What if…? Strategies to Teaching Communication, Empathy and Teamworking for Design Students by Design Students

Ana Paula Nazaré de Freitas[1,2(✉)] and Rita Assoreira Almendra[1]

[1] Universidade de Lisboa, Faculdade de Arquitetura, CIAUD. Rua Sá Nogueira, Pólo Universitário, Alto da Ajuda, 1349-063 Lisbon, Portugal
anapaulafreitas@campus.ul.pt

[2] Universidade do Estado do Pará, Centro de Ciências Naturais e Tecnologia. Tv. Enéas Pinheiro, 2626, Marco, Belém, Pará 66095-015, Brazil

Abstract. Soft skills are competencies that have emerged as essential for 21st-century professionals. There are still few studies on promoting or enhancing these skills in higher education in the Design field. In this paper, we focus on three soft skills that are important for Design: Empathy, Communication, and Teamworking. This research aimed to involve students in identifying and creating teaching strategies that make them learn these skills. It is, therefore, participatory research that took place through a co-creation workshop. For this qualitative research, we used thematic analysis as an approach for coding and interpreting the results. As a result, we identified nine strategies to nurture the learning of these skills in Design education.

Keywords: Design education · Thematic analysis · Communication · Teamworking · Empathy

1 Introduction

Communication, empathy and teamworking are highly valued skills in the practice of design; however, few investigations aimed at analysing and structuring the teaching of these skills [1]. This work is part of a PhD research in progress and sought to identify teaching strategies that can contribute to learning and developing of these skills from the student's perspective and experience.

Soft skills are subjective, behavioural and transversal skills to different professional activities, they "represent a dynamic combination of cognitive and meta-cognitive skills, interpersonal, intellectual and practical skills. Soft Skills help people to adapt and behave positively so that they can deal effectively with the challenges of their professionals and everyday life." [2, p. 73]. They are also referred tin scientific literature as 21-century skills, lifelong skills, Core competencies, and Generic Skills in scientific literature.

Despite the few studies on these competencies in Design education, some reviews have appointed some discussion about these competencies in design [3, 4]. Several studies have been developed in the field of education that point to the need to foster and

C. S. Shin et al. (Eds.): AHFE 2021, LNNS 260, pp. 148–156, 2021.
https://doi.org/10.1007/978-3-030-80829-7_19

develop these skills in higher education [5, 6]. The justifications are that these skills are increasingly valued and requested by employers, crucial not only for the acquisition but also for the maintenance of jobs [6]. The studies developed in the last decade also show that soft skills improve academic knowledge learning, being a precursor of it. Studies on how to teach these skills show that there are better results in higher education when they are incorporated into the study of formal subjects and knowledge. In other words, "The more common approach has been through the belief that the development of life-long learning capabilities should be embedded within the learning about the discipline, particularly for the higher-order thinking capabilities" [8, p. 611].

In a study developed by Kemper [8], the author proposes a learning environment to foster and develop these skills. The learning environment can nurture these competencies through practices anchored in Active Learning, Teaching for Understanding, Assessment, Curriculum coherence, Teacher-student interaction, Feedback to Assist Learning, Assistance from Teaching Staff, Relationship with Other Students and Cooperative Learning.

In the study developed here, we seek to identify some strategies for teaching these skills from the design students' viewpoint. For this, we involved students in the creation of pedagogical methods in a participatory co-creation approach. The main question to be answered was "How do you learn and how do you teach: Communication, team work and empathy in Design?". The study has a qualitative nature and was sought to understand how they consider that strategies can foster these competencies in Design education with a bottom-up approach, i.e., from the students' point of view.

For this research, we used the constructs defined below as variables:

Communication skill [9]: The ability to understand and make oneself understood through messages exchanges, whether written, oral or visual in various contexts and platforms. It involves the ability to write, listen and speak.

Empathy skill: The ability to take on the other person's role and imagine the situation from their perspective [10].

Teamworking skill: The ability to work together, communicate effectively, anticipate and meet each other's demands, and inspire confidence, resulting in coordinated collective action [11].

2 Design Research and Methods

This study described here is part of the qualitative research paradigm, which uses words as data [12] to identify meanings from an interpretive analysis, which aims to recognise significant patterns and themes that emerge from data.

The sample is non-probabilistic and intentional. Five students from the last year of their degree from the Faculty of Architecture of the University and Lisbon participated in the research (four women and one man, from Portugal and aged between 20 and 21).

The data collection instrument used was the Focus Group (FG), a research tool in which data is collected from multiple participants and takes place simultaneously in a structured and guided session where a focused discussion occurs. In the strategy developed for this research, we set FG based on some design tools such as brainstorming, generating ideas, co-creating and idea analysis matrices.

The method of data analysis used was the Thematic Analysis (TA) methodology. TA is a qualitative data analysis method widely used in different disciplines and research fields and is applied in many ways. It aims to identify patterns of meanings (themes), through data analysis [12]. Within the AT approach, we used the Reflective Thematic Research.

The approach used here can also be characterised, according to Braun and Clarke [12] as Deductive, Semantic and Critical-realistic. Deductive because the coding and identification of the themes derived directly from the content of the data; semantic because the code and the themes developed reflect explicit content of the data and critical or realistic because it focuses on reporting a reality evidenced by the data.

2.1 Procedures

The FG occurred in November 2020 online in a 150-min session. It took place through the Zoom platform, used for videoconferencing and the Mural platform, which allows synchronous and asynchronous collaborative work.

As a strategy to get closer to the group and so that students could become familiar with the tool and the Mural platform, we created an activity that we called "Pre-work". In this activity, we requested that each student introduced him/herself through a short text talking about themselves and their preferences. We also proposed they answered the question "If you could change one thing in Design teaching, what would it be? Why?". This activity intended to make them enter the platform, use the tools to answer the activities and perform some initial mapping on the themes that emerged on design teaching.

We organised the session around three dynamics: first generating, reflection and brainstorming, second having ideas and, finally carrying out an analysis of these ideas. Table 1 shows the focus group's central question, the dynamics performed, and how they happened.

Table 1. The central question, dynamics performed and way of happening

Main question: How to learn and how to teach: Communication, teamwork and empathy?		
Dynamics name	Objective	Development mode
How?	Experience report. We asked students to identify methods and work used by teachers who promoted the learning of skills	Individual
What if?	Generation of ideas. We requested that students indicate strategies for teaching skills	Pairs/Trios
Analysis of the idea	Feasibility versus impact analysis. We asked the students to analyse the relationship between impact and viability of the ideas generated	Pair/Trios (with different people)

These dynamics took place simultaneously on the Mural platform, we created frameworks for each activity, with the space for its realisation and instructions.

The session started with the moderator presenting the FG central question and the constructs related to the competencies to be addressed. In the sequence, the dynamics called "How?" started.

In the "How" dynamic, the students were instructed to answer the questions "What are the teaching methods or assignments suggested by the teachers that improved or made you learn these skills?" and "How did you learn or enhance your communication, empathy and teamworking skills during your undergraduate degree?".

The next dynamic was the generating ideas stage. It was called "What if…?" The question we asked was "And if you were teachers, how would you help students to learn these skills?".

The students added their ideas to an Idea Bank, and then organised the concepts by skill. From this, they performed a feasibility x impact analysis to identify which ideas would have a high or low impact and high or low feasibility using all the ideas they had thought of. The students were then reorganised into different pairs/trios to conduct the viability x impact analysis.

3 Results

After transcribing, coding and analysing the students' FG, identified nine strategies and 14 sub-strategies for teaching Communication, Teamworking and Empathy.

Table 2 shows the strategies, sub-strategies and the skill that the students pointed out that each system would foster.

Table 2. Strategies, sub-strategies and related skills

Strategies (themes)	Sub-strategies (operationalization of strategies)	Skill fostered by strategy
Proposing and presenting work models	Show oral presentation templates	Communication; Empathy
	Models of scientific writing and project descriptive memory	
Assessment decentralisation	Self-assessment sheets	Teamworking; Empathy; Communication
	Peer review sheets	
	Intermediate presentations for project follow-up	
Interdisciplinarity	Developing projects with other disciplines	Teamworking; Empathy
	Developing projects with institutions and communities	
	Bringing students from different periods and courses to work together	

(*continued*)

Table 2. (*continued*)

Strategies (themes)	Sub-strategies (operationalization of strategies)	Skill fostered by strategy
Experiencing the real-world	Developing projects with institutions and communities	Communication; Empathy
	Questionnaire and interviews with the real user	
	Do not choose who to form teams with	
Ensuring monitoring and feedback	Tools for project follow-up	Communication
	Intermediate presentations	
Field research with real users	Simulate user experience	Empathy
	Questionnaire and interviews with the real user	
Imaging the user experiencing	Simulate user experience	Empathy
	Personas	
Ensuring the heterogeneity of teams	Knowing students	Teamworking, Empathy
	Define the composition of teams by skill	
	Put students from different periods and courses to work together	
Connecting professor and students		Empathy

In addition to the strategies created during the FG, the students felt comfortable identifying some difficulties and practices that they consider wrong and impacting these skills' learning. The mention of these difficulties influenced the strategy creation; for this reason, we coded and identified them in the Table 3 below.

Table 3. Problems identified during FG and the skills affected

Problems	Skill affected
Lack of feedback on the assignments and tasks performed	Communication
Peer learning as a problem	Teamworking
Inequality in assessment of team projects	Teamworking
Little support in promoting writing	Communication
Teacher seen as the client of projects	Empathy

Some of the strategies created by the students are interconnected and have equal sub-strategies. Here we have the strategies briefly summarised:

- Proposing and presenting work models: the students indicated the need to foster and develop their oral and written skills. They first need to obtain models that can be followed and then move forward to create their styles. There is also a need to know the rules and norms of academic writing
- Assessment Decentralisation: In this strategy, students proposed using tools where teachers could monitor the assessment during the creation process and not just at the end, additionally, they suggested self-assessment and evaluate peers' sheets.
- Interdisciplinarity: For this, they proposed the development of a project with other university courses, as well as working on projects with companies, institutions and communities,
- Experiencing the real world: Development of projects with real users, whether institutions, communities etcetera. Teams composition from the teacher's indication, or randomly as a way to emulate the real-world, where you don't choose who you work with.
- Ensuring Monitoring and Feedback: This point was highlighted in FG, many times students receive only the grade as feedback, which does not enrich the teaching process and benefit of errors as a way of learning;
- Field Research with real users: bringing real users through field research and time of evaluation were also mentioned
- Imaging the user experience: students suggested the persona tool and the exercise of putting yourself in the other's shoes for this purpose
- Ensuring the heterogeneity of teams: students suggested that the professor should create groups from a better understanding of students, that teachers could compose groups by skills and not from personal affinities
- Connecting teachers and students: the need for the teacher to know the students' skills were always placed as a way to create a relationship of affection, reciprocity, empathy, and meaning in teaching practice.

The analysis of the strategies that emerged in the FG indicates its connection with the constructivist theories of learning. In this epistemological position, education is seen as an active interaction between students (or apprentices) and teachers. In this sense, the student has an active role in constructing this knowledge [13]. Thus, the active participation of the student is one of the premises of constructivism [14]. However, these pedagogical practices also require teachers' active attitude in creating a favourable learning environment for this participation. This includes knowing (and recognising) the students' realities and skills, constructing a more horizontal relationship with the apprentices, besides a more affective one. In this sense, a reflexive posture is necessary regarding their practices, seeking constant feedback and reflection on their teaching processes. As defended by Schön, a reflexive practice is required: "knowing-in-action, reflection-in-action, and reflection on reflection-in-action" [15, p. 1].

During the FG, some difficulties mentioned confirmed that students do not understand the importance of some teachers' active practices. This is probably due to a lack of practice analysis; an example is the students' criticism about peer learning activities. During the FG with the students, there was an indication that teaching colleagues, or learning from colleagues, is a wrong learning practice. Some students consider this to be a lack of support from teachers, although one of them said that teaching his colleague made

him learn. From this comes the need for the change in teachers' attitude. This posture should be taught and made explicit even when practices and exercises are presented to the students. It is necessary for the teacher to foster this experience.

Analysing the students' strategies, we can confirm the importance of structuring activities in learning. This involves a constant engagement of the teacher in creating and adapting environments and activities that encourage and stimulate students. The growing recognition that the student is the protagonist of his or her learning process does not exempt the teacher from the responsibility of being a conductor of the process. The change of focus from the teacher to the student should not serve as a crutch for the professor to evade their responsibilities in building student autonomy.

In a traditional view, the teaching-learning process was based on a knowledge transmission idea. In this vision, the student was seen as a mere spectator or, in the words of Paulo Freire "patient objects, listeners" [16, p. 33]. Nowadays, students are seen as the protagonist of their learning process, demanding that the learning process occurs mostly through active teaching practices. This claim does not mean that traditional techniques (such as the lecture or demonstration model) should be totally discarded in education. Instead, we should promote a combination of the two models according to the purpose of education:

An example of combining these two practices was the FG strategy that proposed that teachers give students conceptual models and repertoire (approach characterised as passive). This indicates the need to provide mental and operational models so that later, students can develop their means of writing and presentation.

The strategies that suggest students and teacher connection and the heterogeneity of the groups are related to learning's personalisation. According to Moran [18], the personalisation of learning helps students to build meanings through the learning processes, which motivates them to learn and develops autonomy. To be effective, teachers need to be attentive to students' interests and skills, encourage them and involve them in meaningful projects. The affection relationship between teacher and student has also been addressed in the FG and is related to personalisation. By getting to know the students and observing their skills, realities, and contexts, the teacher establishes a significant dialogical relationship for both students and professors.

Regarding the assessment practices, the students suggested that this ought to be more decentralised, or rather, that it should not depend only on the teacher and the final product. This decentralisation can promote the displacement of the teacher's authority as the sole evaluator of the results. The students pointed out that the teacher is often the "client" of the project; this is a misunderstanding of how designers should act in a design project. To mitigate these practices, research with users even as projects performed with companies, communities and real institutions has a great power to provide an environment connected with the real world and mobilise these skills for meaningful design. The co-created strategies proved to be predominantly active, linked to a constructivist conception of teaching and based on contextualised and affective learning. This direction is in line with Kemper's propositions [9], which suggests, as a learning environment for soft skills, the existence of several forms of assessment, the need for active involvement in activities, the strengthening of the teacher-student relationship, and also the constant feedback and interaction. In this context, it is up to the educator to place students at the

centre of the process but to guarantee them guidance, a constant reflective direction, and feedback along the process and not just at the end.

4 Conclusions

The study brought one democratic exercise in planning teaching strategies and resulted in some ideas that can nurture and foster communication, empathy, and teamworking skills in Design education. These strategies demonstrate that they are mainly anchored in constructivist practices of active learning. Still, they also brought the value and application of lecture classes, primarily intending to provide mental models to students, when they still have a little repertoire.

The strategies created here are feasible and can be applied to several design teaching approaches without requiring complex adaptations on the part of the teacher. They can be used in teaching different disciplines in the designer's training while developing the skills focused here. However, they are strategies that call for reflective thinking, critical stance, and constant feedback and exchange with students. In the forms of teaching proposed here, the need for a close relationship between teachers and students and students and students emerges in an active, reflective, horizontal and co-created teaching process.

The fact that the study involved few subjects demonstrates a limit to its results. Despite being an exploratory and qualitative study, this limitation does not allow a comprehensive and general view of all design students. The objective was to enable visualization and understanding of the students' perspective on these practices and propose a reflection on how teachers can use some of these practices to develop communication skills, teamwork, and empathy in design.

Acknowledgements. This work was financially supported by the Centro de Investigação em Arquitetura, Urbanismo e Design - CIAUD (Center for Research in Architecture, Urbanism and Design) of the Faculdade de Arquitetura da Universidade de Lisboa (Faculty of Architecture of the University of Lisbon) and also by the Universidade do Estado do Pará - UEPA (State University of Pará), Brasil.

References

1. Freitas, A., Almendra R.: Teaching and learning soft skills in design education, opportunities and challenges: a literature review. In: 10th International Conference UNIDCOM/IADE – Senses & Sensibility, Lisbon (2019, in press)
2. Haselberger, D., Oberhuemer, P., Perez, E., Cinque, M., Capasso, F.: Mediating Soft Skills at Higher Education Institutions. Education and Culture DG Lifelong Learning Programme, European Union (2012)
3. Almendra, R.A, Falcão, G.A.: Reflecting on the employability adequacy of competencies taught in design high education system. In: International Design Conference-Design (2018)
4. Alemdnra, R.A., Falcão, G.A.: Designing social involvement in design course/programs. In: International Conference on Engineering and Product Design Education, EPDE 2016 (2016)
5. Chamorro-Premuzic, T., Arteche, A., Bremner, A.J., Greven, C., Furnham, A.: Soft skills in higher education: importance and improvement ratings as a function of individual differences and academic performance. Educ. Psychol. **30**(2), 221–241 (2010)

6. Bennett, N., Dunne, E., Carré, C.: Patterns of core and generic skill provision in higher education. High. Educ. **37**, 71–93 (1999)
7. Succi, C., Canovi, M.: Soft skills to enhance graduate employability: comparing students and employers' perceptions. Stud. High. Educ. **45**(9), 1834–1847 (2019). https://doi.org/10.1080/03075079.2019.1585420
8. Barrie, S.C.: Understanding what we mean by the generic attributes of graduates. High. Educ. **51**(2), 215–241 (2006)
9. Kember, D., Leung, D.Y., Ma, R.S.: Characterizing learning environments capable of nurturing generic capabilities in higher education. Res. High. Educ. **48**, 609 (2007)
10. van Dijk, J.A.G.M., van Deursen, A.J.A.M.: Digital Skills: Unlocking the Information Society. Palgrave Macmillan Ltd., New York (2014)
11. OECD.: The Definition and Selection of Key Competencies. OECD, Paris (2005)
12. Guzzo, R.A., Salas, E.: Team Effectiveness and Decision Making in Organisations. American Psychological Association (1995)
13. Braun, V, e Clarke V.: Successful Qualitative Research a Practical Guide for Beginners. SAGE Publications, Inc., London (2013)
14. Sjøberg, S.: Constructivism and learning. In: International Encyclopedia of Education (2010). https://doi.org/10.1016/B978-0-08-044894-7.00467-X
15. Bacich, L., Moran, J.: Metodologias Ativas para uma Educação Inovadora: Uma Abordagem Teórico-Prática. Grupo A Penso, Rio de Janeiro (2018)
16. Schön, D.: Educating the Reflective Practitioner Toward a New Design for Teaching and Learning in the Professions. Jossey-Bass Inc., California (1987)
17. Freire, P.: Pedagogia da Autonomia: Saberes necessários à prática educativa. Editora Paz e Terra, São Paulo (1997)
18. Andrade, J., Sartori, J.: O professor autor e experiências significativas na educação do século XXI: estratégias ativas baseadas na metodologia de contextualização da aprendizagem. In: Metodologias Ativas Para Uma Educação Inovadora: Uma Abordagem Teórico-Prática. Edição do Kindle, pp. 175–98. Penso, Rio de Janeiro (2018)
19. Moran, J.: Metodologia ativas para uma aprendizagem mais profunda. In: Metodologias Ativas Para Uma Educação Inovadora: Uma Abordagem Teórico-Prática. Penso, Porto Alegre (2018)