

Coordinating a multidisciplinary course development project through design-based collaboration

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Introduction

Delivering education that creates deep learning is a primary goal of higher education institutions. To reach this goal, many institutions now require continual teacher development of their instructors (University of Copenhagen, 2022). However, historically such pedagogical training has received low priority (Bendixen & Jacobsen, 2017). Recently Denmark introduced a framework intended to prioritise instructional development among university professors: the *Danish Framework for Advancing University Pedagogy* (*Dansk ramme for meritering af universitetspædagogiske kompetencer*, Danske Universiteter, 2021). This framework outlines three competence levels across several domains, including teaching or thesis supervision, assessment, quality assurance, collaboration with students, collaboration with colleagues, and cooperation on quality assurance.

The project described here responds to the call for more advanced pedagogical training at the university. It follows a multidisciplinary group through the collaborative design process of developing a new teacher competence development course at the final, highest of this framework (aka, level three or *post universitetspædagogikum*) in the area of subject digitalisation and digital education. Digitalisation is multidimensional, as illustrated by the DigiCompEdu framework (Redecker, 2017), which describes digital competences for educators as encompassing “professional engagement, digital resources, teaching and learning, assessment, empowering learners, and facilitating learners’ digital competence.” As such, it was ne-

necessary in this design project to align our multidisciplinary groups' various understanding of digital competence. To facilitate collaboration and create shared understanding that would ultimately support developing cohesive courses, I facilitated several design-informed interventions.

Context

Setting

This course design project takes place among colleagues in the Center for Digital Education (2022), an multidisciplinary center situated in the University of Copenhagen's computer science and science education departments. Researchers in the Center for Digital Education study the possibilities and consequences of the digitisation of educational processes and institutions. As members of the Department of Science Education, the Center for Digital Education affiliates also teach in the university's introduction to university pedagogy and universitetspædagogikum courses (Københavns Universitet, 2022). Respectively, these courses correspond to the level 1 and level 2 competences in the Danske Universiteter framework. In this project, colleagues at the Center for Digital Education, including the author, began developing the courses to develop University of Copenhagen instructors' competences to a level 3 in the area of digitalisation.

Design Objective

Design post-universitetspædagogikum learning activities related to digitalisation and pedagogical competence for university instructors.

Project

This project followed an interactive, design-based approach (Juuti & Lavonen, 2006), in which I conducted an intervention or task, sought feedback and reflected, and then revised and implemented another approach to move closer to the objective. Below I describe this project by providing summaries alternating between actions and outcomes.

Phase 1: Individual Course Design

Action: The design process began as an individual course design task conducted in parallel. The researchers in the Center for Digital Education each wrote a brief course outline and submitted it. These course proposals included 1) a brief description of the course topic(s); 2) an outline of learning activities; and 3) recommended course logistics, including course size, length, and format. Overall, six course proposals were submitted.

Outcome: By reviewing the six submitted course proposals, I determined that the proposed courses closely aligned to individual research interests but taken together did not correspond with a cohesive model of digital education. The proposals as a whole lacked constructive alignment to specific set of goals or intended learning outcomes. These courses were, in effect, creating a haphazard curriculum without well designed scope and sequence. The strategic insight from this phase was that, while we individually employed a backwards design process at the course design level, this did not automatically translate to a set of courses that would work together efficiently and have aligned learning outcomes. In sum, we first needed to address broader questions preceding the choice of subject and teaching approach (see Angelo, 2013).

Phase 2: Group Dialogues and Resource Identification

Action: To develop more cohesion among the proposed courses, I next organized and facilitated a design meeting for the individuals that had submitted course proposals. The objective of these discussions was to identify central themes and modes of instruction. I created a summary of the CDE's areas of interest and competencies based on the submitted proposal and used this summary to spark discussion at two one-hours group dialogue sessions.

Outcome: The primary outcome of the first discussion was a collective agreement that it was incredibly hard to design a course without knowing more about the intended learning outcomes and expectations for course logistics. This blockage makes sense in light of the model of constructive alignment (Biggs, 2014). In light of this model, CDE members were being asked to design teaching and learning activities without a clear understanding of what intended learning outcomes to priorities. The strategic insight at this stage was that before focusing on course design, we could identify the resources that provided the background structure to our design efforts, these would inform creating appropriate intended learning outcomes.

Action: Through dialogue with department leaders, colleagues, and other researchers we identified several frameworks to serve as guides in post-UP development. The first was likely the framework which provided the impetus for this design project. This framework, the *Danish Framework for Advancing University Pedagogy* (Danske Universiteter, 2021) discussed in the introduction, is organised into six areas including teaching and thesis supervision, assessment, cooperation on quality assurance, collaboration with students, collaboration with colleagues at three competence levels. Next, we identified several existing frameworks of digital competence, of particular relevance were the DigiCompEdu framework (Redecker, 2017) and the University of Copenhagen's framework for student digital literacy and skills which includes data management, digital analysis and methodology, digital reflection, technological understanding, and digital scientific information search (not publicly available).

Outcome: After identifying these frameworks, our group was able to discuss course design in terms of specific competency areas and appropriate levels of skill (level 3). We had second design meeting focused on how our course would add to existing training opportunities in order to, as the framework says, "ensure a dynamic development of the universities' teaching and supervision tasks and ensure that associate professors and professors have the possibilities to update and maintain necessary competencies within one of the university's most important core tasks, education" (Danske Universiteter, 2021, p. 4). But the strategic insight at this stage was that collectively we had different levels of understanding of the relevant frameworks. We returned to an action phase to address this gap.

Action: While the dialogue-based design meetings were productive in creating a more cohesive vision of what the CDE post-UP course would be and clarifying areas of confusion, it was clear that we did not have shared knowledge of the context and background pertaining to our course development. To create a shared knowledge base, I organised several information sharing sessions, including a workshop on one of the key frameworks related to digital education in higher education, DigiCompEdu (Redecker, 2017) and an external workshop on the university's digital literacy framework. In the first workshop, on the DigiCompEdu framework, my goals were to introduce the framework to CDE members and discuss its applicability to our courses' learning outcomes. In the second workshop, a co-led external workshop on the university's model of student digital literacy, we introduced the framework to other instructional designers and discussed what teacher competence development would be relevant.

Outcome: From these workshops, we determined several things. First, most researchers at the Center for Digital Education had limited knowledge of existing digitalisation frameworks. Second, there was some resistance to adopting such a broad framework to inform the learning objectives for a post-universitetspædagogikum course on digitalisation. In part, this latter concern is related to a somewhat critical view of the concept of *competencies* as it relates to learning. The argument raised was that, by focusing on specific areas of competence our instructional topics become narrow and may leave critical but hard to compartmentalise skills and knowledge. Overall, this intervention raised awareness for a framework related to the course-design task. The overall strategic insight from this phase was that rather than specify what learners will be able to do through a competence framework, as is common in backwards design, it may be more useful to create a design process that would allow for a more varied set of topics to develop but also have cohesion.

Phase 3: Collaborative Course Design

Action: To bring more clarity to some of the underlying beliefs about instructional design and what approach could unite the various proposed topics, I arranged a facilitated Co-Navigator session. Co-Navigator is a tool designed by Lindvej and colleagues (Lindvig et al., 2017), to CoNavigator aid collaboration around complex themes and problems. This session involves identifying core wants and blocks and several rounds of voting and building connections. The result is a topographical map of issues co-created by everyone as shown in Figure 1.

Outcome: The half-day co-navigator session included seven participants that discussed our areas of focus, blocks, and priorities around designing a digitalisation focused post-UP course. I was surprised that the result of this process was not a list of specific topics, rather the specific topics were identified as secondary to the concepts of student agency and constructivist learning practices. The consensus was that learning support centers support the development of “teaching with technology” competency and that data labs support the development of competency around “digitalisation.” But what is missing is the intersection of advanced digitalisation competency with modern teaching theory. Our group realised that we prioritise building on this foundation and focusing on teaching practices over technology demonstration. The strategic insight from this phase was what topics should be included in a design protocol to support development of

courses that emphasised the aspects of student agency and constructivist learning—our shared values.



Figure 1. The map of the issues raised and discussed during the co-navigator session.

Conclusion

In this design project, I have facilitated a course design from an initial non-collaborative and scattered set of suggestions, through several collaborative design activities, to identify unifying themes shared by CDE members. Through the design process, the final result changed from developing specific courses to creating a framework that can inform the design of multiple courses for our center. So far, in our final design meeting this framework was well received. It includes question prompts in several areas. Like the original course proposals submitted at the start of this project, the course design framework includes course logistics and intended learning outcomes. But it goes beyond this to explicitly alignment to address existing pedagogy competence development courses, what teaching portfolio contribution the

participants will develop, and what digital competence model (if any) the course addresses.

This project started without a clear vision of what course topics and learning outcomes should be and how such courses would be assessed. Through this collaborative design process, I personally learned about facilitating dialogue sessions, informational workshops, and collaborative activities as a part of a course and curriculum design. Further my colleagues now also share a language, understanding, and approach to our individual course development. Going forward, we can focus on course development using our aligning framework which was co-developed through this project.

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