
RE-IMAGINING COURSEWORK MASTERS FOR ONLINE LEARNING BASED ON RESEARCH AND DESIGN PRINCIPLES

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Introduction

There are many reasons why courses at all educational levels are moving partly or entirely online. Contact higher education institutions are embracing blended learning as state of the art, but are cautious to embark on fully online offerings due to a present student base that prefer personal contact with lecturers and peers. But expectations from society are changing. Distance learning, with the exception of teacher qualifications, was previously restricted to one South African institution. Changes in legislation regarding distance education in 2014, is having far-reaching implications for residential universities. The University of Pretoria with about 50,000 contact students, has decided to embark on *hybrid delivery* of courses in order to reach more people, from more places. As blended learning using the Blackboard Learn course management system (CMS) is currently widely implemented, it was deemed quite feasible to increase the online components of courses and eventually delivering them fully online.

The best candidates for hybrid and fully online course delivery at our University were identified as coursework Masters (CWM), because descriptions in the local Qualifications Framework authority allowed a change in delivery mode without re-application for accreditation. With the help of Analytics for Learn, a number of Masters programmes with coursework modules in addition to the dissertation, that are already being delivered in blended mode, were identified as low-hanging fruit, and thus ready for re-imagining as eventual online, distance -delivered programmes.

Design principles

The Community of Inquiry (CoI)

Our University has been using the CoI framework (Athabasca University, n.d.; Garrison, Anderson, & Archer, 2001) in workshops for designing blended learning courses as it supports exemplary course design in a constructivist online learning environment. It will be used to inform the design of new online courses. The CoI questionnaire (Arbaugh et al., 2008) will be used to evaluate the quality of post-graduate courses before intervening, and evaluate them after redesign. The three presences of the CoI will be used as framework for interpreting data collected during the analysis and informing design decisions.

ADDIE – Design process

We decided to base the management of CWM redesign on the 5 stages of the non-linear version of the well-known ADDIE process, as shown in Figure 1. In an initial interview with course coordinators planning to re-imagine their courses, we first determined their vision for a redesigned programme and where they currently were in terms of technology use. Concerns and barriers to fuller implementation of technology and institutional processes or policies that hindered distance roll-out, were documented and communicated with the responsible stakeholders. Based on that interview we positioned each course on the ADDIE diagram and planned accordingly. Anne Bartlett-Bragg (Tracey, 2014) and Clark (n.d.) emphasise the importance of using a user-centred design approach for designing integrated eLearning for post-graduate programmes. The first aspect of the analysis consisted of unpacking envisaged course objectives, in order to improve the design of learning interventions to fit the context. Course coordinators were the main subject matter experts (Clark, n.d.) to define and update course objectives. As technology components in blended learning varied, the bottom line had to be established. We had to understand the profile of students representing “those affected” (Clark, n.d.) and how they are using different types of technology, also for learning. The profile of low-technology users would inform the design of pre-course orientation, training and support (Pintz & Posey, 2013).

The starting point for programmes that were already immersed in technology, was the Evaluation phase. Through the Community of Inquiry instrument, Bb for Learn course analytics and open-ended feedback from working students who have completed their studies, it was possible to identify Exemplary Performers (Clark, n.d.), who could be used as role models to help inform the design of other courses. For purposes of appreciative inquiry research, some exemplary courses also completed the ICT questionnaire.

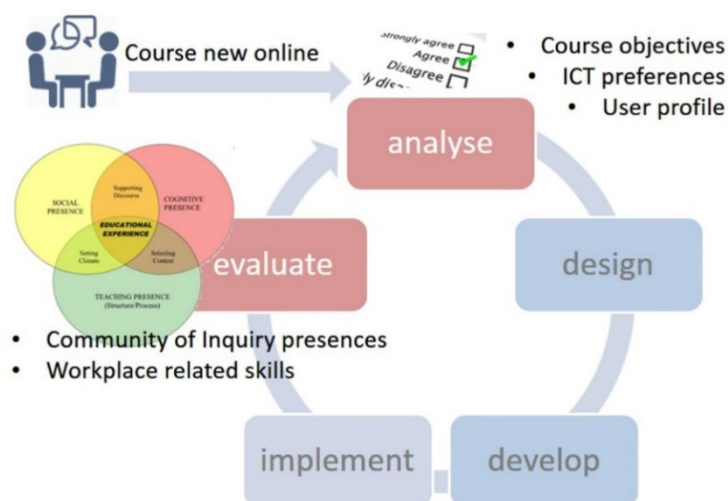


Figure 1. The ADDIE process as followed with CWM

Methodology

Research instruments

The CoI instrument that was administered in established courses consists of 34 statements that are rated along a 5-point Likert scale that represent the three presences, namely Teaching, Social and Cognitive. Only a pooled overview of CoI averages is given here to triangulate with the ICT findings. In courses calling for drastic renewal of delivery and curriculum, the student ICT use and preference instrument was deployed. The ICT instrument specifically for post-graduate students, is still under development with UNISA and Waikato Universities. The latest version consisted of 23 questions, most of which were in a table-format containing up to 20 sub-items with multiple choice, multiple response or scaled selections. Some questions, like the learning technology use in courses (reported in this paper) provided a usage frequency scale as well as an option *wish for using more*. In principle, the amount of reading to complete the questionnaire was reduced as much as possible, so students could complete it in about 10 minutes. For each group, questions were added or omitted as requested by the course coordinator, but all included some basic demographic items and open-ended text response items. Links to their questionnaire in the Qualtrics® survey tool were posted in announcements from the CMS to be delivered to student email on their mobile devices whence they could directly complete the questions. In order to protect the identity of staff, findings from different courses in the same Faculty or Department were pooled and reported as such. Research Methodology modules were used to distribute the surveys. Response rates varied in the order of 30-60%.

Findings and Discussion

Table 1: Respondent demographics from three Faculties

Faculty or School	Programme	n	Avg age	Full-time Job %	Lap-top for study %	Smart-phone %	%students who study on e-device per week: Hours				% students who study online @ locations:		
							1-5	6-10	11-20	21+	home	campus	work
Edu	Dissertation	44	30	61	86	70	16	27	18	39	82	39	45
Built	Coursework	11	35	100	92	55	18	27	18	36	100	18	64
EMS	Coursework	15	33	100	87	47	7	47	33	14	60	7	67

Due to limited supervision capacity for dissertations, most CWM programmes are limiting enrolments to 12-30 students per intake. The Masters in Education serves the whole Faculty, with about 80 candidates. Their ages varied from under 25 to 50. Their profile differed considerably from fulltime undergraduate students. CWM students were all in full-time professions and many were taking time off from work to attend contact block sessions, some travelling large distances, lending impetus to the drive for more site-independent learning activities. How their profession and the type of post-grad degree they were taking (Education dissertation or CWM in Economic and Management Sciences or the Built Environment) would influence study time, had to be ascertained, as well as their proficiency and preferences regarding ICT for study.

More than 85% of PG students regularly use a laptop for their studies, while about half of CWM and 70% of Dissertation students made significant use of their smartphones for studies. Students who were not working full-time seemed to have a more mobile learning style, as seen in higher smartphone use and incidence of using on-campus facilities. This confirms findings by Anne Bartlett-Bragg (2014) that post-graduate studying professionals use mobile devices much more than course designers had anticipated. Similarly, we observed that full-time working students used more time at work for their studies than the dissertation students, and are vulnerable to the demands of the workplace that, as reported by Bartlett-Bragg (2014), may take priority above studies, limiting the time available for study during the day. Many EMS students mentioned that they preferred to do online studies after hours at the office, hence only 67% studied at home. Construction students, who are less desk-bound, all studied at home, while 64% also studied at work. The findings from these questions suggest different patterns of engagement in different types of courses that depend on students' work/study arrangements. These factors should inform design decisions that make optimal use of students' available time, like scheduling deadlines.

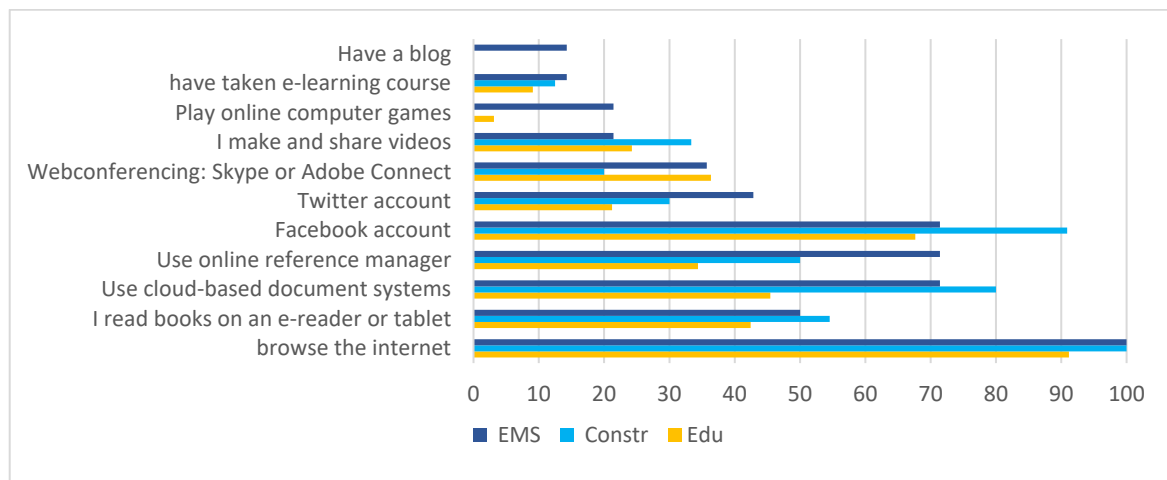


Figure 2. Students' general use of ICT

The use of certain ICT tools in Figure 2 were sorted from the top and grouped according their use in collaborative activities (1-7) or content access. The top 7 items (blog to Facebook) show that while Facebook is clearly the preferred social media platform, less than 50% of students generally use ICT for other social and collaborative activities. The next two items show students' use of ICT for organising their content, including online reference managers, like Mendeley and Endnote, that have been used in some programmes. Half the students read on e-readers, while practically all browse the internet for content and applications. For course design purposes, web-based content and activities will be familiar, and students should be able to negotiate some social networking tools. Some education students seemed less skilled in organising their content using ICT, and might be slightly less skilled using ICT. They would need more training and help with a reference manager and organising and creating content.

The CMS use profile of the previous cohort taking these programmes, provided a baseline for designing further interventions and orientation. The CoI framework was used as lens to interpret the learning implications of findings from the ICT survey. Findings were grouped

according to how they can support the CoI framework. Figures 3 to 5 show which functions students from the three faculties have been exposed to. The lighter shade of each identifying colour indicates how many students would like to make more use of those tools.

Figure 3 shows how often online learning applications that can contribute to design and organisation under the Teaching Presence in the Community of Inquiry framework, have been used. Where less than 50% of students in a Faculty indicated the use of a tool, it is circled, a blue arrow indicates low use in 2 faculties and a blue arrow. The first 8 items (down to audio clips) represent resources and learning content that, in a blended environment, supplement lectures and seminar-type discussions. It is clear that courses used video clips, lecture recordings and audio clips differently. Education students wished to revisit seminars more than the other students. Presenting a course fully online would require content to be presented in different formats, as some students prefer listening to reading, and understand content better when watching a video (Sams & Bergmann, 2013). Except for one module where some lectures were recorded, the others might consider the presentation of lectures in different media like video, or adopting a flipped learning format (Kellogg, 2008).

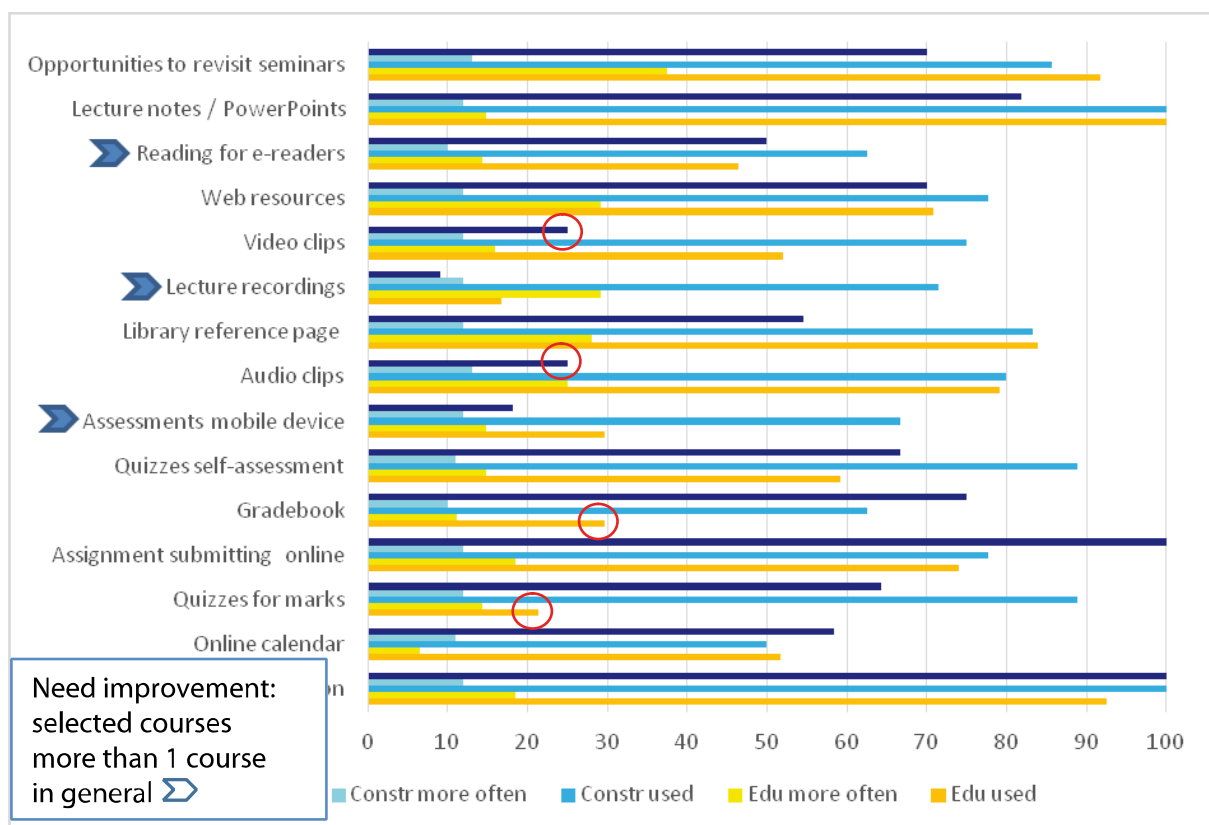


Figure 3. Teaching Presence: Design and Organisation: present use of tools

The preferred assessment method for post-graduate studies is the written assignment, and most faculties prefer online submissions, while Construction also used online quizzes as formal assessment. Quizzes and marks in the Gradebook are useful to monitor progress, and pace students in achieving outcomes. While courses all have sufficient organisational information about the modules in the study guides, only half the students have access to the

online calendar, missing the benefits of having an integrated course and personal calendar at their fingertips.

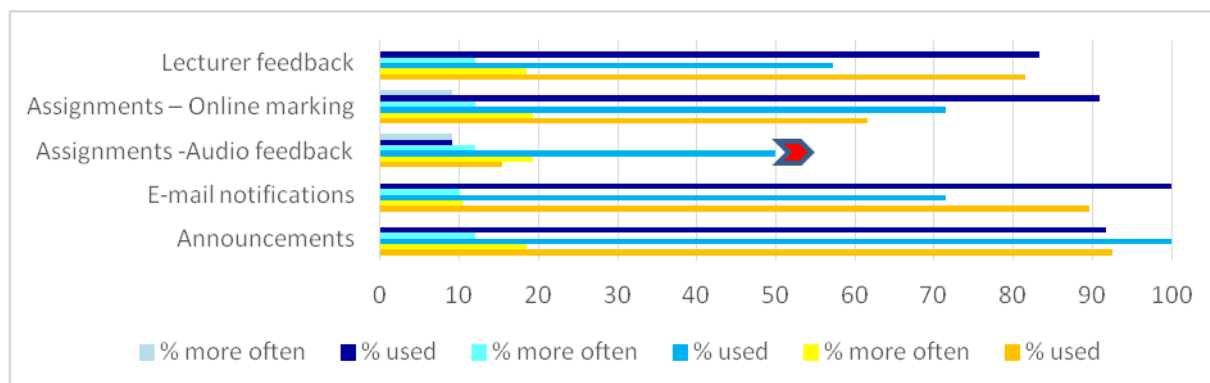


Figure 4. Teaching Presence: Direct Instruction and Facilitation

Teaching presence also requires hands-on teacher activities in the form of facilitation and direct instruction while the course is in progress. Reports on tools enabling both these teaching activities are shown in Figure 4. In two of the faculties, more than 80% students reported receiving lecturer feedback to their assignments, while one group reported receiving less feedback, also mentioned in open-ended comments in the survey. They were not really left in the cold, as their understanding would be confirmed through automated feedback in quizzes for self-assessment (Figure 3). Education lecturers (interviewed) preferred grading papers by hand, in line with low CMS use in Figure 3 and less online marking (Figure 4). Many of their students would like to have more lecturer feedback, particularly in electronic format. Lecturers in EMS made consistent use of online marking and providing electronic feedback. Only construction provided some audio feedback. E-mail notifications and Announcements were used for generic feedback that supplemented individual assignment feedback, and all courses made use thereof. Interestingly, EMS students were also more satisfied with the level of ICT use in their courses and seldom wished for more of any online tool or activity.

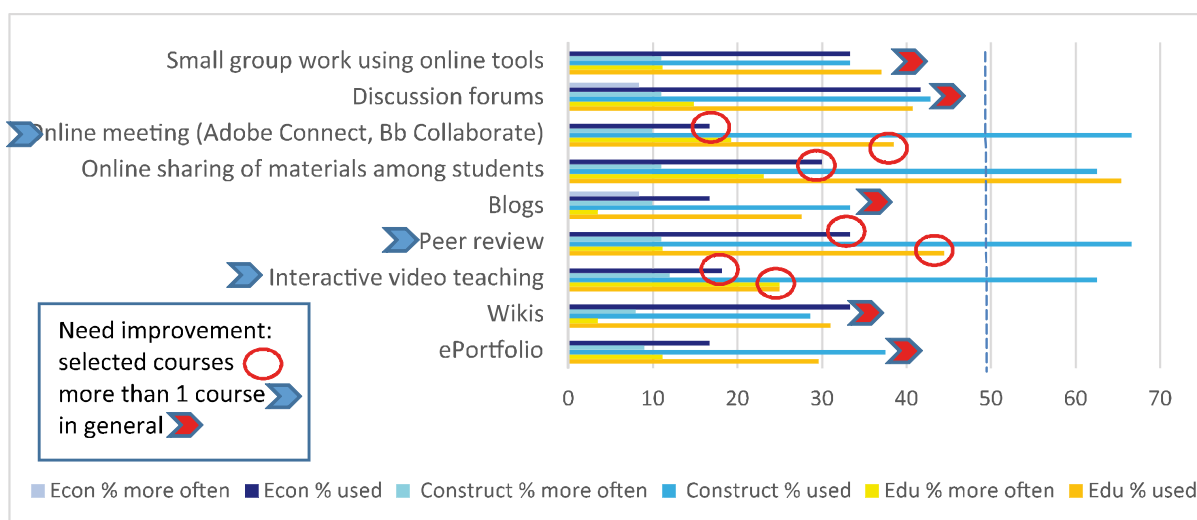


Figure 5. Social Presence & Cognitive Presence

“Social presence is the ability of learners to project their personal characteristics into the community of inquiry, thereby presenting themselves as ‘real people...Instructional media such as computer conferencing engender high levels of student-student and student-teacher interaction; therefore, they can support models of teaching and learning that are highly interactive and consonant with the communicative ideals of university education” (Athabasca University, n.d.)

Lecturers should engage and foster student engagement and social presence to support cognitive presence and problem solving. Figure 5 shows a low level (< 50%) use of tools that can foster those presences. The blended courses did not use discussion forums as the backbone of collaborative learning as is common practice in online courses. This suggests that the concomitant skilful facilitation that should grow the online learning community was also absent. The poor use of social media, web conferencing and creating and sharing videos seen in Figure 1, suggests that students are not very adept in these skills, and would also need training and support in using them. One lecturer created online meetings with Blackboard Collaborate and availed recordings for later viewing. This group also interacted with peers through Peer review, and as such shared insights and documents. Education students using Facebook (Figure 1) probably also used it for privately sharing resources (Figure 5). They showed a high demand for more interactive tools. The findings confirm that in blended and flipped learning (Sams & Bergmann, 2013), social and cognitive presence activities usually took place in classroom seminars or tutorials rather than online.

“Cognitive presence is the extent to which the participants in any particular configuration of a community of inquiry are able to construct meaning through sustained communication...the practical inquiry model operationalizes cognitive presence for the purpose of developing a tool to assess critical discourse and reflection” (Garrison et al., 2001).

CoI Cognitive presence scores for CWM were sufficient due to collaborative activities during block weeks, and relevant and challenging problems presented in class. Based on Figure 5, it seems that the greatest challenge facing the reduction in contact meetings is the online collaborative work necessary for practical inquiry. Coordinators are not yet using the online meeting and interactive video teaching platform or peer review tools widely enough to foster collaborative problem solving. They would need help in implementing small group online work and discussion forums while the role of the lecturer should be redefined to that of online facilitator who can steer online activities. Dispensing with face to face lectures, assessment based on essays and written exams should also be replaced by blogs, wikis or ePortfolios that are better aligned with constructivist learning and outcomes. Achieving critical thinking and the desired course objectives will require careful course design based on the CoI, with particular attention to the four phases of the practical inquiry model (Athabasca University, n.d.). For lecturers used to blended learning, this is foreign territory and will need training and support in addition to bespoke course design.

Conclusions and recommendations

The profile of our CWM students differ significantly from the undergraduate students. Some of the full research Masters students are full-time or part-time students, while all CWM students are in full-time employment. Accommodating those students' needs will require well-informed course design and development, based on the current analysis (Clark, n.d.). We confirm the importance of using smartphones for studying (Tracey, 2014), the amount of time coursework students spend studying at work and the associated time-management pressure (Tracey, 2014). Blended CWM programmes are already using tools that support Teaching Presence, while a few might improve utilisation of some of those tools. The amount of contact time can be drastically reduced and the quality of learning enhanced if lectures are replaced with recorded lectures or videos in a flipped classroom approach (Kellogg, 2008; Sams & Bergmann, 2013). Urgent attention needs to be given to online streamed meetings and the introduction of facilitated online discussions across the board as they will help increase Teaching, but most importantly Social and Cognitive presence (Garrison et al., 2001). Online collaborative tools and activities were mostly lacking, as were tools for reflection, collaborative problem-solving and constructivist knowledge assessment. Students are already receiving orientation and training necessary to engage in blended learning, but to include additional tools, self-directed online orientation (Pintz & Posey, 2013) can prepare them for more online coursework. With the findings gathered during this analysis process, we are better equipped to re-imagine each of the courses delivering their objectives (Clark, n.d.), and preparing students for the workplace. Based on analysis, we know where the imagined change management, additional training, orientation sessions and supportive resources are needed to design and develop courses along the ADDIE model for online implementation.

Design recommendations for our CWM

- Suitable conceptual content can be converted to audio or multimedia representations;
- Lectures should be captured and made available for reviewing;
- Interactive video lectures could partially replace contact sessions;
- Lecturers should be trained to facilitate online interactive engagement and activities;
- Daily discussions or other interactions should be accessible on a mobile device;
- Feedback from lecturers on all submissions should be prompt and include personalised or audio feedback;
- Deadlines for full-time working students should accommodate their work/study time restrictions;
- Alternative assessment practices like journals, e-portfolios and peer review should be added;
- Optional pre-course orientation should include ICT use, the CMS, social media and reflective tools.

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