

Differences in university teaching after Learning Management System adoption: an explanatory model based on Ajzen's Theory of Planned Behavior

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Current literature about university teaching argues that online teaching requires online social learning based on social interaction to be effective. This implies a shift in pedagogy based on engagement and collaboration, instead of trying to reproduce face-to-face teaching, in online environments. However, when a university adopts an e-learning platform (or Learning Management System, LMS), most teachers tend to reproduce their traditional teaching, delivering, through the LMS, educational material.

The problem

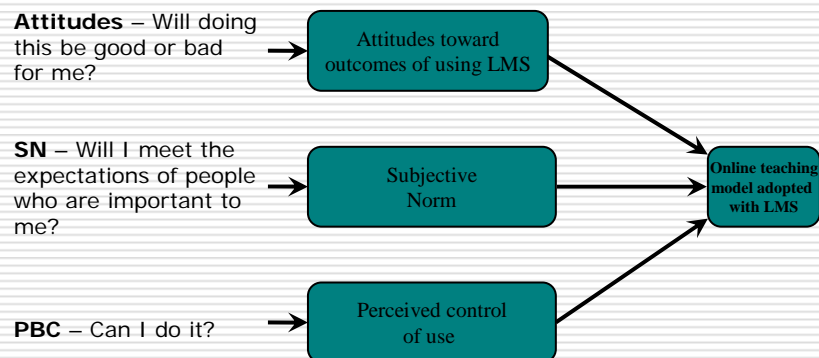
Educational theorists believe that long-term success of universities relies on use of Learning Management System (**LMS**) for Computer-Supported Collaborative Learning (**CSCL**)

Most university teachers use the LMS just to upload materials; some encourage unstructured discussion; few use CSCL
(results of international studies over several years)

This study explored factors which influence university teachers to adopt teaching models based on online social interaction (OSI) when an e-learning platform is used to complement undergraduate classroom teaching. Online teaching model adoption was considered in the framework of technology adoption and post-adoption behavior, i.e., adoption and use by individuals after an organization has adopted an ICT-based innovation (Jasperson, Carter, & Zmud, 2005). Behaviors were investigated using a model based on Ajzen's (1991) Theory of Planned Behavior (TPB).

Theory of Planned Behavior (TPB): adaptation in this study

Behavior (online teaching model adopted with LMS) is influenced by:



In total, 26 university teachers – 15 from Australia and 11 from Italy – holding undergraduate courses, were recruited. They responded to a semi-structured interview based on the TPB, built on purpose for this research. Teachers were divided into three different groups on the basis of their approach to online teaching, corresponding to three different levels of adoption of OSI. The three different online teaching models were: "Teaching material upload", teachers mainly use the LMS to upload teaching material; "Online discussion", teachers make a discussion forum available to foster learning through OSI-based activities but do not incorporate its use in the formal course design; and "CSCL", teachers integrate collaborative learning activities based on OSI in the course design. Data analysis was qualitative.

The study shows that teachers in the CSCL group believe in the value of integrating classroom and online teaching while, for the Online discussion group, online teaching represents a complement to classroom teaching. Furthermore, teachers in the CSCL group think that students learn more with OSI, while teachers who adopt Online discussion think that OSI allows information exchange. Teachers from the CSCL group show higher confidence in LMS use and greater perceived ability to design new activities based on OSI. Teachers who adopt teaching material upload, instead, are less confident about LMS use and have a strong preference for face-to-face teaching.

Results

CSCL teachers are clearly different from the others

- **Attitudes:** CSCL teachers (only) believe
 - Social learning is an essential part of learning whether in the classroom or online.
 - Classroom and online learning are integrated processes.
 - **Subjective norms:** CSCL teachers did not identify normative pressures; the decision to adopt CSCL was “my own”.
 - **PBC:** CSCL teachers (only) are confident in their ability to
 - adapt the LMS to their curriculum (rather than the other way around), and
 - develop learning activities that made use of the LMS for CSCL.
 - **Background:** All CSCL teachers (and few others) had formal training and experience in
 - pedagogy
 - educational uses of technology
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These results cannot be explained by different levels of interest in teaching as all interviewees have a strong positive attitude to teaching, nor by environmental conditions (e.g. support and training available from universities), nor by different national education systems. Instead, it seems that personal skills (obtained, for example, through formal education in pedagogy, training in university teaching, or school teaching experience combined with confidence with technology) influence the adoption of the CSCL teaching model. In the framework of technology adoption and post-adoptive behavior, the Teaching material upload and Online discussion teaching models are used to automate teaching tasks, while CSCL teachers have transformed their teaching.

Conclusions

- The differences reflect CSCL teachers' deep understanding of teaching and learning and the role of technology in these processes.
 - The other teachers (the majority) do not have these qualities, and few have the formal pedagogical instruction from which most CSCL teachers gained this understanding.
 - In order to increase the use of CSCL, should universities ask their teachers to have formal pedagogical training? What else can they do?
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This study demonstrates that the adopted theoretical framework was able to highlight substantial differences in attitudes, social influence, and perceived behavioral control among the three groups for online teaching and social learning activities based on OSI. More studies are needed to investigate migration from one teaching model to another over time.