

DESIGN THINKING PRINCIPLES AND REFLECTIVE TEACHING IN ACADEMIC COURSES: SHIFTING FROM AN ORGANIZATIONAL APPROACH TO LOCAL CONTEXT

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Abstract

A recent literature review shows a growing interest in the application of design thinking principles in classroom and online teaching across different fields. At the same time reflection is an inseparable quality of professional competence and is consequential in developing problem solving and decision-making capacity. Therefore, the combination of design thinking and reflective teaching in the curriculum could advance the competence of the students.

The article aims to share good practice of combining design thinking and reflective teaching in communication studies to explore the possibilities of moving from organisational to community-based solutions. Usually, students are trained to analyze the communication problems of the organization and have less understanding about community-based problems and solutions. Encouragement to move from organizational to local context projects in the communication studies was given by the project "Higher Education Institutions as Innovative Triggers of Sustainable Development in European Cities in Post Covid-19 Era" (KA220-HED-96EB51E1). However, the pilot process experienced some difficulties and problems thus leading to a deeper analysis of this experience, insights and conclusions for more comprehensive outcomes.

Together with the learning process, the qualitative study was implemented. It was based on written reflections by students, organized three times during the process: interim, after finalizing the projects and after projects' presentation at the local community. The qualitative content analysis was used for data analysis.

The results of the first reflection showed that the gradual involvement in the chosen working methods was effective and confirmed that the appropriate way to organize the working teams was applied. However, it also raised a few "red flags" that were addressed promptly and helped the teams: resolving conflicts within, encouraging questioning in the engagement phase, and clarifying the wording of the task in the define, empathize, and ideate phases. The biggest challenge observed was the students' time management, which caused the vast majority to miss the opportunity to do the empirical research and to gather additional information, and which they acknowledged as a major shortcoming. The second reflection focused on the successes and lessons of the project, as well as the evaluation of team and individual work. The third reflection revealed advantages and challenges of the possibility to implement developed projects at the community level and possible barriers moving from classroom to real life situation learning. Overall, the reflections emphasized the more positive aspects of teamwork, process, and methods. At the same time, there was a healthy self-criticism on the process.

In sum, the analysis of both positive and negative experience of design thinking principles implementation to the study process was possible due to applying reflective teaching. It extended academic knowledge, provided insights, how to improve learning process, offered examples which potentially could be applicable for different learning contexts.

Keywords: Communication studies, design thinking, local community problem-solving projects, organizational problem-solving projects, reflective teaching.

1 INTRODUCTION

A recent literature review shows a growing interest in the application of design thinking principles in classroom and online [1], teaching across different fields and disciplines from business to engineering, but rarely in communication [2], [3], [4]. This highlights the requirement for graduates to have, among other competences, the problem-finding, problem formulation and problem-solving skills which are needed to tackle complex real-world challenges [5].

There are various approaches to applying design thinking principles to the study process and practice,

starting with the more traditional conception by Brown (2009) [6] and moving toward the design sprint approach [7] and continuing to numerous on line methodological resources [8,9,10,11].

On the other hand, reflection—or the ability to critically, analytically, and objectively examine one's experience as if from an outside perspective—has been an essential aspect of professional competence in any specialized field for decades. Researchers were looking into the meaning of applicability of reflection [8], pondered upon relationship of reflection and creativity [12], [13], [14], took the measure of the practicality of reflection in such different fields as educator training [15], [16] or health science [17], explored interconnection between reflection and spirituality [18]. Reflection is complementary in developing problem solving and decision-making capacity, also in improving efficiency of communication with a customer or a colleague [19].

In combination both concepts were studied only recently. As T. Schoormann, M. Stadtländer and R. Knackstedt (2023) [20] said that although there is great potential to support design thinking by reflection, there is a lack of guidance on how, when, and on what to perform reflection.

Authors of this paper, as university teachers, could witness importance and usefulness of reflection in the study process as well as the need for reflection as a skill to be developed. After several years of mastering the principles of design thinking and combining a variety of intensive and numerous reflection methods, students were trained to analyse the communication problems of the organisation where they were studying. Within the course framework, they developed organizational problem-solving projects. On one hand, they gained a deeper understanding of the organization, its unique characteristics, and its processes; on the other hand, they recognized that each organization has distinct situational aspects, challenges, and sector-specific nuances. However, such diversity was explored more theoretically than practically.

The encouragement to move from organisational to local context problem-solving projects in the communication studies was given due to the involvement in the project HEIsCITI - HEIs as Innovative Triggers of Sustainable Development in European Cities in Post Covid-19 era (<https://erasmus-plus.ec.europa.eu/projects/search/details/2022-1-PL01-KA220-HED-000088825>). The project aimed to create universal curricula (methodology and teaching tools) for all types of university courses to teach students the best ways to animate and coordinate communication between citizens and local authorities for inclusive and sustainable urban development in the post Covid -19 era.

The development and the implementation of the course was extended in time and relied heavily on the know-how and years of experience of the lecturer leading the course which took place in two semesters: the first one focusing on design thinking and the second on a deeper application of empirical methods. The students were presented with concentrated theoretical information and, complementary, with the full range of potential sources, templates and tools for additional studies and broadening their horizons. In the practical part, various tools and techniques corresponding to each stage of design thinking were tested in group work

The courses were structured across semesters, each lasting five months and the testing of the different stages was separated by a gap of a week, sometimes two (in contrast to a design sprint, where there are daily, day-by-day sessions of long activities). Thus, the students combined classroom work with independent work, using reflection to help them stay focused on the design idea, the essence and flow of design thinking principles, and to revisit and refine their activities by continually reflecting on them throughout the process. For the lecturer leading the course, it helped not to lose track of the dynamics of the group, to feel the mood of the group and to deal with any uncertainties or even problems promptly.

The reflections of the first semester showed that the students have experienced some difficulties and problems. This has led to more focused attention to learning process and reflections during the second semester, to a deeper analysis of the experience, insights and conclusions for a more comprehensive implementation of the course and for the professional growth of the learners.

This article aims to share good practices of combining design thinking and reflection in communication studies. It rises the main research question - how reflection facilitates the implementation of design thinking into the study course.

The conceptual framework of the research is based on four-dimensional process of reflection: reflection-before-action, reflection-in-action, reflection-on-action, and reflection-beyond-action. Reflection-before-action encourages learners to reflect prior to engaging in practical assignments. Reflection-on-action typically involves reflective tasks where students recount their experiences by 'reconstructing' them after the fact, rather than 'constructing' meaning in the moment. In contrast, reflection-in-action allows students to actively 'construct' their practice as it unfolds, enhancing real-time decision-making.

Reflection-beyond-action, meanwhile, helps students connect their past and present experiences to guide and inform future actions [21, 22].

2 METHODOLOGY

The article is based on qualitative research methodology [23].

During the course, students engaged in a continuous reflection process. The first (mid-course) reflection focused on the learning process and methods. Students were asked to reflect on the processes, how they felt, what liked/disliked, what made them uncomfortable, how they solved problems, and to discuss used methods and their applicability now and in the future. The second reflection took place after the final presentation of the project asking about the overall feeling about this course assignment in general, personal successes and failures during and the overall contribution of group members. Both reflections took place during the first semester. In the second semester, the group of students had the opportunity to visit the local community and present their projects at the municipality. The third reflection was after the visit.

In total, 56 documents (written reflections: mid reflection labelled as M, final reflection as F, and post-presentation reflection as P in the text) were used as units of analysis in the research. This paper presents the selected part of the collected data.

Additionally, 15 structured interviews (referred to as I in the text) and 2 semi-structured interviews (referred to as SSI in the text) with students were conducted. Structured interviews were used to find out which competences were particularly developed (emphasis on teamwork, problem-solving, reflection and creativity), which methods were more effective in this, which reflections worked best for whom and why, and to gather any comments on the development of the process. Two additional semi-structured interviews were carried out to gain insight into the experience of moving from organisational to local context problem-solving project.

The thematic analysis [24] was used for both types (documents and interviews) of data.

Validity of the research was ensured by data triangulation and investigator triangulation method [19]. Two different types of data were analysed: documents (written reflections) as well as interview data what ensured data validity. Moreover, three researchers worked in different roles: one was insider (the lecturer of the course who collected reflections and did preliminary data analysis), one - insider/outsider (the lecturer, who thought another course to the same students and was responsible for HEIsCITI project implementation, and one – outside (the lecturer who haven't taught students and did final data analysis). These different roles have led to constant discussions and data verification.

The research followed the main ethical requirements, in the case of interviews, the informed consent was signed.

3 RESULTS

3.1 General Overview of the Data

The results of the first reflection showed that the gradual involvement in the chosen working methods is very effective and confirmed that the appropriate way to organise the working teams was applied. However, it also raised a few “red flags” that could be responded to promptly and helped the teams: resolving conflicts within, encouraging questioning in the engagement phase, and clarifying the wording of the task in the define, empathise, and ideate phases. The biggest shortcoming observed was the students' time management, which caused the vast majority to miss the opportunity to do the empirical research and to gather additional information, and which they acknowledged as a major shortcoming.

The second reflection focused on the successes and failures of the project, as well as the evaluation of team and individual work. Overall, the reflections emphasised the more positive aspects of teamwork, process, and methods. At the same time, there was a healthy self-criticism of the students for personal development.

The results of the structured interviews revealed the strengths and areas for improvement in the implementation of organisational problem-solving projects. The semi-structured follow-up interviews displayed what was most satisfying about local community problem-solving projects, what were the main positive aspects and how successful it was to apply design thinking principles. It also summarised the

difficulties encountered, the points to note, and the ways in which the application of reflection in the process contributed to or hindered it.

3.2 Four - Dimensional Process of Reflection During Learning of Design Thinking

Reflection-on-action has become a core reflective approach, often incorporated into the assessment methods students encounter. In higher education, students are typically required to provide academic analysis of their practice experiences, following a structured cognitive model or guide for reflection. These reflective assignments are designed to promote learning that will support their future practice [18].

The analysis of the data resulted in a theme "Theory+practice":

The subject itself was interesting and engaging. Not only did we learn about new or familiar methodologies, but we were also able to try them out in practice. At the beginning of the project we generated ideas using several methodologies, we discussed in the team what type of project we would like to start and everyone's opinions were heard and considered. The next steps of the project were quite smooth, although there were some disagreements within the team. In my opinion, the project has been implemented in a planned and targeted way, with all important aspects being considered and less important ones being rejected (F2).

I consider the experience a success because I was able to test how a theory I didn't know works in practice (F10).

In addition, the theme "Design thinking. Diversity of methods" emerged.

I took this project as a challenge, as it's only the first semester of university and there are already so many different group tasks and jobs to do (M2).

Coming to the project part of the lectures, I liked the fact that we had a lot of different tasks to do, which allowed us to clarify the problems, understand the stages of the project and the possible application methods (M5).

Its implementation has led to a deeper understanding of how to create and present information in different ways to make it understandable and attract audiences (F13).

Students also emphasized "Feelings".

I would rate my feelings at the time of the analysis as good because I was able to apply my professional knowledge and had the necessary equipment to carry out the analysis (M7).

Strange or unconventional ideas sometimes turn out to be meaningful and useful. This approach encourages creativity. Doing this technique in groups during the lecture gave not only knowledge but also good emotions (M8).

It is worth noting that students' thoughts also focused on 'team', 'positive', 'challenges', and 'finding ways to overcome challenges'.

Our group took a responsible approach to the task at hand, with weekly discussions and brainstorming, which allowed us to move steadily towards the project. I think this also contributed to the ease of the task (F3).

The problem was the divergence of opinions, as the group was made up of very different people with different views on the same issues. But at the same time it's interesting because you hear the opinions of colleagues who think differently and you try to find a common solution (M5).

I felt uncomfortable when I already had to discuss this project idea with a colleague, because at the beginning of the discussion it was quite difficult to communicate with each other, probably because I myself was using mostly technical terms when talking about websites and attracting users, but maybe these technical terms were not heard many times or familiar to my colleague at that time. The misunderstanding was finally resolved when I showed my colleague real-life examples (M7).

Maybe it was because myself and the other members of the team felt physically tired and confused, which makes it difficult to generate creative ideas (M9).

"Team vs. individual work. Different meaning to different personalities" emerged as one more theme.

Personally, I always find it easier and easier to do things individually, the way you envision the project or the task, the end result. I often choose this way because working individually, you stay more in your

comfort zone, you don't have to defend what you say and want, you don't have to take into account the opinion of others and you can do things the way you like (M2).

As I chose to do the project alone, it was sometimes sad to see others working in a group and sharing the project tasks (F13).

The data revealed "Various roles of teacher".

During the course of the work, I realized that the lecturer's suggestion was useful for the project. Her suggestions helped us to steer in the right direction, especially at the beginning when we were frustrated with the first assignment (M8).

During the discussions, there was a lot of uncertainty about the continuity, completeness or transformation of the input, so we turned to the lecturer for advice and counselling. She commented that we should not focus on shortcomings but on new useful inputs or significant transformations (M9).

She helped me with the necessary questions and "set me on the right track" to improve the project (F5).

All the conditions are in place for the project. Both methodological support and help/support from the teacher were provided (F8).

You could feel the teacher's strong contribution and willingness to help you understand the task and the required end result (F11).

I appreciated the teacher's accuracy and precision, very clear guidelines and deadlines (F12).

She was always supportive and gave practical exercises to apply theoretical knowledge in real-life situations. This helped me to further understand how to apply the theories in practice (F13).

In teaching, it is often assumed that if students can reflect on their actions in the classroom, they will be able to reflect in action during practice. This belief stems from the idea that **reflection-in-action** can be developed through theory-based reflection-on-action, with each reinforcing the other. As development of projects lasted over time, students had possibility to reflect-in-action. However, such reflections mostly revealed negative feelings and experience.

It seemed to me that we were having a futile discussion the whole lecture. I felt like that because we had chosen the wrong topic and then we had analysed it wrongly, so one academic hour with the group had been wasted. I hope that we will be able to agree on another topic and analyse it on our own and then prepare a project. We will not repeat our mistakes (M3).

It was difficult to decide with the team what theme to choose (...). After that evening, when we did the work, it seemed to me that nothing worked out, and I'm not talking about the team members, but about all the work that was done. Then I felt frustrated. My thoughts were not flowing, I didn't seem to understand anything and I couldn't use the knowledge I had gained. The next day, the lecturer suggested changing the topic, which made me even more upset. It seemed that all the work we had done during the lectures had been for nothing. On Wednesday and Thursday, I had no desire to study, I didn't bother to start the work and I felt frustrated. On Friday I had a day off work and it was a great opportunity to start working on the project again (M8).

I experienced a lot of emotions during this task. I felt unmotivated at first. Because the first topic we chose was not suitable, it was difficult to make it concrete and analyse it. When I chose another topic where the lecturer suggested, gradually the work became more interesting. I discovered new aspects and it was easier to go deeper into the material. As the work progressed, it became more and more interesting to go into the new material and apply my knowledge. I felt very good when the project started to "move" in the right direction (F6).

During the project, I realised that some of the methods were not for me. For the first time, I noticed that the "6 De Bono hats" method did not "stick" for me. I was hoping that by redoing the assignment, I would see an improvement, but I didn't. It was only after two lectures, when we did the clarification of the goals and objectives, that I realised that I needed a different approach/method to the problem (F8).

Reflection-in-action brings to light what would otherwise remain tacit, such as moment-to-moment decision-making on changing the topic. It allows students to shape and build on their experiences, enhancing their professional growth.

However, in their day-to-day activities, students may overlook valuable learning opportunities and the potential for future development in practice. Through **reflection-before-action**, students can start to develop early awareness and engage in preliminary reflection. This process encourages them to

become more attentive to their surroundings and practice situations, fostering a deeper understanding and appreciation of the experiences unfolding around them [18]. Even if there is a limited data on reflection-before-action in mid and final reflections, it could be found in reflections about field visit.

Before the meeting, I had hoped that the representatives of the municipality would see the work we had done not as a criticism, but as useful help (P2).

Before the visit I have got the impression that respondents from the municipality were inactive, difficult to find and encourage to participate in the survey. It was hoped to find out about the efforts of the administration of the Municipality to cooperate and communicate with the people of the district, and to find out the reasons why respondents are reluctant to take part in the surveys and to give their opinion (P4).

In all cases, data on reflection-before-action shows mismatch between expectations and reality, but at the same time, it helps students to prepare for real life situations.

Reflection-beyond-action is a process whereby students can be encouraged to make links between their past and present experiences, using these to inform future experiences. It enables students to understand the present in relation to both the past and future, serving as a crucial element in lifelong learning and career development [18]. It is witnessed in final reflections mainly as learning from mistakes and getting new experience.

It is important to recognise that failure is a natural part of life and that learning from mistakes can contribute to future success. Learning from experience and continuous improvement can help you become more resilient and calm down after your first failure (F12).

"We learn from our mistakes" (F4).

"The task was challenging because it required a combination of deep analysis and creativity, but it was an interesting and enriching experience for each of us" (F10).

Reflection-beyond-action also supports individual learning by helping students internalize and make sense of their experiences. It enables them to integrate new knowledge with existing understanding and to extend them to other learning situations or practices.

It can be used for many assignments, to write down many options and then choose the most appropriate one (...) The Disney method can also be used for projects in other subjects and to look at a problem from different angles (M5).

We tried a lot of different methods (...), which were new to me and it looks like they will definitely be used in future projects with groups or even with colleagues at work (F4).

Engaging in reflection-beyond-action can foster self-exploration and lead to personal growth in students. This reflective process may inspire changes in behaviour, goal-setting, and achievements that contribute to becoming a better professional.

"I'm glad to have had the opportunity to do this work, not only to gain the necessary knowledge but also to improve my communication skills" (F6).

The value of reflection-beyond-action lies in its ability to promote self-evaluation and practice improvement based on learning and experience. Through this, students can gain a deeper understanding of their values and beliefs, enhancing their capacity to manage complex situations and fostering self-awareness.

The four-dimensional process of reflection could be overviewed by a short summary of reflection on reflections. During the interviews students noted

"All the reflections were a wonderful idea by the teacher. So much discovery, knowledge and understanding during them" (I3).

"Reflection, which required critical thinking. It forced me to learn to see the other side of failure and to accept criticism in a constructive way (I11).

"Through this reflection, I have once again gained a better understanding of the meaning and results of all the practices carried out (I13).

"Frequent reflection has helped me to consolidate my knowledge and understand myself" (I14).

On the other hand

Personally, I often find reflection difficult. The frequency of reflection could be applied either when facing challenges or when reaching a "milestone" (SS11).

4 CONCLUSIONS

Reflections enriched the learning process and have helped students to internalize knowledge leading to a deeper understanding and enriching their experience. Reflections foster a more personal learning experience and the impact of this learning is transformative, often resulting in a profound change that leaves a lasting effect on professional development. Transformative learning occurs by engaging students in dialogue, encouraging them to rethink problems and modify their practice.

The four-dimensional process of reflection promotes diverse kinds of learning. Reflection-on-action helps bridge the gap between theory and practice, allowing students to connect theoretical concepts with real-world application and vice versa. It also supports deeper understanding of themselves in the learning process and their relation with team and teacher. Reflection-in-action not only expresses learning but also reinforces and reconstructs it. This process highlights the unique and personal journey a student undertakes in becoming a professional. Reflection-before-action helps students to prepare for real life situations. Reflection beyond action allows students to revisit and deeply understand their experiences, leading to significant personal and professional growth.

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