

## Leading by Example: The start of a journey towards transformation of teaching practice in the online space

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This paper outlines the design of a study to investigate how a collection of example units was used as part of a wider training and support strategy during the transition between learning management systems. Example units can be thought of as a type of learning object or template from which innovative uses of learning technologies can be shared and used for professional development purposes in the design of online teaching spaces. Using a Developmental Evaluation approach, questions were asked about the authenticity and reusability of the example units to enhance their design in the next round of iterative planning. This paper will be of interest to Educational Developers and Academic staff interested in course design with technologies as well as co-ordinators of professional development strategies.

Keywords: Teacher professional development, technology, learning objects, evaluation

### Introduction

Students' expectation of online learning, the approaches they take, their profile, and prior experiences with online learning have been documented in studies concerned with driving institutional change (Canole, de Laat, Darby, & Dillon, 2006; Collis, & Moonen, 2008). Students now expect materials that are rich, interactive, engaging, accessible, and that enable communication to cater for learning anytime, anywhere (Conole et al., 2006; Garrison & Vaughan, 2008; Oblinger, 2003). The latest releases of popular Learning Management Systems can act as a conduit to such demands but are they being used to their full advantage? The importance of the teacher role in the successful integration of technology in education is widely known and accepted. The role of adequate teacher support and teacher professional development (TPD) is seen as key to ensuring teacher engagement with and application of technology in their teaching (Collis, & Moonen, 2008; Lofstrom, 2007; McNeill, Gosper & Hedberg, 2011). There are a number of attributes (of TPD) that work well to support teachers in this regard. Studies identify constructivist learning, situated learning, collaboration, collegial networking, and access and support among others as conducive to teacher learning (Handal & Huber, 2011; Taylor, 2003). How can we design TPD to take advantage of such findings and lead to transformation of current teaching practice in the online space? What resources are needed to support and sustain this change? By providing templates, along with pedagogical and technical support to scaffold the adoption of technologies, can we bridge the gap between what the student expects and what the teacher is capable of delivering? What format must these templates take on if they are to be effective and sustainable?

Learning objects are any digital, reproducible and addressable resource used to perform learning activities, made available for others to use (Koper, 2003). Example units (or courses) are frequently used as a learning resource in technology training for their pedagogical affordances, and can also be viewed as patterns or templates for teachers. Each pattern addresses a problem and provides a solution. Example units showcase technology within an authentic setting that would enable teachers to draw links to their own classrooms and teaching (Taylor, 2003; Wells, 2007). Known qualities of an effective learning object are reusability (Koper, 2003; Watson, 2010), and the ability to be repurposed (Gunn, Woodgate, & O'Grady, 2005). Gunn, Woodgate, and O'Grady (2005) offer a sustainable approach to reusability involving teachers in a participative design process that results in a sense of ownership, acceptance and ability to realize the potential of technology in different contexts. This study aims to investigate the use of example units as an effective tool for facilitating teacher professional development in technology by evaluating their reusability, sustainability and authenticity.

### Background

A major Metropolitan University recently transitioned from one Learning Management System (LMS), Blackboard, to another, Moodle as part of a larger technology enhancement project. The project followed a system development lifecycle (i.e. analysis, design and development, implementation, support and training, and evaluation). In a recent survey of students' expectations of technologies in learning at this university, students

indicated that they wanted more flexible access to content, more opportunities for communication with teachers and peers and the convenience of online assignment submission (McNeil, Diao & Gosper, 2011). As part of the support and training strategy for staff, thirty-four example units were developed by the Educational Development group in collaboration with convenors from Faculties across the University with the aim of showcasing features of the Moodle platform across a variety of curriculum models and teaching scenarios. Some of the convenors had previously used the LMS for their online delivery and others were new to the field of online and blended learning.

A large-scale summative evaluation of this project is currently underway and this study reports on a work-in-progress project, a subset of the support and training evaluation. Focusing on the role of the example units, this part of the study aims to investigate their effectiveness in facilitating TPD in the area of technology integration, by asking how academics used the resource and looking at how they repurposed the designs.

## Method

This study uses pragmatism as the theoretical paradigm in which to underpin the design. Pragmatism provides the opportunity to use multiple methods of data collection and is oriented towards “what works” and practice. (Creswell and Plano-Clarke, 2011, p.41). A Mixed Methods approach, with a Convergent Design (Creswell and Plano-Clarke, 2011, p.77) was used, enabling the collection of both quantitative and qualitative data to develop a complete picture of the use of example units and their effectiveness in the professional development in online learning design.

Two data sources were identified for this study. The first data set is quantitative in nature and involves collection of system-generated transactional logs to explore the patterns of use. Moodle has built-in reporting capability that provides a digital vestige i.e. a trace of events and actions. This is achieved using a Reports interface for access to logs and options for visualising this information (Hamuy, & Galaz, 2010). The second data set provides a pedagogical focus and involves an online survey to collect a mix of quantitative and qualitative data.

## Evaluation Design

Since the aim of this study is to find out how example units were used as part of TPD, and improve their design for better reuse in the next iteration, a cyclical design framework known as developmental evaluation (Patton, 1994) is used. Developmental evaluation ‘aspires to continuous progress, ongoing adaptation and rapid responsiveness’ (Patton, 1994, p. 313). The framework aligns with this study since these resources are available (online) for ongoing access and their currency is important. The analysis of the transactional logs inform answers to the questions ‘What tools were of interest to the target group?’ and ‘What was the pattern of access of this set of resources?’ Analysis of the findings from the user survey contribute towards finding how the example units (and their supporting resources) were accessed; the level of authenticity of the content (Taylor, 2003; Wells, 2007); the level of influence they had on the design of the user’s own online unit (Gunn, Woodgate, & O’Grady, 2005); and the level in which the user’s understanding of the new LMS was improved.

The transactional logs were analysed 6 months after the example units were made available as a resource for TPD. All teaching staff that had accessed the example units in this time period were invited to take part in an online survey (n= 314). The response rate was approximately 10% and participants were of mixed gender, and of mixed ethnicity, generally busy (time-poor), and varied in the level of ability and/or desire to use technology in their teaching. The survey was developed using a mix of criteria for TPD using technology and for learning resources (reusability) based on the literature of McDougall (2008) and Lawless and Pellegrino (2007). The survey comprised of 14 questions; 4 tick-box, 8 five-point, Likert scale (e.g. agree to disagree), and 2 open-ended questions (see Appendix A for a sample of the questions).

## Initial Findings

The transactional logs have been analysed to investigate what tools were of interest to the target group and the access patterns to this set of resources. The most viewed tool in the example units was the Discussion Forum (31% of total tools viewed across all example units) and Database (27%). The least viewed tools were the Choice (online Poll) tool (3%) and the Workshop (peer review) tool (1.5%). Of the total view count of the example units (5620), there were twice as many views of the resources (3732) in these units than the tools (1888).

The survey results showed Quiz, Discussion Forum, Blocks and Lesson tools consistently rated highly in authenticity (Appendix A, Q.1), influence (Q.2) and impact to understanding (Q.3). Conversely, Chat, Workshop and Wiki tools scored the lowest. There were a number of questions in the survey which were

designed to inform future design of the website from which these Example units are accessed. Findings showed that 56% of users preferred to browse the example units rather than search using keywords, they also preferred a listing by faculty rather than alphabetically and only 24% of respondents actually viewed the supporting videos (which accompanied the actual example units and consisted of 8-10 minutes where the convenor explained what functionality they had designed in.) Another administrative-type question asked whether there was an inclination to revisit the example units in the future (Q4.), only 35% of respondents said they would. When asked about the collaboration aspects of these resources (Q.6), only 42% of respondents were in agreement.

## Discussion

The number of views per tool aligned with some findings in the literature. It is widely accepted that discussion forums are one of the most used tools in online learning for communication and for engaging with the course content (Garrison & Vaughn, 2008), therefore it stands to reason that the majority of our users would be interested to see how the Discussion Forum looked in the new LMS. The Database is a new tool to the LMS (i.e. not available in the previous LMS) so this high view count may be due to users wishing to explore the different scenarios of how this tool could be used. Conversely however, the Choice (Poll) and Workshop tools are also new additions in comparison to the previous LMS and were not viewed nearly as often. It could be the name of these tools that contributes to this finding, as one cannot immediately infer their functionality. In respect to the viewing of resources, particularly the videos, results will influence the next round of development since these were quite time consuming to produce. Additional probing questions will be included in the next phase of the study to explore the reasons for this.

The survey data corroborated the findings from the transactional logs. In agreement with Taylor, (2003) and Wells, (2007) it was found that content rich (authentic) tools generally performed better as measured by the number of views, influence rating and impact on understanding. Wiki and Workshop tools were an exception to this pattern. Both scored moderately for authenticity and impact on understanding but performed low for influence on future design. One explanation may be that both are LMS features that staff would not have encountered prior to the Moodle installation and may not yet feel ready to include them in their unit design. The number of responses stating they would revisit the example units was lower than expected, indicating that staff may have gleaned the necessary information on the first visit and felt no need to return. This will be developed into an interview question for the next phase. If new example units (showcasing new features) are developed then this may encourage staff to return to the site. Another reason for low access levels and responses may be due to the fact that there was no student content at the time these units were created. A more content-rich view of tools would be more beneficial, however you then have the issue of privacy of student data to consider. Moodle does have the ability to de-identify students so this could be an option for the next round of example units. The collaborative aspect of using learning objects to contribute to TPD (Handal & Huber, 2011; Taylor, 2003) needs to be further investigated before we can agree with these authors since numbers of respondents who agreed on this aspect were low. In fact 35% actually disagreed that the example units offered opportunities for collaboration.

The open ended question asking what the example units had enabled staff to do that may not have been possible otherwise, produced various comments predominantly around presentation of content and new ideas for use of tools. It will be of interest in the wider study to compare the example units to other supporting resources such as training sessions and self-help guides that were made available during the project implementation.

In line with the developmental evaluative approach to this study, the next phase will include interviews with the unit convenors who designed and then delivered these example units. Questions will be asked about what worked from the original designs and what perhaps didn't quite go according to plan as they taught these units. What did the students say about the units? A further source of evidence that will be collected is feedback from the educational developers and designers who worked on these example units. For the majority of them, it was also their first interaction with the new LMS and they were trialling ideas around its functionality. Now that their knowledge of the system has developed, their reflections on example unit design will contribute to the next round of development.

## Conclusion

Traditionally, professional development in using new technologies for teaching incorporated supporting resources consisting of 'how-to' guides and pedagogical reasons 'why-to' alongside hands-on face-to-face workshops. Is this adequate for our time-poor academics or is there a more effective and sustainable way to provide such professional development in the future? Improved use of multimedia and functionality of online delivery platforms has contributed to a reconceptualisation of how these supporting resources can be designed and delivered. Since time to invest in TPD is limited with competing workload requirements, teachers require

more authentic and proven examples, which can be used as templates in their own design. This study has begun to investigate the affordances of using example units as models of authentic learning design and results to date show positive links to achieving sustainable future teacher professional development.

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## Appendix A – Sample of questions used in the survey

### Likert-scale

1. The content in the example units was authentic.
2. The example units influenced the design of my online unit.
3. My level of understanding (of Moodle) improved by using the example units.
4. I would be inclined to re-visit the example units in future.
5. The supporting resources were adequate when using the example units? (E.g. video, design brief)
6. Example units provide opportunities for collaboration with my peers and/or other staff in using the LMS

### Open-ended

1. Comment on the ways in which the example units could better support your learning of Moodle:
2. What have the example units enabled you to do with teaching your course that you wouldn't otherwise have been able to do?

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