

Soft Skills as a Tool for Interdisciplinary Teamwork of Product Designers

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Abstract

The results of the work of product designers are increasingly not possible without teamwork and especially interdisciplinary teamwork. Product designers often have a key role to play in such teams, and in addition to hard skills, they also need the soft competencies needed to interact in a team in order to be successful in their work. This study aimed to map the most important soft skills needed for interdisciplinary teamwork. 98 students in the field of product design and at the same time professional product designers took part in the international research. The research was based on the principle of a case study with journalist's investigative methods in combination with qualitative and quantitative research and comparative analysis of documents. These documents have identified the most necessary soft skills for product designers in the last five years. In the next phase of the study, the research work was focused on building a competency model of the most preferred soft competencies, which are: teamwork, problem solving, communication and time management. The competency model could guide the preparation of educational courses and workshops, in which soft competencies would be developed for students in the field of product design, but also for professional designers. The reason is the clear need for good acquisition and use of competencies that will enable better interdisciplinary teamwork.

Keywords: Interdisciplinary Teamwork, Soft Skills, Product Design, Job Market, Competency Model

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Introduction

Design has its origins in making things. Good designers are curious and interested in what is happening in the world around them. The innovations in all areas need more cooperation of different professions. Designers are usually in the centre of teams to be able to understand to other experts. The study is focussing on the soft skills of product designers that they need for their successful work at interdisciplinary teamwork. *“Teamwork empowers students through critical reflection, providing an emancipating learning situation in preparation for professional design practice”* (Findlay, 1997).

The starting point of this study is the assumption that designers will acquire professional competencies (hard skills) during their studies at university, but that they also need soft competencies for their work to be successful in their practice. The use of soft skills is considered natural and common for the work of product designers, but at the same time students in this field do not have many opportunities to strengthen these competencies.

One such option is to work in interdisciplinary teams, in which designers together with other experts design new products. In such situations, they must communicate effectively, be able to plan their work, solve ongoing technical problems and at the same time understand their teammates and also to their clients. Working in a team is primarily working with people. Employers and customers also want such skills from professional designers, so they cannot do without these competencies on the labour market.

The aim of the study was to compare which soft competencies are considered important by product design students and professional product designers, and what competencies are required of designers by the job market. Based on this analysis, a competency model of the most important soft competencies was created, which the product designer needs for his successful work.

The term “interdisciplinarity” is not confined only to academic settings, because it involves the combining of two or more disciplines as can be for instance research project. It is also about creating something by thinking in new way and across the common boundaries. There are several processes that can improve interdisciplinarity, such as ongoing coordination (Sveen et al., 1999), the assessment process (Avlund et al., 2002), and flexibility (Nancarrow, 2004), or effective communication and time management. This can lead to intuitive understanding between team members (Lamont, 2009). Flaherty (2015) even speaks of interdisciplinary cooperation *“as a cognitive-emotional-interaction platform”* that can connect individual team members.

We can then consider as an “interdisciplinary team” a group of experts (students), who are from several different fields (designers, engineers, economists, technologists, medics etc.) and who work together toward a common research goal or project (Nancarrow et al., 2015). Teamwork can significantly support the development of student skills, not only professional, but especially soft skills (Meizlish & Anderson, 2018). A joint project of experts from different professions can thus help eliminate competition between experts from the same field and give team members the joy and enthusiasm of working together and thus contribute to a higher quality of their results. Competence equipment that will lead to the effective functioning of teamwork will

eventually also lead to the setting up of certain organizational schemes, which will be able to follow teamwork by default in the future (Flaherty, 2015).

Personal development is often about “soft skills” that help people be successful not only at work but also in personal life. These competencies, which can include communication, the art of problem solving, people management, time management, flexibility, or teamwork, speak to our social interaction (Matteson, 2016). Hard skills, unlike soft ones, are job specific - for example, also in product design. The meanings of the individual specific soft skills differ slightly, but the aim of this study was not to unify their definitions, because in general the meanings of these competencies are clear.

This study developed a competency model of the most preferred soft skills based on international research among product design students and among professional product designers. In addition, the results of the research were compared with documents that in recent years mapped the soft skills of product designers in terms of labour market needs.

Methods

The research was designed as a combination of traditional and innovative methods that Walker (2018) calls “*journalist’s investigative methods*” as an innovative approach with combination of quantitative analysis (questionnaire), qualitative analysis (interview with respondents and document analysis). The individual elements of the research were based on a case study, which defined the overall research environment. A total of 98 respondents were involved in the international research – 86 product design students from three universities and 12 professional product designers.

Case study

This case study addresses the issue of soft skills that designers need to successfully work in an interdisciplinary team and design new product designs. The study examines what soft competencies the product market requires of product designers and what competencies they consider important to work in an interdisciplinary team. It happens that product design students work in teams on assigned tasks already during their studies, but at the same time universities do not offer them courses in which they could develop their soft competencies. This creates an imbalance in the skills that designers have and need for their teamwork. This can stimulate a wider interest of students and motivate them to work in a team. (Yanamandram & Noble, 2006)

The case study maps the soft skills of product design students and professional product designers who have experience working in interdisciplinary teams and compares their own experiences with research that has addressed the soft skills of product designers based on labour market needs.

Based on these parameters, 86 product design students from three universities and 12 professional product designers were selected for the research. Students were from the following universities: 1) Ladislav Sutnar Faculty of Design and Art, University of

West Bohemia in Pilsen, 2) School of Design of East China Normal University in Shanghai, 3) College of Engineering and Design of Hunan Normal University in Changsha. Each of the respondents had to define the seven most important soft skills through a questionnaire. The results of the preferred competencies were analysed and summarized. In addition, an online structured interview was conducted with some respondents, the aim of which was to map the designers' experience with interdisciplinary teamwork.

Only 2 sources were selected for the analysis of documents that map the most important soft skills of product designers from the point of view of labour market requirements. It was a comparative analysis of documents that will not be older than 5 years and which were published online and worked with a sample of more than 100 respondents. Only 2 documents met such requirements, namely:

- Designing a Future Economy from Design Council's 2017 investigating report,
- 2019 Product Design Hiring Report first global survey of InVisionApp.

To verify the labour market requirements for soft skills for product designers, the qualification requirements of the National System of Occupations of the Czech Republic for the profession of product designer were also included in the analysis of documents. Product designers are increasingly in demand in the market (2019 Product Design Hiring Report first global survey, InVisionApp, 2019).

Results

The questionnaire survey of 98 respondents showed that the most important soft skills include: teamwork, problem solving, effective communication, time management, flexibility, presentation, empathy.

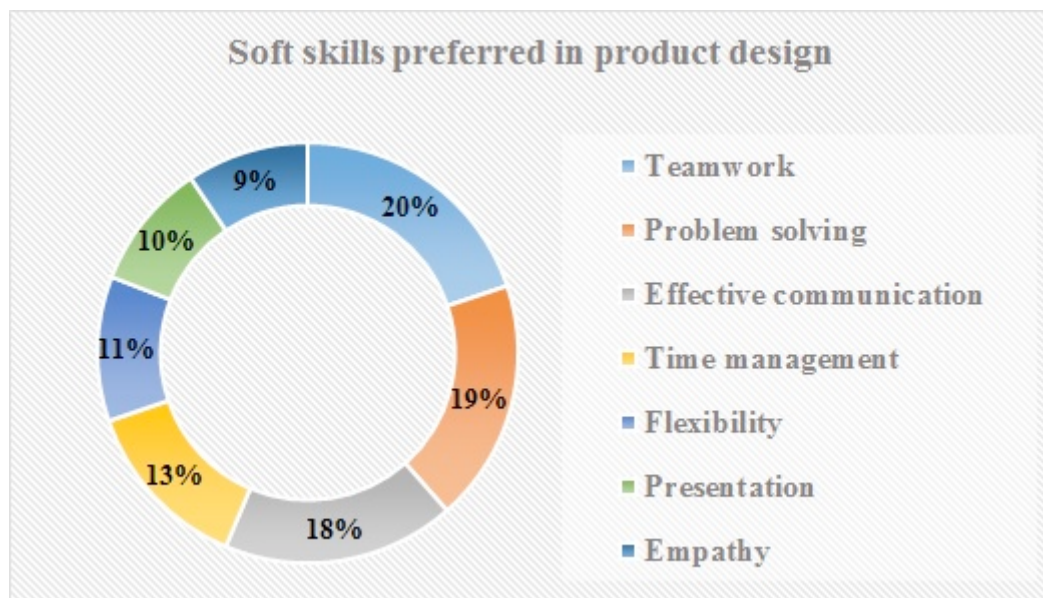


Figure 1: Results of international questionnaire survey.

And here are the comments of 6 respondents on the choice of preferred competencies:

- *"Product designers often need to integrate various factors to advance their work. The most difficult part may be to understand how to balance different demands at all levels."* (Jan, professional product designer, on-line interview, June 22, 2020)
- *"Effective communication and clear division of labor."* (Peter, professional product designer, on-line interview, June 24, 2020)
- *"It is difficult to fully understand the starting points of the counterparty and to properly communicate one's own creative intention so that it is acceptable and understandable for other team members. So I would say that proper communication in a team is the most difficult."* (Wenceslas, professional product designer, on-line interview, June 22, 2020)
- *"The most difficult for us was to find the way how to organize our work and how to communicate effectively."* (Jenny, student of product design, on-line interview, June 28, 2020)
- *"With respect to other professions, it's important to be open. Listen, keep your eyes open, and then be able to look easily from above and between lines. The most important invention for such collaboration is certainly communication."* (Stephan, graduate student of product design, on-line interview, June 29, 2020)
- *"Getting on a team is sometimes very difficult and then finding the right role in it. Being able to explain your views is also very important."* (Jan, student of product design, on-line interview, June 30, 2020)

The analysis of the document Design and Future Economy showed that the most preferred competencies are: planning and organization, problem solving, customer handling skills, teamwork, communication, strategic management skills, literacy skills.

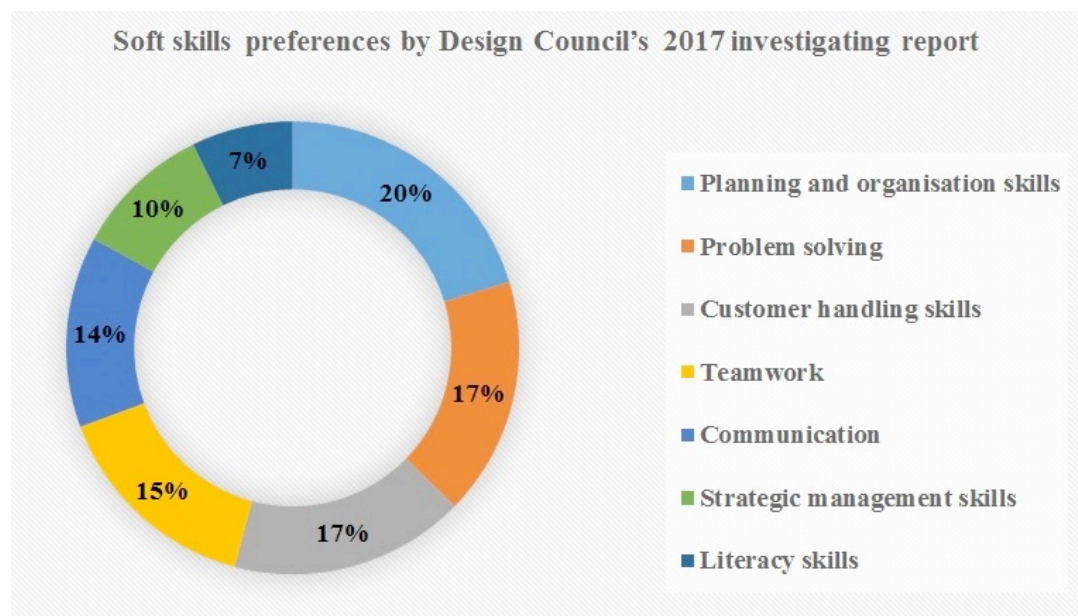


Figure 2: Soft skills preferences by Design Council's 2017 investigating report.

2019 Product Design Hiring Report survey showed that the most preferred soft skills include: teamwork, communication, empathy, emotional intelligence, presentation, leaderships and business operation.

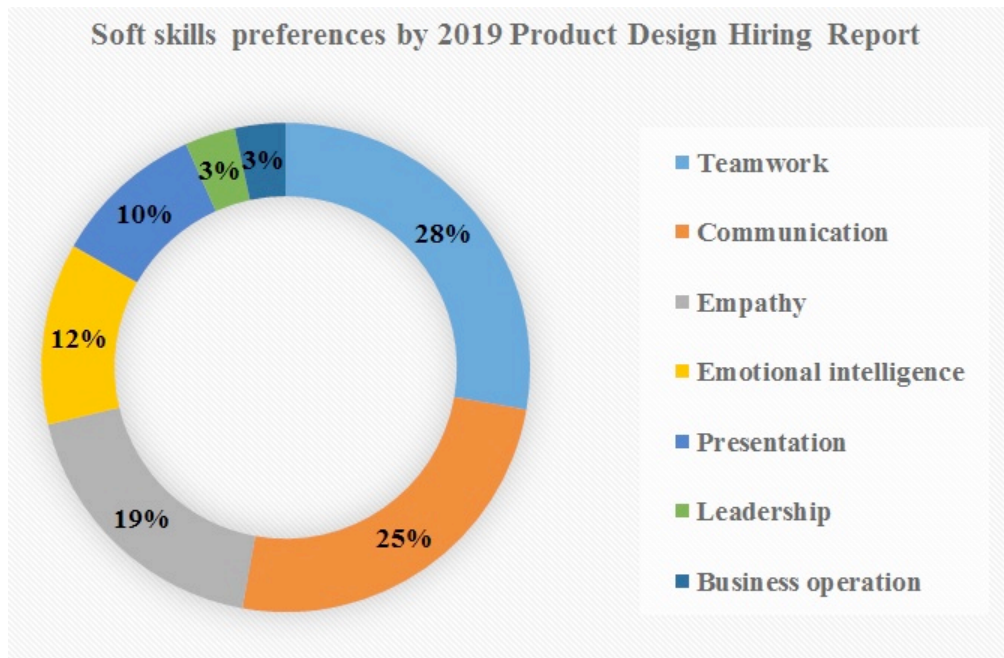


Figure 3: Soft skills preferences by 2019 Product Design Hiring Report.

The qualification requirements of the National System of Occupations of the Czech Republic for the profession of product designer shows preferred soft skills as communication, problem solving and team cooperation (<https://www.nsp.cz/jednotka-prace/samostatny-designer-vyrob>).

The aim of the final comparative analysis was to identify the most frequently preferred competencies between the questionnaire survey and documents and, based on that, to compile a competency model that will show the most preferred soft skills in the field of product design. These competencies are: teamwork, problem solving, communication and time management. Therefore, it is important for product design students and also for professional product designers to be able to develop these soft skills in the long run, so that they can later succeed in the job market.

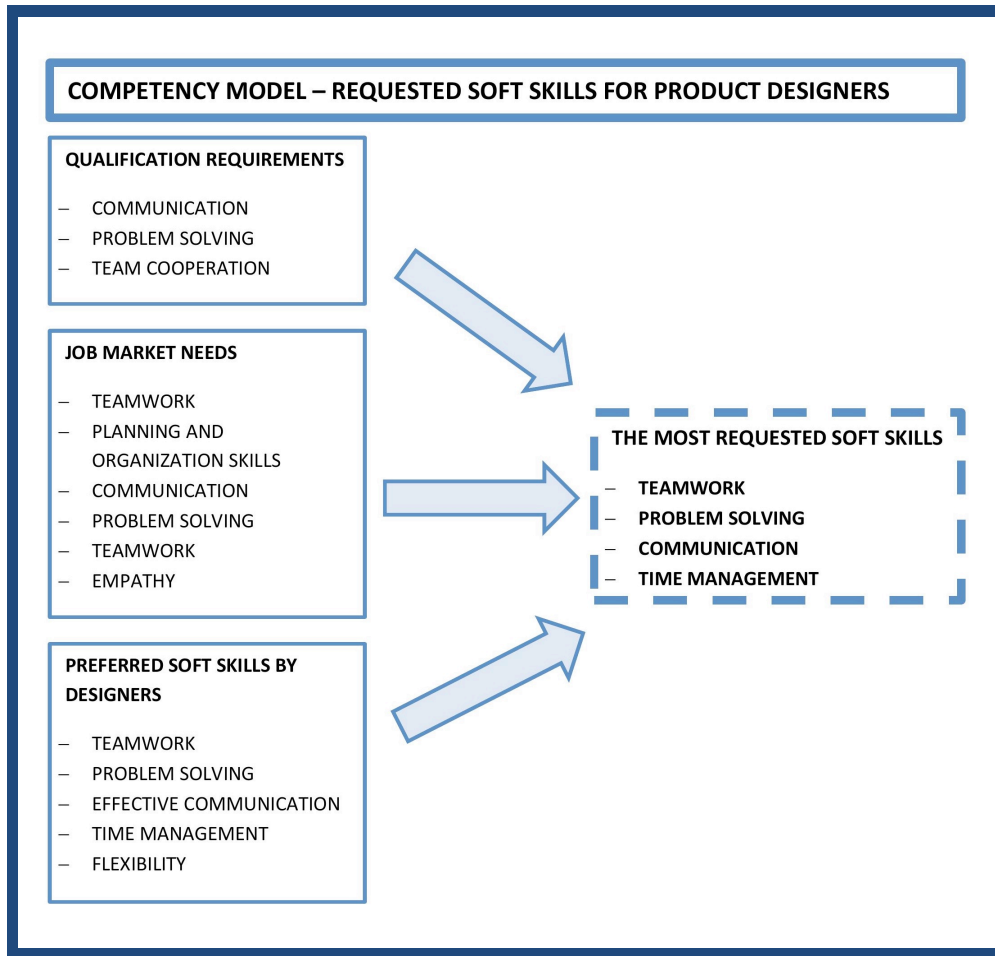


Figure 4: Competency model – requested soft skills for product designers.

Conclusion

The work of product designers is in great demand on the market, because production and services continuously develop new and new types of products for their customers, supplemented by various innovative elements.

Due to the high level of technological progress and the frequent complexity of new products, designers must work closely with experts from other professions who also participate in the development of new products. Such work is carried out in a team, which in this case we call interdisciplinary. Being successful in a team does not only mean being the best product design expert, but also being able to use a range of other skills to make the team work well and efficiently and to achieve the planned results in the optimal time. In addition to hard skills, soft competencies also have their application, which help designers succeed in teamwork and in the job market.

The case study maps the soft skills of product design students and professional product designers who have experience working in interdisciplinary teams and compares their own experiences with research that has addressed the soft skills of product designers based on labour market needs.

The results of an international survey showed agreement in the most preferred soft skills as evaluated by product design students from three universities and at the same

time as evaluated by professional product designers. In this case, however, it was also a matter of agreement between the results of combined research and the analysis of documents in which the most necessary soft competencies in the field of product design were defined according to the needs of the labour market. Qualification competencies from the National System of Occupations of the Czech Republic then served as a comparative element.

Based on this comparison, a competency model of the most needed soft skills for product designers was designed. This competency model could be a guide for the preparation of educational courses and workshops, in which there would be the development of soft competencies for students in the field of product design, but also for professional designers. The reason is the clear need for good acquisition and use of competencies, which will enable better teamwork, communication, cooperation in solving problems and time management. Without this competence equipment, involvement in teamwork is very problematic. Investing in the development of soft skills in the field of product design will clearly pay off and will help designers in their better application in the job market.

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Resources

“2019 Product design hiring report” by InVisonApp:
<https://www.invisionapp.com/hiring-report>

“The Bauhaus, and the collaborative critique” by Robert Findlay:
<https://www.acsa-arch.org/chapter/gropius-the-bauhaus-and-the-collaborative-critique/>

“Designing a Future Economy” by Design Council:
<https://www.designcouncil.org.uk/what-we-do/research/designing-future-economy>

“Interdisciplinary Collaboration” by Colleen Flaherty:
<https://tomprof.stanford.edu/posting/1468>

“Qualitative evaluation of the implementation of the Interdisciplinary Management Tool: a reflective tool to enhance interdisciplinary teamwork using Structured” by Susan A. Nancarrow, Tony Smith, Steven Ariss and Pamela M. Enderby:
https://www.researchgate.net/publication/269726573_Qualitative_evaluation_of_the_implementation_of_the_Interdisciplinary_Management_Tool_A_reflective_tool_to_enhance_interdisciplinary_teamwork_using_Structured_Facilitated_Action_Research_for_Implement

“Product designer” by National system of professions of the Czech Republic
<https://www.nsp.cz/jednotka-prace/samostatny-designer-vyrob>

“Teaching in Teams: A Planning Guide for Successful Collaborations” by Deborah Meizlish and Olivia Anderson:
http://crlt.umich.edu/sites/default/files/resource_files/CRLT_no37.pdf

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