

# BETTER COLLABORATIVE PROJECTS WITH THE INDUSTRY

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## ABSTRACT

There are several problems to handle when setting up collaborative projects between University Design Programs and external partners like companies. Research in this area would therefore be of educational relevance, and the paper lines up significant problems followed by suggestions to create a smoother collaboration between such parts. According to a global survey<sup>10</sup> in this area university teachers and design program managers in many parts of the world highly value collaborative projects with external partners like industrial companies. It is often problematic, though, to agree upon conditions that satisfy the company and the university when it comes to matters like confidentiality and intellectual rights property. The involved students and staff from the university and the companies find themselves in a grey zone with only a few if any standard solutions. The author therefore suggest a scale that balances the involvement, investment and benefits from the involved parts and gives 3 examples on types of collaboration that could be used as a reference to qualify the discussion among the involved parts in collaborative projects.

*Keywords: Collaborative projects, industrial design program, design engineering program, design education, global survey, collaboration models, futon, companies, CPPB*

## 1 COLLABORATIVE PROJECTS IN A BROAD PERSPECTIVE

Collaborative projects involving external parts like companies can help design students to understand the challenges they will meet outside the university, and students can test the methods and tools that they learn through studies, lectures and exercises. Today it is therefore no longer rare to find university design programs that integrate collaborative projects in the curriculum. Frequently you see research papers summing up results from such projects involving companies<sup>1</sup>, institutions or organizations<sup>2</sup>. You can also find research arguing for either multidisciplinary collaborative projects<sup>3</sup>, and a Norwegian research project discusses the relevant size of fee to be paid by the external partner and how to choose the right company to work with<sup>4</sup>. Still it can be difficult to get an overview on the general tendencies and experiences in this field. This is why the CPPB survey<sup>10</sup> was set up by the author of this paper in 2008 involving supervisors and design education managers from 12 universities in 9 countries covering 4 continents. English briefs of the CPPB survey are given in the conference papers entitled *Collaborative Projects – a Global Survey*<sup>5</sup> and in *Design Students and Companies – what's the problem*<sup>6</sup>

## 2 TENDENCIES AND DIVERSITY

The CPPB respondents were not chosen from a prior assumption that they did collaboration projects but they represent a geographical and cultural diversity that indicates a global view on the topic. Nevertheless collaborative projects were integrated in all the design programs at the universities in different countries like P.R.China, Canada, Germany, Finland, Denmark, Scotland, Mexico, Iran and Australia.

Half of the respondents claimed that they expected to do collaborative projects to a higher extent or a much higher extent in the future, while 42% of the respondents expected that the amount of such projects would be the same.

The survey showed different ways to organize such projects and different preferences<sup>5</sup>. At the universities in Canada, Germany and P.R.China the most involved collaborative partners were

*producing* companies with more than 1000 employees, while the design programs in general primarily involved medium or small *producing* companies with less than 1000 employees.

One of the universities organize collaborative projects every semester while design programs at some of the other universities only involve collaborative projects in two or three semesters. All the surveyed university programs offer collaborative projects at 4<sup>th</sup> study year, and typically the collaborative projects are mainly offered at the last 2-3 years of study which means that mostly master students are involved in such arrangements.

The preferred group sizes vary a lot when comparing the universities. Most respondents in the survey mention that the students are working individually in such projects, but some of the responding universities mostly organize such project as a team work involving groups with 6 or more people per group.

### 3 HUGE ADVANTAGES FOR DESIGN PROGRAMS

The respondents claim that collaborative projects are advantageous on several levels. Especially when talking about subjects like collaboration, communication and understanding the profession. Hence the university representatives specifically mention the following areas where collaborative projects were an *advantage* or a *huge advantage*:

*Understanding the profession (claimed by all 12 respondents)*

*Developing collaboration skills (claim all 12 respondents)*

*Developing Communicating skills (claim 11/12 of all respondents)*

*Understanding Economical aspects (claim 11/12 of all respondents)*

*Understanding business and the market (claim 11/12 of all respondents)*

Furthermore the respondents claimed that the following areas gave advantages or huge advantages when working with external partners:

*Gaining knowledge in general* (all respondents), *Understanding the Users* (10/12 of all respondents), *Understanding materials and technology* (10/12). Also 10/12 of the respondents answered that collaborative projects are an advantage or a huge advantage for *Creating a Better Study Environment*.

### 4 BENEFITS FOR THE INDUSTRY

Although this survey only builds upon the answers from supervisors or design education managers from diverse universities and not representatives from companies, it is quite probable that the external partners equally appreciate collaborative projects with design students. Dr. Mark Brietenberg, president of ICSID, The International Council of Societies of Industrial Design, argues in the ICSID web-article ‘Design education and the Corporate Partner’<sup>7</sup> that there is a ‘growing interest in partnerships between design schools and corporations on both sides. At the same time, many design schools have added business education to their curricula, and corporations are promoting the design education of their employees’<sup>7</sup> and ‘design students are still outside many of the constraints and pressures of the marketplace and the corporate hierarchy. This allows them to engage in “blue sky thinking” that corporations really need but have difficulty doing themselves’<sup>7</sup>.

Furthermore researchers have indicated<sup>8</sup> that the new millennium generation is trained in *mosaic* thinking and problem solving in a way that is more seeking and anti authoritative than often practiced by elder members of R&D company staff. And again one could point out that the students themselves are often much better trained in using effective digital tools and network media for advanced communication. Therefore the external collaborative partner could get more than just a fresh view on a specific topic – they might also get the thoughts and values and methods of a technologically very competent generation integrated in the project solutions.

### 5 PROBLEMS IN THE GREY ZONE OF COLLABORATIVE PROJECTS

The CPPB Survey, however, also shows that there are different problems in relation to setting up, running and finishing collaborate projects. The external part often has to adjust to the time schedules and presentation formats of the university while students and teachers on the other hand sometimes have to sign agreements on confidentiality and other restrictions for handling the company information and results of a collaborative project. Such a mutual agreement isn’t always problematic, but half of the respondents<sup>5</sup> claim that *Cooperation in General* caused *Minor Problems*. 9 out of 12 respondents

pointed out that *Time-Frame* and *Rights (Intellectual for example.)* caused *Minor Problems* and 10/12 mentioned that *Agreements/Contracts in General* caused *Minor or Big Problems*.

It can be a difficult task to set up and handle agreements on design matters in *professional* practice where a practicing designer or design company plans a project with a client or a partner. But in *professional* business you can often refer to known models for collaboration where the tasks and rights of each part can be pointed out and described no matter if you set up a traditional pay per hour agreement or if you set up a royalty-based model. But in a situation where a research and educational institution like a university is involved in a collaborative design student project you move into a grey zone, where traditional borders are wiped out when it comes to rights, responsibility, economy and information flow. In design oriented concept development and product development even a simple sketch or concept can be very valuable for a producing company. This fact can stress the mutual understanding or agreement on the intellectual rights and question if anyone should be rewarded or paid if the proposal is afterwards put into production. In traditional professional practice such matters would be part of an agreement between the design company and the client, but who has the ownership of the excellent ideas and who should be rewarded in collaborative projects with a university and its students? The Student, the supervisor or the university? And what if the best proposal is a result of a group work involving several students?

An external company might find that it is risky business to involve design students in projects of high strategic value as long as it is not cleared out beforehand how the information is to be handled during and after the project period. Such a project could build upon important and secret data concerning the market and technology that the company expects to keep secret even if such information is part of the project brief. A competitor company might find it valuable to know if the collaboration company is looking for solutions for products suited for a new customer segment. In such cases it can be problematic if the student wants to use the project results as a reference when seeking jobs after graduation or if the university wants to present the project results as a part of an annual exhibition with public access.

## 6 STRESSING PARTICIPANTS AND COORDINATORS

Although you could see such problem areas as a matter between the company and the university as an institution, the author of this paper finds that it also creates a stressing situation for at least the following three persons:

1. ***The Student***
2. ***The supervisor or project coordinator from the university***
3. ***The contact person in the collaborative company***

1. *The student* might not be used to handle confidentiality and will therefore be stressed from considerations as to whom he can discuss the project before, during or after the project. The student can even be forced to sign an agreement stating that he is not allowed to work for a competing business, and this might limit the candidate's career all too early.

2. *The supervisor or project coordinator* can stress the integrity of the university and he might fear that leaked information can break the confidentiality agreement and lead to claim for damages against the university or himself. Especially if there are no official university standards concerning such collaborative projects. Agreements on confidentiality can also make it difficult for him to further use or communicate the gained experiences from the project in teaching, in discussions with colleagues or when informing about the university results and focus to the public.

3. *The contact person* in the collaboration company might not be the owner of the company or a CEO, and therefore the contact person can put his own job or position at risk if there is not taken sufficient precautionary action to ensure that the company has the rights to all the results of the project. Also the contact person's superior could claim that sensible information is distributed through the project participants.

Despite the best intentions from all the involved parts, each of these three persons can feel uneasy or stressed in collaborative projects if no clear agreements has been made in respect of the needs and conditions of all the parts. The authors of this paper does not know any specific courses or educational programs with focus on handling such delicate matters, and it is an area where all the involved parts might have to act from own intuition while trying to limit the possible damage for the institution that they represent. You can of course get a certain experience and training in setting up such conditions and agreements, but the authors of this paper (who are experienced coordinators of collaborative

projects themselves) know more cases that has been very difficult to negotiate and some cases where very promising and possibly rewarding collaboration plans had to be cancelled because of different expectations on rights and responsibilities.

There is also a risk that the external part refers to more favourable agreements with other universities, hence provoking a competition among the different parts on the ability to adjust to the demands from a large and attractive partner company.

Earlier in this paper it was mentioned that there is a global trend towards more collaborative projects between university design programs and external collaborative partners, and therefore the above mentioned problems will probably grow in the future. Researchers have pointed out that such projects can be problematic if they substitute profitable projects that would otherwise be handled by professional practicing designers<sup>4</sup>. On the other hand you could as well claim that such projects probably often inspire the collaborative company to continue the process or set up new projects by involving professional design agencies afterwards.

## 7 BETTER UNDERSTANDING AND GUIDELINES?

To improve the conditions for collaboration and encourage more projects of this kind it would be fruitful to establish a mutual understanding on important matters concerning intellectual rights, matters of confidentiality, economy and commercial exploitation of the results. Such attempts might even be followed up with courses for coordinators representing the most important parts in such projects to ensure more and smoother collaborative projects in the future. Such standards or guidelines could be developed under the auspices of designer organizations like the Design Society, and the author of this paper suggests that the different collaborative experiences and models are described and categorized in a way that enlightens the pro's and con's in the different categories. You could for instance define 3 categories of collaborative projects like this:

### **Category A Collaboration:**

The students work on a project that is primarily defined from their own research and interest although it could focus upon the needs of a specific external part like a company. The external part gives no confidential information and cannot claim any rights concerning the project results, but they can take part in sparring and final evaluation of the project. The external company or institution can support the project in general and maybe even buy or give awards to interesting project proposals.

### **Category B Collaboration:**

The project collaboration is based upon an agreement where the company defines the project focus and hands out the relevant data and it is specified which data are to be kept confidential by the university staff and teachers. The external part acquire the rights to exploit the commercial potential of the developed proposals and the university participants must keep the project results confidential for a limited period, but the external part must pay the University for this. The project material should be divided into a confidential and a non-confidential part that will make it possible for the university and the involved students to expose their participation in the project.

### **Category C Collaboration:**

The project is to be kept confidential in its entirety by the involved university staff and students for a specified period. All rights to exploit the project results belong to the external part in return for a prepaid economic compensation to the involved university and/or students. It is from the start defined how the project will be examined and to what extent any part of the project can be publicized.

## 8 SEARCHING FOR EXAMPLES AND BEST PRACTICE

The above mentioned models only cover a few relevant variations, and it is hard to recommend one model to the other. Still it would be smart to always match expectations and limitations before starting up collaborative projects of any kind, and models can be useful in such a clarifying process. Models might work even better if they are illustrated with *examples* from similar initiatives. The author of this paper frequently meets students who have signed agreements that put them into very unfavourable position when arranging a collaborative project with a company, but most often collaborative projects result in a win-win situation. This diversity in agreements, expectations and outcome is illustrated in 2 cases involving students from the design program at Aalborg University, Denmark:

### Students loose: the bad case

A group of students made an appointment with a leading manufacturer of mobile phones who accepted that the students could focus on the company's products. The students disclaimed all rights concerning the results and even signed a paragraph saying that they could not work for any mobile phone manufacturer for the next two years. The final project<sup>9</sup> was presented to the company representatives who gave professional response to the students but in return they demanded that the students were not allowed to discuss the project with other students nor could they show the results in public after examination. The students were therefore left with a fine project they could not show to anyone and they couldn't freely choose a job that fitted their specific competencies.

### Win-win: the good case

A group of students made an agreement with a minor furniture manufacturer on designing a new product that could open up the market for teenagers' leisure furniture. The agreement had no limitations concerning the students intellectual rights, confidentiality or exchange of sensible data, but the students were given material to build up mock up's in the university workshop. As a result of their semester project the students designed a product that received honourable mention in many magazines and afterwards the product was handed over to the company for production on royalty basis. The combined sitting and sleeping construction, NEST, (figure 1) is now in production on a global market, and it is expected that the students will receive royalty on approximately 10.000 £/year. Furthermore the students are now designing more furniture for the same company.



*Figure 1. The 'NEST' multipurpose futon seating. An example of a successful collaboration between Aalborg University design students and a company (Photo: Karup Partners, DK)*

The above mentioned models can be further developed or alternative categories can be described, but under all circumstances the design profession and the design society in general should find ways to create more smooth and less stressing models for collaborative projects between university design students and external parts. Such models could at best be used worldwide and hereby support the attempts to ensure that the future design students are well prepared to meet the challenges of the world outside the universities. In the Educational Board of the Danish Designers organization ([www.danskedesignere.dk](http://www.danskedesignere.dk)) the three models A-C have been used as a basis for developing a set of guidelines that will make it easier for all parts to set up or join new collaborative design projects, and hopefully such guidelines will be ready at the end of 2010.

### REFERENCES

- [1] De Vere, Ian. Managing Industry Collaboration: Providing an Educational Model in a Client-Led Project. In *New Perspectives in Design Education, Proceedings for the 10<sup>th</sup> Engineering and Product Design Education International conference, 2008* (Universitat Polytechnica de Catalunya,

- Barcelona, Spain, vol.2, Institution of Engineering Designers, The Design Society) 773ff.
- [2] Aparo, Soares & Pataco. Design as a Medium for the Traditional Portuguese Goldsmithing: The Nuance Project. In *New Perspectives in Design Education, Proceedings for the 10<sup>th</sup> Engineering and Product Design Education International conference, 2008* (Universitat Polytechnica de Catalunya, Barcelona, Spain, vol.2, Institution of Engineering Designers, The Design Society) 779ff.
  - [3] Gill, Carolina Gill & Arnold, James. An enlightening Challenge: The Procter & Gamble Multidisciplinary Student Design Collaborative. In: *Shaping the Future? Proceedings for the 9<sup>th</sup> Engineering and Product Design International Conference: Newcastle upon Tyne, 2007*. Institution of Engineering and Designers, The Design Society, 2007. (Hadleys Ltd. 2007), 555-560
  - [4] Liem, André. Finding the right type of industrial collaboration for the right type of studio project. In: *Creating a Better World. Proceedings for the 11<sup>th</sup> Engineering and Product Design International Conference: Brighton, 2009*. (The Design Society and Institution of Engineering and Designers , 2009).
  - [5] Eriksen, Kaare. Collaborate Projects – a Global Survey. In: *Creating a Better World. Proceedings for the 11<sup>th</sup> Engineering and Product Design International Conference: Brighton, 2009*. (The Design Society and Institution of Engineering and Designers , 2009), 26-31
  - [6] Eriksen, Kaare. Design Students and Companies – What’s the Problem. In: *Hemispheric Shifts Across Learning, Teaching and Research. Proceedings of the Cumulus Conference Swinburn University of Technology and RMIT University Melbourne, Australia, 2009*.
  - [7] Brietenberg, Marc. Design Education and the Cooperate Partner. Retrieved from the ICSID website: <http://www.icsid.org/education/education/articles182.htm>, February 2009.
  - [8] Sharp, Mike. Clubbers, Mosaic Thinkers and Design Process. In: *Shaping the Future? Proceedings for the 9<sup>th</sup> Engineering and Product Design International Conference: Newcastle upon Tyne, 2007*. Institution of Engineering and Designers, The Design Society, 2007. (Hadleys Ltd. 2007), 209-214.
  - [9] Ovesen, Nis. Mobility Matters – A preview of Mobile Web 2.0 Products. *Confidential Students Project Report*, group 17, 10<sup>th</sup> semester, (Aalborg University, 2007).
  - [10] Eriksen, Kaare. Eksterne samarbejdsprojekter – Problemer og fordele/Collaborative Projects – Problems and Benefits. (The CPPB-report). *Working Report*, Aalborg University, 2009.