

# A user-centred approach to understanding the support needs of university teachers using a Learning Management System: A Pilot study

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Providing effective, timely and relevant Learning Management System (LMS) support to teaching staff working within the higher education context is challenging, yet essential in order to meet learning and teaching goals. Crucial to the success of an effective support model, is understanding the needs of teaching staff, together with their enablers and barriers to using technologies. This paper reports on the work-in-progress of a user-centred project initiated by a large university faculty located in Victoria, Australia. The aims of the project are to: 1) gain insights into the way teaching staff use and understand the LMS in their learning and teaching context; 2) use these insights to assist in developing a service support model which improves the experience of teachers using the LMS. The project adopts design thinking and thematic analysis methodologies. This paper reports on the first aim of the project.

Keywords: Learning Management System, design thinking, user-centred, thematic analysis

## Introduction

The adoption of Learning Management Systems (LMSs) for managing learning content and activities in the higher education context has grown rapidly over the last 17 years, and makes up a large portion of the technology support requirements for teachers (Schoonenboom, 2014). Whilst there is an increasing expectation for teachers to employ innovative and active learning strategies in both face-to-face and blended learning environments, there is still dissonance amongst teachers as to the value and usefulness of LMS tools to achieve learning goals (Schoonenboom, 2014). The extent to which a teacher uses the LMS tools may be connected to their personal underlying approach to teaching: whether they focus on information transfer or on student learning (González, 2012). More broadly, in a recent published survey, lack of academic staff knowledge re-emerges as one of the top three barriers to technology enhanced learning (TEL) development, in combination with lack of time and a supportive departmental/school culture (UCISA, 2018). Some studies refer to barriers such as lack of time, lack of academic staff knowledge, institutional and department level culture and budgetary constraints (Jenkins et al., 2018; Zanjani et al., 2013; Jenkins et al., 2011), others refer to technical and structural barriers (Scherer et al., 2019; Mosa et al., 2016; Rienties et al., 2013; Lawrence & Lentle-Keenan, 2013). Wingo and colleagues (2017) used the extended technology acceptance model (TAM2) to synthesise studies about faculty teaching online and highlight personal barriers such as fear of change, concerns about the reliability of technology, scepticism about student outcomes in online learning environments, and workload issues.

Designing a technology support model that effectively meets the needs of users (teachers), means understanding those users. To this end, we adopt design thinking and thematic analysis methodologies to focus on part 1 of the project: gaining insights into the way teaching staff use and understand the LMS, with the main goal of the project to address the question: How might we improve the teacher experience of using the LMS so that teachers can support and enhance the learning needs of students more effectively? This paper outlines the background for the project, methodology and methods used to develop an initial thematic map that identifies key themes and subthemes, and conclude with limitations and an outline of the next phases of the project.

## Background

The Faculty of Medicine, Nursing and Health Sciences (MNHS) is one of the largest faculties at Monash University, employing over one thousand academic staff and delivering courses to over 14,000 enrolled students (Monash University, 2018). The Faculty typically has 400 to 450 active teaching units per semester. The university uses Moodle as its central LMS platform. Over the last four years, it has introduced a range of changes to the LMS, and how it is used in the delivery of courses. Factors that impact changes range from centrally invoked shifts to teaching strategies (for example, active learning strategies), potentially higher student numbers, more courses moving toward a blended learning strategy and/or teaching fully online. Day-to-day LMS support to staff in the Faculty is largely provided by the Faculty-level support team, e-Learning Services (eLS), who escalate

issues to the central team (eSolutions) where necessary. Faculty and School-based Educational designers also provide additional individual learning design assistance and group training workshops on key learning and teaching topics.

## Methodology and methods

This project adopts a user-centred design thinking methodology, which provides a framework for decision-making that reduces risk through evidence. The project phases are identified as Phase 1: discover and interpret, and Phase 2: ideate, prototype and test. This methodology considers Buchanan's (1992) process perspective of design thinking as an alternative to a step-by-step linear model and identifies communication among all stakeholders as a way of making sense of organisational services (or service design). A singular definition of 'design thinking' is problematic as it can have distinctly different meanings depending on the context in which it is used (Johansson-Sköldberg et al., 2013). In the context of this project, a simple, iterative and non-linear design thinking framework is used. At the heart of each phase is empathy for the user. Whilst these phases may appear to be linear, they are in fact non-linear and collaborative. We use thematic analysis (Braun & Clarke, 2006) to support the user-centred design thinking methodology.

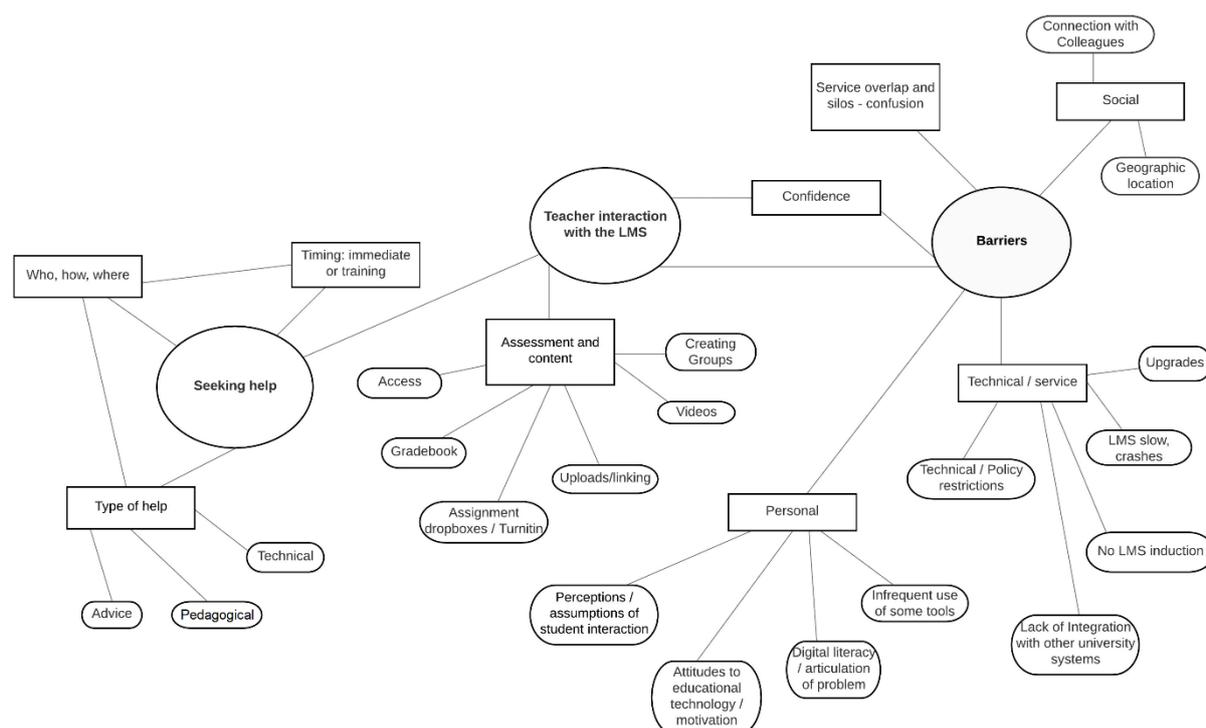
To inform the design thinking discovery phase data were gathered using 1) an anonymous online survey, 2) one-on-one interviews and 3) journey mapping sessions. The collection of data and all subsequent analyses are approved by the Monash University Human Research Ethics committee. Informed consent was obtained by completion and return of the survey. A total of 96 participants from one faculty (Total N = 1128) responded to an online survey regarding their experience of using the LMS for teaching since January 2018. The survey was delivered using Qualtrics survey software and a frequency analysis was performed on all quantitative data using SPSS software. Following the survey, ten one-on-one, semi-structured interviews of 30 minutes duration were conducted. Interviewees were recruited via expression of interest (anonymous) from survey participants. Interviews were recorded and transcribed verbatim. Responses were analysed and coded for thematic analysis using QSR International's NVivo 11 data analysis software. Two informal journey mapping sessions (Rosenbaum et al., 2017; Kalbach, 2016) of approximately one-hour duration were conducted with 11 participants from teaching and support roles, recruited via an email invitation, from across two campuses (Clayton and Peninsula).

## Results and Discussion

Initial thematic analysis of the online survey, one-on-one interviews, and journey mapping sessions highlights three main themes: 1) teacher interaction with the LMS, 2) seeking help, and 3) barriers. Figure 1 illustrates the themes, sub-themes and their relationships. This map will be refined through subsequent iterations.

### Teacher interaction with the LMS

Results indicate teacher interaction with the LMS most frequently (more than five times per semester) centres on the use of tools related to assessment ('Assignment', 'Turnitin', 'Gradebook' and 'Quiz'), as well as access issues ('Groups' and 'Groupings'), followed by discussion forums ('Forum'), the latter of which can be used for instructional tasks, such as a discussion to enable peer interaction and learning. Whilst the context of use of the forum activity was not central to this study, in our experience, this activity generally ranges from simple socialisation to higher level cognitive and collaborative participation. For example, one interviewee stated they would "... ideally like to learn how to use the forums better... and it's difficult to get students to participate." Participants also indicated the frequent use of tools to add, organise and distribute content in the LMS, such as uploading files, URLs, pages and folders. This coincides with findings that LMS tools are more frequently used for the distribution of learning content and to provide information to students and less for collaboration and communication (Schoonenboom, 2014; González, 2010; Blin & Munro, 2008). Use of the LMS for information transfer rather than for student-teacher / student-student engagement has been identified in various studies on technology use in higher education (Laurence & Lentle-Keenan, 2013; González, 2010). In line with this, teacher's beliefs and teaching practices also influence the use of technology and particular tools to support learning and teaching (Laurence & Lentle-Keenan, 2013; González, 2012; Bain & McNaught, 2006).



**Figure 1: Initial thematic map**

## Seeking help

The channels by which teachers seek help with using the LMS shows that the majority ask their colleagues for help, followed by emailing support service or logging a ticket with eLS, or using Google to search for help. Times when help was most needed included the start of semester and before submissions of assessment tasks during semester and then again at the end of semester to ensure that grades and gradebooks were correct. A major issue is that interviewees indicated frustration and/or confusion about where to find or ask for support. Confusion stems from lack of transparency and clarity of the roles of central (eSolutions), faculty-based (eLS) support services and educational designers. Many interviewees got the names of the support groups mixed up and often did not know who they had spoken to or which ticketing system they had logged a job with. One interviewee stated: “Sometimes I must admit it is very difficult to know whether something is an eSolutions issue or an eLS issue.” Some did not know about support services until well into their teaching roles, and found out about them through word of mouth, speaking to a colleague, or by ad hoc means, such as attending a teaching and learning workshop where it may have been mentioned. Once teachers knew where or who to go for help and established connections with specific support staff, they largely felt comfortable and confident in seeking the right type of help where needed, highlighting the importance of personal connections with support staff.

## Barriers

Initial thematic analysis identified personal, social, as well as technical and service provision issues as barriers. Personal attitudes and motivations to use the LMS tools and the ability to be able to articulate a technical or problem or pedagogical challenge were issues for many teachers. Infrequent use of some tools and a lack of confidence in being able to use tools such as the ‘Gradebook’ by themselves were common – many worried whether they set up the Gradebook correctly for fear of potential error in student marks. For example, one interviewee stated: “... if you get Gradebook wrong, that’s a big issue... because that’s not something we necessarily do all the time, and I don’t think it is completely intuitive...” Other barriers relate to the social connectedness to other teachers. In this faculty in particular, diverse geographic locations of teachers and teaching divisions can result in feeling isolated from colleagues. Similarly teachers who are new to teaching, with varying levels of experience with the LMS, may not know there are support services available and support services may be unaware of the difficulties faced by teaching staff because they do not hear from them.

## Project limitations

This project focuses on the LMS, primarily because all teachers are expected to use this technology for their teaching, however, extrapolation to other educational technologies or platforms would be useful.

Being a large faculty with over one thousand teaching staff, we acknowledge the participant sample represents only a small portion of teachers (who volunteered their time), and not reflective of the full spectrum of teacher experiences, for example, teachers who, for whatever reason, never seek help from support services. Similarly demographic information, such as age, gender, level of teaching experience, whether full-time, part-time or casual was not captured, which means these factors are not considered in the analysis. In our survey teachers overwhelmingly self-rated their Moodle sites as 'good' to 'very good' on factors such as functionality, navigation and design, yet end of semester formal student feedback appears to contradict this. By nature, design thinking embraces broad stakeholder input, and in future we would like to broaden the project parameters to include the student experience of the LMS.

## Next steps and conclusion

This paper discusses the work-in-progress of a user-centred project which aims to gain an understanding into the way teaching staff within a large university faculty use and experience the LMS, and then use this understanding to improve teacher support in using the LMS. It discusses the university context for the project, then provides initial analysis of the following methods used: online survey, face-to-face interviews, journey mapping and the creation of an initial thematic map. The broad themes of the thematic analysis that emerged in this project so far will require refinement as the project advances to Phase 2 and the following design thinking methods are undertaken: the development of personas, card sorting, ideation, prototyping and testing.

A clear pathway to developing a robust educational technology service delivery model is an understanding of: the teacher interaction with the LMS, how they seek help, and the barriers they face. However, we acknowledge that in order to close the gap between provision of educational technology services and teacher understanding of their use in truly innovative and engaging ways, it is crucial to recognise the importance of external factors such as strategic leadership and policy decisions in fostering TEL developments (Jenkins et al., 2018).

## Acknowledgements

We are grateful to the Office of the Deputy Dean (Education), MNHS, Monash University for financial support of this project, and to Ms Nabita Singh for assistance with the qualitative and quantitative analysis. This project meets the requirements of the National Statement on Ethical Conduct in Human Research and has been granted approval by the Monash University Human Research Ethics Committee. Project ID: 16934.

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**Please cite as:** Vogel, S., Schliephake, K., & Kotsanas, G. (2019). A user-centred approach to understanding the support needs of university teachers using a Learning Management System: A Pilot study. In Y. W. Chew, K. M. Chan, and A. Alphonso (Eds.), *Personalised Learning. Diverse Goals. One Heart. ASCILITE 2019 Singapore* (pp. 593-597).