

## Abstract

This dissertation is about the natural material bamboo in the industrial context. As a beautiful plant, bamboo has developed a survival strategy in nature with its efficient structure through million years of evolution. It has been used by man as a useful material worldwide since the beginning of human civilizations. In many countries bamboo has played an important role not only in everyday life culture but also in art, literature and philosophy due to its elegant shape, practical utilizations and symbolic meanings.

But in the industrial context this excellent natural material could not be utilized as in history because its irregular form, inhomogeneous structure and variation of the material properties are difficult to be processed by standardized machines and to be assembled with standardized industrial components. Because of its traditionally manual processing bamboo is regarded as imprecise, raw, undeveloped and as a “material for poor”.

The industrialization of the material bamboo was supposed to solve the problem of utilizing bamboo in the industrial context, which has been considered an important strategy for local economic development in many developing countries where bamboo sources are abundant. Through industrialization bamboo is processed and fabricated into different standard industrial products which are mainly used as a cheap substitute for hardwood because bamboo grows much faster than timber and is a renewable source after 4-5 years. But in this process of industrialization bamboo loses its structural advantages and at the same time also loses the connection to its traditional bamboo culture.

Instead of industrialization, modernization should be the real solution for the problem of utilizing bamboo in the industrial context – the hypothesis of this dissertation. Modernization means the modernization of the relationship between the material bamboo and human needs, which was connected by craftsmen in the pre-industrial time, whereas this is achieved by a designer in an industrial context. Design with bamboo will be the first step of the modernization, where bamboo’s structural and cultural dimension have to be taken into account as the main breakthrough for overriding the difficulties between the material bamboo and the designer. This step will then be regarded as the preparation for the second step – building the modern cultural identity of bamboo in the industrial context.

With more and more new bamboo objects having been designed with appropriate consideration of its structural and cultural dimensions getting into people’s modern daily life, bamboo as material can build its new cultural identity in the industrial society – a cultural identity with multiple modern meanings which represent a harmony of its inner structural and cultural dimension and the outer industrial context. This will be the result of this dissertation. This study on bamboo also aims at giving an example of how design can contribute to a sustainable development in which not only technology and economics, but also environment, culture and tradition should all be considered thoroughly.