

MAPPING THE COMPETENCES NEEDED FOR THE CAREER DEVELOPMENT OF PRODUCT DESIGNERS

Tomas Chochole, Ladislav Sutnar Faculty of Design and Art, University of West Bohemia, Czech Republic

Abstract

Professional success on the labour market is the key element of every working field. Although designers can work completely independently, if they are to work on the shape solution of new products, they must enter into team interaction with other experts. In this case, career development is not only related to professional growth, but also to the competencies that will support their interdisciplinary team cooperation. Based on this broader concept, the idea of an international type of research was born, the aim of which was to discover competencies that support long-term career development in interdisciplinary cooperation in the field of product design. Students from three universities from the Czech Republic and China, as well as professional designers, were involved in the research. In terms of research methodology, it was possible to perfectly combine traditional research methods with an innovative approach and also with a comparison of research results with other international studies that deal with the needs of the labour market for product designers. A comprehensive analysis of the environment showed that the most preferred competencies are, for example, teamwork, problem solving, flexibility, effective communication, or time management.

Keywords: career development; interdisciplinary teamwork; soft skills; product design

Introduction

The cultural and creative industries have been gaining in importance since the early 1990s, both in terms of GDP generation and in the socio-cultural and working fields. In 2016, the industry in the European Union amounted to EUR 41.7 billion, employing almost 7 million people. Although we still cannot objectively measure the performance of the cultural and creative industries in the Czech Republic, we know that the gaming industry, advertising and industrial and product design have long been among the most efficient fields.

One of the key elements in the field of cultural and creative industries is the development of competencies for interdisciplinary cooperation. Only then can something new be discovered and innovated. The development of new products in recent years requires the teamwork of experts from many professions, so that the final product not only achieves the best technologies, but also meets ergonomic requirements and has a high aesthetic quality in the form of its unique design. The once strongly individualized work of designers is thus significantly shifted to the position of team cooperation, in which not only professional

knowledge and skills, but also competencies supporting these complex forms of cooperation are justified.

In the case of this study, it is a matter of connecting product designers with other professions and thus strengthening their career development. This paper focuses on mapping the key competencies of product designers (students and professionals) with regard to their interdisciplinary cooperation and career development. 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. *"Teamwork empowers students through critical reflection, providing an emancipating learning situation in preparation for professional design practice"* (Findlay, 1997).

Mapping the competencies needed for the long-term career development of product designers is thus logically offered, as it can help to systematically develop not only their hard skills but also soft skills, which designers will use for their career success and growth. Therefore, the study focused mainly on the area of development competencies that help designers for their professional development. On a basic scale, it was a matter of comparing the soft competencies of product design students and professional designers with the requirements of the global labour market.

The research framework of the study is defined by several key terms. The term "interdisciplinarity" in our case does not focus only on the academic environment, because it includes a combination of at least two, but rather more disciplines in which there is interaction, for example, in the development of new products. In a university environment, these practical principles can simulate, for example, interdisciplinary research projects. It is therefore a matter of creating a new result, when in certain developmental stages new ways of thinking are applied and traditional professional boundaries are overcome. Various types of processes can actively promote interdisciplinarity, such as the process of ongoing coordination (Sveen et al., 1999), the evaluation process (Avlund et al., 2002) and flexibility (Nancarrow, 2004) or effective communication and time management. Thus, intuitive understanding between members of an interdisciplinary team can be achieved in a practical way (Lamont, 2009). Flaherty (2015) even speaks of interdisciplinary collaboration *"as a cognitive-emotional interaction platform"* that can connect individual team members.

Interdisciplinary cooperation is most often associated with a team, which in our case can be a group of different experts (students) across their field, such as engineers, technologists, economists, sociologists, designers, etc. They collaborate on a joint research project (Nancarrow et al., 2015). Teamwork can also significantly support the development of students' skills, not only hard skills, but especially soft skills (Meizlish & Anderson, 2018). These types of joint projects not only lead to complex results and outputs, but also give more space to experts from the same fields to share different experiences and practices. In addition, it brings the joy of joint (team) success. The transfer of examples of good practice in these cases leads not only to greater efficiency of teamwork, but also to efficiency in setting up organizational processes

and structures, within which, of course, it is possible to better monitor the course of teamwork (Flaherty, 2015).

If we talk about personal development about "soft skills" that help people to be successful not only at work but also in personal life, then their spectrum is relatively wide and from a scientific point of view, this area is not uniformly systematized. These competencies, which can include communication, problem-solving skills, people management, time management, flexibility or teamwork, contribute primarily to our social interaction (Matteson, 2016). Hard skills, as opposed to soft ones, are specific to a specific job - for example, also in product design. The importance of individual specific soft skills differs slightly, but the aim of this study was not to unify their definitions, because in general the meanings of these competencies are clear.

In this case, the study focused on mapping the competencies needed for career development in product design and tried to compare the results of this field survey with studies that examine the area of competencies in terms of global labour market needs.

Methodology

For this type of research was chosen a combination of traditional methodology and innovative methods, that Walker (2018) calls "*journalistic investigative methods*". They focused mainly on field practice-oriented research. However, quantitative analysis that was used in the questionnaire survey and qualitative analysis, the design of which was based on interviews with respondents and analytical work with documents, also found application. The unifying element of the research was a case study, which was able to compare individual research elements and activities. A total of 98 respondents took part in the international research survey – 86 product design students from three universities and 12 professional product designers.

Case study

In addition to focusing on individual fields, university education has also been monitoring the parameters of graduates' employability on the labour market for a long time. Its goal is to prepare future graduates for the work environment with the greatest possible efficiency. In the creative fields, this situation is relatively more complicated because it is more difficult to define the area of employment of graduates. In this case, universities provide their graduates with a wider set of knowledge and skills than just a narrow field of specialization. For the case study, we focused on comparing the experiences of product design students affected by the impacts of the COVID-19 pandemic on university teaching and professional designers whose professional lives were also disrupted by previous pandemics.

The transition to distance communication was not essential for the basic research question, as the online environment was not yet formed into parameters so different during 2020, when the research was carried out, that it could not be perceived only as a transitional period. The basic research question was: "*What competencies do designers need for their career development as a result of their interdisciplinary teamwork?*"

However, all research participants had to meet the parameters that they had experience with team interdisciplinary work in the given period, and that they considered their work in the context of their career development and employability.

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:

- Ladislav Sutnar Faculty of Design and Art, University of West Bohemia in Pilsen, Czech Republic
- School of Design of East China Normal University in Shanghai, China
- College of Engineering and Design of Hunan Normal University in Changsha, China.

Each of the respondents had to define group of 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.

Finding resources - documents that would address the needs of the global labour market in the field of product design has not been easy. Fortunately, product design is a relatively progressive field that attracts the attention not only of the designers themselves, but also of the companies that employ designers in their teams. Therefore, only two research documentation sources corresponded to the selected parameters and these selected documents mapped the most important soft skills of product designers from the point of view of labour market requirements. In our view, 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.

Results

In the case study, we collaborated with respondents from several universities, which are long-term collaborating partners. Although each of the universities has certain field specifics, the fields of product design work on similar topics and students have the opportunity to work in teams and also interdisciplinary. Professional designers used practical ties; in many respects they were former graduates of cooperating universities. To work with the target group, we first compiled a questionnaire, which we distributed to the respondents of the international questionnaire survey. After evaluating the questionnaire, we addressed a selected group of respondents to additional interviews, which were conducted online with respect to the preferred distance forms of communication in a given year of research.

The questionnaire survey of 86 student-respondents showed that the most important soft skills for career development: teamwork, effective communication, problem solving, time management, flexibility, empathy, and stress resistance.

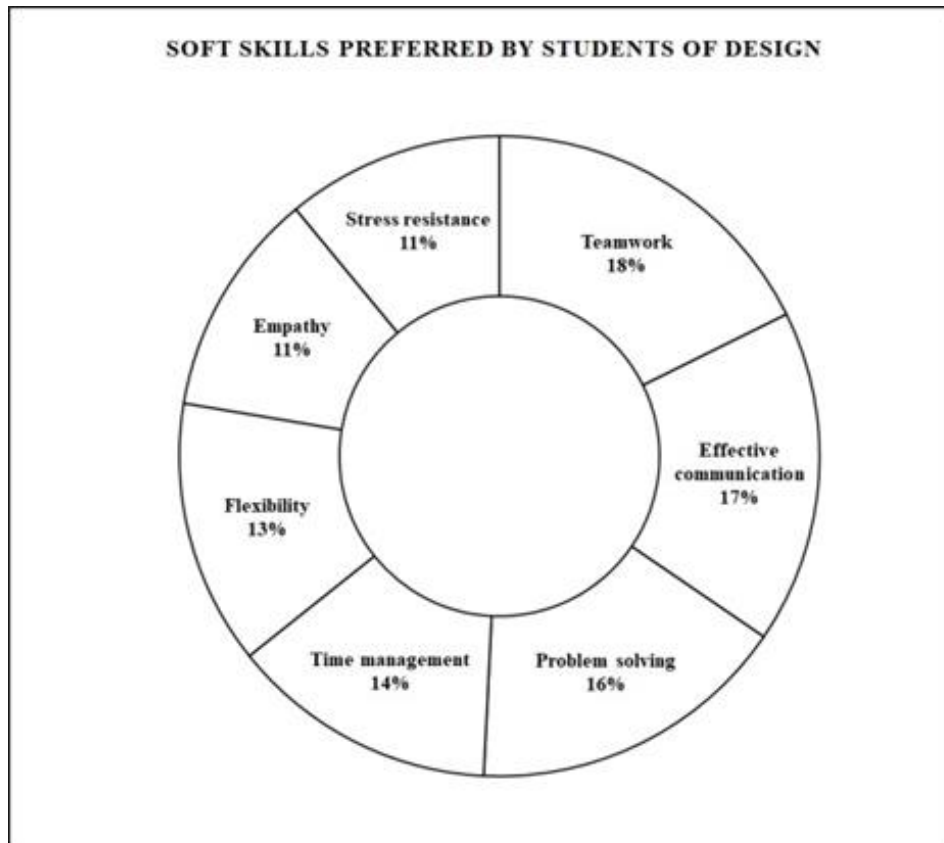


Figure 1: Results of international questionnaire survey of student-respondents.

Here are the comments of 2 student-respondents on the choice of preferred competencies:

- "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)

A survey of 12 professional product designers, who have worked with their teams online in recent months, shows that the most preferred soft competencies are: problem solving and critical thinking, followed by teamwork, effective communication, time management, initiative and empathy (with the same percentage).

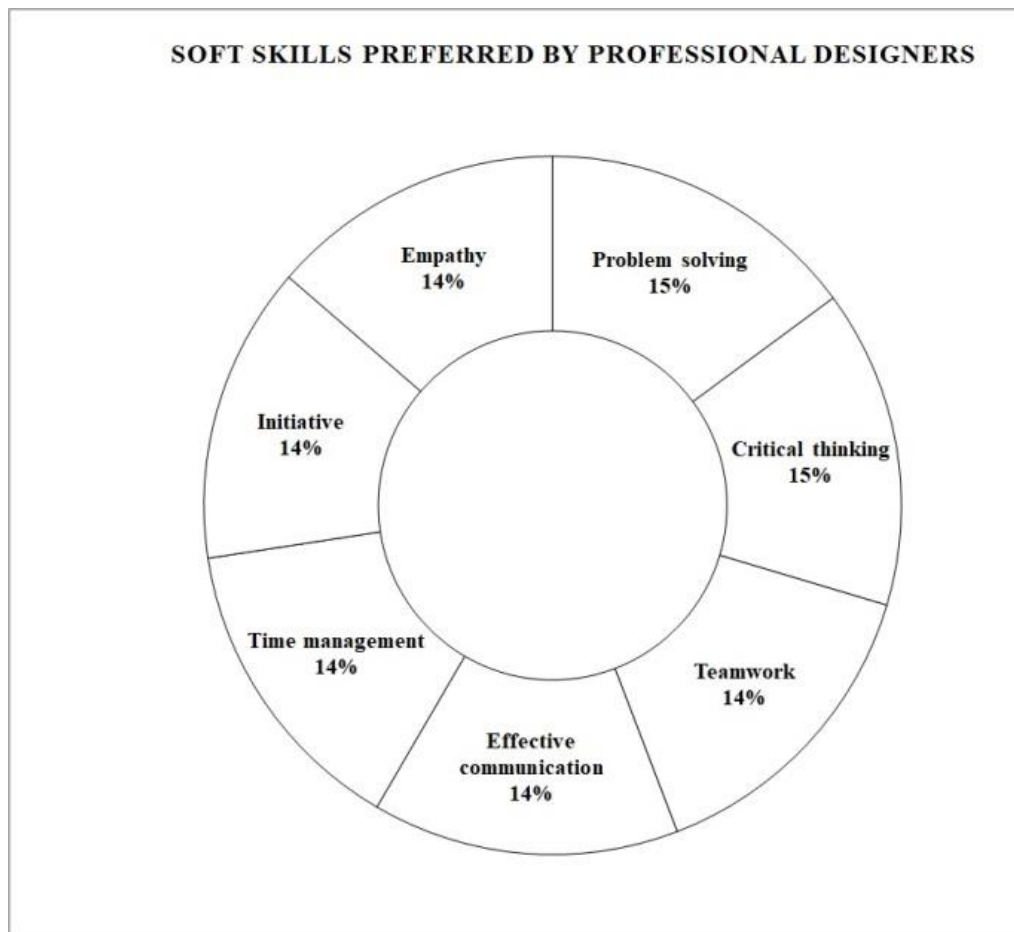


Figure 2: Results of international questionnaire survey of professional designers.

And here are the comments of 2 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 labour."* (Peter, professional product designer, on-line interview, June 24, 2020)

By a simple comparative analysis, we identified the most frequently preferred competencies among predefined groups of respondents. International research has shown that students and professional designers prefer some competencies more, others less so. The intersection of their preferences occurred in the following areas:

- teamwork, effective communication, or problem solving (product design students),
- problem solving, critical thinking, teamwork (professional product designers).

Students also mentioned flexibility and resistance to stress, and professional designers mentioned initiative and critical thinking. We can say that different preferences result from their different experiences with interdisciplinary teamwork and also in relation to their career development.

In the next research step, we analysed international studies that addressed the needs of the labour market in the field of flow design. The Design and Future Economy document found that the most preferred competencies include: teamwork, communication, planning and organization, problem solving, customer handling skills and strategic management skills (see <https://www.designcouncil.org.uk/what-we-do/research/designing-future-economy>).

The 2019 Reporting Hiring Report somewhat confirms the conclusions of the previous paper, making it one of the most preferred soft skills: communication, teamwork, emotional intelligence, empathy, business, leadership, and presentation (see <https://www.invisionapp.com/hiring-report>).

Conclusions

Career development has been long affecting all professions that operate in the labour market. In our international research, we have tried to look at the area of product design, especially in terms of the global labour market. The reason for this was the opportunity to work with students and professionals from different universities and different countries, but also that product designers in their creative work are not limited to local markets, but their products find applications and clients across continents. The view of their career development must therefore be global.

The study also aimed to map competencies that could expand the potential for career development in this professional area. It is clear that in addition to expertise, we thus gain soft competencies that clearly shape the potential for interdisciplinary teamwork, in which designers often play a key role.

In a unique survey, we had the opportunity to apply quantitative and qualitative methods with innovative approaches and based on the final comparative analysis with international studies mapping the labour market to determine what competencies can lead to career development of designers. The advantage was also that we were able to work with two types of respondents - students and professional designers. Their compliance with certain competence preferences confirms that the mentioned competencies are precisely the ones that will lead designers to long-term success in the labour market, regardless of the country in which they work.

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.

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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
- “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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