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KEY COMPETENCIES AS A TOOL OF DESIGNERS INTERDISCIPLINARY COOPERATION IN DIGITAL AGE

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Abstract

The digitization of society is one of the most progressive changes in the last twenty years and affects many fields, including product design. At a time when human contact was severely reduced due to the coronavirus pandemic, most communication began online. This fact significantly influenced the interdisciplinary teamwork, which is typical for product design. Without it, innovation is difficult. The main purpose of this research work was to find out what kind soft skills are necessary for good online multidisciplinary collaboration, to prepare a competency model, and then to prepare and implement thematic workshops for young designers. 86 product design students from three universities and 12 professional product designers participated in the international research. The research was based on a case study approach with innovative methods and qualitative and quantitative research. Through research, it was found that team cooperation can be considered as a very important skill, critical thinking, effective communication, and problem solving. The research experience also led to the implementation of 6 workshops focused on the development of skills for interdisciplinary teamwork at four universities in China.

Keywords: Case study, Digital technologies, Key competencies, Multidisciplinary cooperation, Workshops.

1. Introduction

In recent years, digital technologies have enabled the general public to communicate via the Internet. Due to the pandemic, multidisciplinary teams have also started to use this method of communication, often involving product designers when it comes to innovation. However, in case of interdisciplinary teamwork, it is often very advantageous for teams to be able to physically meet and work on common tasks. This way of communication is also preferred by designers (especially product designers). In 2020, due to the COVID-19 virus, teamwork had to be moved to the online environment, which requires more emphasis on the soft competencies of team members so that working together is successful and effective.

This massive shift to online team communication had never occurred before and universities, students (in this case product design students) and professional designers had little to no experience with this form of communication. Moreover, the research took place between March and June 2020, when it was not at all clear how big an impact the COVID-19 virus would have on humanity. At that time, tens of thousands of people were dying every day in Europe and China.

The research therefore reacted quickly to a new situation that could not be compared with previous experiences. It was also not possible to draw on peer-reviewed scientific articles and studies because they had not previously dealt with this issue.

The purpose of the research was to quickly map the competences of the target group and compare these results with the needs of the global labour market, which were preferred in the field until then, and to find a suitable solution to strengthen the competences that product design students needed as soon as possible. An online workshop to foster competences for interdisciplinary teamwork proved to be a suitable solution - similar cooperation builds critical thinking in university students and creates suitable conditions for quality professional work [1]. This type of workshop was then implemented in several Chinese universities in early 2021.

It was therefore about finding a relatively quick solution at a time when it was impossible to predict how long society would live and interact in an online environment and what devastating effects the global pandemic would have on the educational infrastructure.

Research design compares the preferences in soft competencies of a group of product design students from three universities with the preferences of professional product designers and takes into account their different experiences with interdisciplinary teamwork. It is important to compare these findings with the needs of the labour market, that have been analysed from international studies in recent years. This is also the only way how to define a competency model on this basis, which would include key competencies for interdisciplinary cooperation applicable in both online and physical communication.

The field of soft competences is not yet fully systematised in terms of specifying the detailed meanings and definitions of individual competences. There is a very wide range of interpretations, which experts work with according to their needs. The systematisation of these concepts could itself be conceived as a research project.

Therefore, for the purpose of mapping the competencies of product designers, it was not important to unify the definitions of the individual competencies, but to find the competencies (based on their common understanding of meaning), that young

designers in the digital age need for successful interdisciplinary teamwork in the global labour market. The following terms were so important to understanding the research that it was better to explain them in more detail.

The meaning of the word "interdisciplinarity" is not only related to the university concept, as both can involve the collaboration of several disciplines. In our case, it can also refer to a research project. It can be concluded that by certain selected practices we can improve interdisciplinarity. These include, for example, management of other processes [2], the assessment process [3], and flexibility [4].

An "interdisciplinary team" can then be defined as a collective of professionals (students), who are experts in various sectors - it can be healthcare, economics, engineering, or design. These experts work on one complex task (project) in a broader team [5]. Such collaboration can develop not only their professional skills but also the necessary soft skills [6].

Through "soft competencies" people can grow, which develops them not only in their working life but also in other areas of their social interaction. These are usually, for example, competences focused on communication, problem solving, time management or flexibility and thus indicate social interaction [7]. At the same time, these are competencies that are not precisely measurable but are characteristic of everyone [8]. The meaning of each specific soft skill varies a bit, but the goal of this academic work was not to clarify their exact meaning, as the meanings of these competencies are generally clear. "Hard skills", develop a person in his/her profession (expertise) and are necessary for the performance of his/her occupation.

This research also works with three groups of competencies: 1) "Personal skills", which are unique to everyone. These include, for example, "critical thinking", which is characterised by the ability not to give in to first impressions; "literacy skills" - the ability to understand a text well; 2) "Social skills", which mediate social interaction. These include, for example, "communication" - a technique in which two or more consciousnesses come together and understand each other through the subject matter of a communication; "customer handling skills" - the ability to build a quality relationship with a customer; "emotional intelligence" - the ability to manage emotions and the ability to empathise with the emotions of other individuals; "empathy" - to be in tune with the feelings of others; "flexibility" - the ability to adapt; "initiative" - to have the drive to carry out an activity; "leadership" - to set direction and methods; "teamwork" - the ability to work together in a group of people to achieve a common goal; 3) "Methodical skills", which show some practical experience. These include, for example, "business operation skills" - effective support of business procedures with an emphasis on efficiency and success; "planning and organization skills" (time management) - procedures on how to plan time; "presentation skills" - mastery of speech technique, vocal hygiene, non-verbal communication, etc.; "problem solving" - the thought process leading to overcoming obstacles and mastering tasks; "stress resistance" - managing activities under time and mental pressure; "strategic management skills" - the set of skills needed to plan for the future and implement visions.

2. Research Methods

Until the spring of 2020, multidisciplinary teams mostly functioned in face-to-face meetings, physically and with in-person participation, and addressed joint work,

challenges, and tasks in this way. But with the virus epidemic, the situation has changed, and this teamwork has moved to a virtual online environment. In the first phase, the aim of the international investigation was to find out what key competences are needed for distance collaboration of such interdisciplinary teams. It was about combining conventional and new scientific approaches, what Walker [9] calls reporters inquiry techniques. Thus, it was an online survey that was complemented by a guided discussion with selected participants and a comparison with research findings from internationally published studies focusing on the needs of the design labour market. All of this formed a case study that formed the overall framework of the research. Ninety-eight people participated in this - 86 undergraduate students from product design studios in three colleges and 12 professional product designers. In the second phase, the research experience led to the implementation of 6 workshops aimed at developing skills for interdisciplinary teamwork at four universities in China. A total of 115 students - product designers - took part in these workshops.

The following research methods were used in the research:

- a questionnaire survey based on the principles of the Likert scale or general principal of the semantic differential (Fig. 1) - it was an application of the principles of these methods within a questionnaire, but not a typical Likert scale or semantic differential measurement,
- guided interviews with selected participants (students and professional designers) - these were guided interviews with students and professionals in order to identify contexts of situations that could not be revealed through a questionnaire (this is a typical example of an innovative journalistic method),
- data analysis of published documents (international studies mapping the competencies of designers in the global labour market - Fig. 2) - the criteria for the selection of documents were specified and it should be mentioned that at the time of the research (spring 2020) there were no studies focusing purely on the needs of online teamwork from a labour market perspective, as these online tools were not massively used until then,
- data synthesis for the creation of a competence model (Fig. 3) - the model is based on the representation of the most preferred competences of the research participants (students and professionals) and also on the most preferred competences from the labour market perspective - for a systematic solution, competences were grouped into 3 specific groups,
- synthesis of the collected results and conceptual design of an educational workshop for product design students at universities.

3. Case Study

This paper focuses on identifying the core competencies of product design students and their professional colleagues and uses their practical experience of involvement in multidisciplinary teams and during 2020 implemented teamwork online due to the global coronavirus situation. However, it is not limited to field research itself. Its aim was to compare the results with the requirements of the global labour market from already published international studies and thus create the preconditions for the creation of a competency model. It would summarize the appropriate group of

competencies that designers cannot do without in interdisciplinary teamwork, whether online or in the future in a standard communication.

The competency model can thus show the way in which competencies of students or professional product designers can be strengthened in the long run. Innovation in all areas of product design currently requires greater collaboration between different professions, and designers are usually key elements of teams. Their involvement in interdisciplinary collaboration will definitely develop their interaction with other professionals, which will also motivate them more to build wider social networks [10]. Since internet networking has developed so much and information is achievable, one can learn many things from virtually anywhere and the source of knowledge does not always have to be the typical school. [11].

In the case of this study, eighty-six undergraduate product design students from three universities were involved and twelve product design professionals. The universities were: I) Ladislav Sutnar Faculty of Design and Art, University of West Bohemia in Pilsen, II) School of Design of East China Normal University in Shanghai, III) College of Engineering and Design of Hunan Normal University in Changsha.

The choice of research participants was simple. They are current or future experts who are quite often dependent on teamwork and so should be able to collaborate successfully with other experts. In addition, due to the COVID-19 pandemic, the whole process has moved to an online environment, which has never been experienced before. This was therefore the reason why it was decided to address the topic of competencies that are important for interdisciplinary team collaboration.

The selection of participants to international research was conditioned by the fact that selected students and professional designers from three universities had to work on at least one interdisciplinary project during 2020. However, these projects may differ at the selected universities, so their basic parameters have been established. As Hosnedl et al. [12] think this type of project has a high degree of effectiveness in educating students for industrial practice. For the purposes of this casework, the general criteria were established for definition of multidisciplinary project:

- students worked on the online tasks during 2020,
- it was a collaboration of students from different disciplines (e.g. mechatronics, design, marketing, health),
- undergraduate students in product design were active members of the solution teams, where each member had a specific team position (team leader, baseline developer, designer, health expert, etc.),
- the team tasks were in line with the thematic activities of the individual universities and with their partners from practice,
- each team was in contact with the assignment client and communicated their partial solution proposals,
- several groups of students within each university could work on the same assignment and the client could choose which of the proposed solutions suited them best,
- 3D model, visualisation or first model was considered as a successful outcome of the teamwork.

It can bring unexpected and brand new outcomes and also new knowledge for the undergraduates involved as they will be more independent and accountable to themselves within their implementation groups [13].

For the purposes of the research, the research question was defined: *What competencies do you think are important for multidisciplinary collaboration in online environment*?

The entire research design was based on a questionnaire survey (using journalistic approach), which was conveniently supplemented by an online discussion with some selected participants. The starting point for the questionnaire was the analysis of 2 international research studies that mapped the design competencies needed for the global labour market. These research studies will be discussed in detail in the following paragraphs.

The questionnaire consisted of fifteen predefined key competencies and through the principals of the Likert method or general principal of the semantic differential the students and professional designers were asked to select 7 of them. The selection of seven competencies violated the standard preferential scaling, which is quite often like school grading. The research goal was to preferentially cover almost half of the offered options, but at the same time there should be no traditional way of classification. In such a case, it is a so-called Likert scale, where respondents state the degree of agreement and disagreement with various statements, opinions, attitudes, objects, persons, or events. Scales usually contain 5 or 7 points, and the attitude score is mapped [14]. This was an application of the principles of the Likert scale purely for the preferential choice of competencies for a group of research participants. The main reason for using this method was to avoid traditional competency assessment and to get the participants to reflect on the preference of each competency. This delegated methodological principle proved to be clearly effective and functional.

The findings of the survey have been factually analysed and systematised. It proved necessary to supplement the survey responses with an online interview with some of the participants to explore their experiences and opinions - specifically focusing on the skills needed in the digital age.

As part of the survey, all information was written down and audio recordings of chats with participants were also kept.

Working with international studies dealing with the needs of the labour market in terms of soft skills of product designers for interdisciplinary cooperation included, as already mentioned, a precise selection of appropriate documents. In the end, it was only possible to work with two published studies for research purposes:

- Designing a Future Economy from Design Council's 2017 investigating report [15],
- 2019 Product Design Hiring Report first global survey of InVisionApp [16].

Another research question was chosen to work with these documents: *What competencies in the field of product design does the global labour market require*?

Comparing their conclusions with the results of international research in a group of product design students and professional designers provided a deeper insight into the issue of soft competencies, as it indicated a way to create a usable competency model in this field. The model has significant innovation potential, as it combines

education and other skills [17]. Based on this knowledge, it is then quite easy to prepare additional training courses and thus strengthen the necessary competence of product designers for interdisciplinary teamwork.

4. Research Results

Digital tools that currently enable better and better online communication (regardless of national borders) are not the ultimate solution, as communication is managed by people. While it is not a problem to share documents, talk to each other or see each other through modern technology, this does not mean that this communication will be effective and efficient [18]. This aspect therefore has a key influence on teamwork and especially interdisciplinary cooperation and is also related to soft competencies, that as in the offline world, are used for joint creative activity. Therefore, international research has focused on the competence needs of product designers.

At the opinion poll were of 86 students, who said it was important for them to be able to work in a team, to have productive cooperation, productive reporting, issue resolving, effective work with time, to be flexible, great feeling to each other, and stress resistance.

Figure 1 shows the most preferred competences according to both groups of participants. In addition to the competences with the highest preference, business skills can also be mentioned, but they were preferred only by students at Chinese universities. The reason why is the realization that the product designer must also be able to offer his design work on the market, to trade it. Both research groups agreed on the highest preferences for competences: Problem solving, Effective communication and Teamwork.

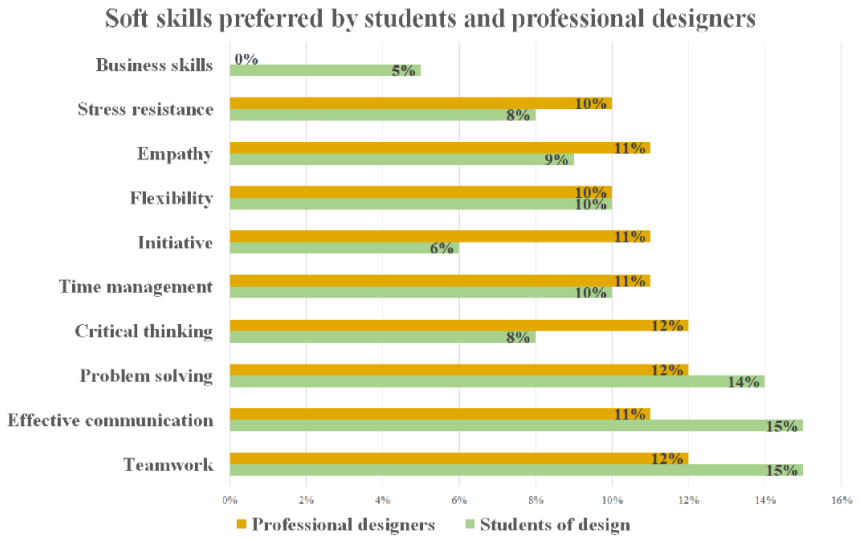

Fig. 1. Outcomes of international questionnaire survey of student and professional respondents.

Within the qualitative type of research, the opinions of 4 students are presented:

- *"The organisation of the work was the biggest challenge for us. We also had to figure out how we were going to agree on the different tasks."* (Anna, 26 May 2020)
- *"Communication is the most important thing in my opinion. It makes us think and think about others too."* (George, 27 May 2020)
- *"I thought it would be easier. Just talking to each other and relying on everyone to do what we are supposed to do. But the hardest thing was to say, what are we actually supposed to do?"* (Lara, 26 May 2020)
- *"Thinking that being online is enough? No. You can't really do it without the leadership of the team."* (Peter, 24 May 2020)

Based on the qualitative and quantitative research, the skills that were most important to the target groups of the participants involved were refined. Figure 1 shows that each of the addressed groups prefers some competencies more, but in some they also agree:

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

Students as well mentioned flexibility and stress resistance, and professional designers mentioned initiative and critical thinking. It can be said that the differences in the preferences of the respondents result from their different experiences with interdisciplinary teamwork.

In the case of document comparison, the research method of comparative data analysis was used. The conditions for selecting the studies were that they had to be international, issued between 2015 and 2020, and include a large group of participants. Only 2 studies were selected:

Designing a Future Economy from Design Council's 2017 *investigating report* - this report was based on partial studies in which several thousand respondents participated - individuals and companies (employers) in Great Britain - to map the competencies needed in a range of design disciplines. The skills were self-defined by respondents, and they may differ slightly in meaning.

2019 Product Design Hiring Report first global survey of InVisionApp - this study focused on 1,635 respondents from USA, UK, EU and selected Asian countries. Also, in this research, there was no unified methodology regarding the definitions of individual skills. The skills were self-defined by respondents too.

However, this discrepancy in the area of definitions of individual competencies is not an obstacle for the comparative method of working with data in this case. The aim was to map the type of competences required by the labour market for product designers, but not to deal with the detailed meaning of individual competences. The basic content intelligibility is evident in both studies, so there can be no fundamental confusion between the content and the meaning of these competencies.

Figure 2 shows the most preferred competences in the labour market based on data comparison. The most preferred competencies on the labour market therefore include:

- teamwork, communication, planning and organisation skills, empathy and presentation skills,
- problem solving and customer handling skills were also preferred.

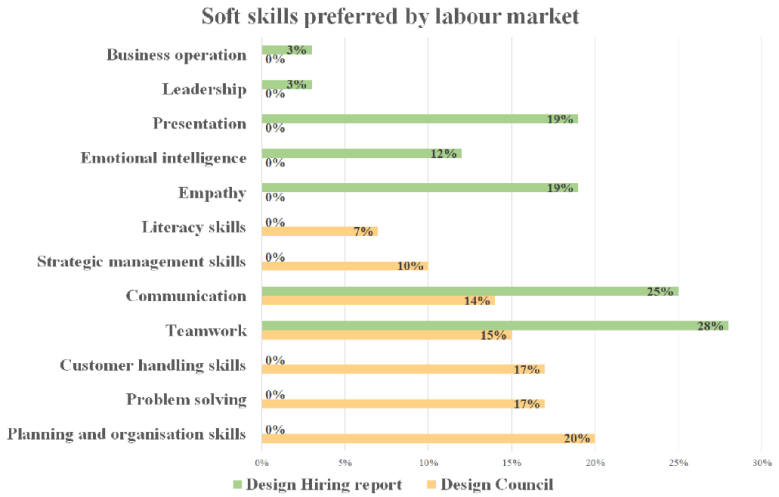

Fig. 2. Results of international research from internationally published studies.

The preparation of the competency model was based on analytical-synthetic-creative thinking to link the data obtained from the survey of the target group of respondents described above and in the context of the long-term needs of the global labour market. In this case, the preferred competencies were grouped and graphicalised. This resulted in a system of typical skills needed by product designers. The system also reflects the results of international research and data analysis.

Figure 3 shows the result of the comparison of preferred competencies from both data collection methods. Firstly, the competences were grouped in a similar way to Ionos methodology [19], as there is not yet a uniform system of grouping competences in this area - that is, the study authors use a grouping system that they either create themselves or the one that is closest to them. All the competences listed in the previous charts are included in the groups.

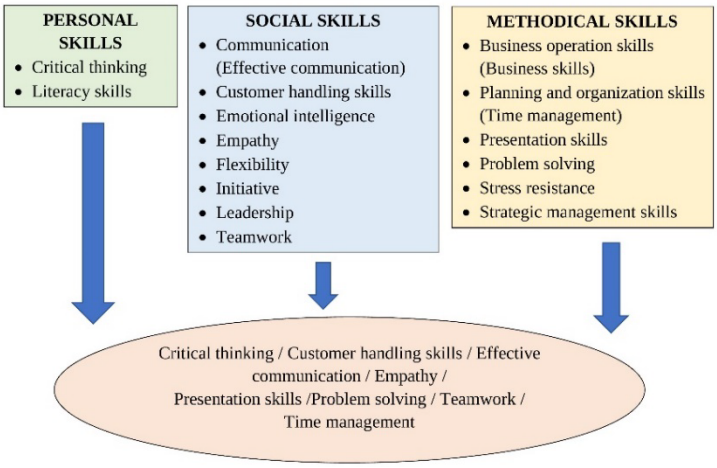

Fig. 3. Competency model.

The similarity of some of them has been resolved by putting the competency in brackets. It should be emphasized, however, that the aim of this research was not to resolve the inconsistency of the content nuances of each competency. The resulting group of competencies in the oval shows the most preferred competencies in the labour market and for the group of product design students and professional designers - these include critical thinking, customer handling skills, effective communication, empathy, presentation skills, problem solving, teamwork and time management.

5. Thematic Workshops

Based on the research part of the project, that took place in 2020 and that was presented at the international conference ADADA-CUMULUS 2020, the methodology and content of the thematic workshop entitled *"Be creative! Accelerate your ideas and envisions!"*. During 2021, the workshop was piloted at four Chinese universities:

- School of Design and Arts, Beijing Institute of Technology, Beijing (April 7 and 8, 2021),
- School of Design, East China Normal University, Shanghai (April 14 and 21, 2021),
- College of Art and Design, Beijing University of Technology, Beijing (May 7 and 14 / May 19 and 26, 2021),
- School of Art and Design, Tianjin University of Science and Technology, Tianjin (May 11 and 12 / November 22 and 23, 2021).

The workshop was designed for a maximum of 25 students in the field of product design with a total allowance of 8 teaching hours and was implemented in a hybrid form, where the guest lecturer led the workshop online and participants worked physically in the classroom with the help of a cooperating academic from the university. During 2021, a total of 6 workshops took place, that were attended by a total of 115 students of product design.

The goal of the seminar was to develop internal creative talent and accelerate the emergence of new ideas and visions by productive methods that take into account theory of Human-Centred Design. As an accelerator of new ideas and visions, the workshop brought participants a number of interesting principles and techniques that they can use for their future teamwork. It was a several-hour inspiration in an experiential form with an emphasis on the development of creative thinking - the tutor was a supervisor and the students worked in the mini-groups with full of involvement and under time pressure within the planned tasks.

Intermediate knowledge of English was enough for communication during the workshop. The visiting lecturer communicated with a group of students through online platforms. The students were in one classroom and were divided into 3 or 4 smaller teams. It was important to have a classroom with flexible equipment (chairs and tables). In addition, the visiting lecturer cooperated with the academic staff of the school, who:

- helped the visiting lecturer to organize the activities of the workshop,
- assisted in presenting the results of student teams.

Each student team could have a laptop or tablet with a webcam to communicate with the visiting lecturer, who could also be used to present the team's results. There could be another presentation place in the classroom with a webcam and a laptop, where each team could present their work to a visiting lecturer. Students used mobile phones and common office equipment such as pencils, markers, papers, stickers, etc. for their teamwork. In terms of content, the workshop focused mainly on the following aspects:

- presentation of goals to students (why is it important to develop innovative thinking, generate new ideas, look for new creative ways and work in a team?),
- self-knowledge activities,
- collaboration and collective and individual responsibility,
- acquaintance with the theory of Human-Centred Design and how it can be applied in practice,
- development of creative cooperation in small groups,
- choice of 1 topic from the map of innovative proposals for each team,
- activities to open the topic in a team and strengthening visions - intuition - imagination - creative thinking,
- problem observation,
- model search and solution design,
- introduction of group work results and evaluation,
- resume of activities and goals of the seminar.

The workshop as an accelerator of new ideas brought the participants several interesting principles and techniques that students can use for their future teamwork. The workshop stimulated students' inner creativity and worked with their ideas as a source of inspiration for their future design work. The activities of the workshop also strengthened students' competencies for the development of team and interdisciplinary cooperation.

Figure 4 shows example of the workshop evaluation summary - opinions and experiences of students who attended a workshop on the development of team interdisciplinary cooperation. The group of students had to answer to four different questions: 1) What did you learn interesting during our workshop? 2) What was difficult for you? 3) What else would you like to practice? 4) More ideas...?

The summary shows that the students found it interesting, for example, to discover new ways of creative thinking, to develop teamwork including effective communication, to better understand the needs of teamwork.

For example, it was more difficult for them to communicate in English, to work together under time constraints, to divide roles in the team and to work on tasks.

At the same time, in the future they would like to focus, for example, on ways of generating good and useful ideas, using Design Thinking methods in practice, discovering user needs.

They are also interested in working more with case studies, practicing team communication, or focusing more on design work.

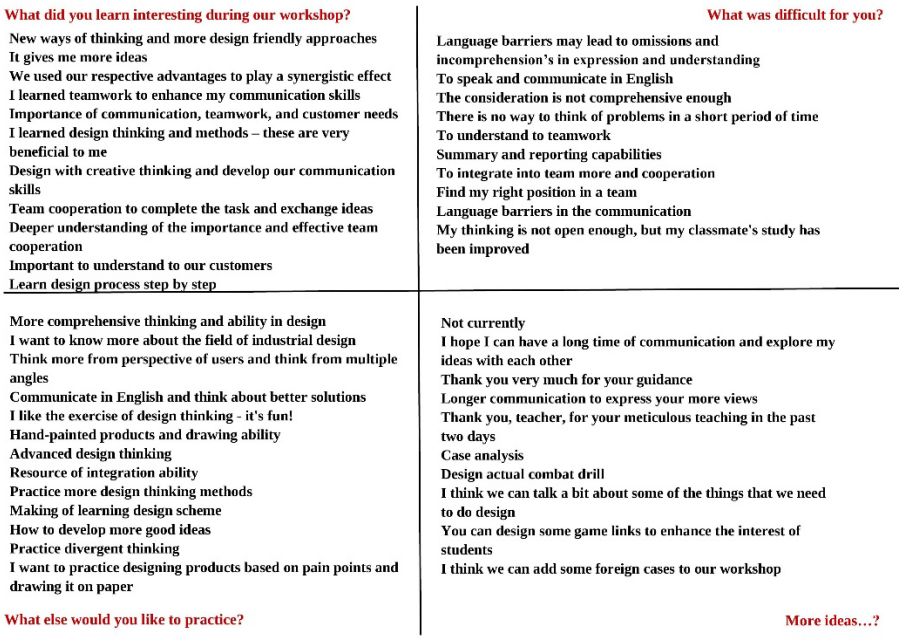

Fig. 4. Workshop evaluation summary (paper author's archive).

Figure 5 represents example of students' answers after the thematic workshop. The question they answered was What was the most interesting for you on the workshop? Students wrote their opinions and answers in an online questionnaire. Students mentioned, for example, the positive and good atmosphere during the whole workshop, opportunities for active cooperation and sharing examples of good practice among themselves.

Figure 6 shows a group of students from the School of Design, East China Normal University, Shanghai, with their teacher and a guest lecturer (online on TV) on 21 April 2021.

Fig. 5. Students' evaluation of the workshop (paper author's archive).

Fig. 6. Workshop participants from ECNU Shanghai (paper author's archive).

6. Workshops Summary

The thematic workshops that took place at four Chinese universities during 2021 were the logical outcome of previous research. Once the most important competences for the development of interdisciplinary teamwork were identified and compared with the needs of the labour market, the question arose as to how these competences could be effectively strengthened in young design students. The workshop is a tool to educate students in the short term and to bring new experiences and knowledge into their daily student practice.

Due to the global pandemic situation, where it was usually not possible to teach students physically in classrooms, the online workshop seemed like an excellent choice. In the end, however, the workshops took place in a hybrid form, the students were in their classes, only the visiting lecturer was connected online. This form did not hinder the activities that were prepared for the student teams; on the contrary, it allowed them to go beyond traditional communication habits and give students a new experience.

The workshops focused on strengthening the skills that young designers can use for their team and interdisciplinary collaboration. The named universities decided to carry out the workshops because they are aware of the lack of opportunities that students have for teamwork and because they wanted to support their students in their competence development. Because students volunteered for the workshops, they were strongly motivated to engage in activities and tasks. Such a situation was very important for the smooth implementation of the workshops. Finally, the workshops were attended by a total of 115 students.

This type of thematic workshop was essentially new for students and unknown until then. During the course, however, they had time and space to explore themselves more, to reveal their strengths and weaknesses, to realize how important it is to communicate effectively in a team and how to distribute work and take on certain roles within the team. The activities in which the students performed the individual tasks were limited in time, so the students had to deal with the lack of time and learn to find solutions to the individual tasks in time. Because the workshop was conducted in English, students also practiced language knowledge and skills.

The conclusions of the theoretical research part of this project have found real use in practice at several universities. Figure 7 shows percentage satisfaction: 95% of participants were also satisfied with the content and implementation of the workshop, only 5% were not satisfied.

Fig. 7. Satisfaction with the content of the workshops.

7. Conclusion

Digital technologies allow people today to work without physical meeting. It is highly likely that this way of working and communicating will gradually prevail in the work of product designers and their teams. However, how successful they will be in this form of collaboration will depend not only on their professional training, but equally on the core competencies that enable them to interact with other colleagues and collaborators.

Although digitalization specifically in human communication allows us to solve work tasks faster and more efficiently and essentially promotes teamwork regardless of where people are physically located, it, like traditional face-to-face teamwork, requires skills without which it will not be effective and successful. An international survey conducted identified a set of competencies that designers need for the long-term and successful development of their work and careers. The exact elements we use for this type of collaboration may change due to circumstances [20].

In the first phase of the research project, a case study was first created, which mapped out the soft skills of undergraduates from different colleges and independents designers. - all of whom had experience working online in

interdisciplinary teams during 2020. This case study compared this group of soft skills with the real needs of the global labour market at the same time. The results of an international survey were processed by analytical-synthetic-creative methods, the output of which was a competency model.

The results of this research showed some agreement in experiences of students and professional designers and can significantly help them with their future development. Especially if they will also develop their competences for teamwork. This case study special emphasis was placed on their needs and use in the digital age in which our society is located at this time.

In the second phase of the research project, the specific thematic workshop was developed - workshop name was Be Creative! Accelerate your ideas and envisions! It was designed based on the results of theoretical research. for product design students. The workshop was piloted at four Chinese universities during 2021 and was attended by a total of 115 students. The aim of the workshop was to develop and strengthen the key competencies for interdisciplinary teamwork and support creative thinking, that young designers use in their practice.

The workshop activities used the Design Thinking methodology and focused specifically on team cooperation, effective communication, problem solving, time management, empathy, critical thinking, initiative, and flexibility. Students in small teams often had to work with limited time on individual tasks and thus had a unique opportunity to better understand their own abilities and skills, as well as to understand their teammates.

Based on a combination of scientific research and the implementation of practical workshops, there was a unique effect, where the research results were transferred to practice very quickly and the missing competence of young designers began to be addressed in real practice. It can be assumed that the students who participated in the workshops will have stronger competencies for their design practice and that they will also find employment in the labour market more easily.

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