Design thinking combined with curriculum development

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Abstract
The aim of this article is to analyze how design thinking can be integrated with curriculum development. A master degree programme in arts and culture is used as a reference point, where design thinking can be implemented and utilized. Design thinking can be integrated with a variety of methods to create, share and evaluate innovative ideas. Also, agile development and decision-making are connected with design thinking: these are used in order to make the necessary decisions more quickly, to adopt new types of expertise and to commit to the desired changes and the goals required. Agile development methods are often used in the corporate context, where is a clear need to, for example, more boldly question existing thought patterns and to test new ideas. It is clear that in companies, design thinking can play a significant role in seeking distinctiveness in the marketplace. Are the above ideas also applicable to higher education context? It is interesting to stimulate ideas about how, for example, multidisciplinarity, co-creation, creativity and experimentation as essential elements of design thinking can be utilized in curriculum development. Interdisciplinarity plays an important role if we aim to share and co-develop new innovations with peer teachers from various disciplines.

Keywords: design thinking, curriculum development, arts and culture.

El pensamiento de diseño combinado con el desarrollo del plan de estudios

Resumen
El objetivo de este artículo es analizar cómo se puede integrar el pensamiento de diseño con el desarrollo curricular. Un programa de maestría en artes y cultura se utiliza como punto de referencia, donde se puede implementar y utilizar el pensamiento de diseño. El pensamiento de diseño se puede integrar con una variedad de métodos para crear, compartir y evaluar ideas innovadoras. Además, el desarrollo ágil y la toma de decisiones están conectados con el pensamiento de diseño: estos se utilizan para tomar las decisiones necesarias más rápidamente, adoptar nuevos tipos de experiencia y comprometerse con los cambios deseados y los objetivos requeridos. Los métodos de desarrollo ágiles se utilizan a menudo en el contexto corporativo, donde existe una clara necesidad de, por ejemplo, cuestionar con más audacia los patrones de pensamiento existentes y probar nuevas ideas. Está claro que en las empresas, el pensamiento de diseño puede desempeñar un papel importante en la búsqueda de un carácter distintivo en el mercado. ¿Son las ideas anteriores también aplicables al contexto de la educación superior? Es interesante estimular ideas sobre cómo, por ejemplo, la multidisciplinariedad, la co-creación, la creatividad y la experimentación como elementos esenciales del pensamiento de diseño pueden utilizarse en el desarrollo curricular. La interdisciplinariedad juega un papel importante si pretendemos compartir y desarrollar conjuntamente nuevas innovaciones con profesores pares de diversas disciplinas.

Palabras clave: pensamiento de diseño, desarrollo curricular, arte y cultura.

Introduction

How design thinking can be utilized in the design of higher education is an open and interesting question. There is currently relatively little empirical research on this topic, and most often, design thinking is treated as a tool for learning rather than as a design tool used by the teachers planning the curriculum (cf. Beligatamulla, Rieger, Franz & Strickfaden, 2019).

Design thinking, concisely defined, means solving problems using creativity, empathy and the methods used by designers. Design thinking integrates several perspectives, such as multidisciplinarity, visualization, creativity, experimental development and understanding of users, through an inclusive process (cf. Liedtka, 2018). Design thinking emphasizes solution-oriented ways of working, thinking models and tools, which are used in order to create alternative solutions to a problem. Design thinking can be defined as the ability to leverage a holistic user understanding to create, experiment, test, and develop new, alternative solutions for users. In addition, co-creation is at the core of design thinking. Prahalad and Ramaswasy (2000) have created an idea of how the competitive business field should change to resemble experimental theater, where anyone can participate in the play. Could we also see curriculum development as a play inviting all participants to join it?

MA programme in arts and culture as a reference point

There are two types of universities in Finland: universities are focused on scientific research, which also guides their education; universities of applied sciences (UAS) emphasize research, development and innovation activities as well as education, which are conducted in cooperation with businesses and industries. The MA programme in arts and culture used here as an example comes from the Seinäjoki University of Applied Sciences in Finland.

In line with design thinking, the practice of learning should be as realistic as possible. Master degree students at the UAS must have a minimum of two year working life experience after their bachelor degrees before they can apply to a master degree programme. Project learning is one of the forms of learning often used, based on business projects where students solve real problems offered by companies and organizations. Project learning can be seen to have various positive effects on, for example, the development of problem-solving skills and critical thinking, as well as skills related to reflection and interaction, which represent the methods of design thinking. It is also important to support the framework of creativity, which allows students to continuously test and try the innovative concepts in practice. All these competences are aimed to take into account in our master degree curriculum, supported with the theoretical frameworks applied from fields of arts and culture.

The challenge in project learning is that projects are often focused on a specific field: for example, courses in the field of arts and culture most often implement a culture-related project rather than a project, where, for instance, the main emphasis would be on creating innovations for other types of industries. However, we try to build up a framework of interdisciplinarity, which is another typical feature for design thinking: the majority of our courses combine business orientation with arts and cultural management field. We also have projects where our MA students co-create solutions for given problems in interdisciplinary teams. In addition to these project-based learning experiences, we can use design thinking as a holistic process in pedagogic planning, which is considered in the next chapter.

Pedagogic planning based on design thinking process

Design thinking is based on an iterative process with certain successive steps: empathy (i.e. understanding the context and users' needs), problem definition, ideation, modelling and testing. The question arises, if the same process of design thinking could be used as a tool for teachers doing curriculum design? Figure 1 seeks to illustrate this idea. The model could be considered, for example, to be discussed in interdisciplinary teacher teams whether it can be applied when planning new curricula or modifying existing ones. The process of design thinking also might be used to analyze the similarities and differences between intended, implemented and attained curriculum. The intended curriculum is the formal, written curriculum, while the implemented curriculum concerns how teachers operate the curriculum during the courses and attained curriculum means how student are experiencing the curriculum in practice (van der Akker, 2003).

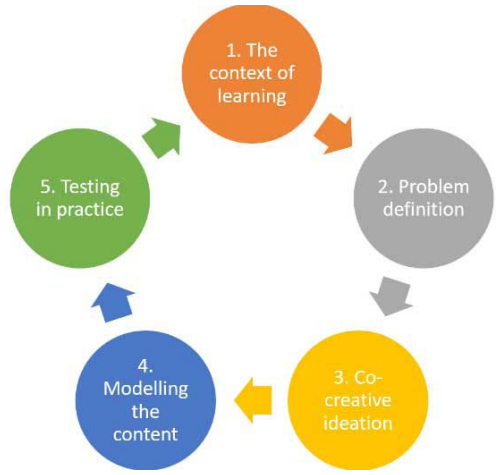

Figure 1. Pedagogic planning circle according to design thinking

Luka (2014) points out that the process of design thinking is very close to the model of experiential learning defined by Kolb. In that model, experiences, observation and reflection, conceptualization, and action follow each other as a cycle. It could be justified to approach the utilization of design thinking in pedagogic planning from the perspective of experiential learning.

First, empathy at the initial stage of planning in our case means the context of working life. We actively aim to seek and observe changes and needs in that context which have to be taken into account in teaching. According to design thinking, empathy often requires practical observation in a real environment. One possibility to implement such empathic design is, for example, teacher internships, in which teachers are involved with day-to-day operations in businesses or organizations for an agreed time period.

Question remains are there enough of opportunities for teacher internships or are they provided often enough? Would there be other means and possibilities for observation, just as designers go to observe people and their behavior in some surrounding for a day. Thus, the observation does not necessarily have to be based on a teacher internship of an extended period of time. For example, one day observation can just as well bring new insights, and implementation could be easier for both teachers and the host organization. Of course, observation requires clear planning of the perspectives and actions to be observed. Equally, interviews with representatives of working life can be utilized to support the observations, which can be done by interdisciplinary teacher teams. Thus, the principles of co-development and inclusion would also be included at this stage. In our case with MA curriculum in arts and culture, we have the continuous opportunity to meet our students in their work organizations and companies, to make such visits, observations or interviews, if needed.

The second stage of experiential learning is reflection, which in the design thinking process means defining the problem. First, the information, experiences and insights gained in the previous step should be analyzed. For example, participatory workshops can be used, where teachers involved in planning discuss and share the experiences. The result of the discussion should be a definition of ill-defined problems to be considered and solved in different courses. Ill-defined problems are complex in nature, as there is no clear definition and no clear outline of the problem, and such problems are often the main reason to apply design thinking (cf. Tunga & Yildirim, 2017). In our case, we aim to define in teacher meetings what type of projects with ill-defined problems could be provided for each course.

The participatory and visualizing approach is also suitable for the third stage, where creative methods are the main focus. The phase requires both determined, guided work and nurturing the conditions for creativity. However, this does not mean that the reflection phase would take an infinite amount of resources. Instead, co-creative and participatory work can accomplish in a day what one teacher alone would have to consider for several days or even weeks. Visual user personas could be applicable in this phase. Personas are tools used especially in disciplines of human centred design and development, constructed on real data of the users (Dam & Siang, 2021). User personas help to immerse to the world of the user to whom new services or products are designed for: teachers from different fields could work together to visualize various user personas of students and develop new, multidisciplinary learning content based on these profiles. Considering our MA courses in arts and culture, this is clearly an area, which requires more work to involve teachers from different disciplines.

When as many ideas and experiences as possible have been gained from the previous stages, we move to the fourth stage, which is the understanding in experiential learning circle versus prototyping in design thinking process, which mean modeling of the pedagogic content. In this case, one could consider, for example, visualizing the service blueprint (Bitner, Ostrom & Morgan, 2008) as a holistic tool to see various experiences and operations supporting the curriculum. The fifth step of experiential learning is application, which in design thinking process refers to testing the designed content in practice. At this phase, small groups of students could provide a platform for testing the new ideas, based on which modifications could be made for the final learning content. Already now, we have a bachelor degree course where students and teachers from all disciplines at our university use various methods and tools of design thinking. The learning experiences from these tools could be also applied our MA curriculum, in order to prototype and test new innovative ways of learning.

Conclusions

Utilization of design thinking can take place in many different ways. For example, Willness and Bruni-Bossio (2017) have integrated design thinking process into curriculum innovation in their research. In order to solve the problems, needs and challenges that arise in project learning, we could combine the perspectives of experiential learning and design thinking already at the planning stage of curriculum. One may also ask, how can one teach design thinking if one does not first try it in one's own work? Design thinking requires that the teacher also become a peer learner (Merrell, 2019).

The process model of design thinking presented in this article may seem quite a challenging and at the same time an ideal solution. Many of us teachers certainly recognize the challenges involved, such as the lack of resources, high amount of work required for the holistic process or uncertainty of the results. It is noteworthy that design thinking does not seek to find one right solution, but seeks to test different alternatives. The teacher should also have the opportunity to test different means as well as to have a permission to fail. This is perhaps one major barrier of using design thinking in education, as

failure is often associated with poor results in student feedback. Instead, a potential failure should be seen as something that can be reflected and evaluated, and find new solutions based on this reflection. That would mean another round of design thinking would start, which supports the idea of continuous innovation put into pedagogic framework.

From a design thinking perspective, interdisciplinarity is particularly important: how can we further share and co-develop new innovations with peer teachers from various disciplines? Maybe there is a possibility to start a pedagogic innovation ecosystem, where various actors interested in applying design thinking would co-create innovative learning experiences for the future.

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