Examining instructors' roles to facilitate students' learning process in

Pedagogical Information and Communication Technology Massive Open Online Course

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Abstract

This study examines how course instructors facilitate students' learning in the Pedagogical Information and Communication Technology (ICTPED) Massive Open Online Course (MOOC) aiming to develop professional digital competence in pre-service and in-service teachers in Norway. It also provides an insight into how students' agentic engagement in learning may affect the course instructors' guidance.

Students' online meetings with the course instructors and students were observed and recorded. The meetings aimed to develop students' understanding of the examination assignment. The data (4.5 hours video recordings) analyzed by the method of interaction analysis revealed that the instructors performed four pedagogical functions: (1) setting up the learning process, (2) reifying students' ideas;(3) assisting students in developing their conceptual understanding; and (4) summarizing and structuring students' understanding about target concepts.

These pedagogical functions evolved out of mutual collaboration of the instructors and students. The students' agentic engagement in learning was visible when they took the initiative to explicitly share their ideas related to their examination assignment. Instructors' agency in guiding, came into play when addressing students' ideas and questions emerged during the interaction process. Students' agentic engagement in learning shaped the course instructors' pedagogical functions and enhanced their agency. In doing so, the dialectical interplay between

the students' and course instructors' agency comes to the fore as an essential aspect of learning and teaching in online environments.

Keywords: Instructors' guidance functions, students' agentic engagement, online meeting, co-contribution, agency

Extended summary

Introduction

Instructors play a crucial role in supporting students' learning both in traditional and online learning environments. They create a learning environment where students can take the initiative in seeking instructors' guidance to have their learning needs addressed. Research studies examining traditional learning contexts have clearly established the importance of instructors' roles to enhance students' engagement and improve learning outcomes (Hattie, 2009). However, how course instructors facilitate students learning and how students' agentic engagement influences instructors' guidance in online learning environments (for example in MOOC context) is an under-researched area. Students' engagement in MOOC learning is consistently low due to little or no instructor guidance (Hidalgo & Abril, 2020; Singh & Mørch, 2018), despite that collaborative activities remain the crucial practices to enhance students' conceptual understanding (Vygotsky, 2012). Thus, by examining students' online meetings with the course instructors, this study examines how instructors facilitate students' learning to develop of their conceptual understanding. The following research questions are addressed:

RQ1: How did the course instructors facilitate students' learning in the ICTPED MOOC during online meetings?

RQ2: How did the students' engagement in online learning affect the course instructors' guidance?

Theoretical framework

Cultural-historical theory and, in particular, the contribution of Galperin (Engeness, 2021; Stetsenko, 2017), is used as an analytical framework to examine the course instructors' actions at different times during the online meetings with the students. Drawing on the cultural-historical perspective, student agency is conceptualized as the students' ability to engage in and advance in the learning process by understanding how to go about learning (Engeness, 2021) and by seeking guidance to have learning needs addressed (Edwards, 2015). Therefore, student agency might be realized, developed, enacted, and expanded through collaborative contributions of the students and the course instructors aimed to solve the target examination task (Stetsenko, 2017). Instructors' facilitation of students' learning is embedded in a complex dialectical process of how students move forward as active agents in their learning process. While responding to the students' needs, instructors enact their agency to adequately facilitate students' learning. Such a perspective on agency is employed in the analyses of the empirical data.

Method

Two instructors and twelve students in the ICTPED MOOC were the participants in the study. Six online supervision meetings (4.5 hours of recordings) between the course instructors and students were observed and recorded.

Two video recordings (90 minutes) representing the patterns of students' interactions with the course instructors during the online meetings were analyzed by the method of interaction analysis (Hall & Stevens, 2015; Jordan & Henderson, 1995). The analyses aimed to examine how instructors' facilitation of students' learning unfolded in the meetings. An experienced instructor facilitated the analyzed online meeting. Another analyzed meeting was facilitated by the novice instructor. The rationale behind selecting these two recordings was to examine whether the novice instructor considerably differed in his approach to facilitate students' learning from the experienced one.

Galperin's pedagogical phases (Engeness, 2021), such as orientation, materialized action, communicated thinking, and dialogical thinking, were used as an analytical framework to examine the course instructors' actions at different times during the online meetings.

Finally, the students' reflection videos were analyzed to explore how the ideas discussed in the meetings were further developed when solving the examination task. Students' responses to the questionnaire administered by the course instructors were also analyzed.

Findings

The analyses of the instructor-student interactions revealed the four patterns of facilitating students' learning in the online meetings. The instructors: (i) set up the learning process, (ii) discussed the students' drafts in detail, (iii) assisted the students to develop their understanding about their further steps to solve the examination assignment, and (iv) structured the students' understanding and offered further support (Table 1). These activities of the course instructors aimed to facilitate students' learning, evolved during the online meetings and were influenced by the students' agentic engagement.

The experienced instructors offered an explicit orientation about how to proceed in the online meeting and while the students with the novice instructor took the initiative to structure the online meeting. Both instructors and students actively contributed to enhancing the students' conceptual understanding of the examination assignment.

Table 1. *Patterns of Instructors' Facilitative Activities*

Phases of guidance	Instructors' functions	Galperin's pedagogical phases and instructors' roles	
Initiating the learning process	Setting up the meetings by explaining the examination assignment Encouraging students to present drafts	Orientation	Orienting
Reifying ideas	Making sense of the students' drafts Discussing students' drafts Reifying students' ideas and concepts	Materialized action	Executive
Developing conceptual understanding	Encouraging students to express their ideas about the further development of their multimodal texts	Communicated thinking	

	Providing feedback on the students' ideas		
Summarizing	Encouraging students to reflect upon their final understanding of the examination assignment Structuring students' understanding	Dialogical thinking	Controlling

Conclusion

The analyses in this study demonstrate that the instructors' guidance of students' learning was significantly influenced by the students' agentic engagement and their contribution to the learning process. The students took the initiative to express their needs and the instructors engaged in making sense of them to structure the students' ideas and develop their conceptual understanding. Thus, the ways the instructors engage in supporting students' needs might influence students' engagement in learning, and conversely, the way students engage in learning might influence the online instructors' guidance. This study, therefore, highlights a dialectical interplay between the students' agentic engagement in the online meetings and the instructors' guidance as a crucial aspect to advance online pedagogy and students' learning.

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