

P5 Reflection

Aspect 1

The relationship between research and design

Looking back to the entire process, from the beginning until now, of this graduation project and evaluating the methods used, draws quite interesting conclusions. It can be also very didactic to check the general graduation plan that was organized at the starting of the project and compare it with how things finally came.

The initial approach towards the research and the design was characterized by a division of the whole process into following steps that like stepping stones were having a single forward direction towards the final product. Specifically for this project, the first step was the research part divided into two categories (research on natural fibres and research on bio-resins), the second step was the design phase and the third step was the evaluation of the design. These general categories were then divided into subcategories that were spread into a general graduation plan for the entire graduation period.

However, throughout the project the methodology proved to be not a linear sequence of following steps but a more complex procedure of the parts co-existing at the same time in a "web" system of information exchange. In that sense, the research was continued also during the design phase and actually influenced entirely the design process. Similarly, the calculations from the structural analysis were re-updating continuously the shape of the bridge. Following such a method, the design which has a central position between this "net", was gradually sharpened until the final optimized form.

Considering the results of this multi-dimensional methodology and comparing it as a process to a linear forward-directed stepping procedure, it is proved that the first approach is more efficient in bringing good results. For this project it was very crucial that the research was present throughout the entire design phase and gradually narrowed the design possibilities to more optimum results. The specific part of the projects, that the contribution of research evaluated and redirected the design was after the first design approach. The results consisted of bridges that although they were structurally and aesthetically acceptable, they were not efficient in terms of production and cost. The research done at that time on production techniques and their cost attributes resulted to more rational and sensible designs.

Important part of the design was also the collaboration with composite companies and the discussions with specialists about technical issues. The information and knowledge taken from them was actually not an individual research but valuable experience that influenced the design considerably.

Aspect 2

The relationship between the theme of the studio and the subject/case study chosen by the student within this framework (location/object)

The Building Technology Masters studio consists of three themes, not strictly separated from each other, that are related to sustainability: Climate design, Structural design and Façade design. As the subject of this graduation project is the design of a pedestrian bridge this graduation project is obviously oriented towards the design of a structure.

However, sustainability is approached through the materiality and production of this structure, which suggest a sustainable alternative of a widely and increasingly used material in the building industry: fibre-reinforced plastics. By using renewable raw materials such as natural fibres combined with a bio-resin, this bio-based bridge relates to the main theme of studio, sustainability, through structural design.

Aspect 3

The relationship between the methodical line of approach of the studio and the method chosen by the student in this framework

In general the methodology suggested by the studio, which is the sequence of research, design and evaluation organized and divided into the P presentations is kept with the main characteristic that each part was not strictly separated with the other. As it was also previously mentioned, the continuous interaction of research-design was crucial. Therefore, in the P2 presentation most of the literature reference was presented while in the P3 was a mixture of research and design. Having reached the P4, all the research is completed and the design is in a final stage.

Aspect 4

The relationship between the project and the wider social context

I think that the most impressive achievement of a bridge, which was a great achievement of engineering, is its ability to transform a state of separation, such as a river or a highway, into an opportunity for connection. This connection obviously influences peoples life's in every aspect. So if we consider two inhabited areas separated by a river, the construction of a bridge directly affects the social life of the people by giving them the chance to come closer.

In a similar way with the previous example, the bridge of this graduation project is connecting two areas with quite different characteristics that are separated by a small ditch. The one part is a logistics park and the other part is a small public green park attached to an inhabited neighborhood. So the green park functions as a buffer zone between the two different areas and the bridge gives the opportunity to the employees from the logistic companies to pass the ditch and approach the park, where they can socialize and relax during their breaks. Thus, it becomes clear how important is this structural element in our social life, even if it is not always within our perception.

Another influential aspect of this particular bridge is related to its material. A bio-plastic bridge certainly does not have the same appearance with a common steel or wooden bridge. Plastics are widely used in our day life, but mainly in the objects that we use. In the building industry polymers are relatively new and therefore the material itself gives a more contemporary and innovative air to the structure. This effect in combination with an aesthetically pleasing result allows for creating a small-scale iconic structure that would influence peoples life in the surrounding area by attracting them to pass over it.