shovels ready to dig the foundations. All we needed to do was to lay out some lines on the ground and they would start digging the foundations. So, I think that there was a pretty continuous involvement. When the construction started, the family did not necessarily themselves participated in

the construction but they were there and the construction did not take very long. A house would be built in a couple of weeks, I think. And they were right there because it was their house. So, I am afraid I can't give a percentage but as you say, it wasn't the kind of project where there were meetings and then the architects go away and do something for a few months and then come back. It was on the ground, the whole thing.

A: So, the engagement process was nuanced.

H: Oh yeah. Even the house layout. When the families did the layout, it was happening on the ground and then construction started immediately. The week that we did the layout - for example, there were two days in which, the families were very involved on the site. After that, there were another two days in which we worked by ourselves to get the settlement layout finalized. And the reason we did that is because there were various rules that had to be followed about the layout that the families did not really involve themselves with. But the layout, I mean, we did the basic layout of the site on the site, with the - with families; and that involved the laying out of a main street, the entrance to the project, the location of some major entities, like the temple, the clinic, the school, and so forth. And that was done with the families. But then, those points were taken and put into this drawing that was in the computer - the basic site plan. And then the details were laid out, and that was done by us.

A: And this brings me to my next question. Can you tell me a bit more about the relationship between these solo work and consultations? So, at what stage of design did you - or your colleagues - feel the need to ask something to the people. Can you tell me some examples? And how was the solo work was influenced by this consultation?

H: The site layout, for example. That site layout happened on the ground. I am saying the major centres of the project. That happened on the ground and during that time, we were talking extensively to the families. And then during the layout of the houses, we were talking extensively to the families on the ground. They were there and they determined the layout of the houses. Now, we had - at that point we realized that the - it was very different from Mexicali because the Mexicali houses were much bigger. The Mexicali houses were something like - 600 or 700 square feet. The Vellore houses were 200-250 square feet. Very, very small. With such small houses, there's not that much opportunity for change, for variations because also we knew that the houses would have 2 rooms and a porch. And within that idea, there is not much room for variations. So, what happened is that we developed something like 3 kinds of sample houses and the families chose one of those. But then

within that choice, they determined the actual size of rooms, the placement of the windows, the placement of doors, how the porch works, and so forth. So, it was this combination of a kind of - I don't know how you may call it - model house and then taking that model house and making it specific to their own needs.

A: So, this was something that you provided them as a kick-off to...

H: Well, we provided to them, but it was based on what we understood to be the necessary patterns for the houses. Which had been determined with their understanding. So, it was all kind of informal. In other words, there was not a day in which we sat and say: "Ok, here are the model houses". It happened organically over the course of the project.

A: Yes. What's really interesting for me is how this workflow took place. I get that it was informal, but let me try to re-phrase it. So, basically what you did was try to get information or knowledge from the people, or their preferences.

H: Right

A: And then you design something based on these information, and then proposed to the people again for the next stage of design, i.e. site layout. Was that it?

H: Well, no. The site layout wasn't the same as the house layout. The site layout was done directly with them. It was not like we proposed the site layout to them. Actually, we were on the site together with families, and laying it out. Of course, we would make suggestions but we were there together. They would tell us things about the temple, and they would tell us things about this and that and we were sort of working it together and - I mean, of course we had ideas but it wasn't as if there was a plan and we presented to them for input. We went through various elements of a possible plan. For example, we would say: "Where is the entrance to the site? Where is the temple? where is this? Where is that?" In other words, we would actually go through a series of issues and have a conversation about them and then together we came up with this that the answers and subsequently the site plan. So, the site planning was a very interactive process. We were really doing it together. I think that the houses were a little bit different. At some point, we realized that it would be much more effective to try to come up with these sample houses because the houses were so small and there was not that much choice.

A: Did you usually work with individuals or groups?

H: We did have a session, where there were about 100 people together, and everyone walked the site. In other words, everyone visited the site and walked the boundary of the site. That was very early in the process. The actual site layout was done with a few people that were considered to be the community leaders. Indeed, the families were all members of this organization that was an association of Rickshaw drivers. And there were some leaders of this organization. And so, the site layout was done with those leaders, while the houses were done with the individual families.

A: So, the communication was always one-on-one or with small groups, wasn't it?

H: Yes, that's right. That's right. It was individuals who were seen to be representing the particular design scale that was under question. There were a couple of community meetings at the beginning, at some other point...but I don't remember them actually being that effective.

A: So, it was mostly about you informing them, rather than collectively design?

H: Well, I don't remember what they were even about. I mean, we tried to have these big meetings, to ask questions about this and that, but...I don't remember those being very effective. In other words, what was effective was dealing with individuals and - also - dealing with reality. In other words, the reality is the site, the reality was the buildings. There, people could answer questions that made sense. But otherwise, if you ask people about: "How do you like that house?", it was just too abstract. Faced with reality, people could respond much more effectively.

A: So, in this case it was very important to be on site to communicate.

H: Yes, absolutely. That's right.

A: Before your meetings, did you educate the members of the local community about urban planning, or architecture principles?

H: No.

A: What kind of feedback did you expect locals to provide before you started the process. Did you engineer the process to achieve such goals?

H: Good question. At the very beginning we wanted general information about their own vision for their houses. During that meeting, what was striking was that they had a vision that was very different from ours. Our vision was - how shall I call it - traditional houses. Their vision was modern concrete houses. They said: "We want concrete houses, like the people from the city have." This was how they put it. In other words, concrete frames, flat roofs, and so forth. And - there was also a bunch of issues because the budget for the houses was actually determined by how much money these people could pay each week for a certain period of time. And that amount of money was not much. And what that meant was that they couldn't really have these concrete houses with flat roofs, because they would just be too expensive. I should also say that many of them were living in huts, in very makeshift houses that were in informal squatter and slum settlements. So, what was able to be provided was something in between, with walls made of bricks and mud mortar; although the foundations were fire brick and cement water. And above the foundation, above the place where this water in the ground - there was fire brick and mud mortar - and then roofs that were [NOT CLEAR]. And they were very simple houses. More substantial than the houses that they were living in, but not quite meeting their vision of the concrete houses with the flat roof - that the people of the city were having. But I should say that after the families moved in, right. they were very happy with their houses.

A: So, would you say that - as far as houses were concerned - their reference model were those houses in the city, made of concrete...those modernist geometry. So, was that their reference when they were talking with you about houses?

H: Originally, I would say it was. But once the project got going, they were very happy with the houses that were ultimately built and they were very proud of them.

A: And, was there - like - the influence of you and your colleagues - do you think was part of this shift in their vision of what their idea of house is?

H: I don't know if it was me and my colleagues, as much as the houses themselves, that we built, you know. I think - I don't know - I mean, this project was going to give them a house. But I think that they were a bit, like - I don't know actually, how they saw it during the project, whether they were disappointed that they were not getting those concrete houses, or whether any sense of disappointment

was outweighed by the fact that they were getting a house. But I can point to at least one case, right - when we came back and the family that moved into their house, they were very happy, very proud. For example, when we were there we would stay with the client, Paul's father-in-law and his wife. They had a nice house and they had a maid. This maid would sweep the floor with a very short-handled broom, so when you sweep the floor you are always bent over. And also, this maid belonged to a low caste so she would never look at us. So, there would always be this woman, bent over, sweeping the floor and she never looked at us. Well, it turned out that this woman was married to one of the rickshaw drivers and was one of the people part of the families that got a house. So, we went back and they had moved to their house and the whole family was standing outside the house and this woman was standing upright for the first time I have ever seen her standing upright - with a big smile on her face - and she had just started a new business. She was making some kind of food and sell it to the market. Some kind of snack that she made in the house and she would go to the market to sell it. And so, now she had her own business instead of being a maid, bent over, sweeping the floor. And it all happened because of the house. It was all possible, this transformation in her life, was possible because of the house. So, I would have to say that, although we did not do extensive studies after the project, their view of what was appropriate or what kind of house they needed - what kind of house they would be happy in - changed from the concrete house in the city to the house that they actually have, because they realized that the house they actually moved in to, was one that could give them dignity and happiness and - Hopefully - make their way in the world.

A: Do you think that the fact that people had in mind those concrete houses was part of their "status gain"? In other words, since these richer people that live in the city had these houses...

H: Yeah, I would think so, but I don't know. We didn't really ask. But I would guess that that's the case.

A: Now, I would like to understand more about these references that people had in mind when they interacted with you, a group of architects from another country and another education system. Can you talk about the kind of references people had in mind when they were communicating with you?

H: No, beyond that I don't think that there was anything else. It was just that image that they had in the beginning and once we started dealing with the reality of the situation, there were no other things like that that came up. But probably the reason for that was that we started to talk about very specific things, like: "Where is the temple?" and we positioned them to answer such questions. And they could

say where the temple was: it can't be facing a house specifically, it has to be in the so called "rounded", and circumnambulate the temple. So, at that point, once real stuff was introduced, the discussion had to do with that real stuff, and not with more general issues of what's your vision and what's your image. And I think that that happened at the very beginning. But when the real project started, the discussion had to do with that reality.

A: So, what you are saying is that they were using their everyday life and their cultural system as a source of inspiration?

H: Yes. I think that's the way we directed the conversation because we come from an orientation where design is really based largely on the patterns of everyday life and not so much on the image of - of - some architectural image.

A: Did you expect to learn something from the people?

H: At the beginning, I don't know what we expected. We did not have a conscious idea of expecting to learn something. But I think what happened during the process, is that we realized that they had a lot to teach. And I think that at some point we realized that these people knew something that we didn't - that they had something to teach. I mean, I think I told you the story of the alignment of the two doors...

A: Yes, you did. A very interesting story.

H: Well, that to me was a major thing to learn. I was talking about it with a student from Nepal the other day; a student who went to school in India. He was completely understanding of this and I realized that that whole episodes really has to do with the fact that in India personal space is much more close than it is in the US, or Italy. We tend to be further apart from each other but in India people can be very close. So, even a room that is 10X10 sqf can easily be seen as a place where particular activities could take place; whereas in our cultures - US, Italy, and Germany - a 10X10 sqf room is very small even for a single activity. So, that episode comes out of the whole nature of personal space which is different in India than it is in places where we live.

A: So, through participation you learn things that were useful for the project, didn't you?

H: Yes, absolutely, absolutely.

A: And, to what extent do you think that the collaboration/consultation with locals influenced the design process?

H: Well, I think it influenced it a lot. I think that, particularly when these kinds of realizations emerged, we realized that this relationship is essential. In particular, as architects working in participatory processes, we often imagine that what's important in participation is the big ideas, like: "Where is the street? What is the relationship between the street and the square? And so forth". I think what I learned in this process - which I think I learned generally being in India and other third-world countries - is that the details, which architects often think that they know about and they can deal with after the participation is finished, the details are as important for the participatory process as are the big moves of layout and so forth. It's the details that people know about that we don't know about.

A: Would you say that this hypothesis [that people understand and participate in a more meaningful way], was true in the Vellore project?

H: Yeah, to some extent. Although I think that being on site and talking about very specific things allow people to participate. We often say: "Clients are most useful when it comes to details", because that's what they are usually focusing on. I don't know whether this is true. I think that, to some extent, it is true. Not completely true. But I think that, if the site is real - it is made real - than people are in a position to participate and make actual decisions. That's my view on that. And I think that that's where the Pattern Language is very very helpful.

A: To what extent was the Pattern Language useful in Vellore? I recall from one of our previous conversation you said that the pattern language was not really playing a great role in the process.

H: I think the pattern language played *a certain* role. I think that the way in which the Pattern Language was presented and dealt with was not abstract at all. I mean, these people were not literate - some of them don't read and are not well-educated - so, abstractions are not useful. And anything that's said...or talked about with respect to patterns needs to be talked about in a way that is very real. For example, the position of the temple relative to the main road. People would have to say: "Yes, the temple cannot face a house" or: "You have to be able to circumambulate the temple". They

can talk about that but any more abstract way of describing it, it wouldn't make sense. So, to the extent that it is real, and particularly if you can simulate it on the site, then it becomes ok to talk about.

A: And the Pattern Language, was it providing this contact with reality, wasn't it?

H: Well, yeah. One of the first stages in the project was us visiting the site, when I agreed to do the project. Tom had come down from Puna to join us in December. I had planned to come back to Vellore in March to actually do the site layout. In between January and March Tom and Paul did this pattern investigation where they went to look at villages and slums and came up with this Pattern Language which was used for the site layout when we came back in March.

A: So, the Pattern Language was based on the investigation of things that were already there?

H: Oh, yeah, absolutely.

A: And how was it?

H: The way that worked is that Tom and Paul went and looked at different places, whether they were villages or settlements, and they were basically looking for places that were healthy. In other words, where there was good life and things were as if they were working well. And then it's those places that form the basis for the patterns. And then there were other places that were not working well, like large areas where people were not taking care of them, or where streets were too long and where various things were not working well. Those two kinds of places were compared and that was the source of the patterns.

A: So, it was a sort of evidence-based pattern language...

H: Absolutely! Evidence-based. It was only evidence-based.

A: So the patterns that were part of this pattern language could not be found in the book.

H: Not necessarily, no. Actually, it didn't come out from the book at all. It came out of pure evidence from these places, from south India, from these villages.

A: And would you say that one of the function and purpose of the pattern language was to establish a common understanding of southern India's urban and rural structures between you and these architects would engage the local community of Vellore?

H: Yes. I think Paul wasn't into patterns as much as we were. So it did put everyone on the same page. And also Nelson - who was the client and Paul's father-in-law - [...] he didn't know anything about pattern languages and it [the pattern language] helped us being on the same page as him as well.

A: Is there a copy of these patterns?

H: Yes, I can send it to you! I have to find it, but I think I must have it on my computer.

A: That would be really helpful, thanks.

H: Otherwise I can get you a copy. It's handwritten and very nicely documented. It was done by Tom. It's a lovely document!

A: I will review these patterns, of course, but as a preview: do they follow the same format of the original pattern language: "Title", "Problem", "Solution", "Sketch", and connections with other patterns? Or are they drafted like design guidelines?

H: Certainly, the Vellore pattern language has the "Title", and "Sketch". It doesn't have the "Problem-Solution" explicit structure but when you read it, you'll see that somehow it is in there. It also does not have the connections with other patterns, no. That's not there. So, it's more or less that. I suppose you can say it's certainly more than just design guidelines because when you read it, you realize the social reason for the patterns. So, it's a little bit more elaborate, a little bit more towards a pattern format than just design guidelines. Although, technically speaking, it's not formulated in the format of the original pattern language. But Tom knows about the pattern language and he was cognizant of it when he did the work. I hope I have it on my computer.

A: Thank you. I'd like to finish this interview with two questions about the pattern language and the people. So, the first question is: how did you use the pattern language to interact with the people? And the second question - which maybe is connected - is: did the contact with the people altered your

original evidence-based patterns, or they were not intended to be seen by the people at all? In other words, I would like to understand whether patterns served throughout the process or only at the very beginning, as a tool to understand the context?

H: Well, the patterns were mostly about the site layout, so they were mostly used at the beginning of the process and they did not have much to do with house design. I don't think we presented the pattern language to the people as a finished document before we started the design process on the site. I think it went as we were going along.

A: Did you try to talk about them with the people, even if not in a formal way? Were you careful to bring them up during conversations? Do you remember that?

H: I don't remember. I think we did but it was not a very formal thing. I think that when we [NOT CLEAR] site layout, we would engage in design tasks based on the pattern language, like: "The temple is here, [NOT CLEAR] the clinic is there". I think we must have said things like "Well, that's important. These things need to be spread out throughout the community so that each area has something important". But I just don't remember the actual conversation.

A: So, the pattern language was not the central elements of the project.

H: Well, I don't think it was. It was much more practical. Ultimately, it was down to where we should put the entrance, how could we put the entrance in a place that is visible if you are coming along the road and it's going to be central to the path that passes through the settlement. I think it must have been sort of *conversational*, but I just don't remember.