Framework for Evaluating the Pedagogical Features of University Courses Representing Collaborative Knowledge Work Practices

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Abstract: A framework is proposed to identify pedagogical features supporting the development of collaborative knowledge work competence. The data included twenty-three course, which were categorized and clustered. The clusters covered a) activating learning promoting content learning, b) self-directed individual or collaborative knowledge creation, and c) challenging collaborative knowledge creation with systematic support for knowledge practices. The latter is argued to be an important addition to current educational practices to ensure graduates' fluent transition to knowledge work.

Pedagogical design for developing knowledge work competence

Higher education is expected to prepare future academic experts for the knowledge-driven global world (Barrie, 2012; Karlgren, Paavola & Ligorio, 2019). Students should be provided with relevant knowledge work competence, which enables solving complex problems, taking part in creating knowledge and promoting novel solutions by using the community's collective, technology-mediated efforts. There is a need for a generic framework to examine the aspects that are central in the pedagogical practices of higher education (HE) courses to support the development of students' knowledge work competence throughout their studies.

Based on related theories such as knowledge building (Bereiter, 2002), trialogical learning (Paavola et al., 2011), authentic learning (McCune, 2009; Stein et al., 2004) and student-centered instruction (Biggs & Tang, 1999), and empirical studies (e.g., Damsa, 2014; Lakkala et al., 2015; Muukkonen et al., 2017), a framework for evaluating and comparing various types of courses was developed. The framework aims to examine the design features in a structured fashion, on the critical elements in collaborative knowledge practices. Numerous prior studies have indicated that pedagogical design has an impact on what kinds of activities are enacted by students during courses. The aim was to study how the current pedagogical practices in a sample of university courses represented practices expected to support the learning of collaborative knowledge work competence.

Methods

The data consisted of teachers' open answers (N = 40) to an online questionnaire about the practices (collaboration design, types of tasks, use of digital tools, guidance, assessment) and experiences in 23 courses. Additional materials included, e.g., course descriptions, task guidelines, teaching materials, digital platform content, lesson observations, or students' feedback forms. Features of pedagogical practices, involving some form of collaboration, were analyzed by adapting a framework developed for high school knowledge assignments (Ilomäki et al., 2020). In the data, the variation within the categories was outlined by describing in detail the pedagogical practices for every course. Sub-categories named as features of pedagogical practices were developed, and given a level from one to three to explicate the extend of the features in the practices. For example, the feature 'Extent of student-centered activities' under the main category 'Epistemic challenge', consists of the following levels. Level 1: Sessions mainly involve lecturing by teacher. Level 2: Sessions include both lecturing and student activities. Level 3: Practically no lecturing, mainly student activities.

Findings and conclusions

The main categories of the framework are Object-orientedness, Process-like emphasis, Epistemic challenge, Nature of practices, Collaboration, Cross-fertilization, Information practices, and Assessment methods (Figure 1).

Three clusters of courses were found in subsequent analysis of the feature level evaluations (see Figure 2). Cluster 1: Challenging collaborative knowledge creation with systematic support for knowledge practices. Courses were shaped by one major open-ended and authentic collaborative knowledge creation task elaborated both in contact sessions and as home work. Expert practices in knowledge work were explicitly modelled. Cluster 2: Self-directed individual or collaborative knowledge creation with content-focused instruction. Courses included lectures or hands-on sessions, and one major open-ended individual or collaborative task (in addition to smaller ones), mainly as home work. Occasional and tailored guidance was given for individuals and groups to complete the tasks. Cluster 3: Activating learning practices promoting content learning. Courses primarily focused on the acquisition of domain content through activating lectures and/or small-scale individual and collaborative

knowledge creation tasks in contact sessions and as home work.

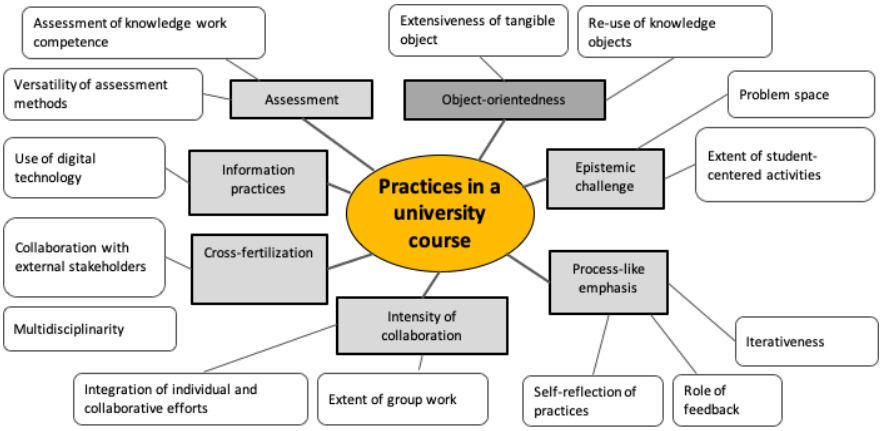

Figure 1. Features of pedagogical practices in university courses.

The framework was able to differentiate courses from the knowledge work practices perspective and explicate pedagogical features that should be developed in the courses. The combination of challenging tasks with systematic support is expected to be most productive. It also fosters a shift of ownership of knowledge creation and content learning to the students. In the future, the analysis results could be combined with data about students' learning of knowledge work competence during the course. The present study is an initial step to design a framework for the analysis of pedagogical features.

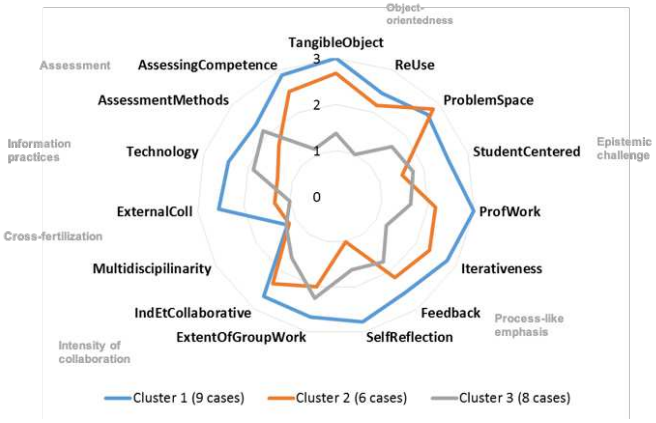

Figure 2. Clusters of features.

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