Active Learning Classrooms to Support Collaborative Group Learning in Higher Education – the Teacher Perspective

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Abstract:

General description on research questions, objectives and theoretical framework:

At the same time as most learning and teaching activities today are technology enhanced to some degree (Watson, 2008; Davies et al, 2017), a majority of classrooms are designed the same way as they were a hundred years ago. Several studies indicate that we have to redesign our classrooms to open up for more flexible learning sessions and to support collaborative learning (Cotner et al., 2013; Bernade, 2017). A promising concept seems to be technology enhanced active learning classrooms where the furnishing is meant to facilitate group based activities (Charles & Whitaker, 2015; Cotner et al., 2013; Vercellotti, 2017). This study is an evaluation of two active learning classrooms equipped with Internet connected computers where students can be divided into groups of up to six students, each group with a separate digital screen and a separate whiteboard.

These classrooms are inspired by the active learning classrooms that have been built at the University of Minnesota and the evaluation of the classrooms was also based on an interview schedule from the same university (see Note 1 in Baepler & Walker, 2014). At the university where this study was conducted blended synchronous learning is frequently used. An educational blend that can be defined as the mix of on-campus and distance students participating synchronously in common learning and teaching activities. Research studies have highlighted the importance of bridging the gap between these two groups and create equivalent learning conditions (Turoff, 2000; Popov, 2009). The aim of the study was to analyse and discuss if and how the technology equipped and group work furnished classrooms might support university teachers' work with various types of collaborative learning. Traditional classrooms are furnished for traditional lecture-based rostrum teaching, this study explores how classrooms that better supports student centred learning should be designed.

As theoretical frameworks for the analysis, Gibsons concept of affordances (Gibson, 1979; Hutchby, 2001; John & Sutherland, 2005) and instructional proxemics (McArthur, 2015) was used. The concept of affordances can be defined as "functional and relational aspects which frame, while not determining, the possibilities for agentic action in relation to an object" (Hutchby, 2001, p. 444), and was useful for discussing how the room, the ICT equipment and, its furnishing affects teaching and learning activities. Instructional proxemics, defined as "[e]ducational space and the use of space in the classroom" (McArthur III, 2008, p. 4) was used to discuss the impact of physical space on student behaviour.

Methods/methodology:

The research strategy has been a case study approach where data has been collected from interviews with teachers and from group discussions with the university's helpdesk staff. Furthermore, ALC error report logs from three semesters have been analysed and compared to the interview answers. A case study case can be defined as a structured investigation of a real world phenomenon (Yin, 1989), with case units consisting of processes or entities that should be explored in depth with data collected from multiple sources (Creswell, 2009). Case studies should have a focus on one, or a few instances of the chosen phenomenon with an emphasis on a thorough description of the particular instance(s) (Remenyi, 2012).

Interview subjects were sampled with a purposive strategy, where teaching time in the ALCs and a broad representation of academic disciplines were the primary criteria. Informants consisted of nine teachers and a focus group with three persons from the university help desk. The interviews had an average duration around one hour and were recorded in mp3-format with Dictaphones, at the same time as authors took rich field notes and frequent comments with the use of pen and paper. Interviews were semi-structured and based on a question schedule inspired by questions that were used in an earlier evaluation of resembling ALCs at the University of Minnesota. After nine teacher interviews and the focus group discussions a state of data saturation was reached. Informants have been treated confidentially as far as possible. No real names of persons, educational programmes or department affiliations have been used and all informants participated on a voluntary basis.

Interview answers and error report logs have been thematically analysed abductively (Danermark, 2002) to identify patterns and develop themes. To support a systematic analysis the computer assisted qualitative data analysis tool Atlas.ti (*Atlas.Ti*, 2017) was used, enabling authors to cooperate on basis of an a priori set of agreed main categories, which subsequently was expanded with themes and categories emerging from the data. The important research question to answer was: How should an active learning classroom be furnished and equipped to facilitate different learning and teaching sessions based on collaborative group work?

Expected outcomes/results:

Findings show that furnishing was more important than technology enhancement to support active group learning. The way student groups can work independently in the same room as teachers can give shorter presentations without regrouping of students is generally appreciated. Different teachers had different preferences when it comes to furnishing and to quote the head of the helpdesk department: "It's hard to please all teachers at the same time with a fixed design". A majority of the informants were pleased with the acoustics in the active learning classrooms and one of the interviewees mentioned that "In these classrooms it's possible to have six groups discussing at the same time without too much noise or disturbance". However, some of the loudspeakers seem to have been positioned poorly, with complaints from some of the teachers.

Furthermore, some teachers' experiences were that it had not always been possible to schedule the active learning classrooms when needed with the current 'first come, first served' policy. The overall conclusion is that the investment made at the Mid Sweden University seems to be worth both the cost and the effort, and that the two active learning classrooms have a potential to support collaborative group learning. Recommendations are to build more active learning classrooms, but since furnishing seems to be more important than technology enhancement, this could be implemented with a 'light version' of active learning classrooms with movable whiteboards and projector screens. Internet connection should be mandatory according to the informants, but features for screen sharing could be simplified and made easier to handle

Keywords: Active Learning, Active Learning Classrooms, ALC, Group based collaborative learning, Technology enhanced learning, Higher education

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