Introducing the Tri-layered Student Online Experience Framework: Moving from file repository to narrative journey

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Abstract

Online learning environments (OLE) play a vital role in delivering quality learning outcomes. However, despite calls for improved learning environments, the practice of translating traditional face-to-face delivery into quality online offerings remains patchy. OLEs have implications for student experience, and thus student retention. In this paper we examine three domains that shape student experience, 'relevance of online content', 'alignment of online content with student aspirations', and 'navigation with the online environment' and propose that students evaluate online materials based on what they find interesting, and what they deem a value-add investment in exchange for their time. Drawing from the literature, as well as our experience in the field, we present a conceptual framework, the Tri-layered Student Online Experience Framework (TSOEF), which aims to act as a practical resource for academic and education technologists for informing the design of online units. To illustrate how our Framework can be operationalised, we provide an implementation case study centred on a third-year undergraduate unit at the University of Tasmania in Australia. This paper offers a practical guide for providing students with value-driven offerings.

1. Introduction

Online learning environments (OLE) play a vital role in delivering quality learning outcomes (Czerkawski & Lyman, 2016). In effect, they are the interface between student and university and act as a potential moderator between student experience and student retention (Kang & Imt, 2013; Kasu & Demirkol, 2014; Kuo et al., 2013). The rapid rise in online education offerings (Gardner, 2012) raises unique challenges for educators who, for the most part, bear the responsibility for translating the content and quality of their face-to-face (i.e. traditional classroom) offerings into online units (Swan et al., 2013). According to Pye (2018), in both Australia and international contexts, the imperative to meet the needs of diverse student populations from geographically disparate locations through asynchronous online delivery represents a relatively new frontier for achieving competitive advantage. Despite calls for improved learning environments, the practice of translating traditional face-to-face delivery into quality online offerings is patchy at best (Harris & Fu, 2018).

The number of institutions offering online courses is rapidly growing and the competition for online students is fierce. At the very least, it is now the norm for universities to deliver a significant portion of their materials via an OLE. This learning landscape is complicated by the economic cost for higher education institutions which are associated with student attrition due to a poor online experience (Cameron, 2017). Interestingly, students' interaction with online content has been identified as a greater predictor of student satisfaction than learner-instructor satisfaction or a students' perception of the quality of interactions with peers (Alqurashi, 2019). Once students are enrolled in a university program, it is in higher education providers' economic interest to retain students rather than seek new ones. Thus universities have an imperative to ensure online environments meet students' needs. Student retention impacts an educational institution's ability to not only maintain, but to further invest in the courses they offer (Scarpin et al., 2018). For example, through a student's progression from undergraduate to postgraduate study.

Such economic imperatives have come to the fore in the current situation faced by the Australian higher education sector: many students being unable to attend face-to-face classes due to the government imposed travel bans in response to Coronovirus disease (COVID-19; Australian Government Department of Home Affairs, 2020). The travel ban brought into sharp relief the imperative to provide students (who could no longer attend face-to-face classes) with online options. Institutional responses across the globe were markedly varied (see Crawford et al., 2020). Australian universities rapidly deployed online units in order to retain the enrolment, and service the needs, of hundreds of thousands of international students who were restricted from attending face-to-face lectures, workshops and tutorials (Perrotta, 2020). Thus, where units had once been delivered face-to-face, or via a blended (face-to-face and online) modes, Australian universities were now tasked with providing fully-online offerings. Rather than taking a selective approach as to which units to integrate into online education (cf. Smart & Cappel, 2006), any unit in which students were enrolled was seemingly flagged for online delivery. In addition to the stress associated with the expediency this situation demanded, some academics who were tasked with this challenge were no doubt further strained by a lack of awareness as to what content should be included in an online unit, or how it could be designed, so as to maximise student engagement and deliver a quality learning experience.

In this paper, we firstly discuss the literature related to the student online learning experience. This discussion provides a context for the presentation of our conceptual framework, which aims to offer guidance and insight for online unit design. To illustrate how our Framework could be operationalised, we provide an implementation case study centred on a third-year undergraduate unit at the University of Tasmania in Australia.

2. Theoretical overview

2.1 Online learning and student experience

Drawing from the literature, as well as our extensive experience in the field, we postulate that students evaluate online materials based on what they find interesting, and what they deem as 'value-add investment' in exchange for their time (Biggs & Tang, 2011). When presented with materials, students will likely ask questions such as: "Why should I bother reading this article", and "Will watching this video help me complete upcoming assessments?" Specifically, though, we consider that there are three main domains that directly shape students' experience with the online learning world. These are: relevance of online content; alignment of online content with student aspirations; and navigation within the online environment. Each of the domains is discussed in the following sections.

2.2 Relevance of online content

Our first domain relates to the notion that highly relevant and engaging online learning materials are shown to improve student engagement, and hence retention, in online courses (Cameron, 2017; Fisher & Baird, 2005; Gaytan, 2015; Lemoine et al., 2019). "Relevance" refers to both the accuracy of the information being offered to students, as well as it having an obvious role to play in students' achieving course objectives or learning outcomes. Cameron (2017, p. 12) acknowledges this importance, stating that in addition to considerations around assessment methods, "courses with high student satisfaction ratings tend to be those in which their lecturers emphasise outcomes, other than a requirement to simply learn facts or concepts". Students' perceptions of "lack of interestingness/relevance" of online materials is identified as a major barrier to online course participation and continued engagement (Rabin et al., 2019, p. 1) – a finding that is echoed across reviews (see for example Sun & Chen, 2016). Recent pedagogical interventions aimed at enhancing course completion in distance education have seen changes to online learning environments leading to a decline in attrition of online student numbers – in line with face-to-face attrition (Thistoll & Yates, 2016). While much of the literature on online course delivery tends to focus on intervention (van

Amijede et al., 2018), there is a small but growing body of research that explores the role of initial unit design and the availability of templates articulating best practice for online unit structure. For instance, in an investigation of whether generic learning templates were useful for academic staff at the University of Sydney (in Australia), Cameron (2017) found that academic staff responded positively to templates as a tool for potentially enhancing the ability to engage students.

It is pertinent for academics and educational designers to consider the relevance and quality of online learning materials and how these materials might be best presented to improve student engagement, which in tern may lead to enhanced retention rates.

2.3 Alignment of online content with student aspirations

Our next domain concerns the unit design and our contention that educators should ensure that the learning materials and activities are aligned with students' educational aspirations (van Amijede et al., 2018). Van Amijede et al. (2018, p. 46) advocate for unit design to include "constructive alignment between learning outcomes, assessment and learning activities and materials where each element clearly links to and builds on the other elements".

One issue frequently pushed to the background of quality unit design is the need for online units to be mindful of issues relating to inclusion and diversity. Asynchronous environments lend themselves to addressing challenges for students from low socioeconomic status backgrounds who may be unable to attend face-to-face classes due to paid employment obligations (Canty et al., 2020; Devlin et al., 2012; Snowball, 2014). Online environments further aid students who may be unable to attend face-to-face classes due to family care or health-related reasons. Educators should recognise that student aspirations can be driven by a variety of inputs. The online environment can play an important role in bridging the gaps that exist in the traditional classroom approach, where opportunites to address an individual student's needs might not be possible (Snowball, 2014). OLEs give the academic or designer a variety of choices in how content can be presented and taught – video, articles, discussion boards, or interactive activities. This allows the student to engage with a variety of activities that may cater to their individual learning styles.

2.4 Navigation within the online environment

Our final domain focuses on the processes students must engage with to access learning materials. A study evaluating the relationships between factors of acceptance of technology and the retention of students in online courses (Scarpin et al., 2018) highlights the need to consider 'good design' in OLEs. Scarpin et al. (2018) found that students perceive technology as a gateway to a) improving learning performance, b) their speed of understanding, and c) increasing productivity. Their research further showed the need for higher education institutions to enhance the

efficiency of online learning through eliminating distractions (e.g. 'unnecessary and untimely information'; p. 59) to reduce browsing time and thus increase time available for (relevant) content engagement. Lastly, Scarpin et al. (2018) found a positive relationship to exist between the quality of online learning information and a student's intention to further engage with the online unit (i.e. retention). They recommend that information should be 'easy to understand, relevant to learning, updated, accurate and error free'.

In keeping with concerns raised by Kirschner and Merringboar (2013), the design of online units should be mindful of myths surrounding students as digital natives, and thus the design of OLEs should aim to limit cognitive load in relation to navigation, accessing content, and, ergo, understanding which and why materials should be accessed. Hovarth et al. (2019) assert that online learners navigate their learnings on a 'need to know' basis; students are reactive rather than pro-active in their approach to content engagement.

As can be seen by our discussion above of the three main domains that we believe shape students' experience of their online materials, the factors keeping students engaged in an OLE are multi-layered, with design-based factors found to be equally as important as intervention opportunities for keeping students engaged in a unit (van Ameijde et al., 2018).

In the following section we present our conceptual framework to inform the design of online units. We then demonstrate how the framework could be operationalised by discussing its implementation in a third-year undergraduate unit at the University of Tasmania.

3. A Tri-layered Framework For Online Unit Design

In this section we introduce our Tri-layered Student Online Experience Framework (TSOEF) (see Figure 1) for online learning units (and materials). We envisage our Framework as a tool to guide academics in their design decision-making, with the aim of ultimately enhancing students' online learning experiences.

Before introducing the Framework and its three levels, we ask you to consider a scenario in which you are a student who, for the first time, logs onto an online unit via a learning management system. What do you see?

In times gone by (and in some cases, currently), as a student you would be viewing a skeleton-type file structure comprising of hyperlinked headings and text. Typically, higher-order links would each be named after the unit's 'modules', i.e. the collection of materials for the week or topic theme. Lower-order links would probably be labelled with the names of articles or videos, i.e. course content items. When clicking on one of the hyperlinks you would be directed to a reading or video and expected to engage with that material. If, in fact, you were the student, you would perhaps be wondering, albeit, subconsciously: "What is the point of clicking on this link and investing my time in engaging with this content?"

Our aim with the TSOEF is to guide the design of the information a student views in an online unit in such a way as to reduce the students' cognitive load and enhance the possibility that the student will engage with the presented materials. Importantly, students are typically navigating multiple online units, with each unit being designed by different member of staff with their unique design sensibilities. A consistent approach to design, based around our Framework, could serve to benefit this situation and help communicate the value proposition of content engagement to time-poor students.
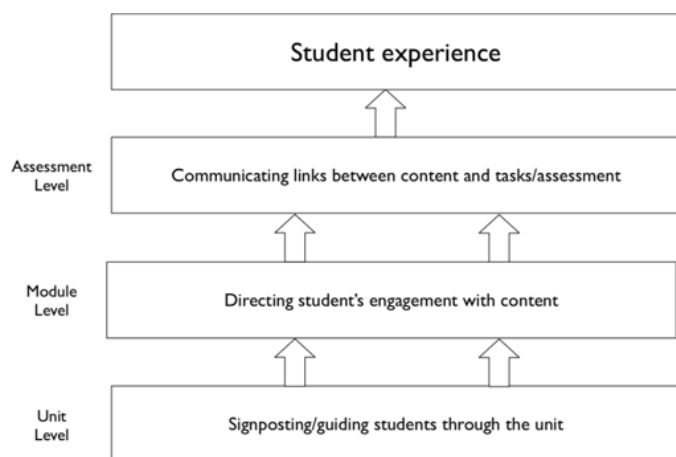

Figure 1. Tri-layered Student Online Experience Framework

At the heart of our conceptualisation of an OLE interface is the three layers: unit level, module level, and assessment level. The characteristics of each layer are detailed below in the context of an implementation case study: a third-year undergraduate Bachelor of Business unit, BMA357 Small Business Management. This unit was delivered to both on-campus (i.e. face-to-face enrollment) and online (only) student cohorts at the University of Tasmania in 2019. The unit comprised 13 weekly modules and three assessment tasks.

3.1 Unit level narrative

The unit level narrative focuses on student experience in relation to orientation and navigation. Thus, the unit-level narrative works to signpost and guide students through the unit, including: an introduction to the module and explanation of how completing the materials will assist the student in achieving the unit's intended learning outcomes. Students are provided with a self-monitoring checklist of materials and assessment deadlines, and a weekly summary. We propose that each module should include the information outlined in Table 1.

We recommend the structure of each weekly module to remain consistent throughout the wider unit design.

3.2 Module level narrative

Within each module, it is necessary to provide a narrative to students that addresses the question "What is the point in engaging with the presented materials?" Doing so provides

Table 1: Information to support the Unit level narrative

Narrative component	Included information
A welcome message	A brief introduction to the materials and the lecturer's expectations for student engagement levels
Intended Learning Outcomes (ILOs)	Explanation of how engaging with the module content helps students move towards aquiring the unit's ILOs
Required learning materials	Refer to 'Module Level Narrative' details, outlined in Table 2
Additional learning materials	Materials offered to students, not required but optional, that may be of interest to students who wish to know more
Discussion board	A place for students to discuss the learning materials, ask questions, clarify understanding, and foster community with the unit cohort
Progress tracker	A checklist for students to monitor their progress in the unit. Checklist to include: the required learning materials and (if applicable) assessment tasks for the corresponding weekly/topic module
Module summary	Details of what the student should have accomplished by the end of the module

justification to the student as to the value proposition of content engagement. As presented in Table 2, within a module, we propose that every learning material (e.g. reading, video) should be accompanied by an explanation of why the student is being asked to engage with the material, as well as an explanation of how engaging with the materials will help the student to aquire the unit's Intended Learning Objectives (ILOs) and achieve success with regard to completing their assessment (see Assessment level narrative section below).

Should students wish to learn more about a particular topic, we recommend including a list of additional materials to guide future learning. Additional materials should be clearly indicated so as to distinguish them from "required" learning materials, and may include a brief description to inform the student as to the nature of the content (e.g. academic article, video, magazine article).

Table 2: Information to support the Module level narrative

Narrative component	Included information
Required learning materials	Each content item (e.g. reading, video) to be accompanied by a justification statement of how engaging with the content will advance the student's progress (e.g. complete an assessment task)
Intended Learning Outcomes (ILOs)	Explanation of how enagagement with the presented materials help students move towards achieving the unit's ILOs
Additional learning materials	Provide additional learning materials to direct deeper learning. Explanation of the nature of the content (i.e. academic or popular-culture / reading or video)

3.3 Assessment level narrative

The assessment level narrative is mindful that many students engage in learning materials for the sole purpose of

completing assessments, rather than the pursuit of interest or knowledge (see for example Lawrence, 2013). As such, we propose that all required learning materials should be accompanied by an explanation of how engaging with the material will assist the student in successfully completing one (or more) assessments. A checklist for assessment level narrative for inclusion in online unit design is outlined in Table 3.

As an example, in one of the weekly modules in BMA357 Small Business Management, students were required to read an article about the stages of business growth. Rather than simply providing a hyperlink to the article and expecting the student to read it, the OLE featuring the article included a preamble to the article link which gave a brief explanation as to what the article was about and how reading the article was linked to, and would be valuable for, a specific assessment task e.g. "For your upcoming group assignment you are asked to choose a small business and recommend strategies for growth. By reading this article you'll learn about the challenges of achieving growth for businesses of different sizes and therefore have evidence to back up your recommendations for growth relevant to the size of your chosen business". Additionally, students were provided with questions to consider when engaging with the reading, such as "How does the role of the business owner change as the business grows?" and "Can you think of an example of a business that doesn't fit this model of growth?" The inclusion of prompting questions aimed to deepen a student's engagement with the materials – the student is encouraged to approach the material with a mission (i.e. answering the questions). Additionally, prompting questions may help the student to realise what the lecturer is hoping they will 'take away' from engaging with the content.

Table 3: Information to support the Assessment level narrative

Narrative component	Included information
Required learning materials	Learning materials accompanied by explanation of how content advances assessment completion
Prompting questions	Students provided with questions to consider when engaging with the content item (e.g. reading, video)

Importantly, the three narrative levels (unit, module, assessment) interlink and work together to encourage student engagement with the unit and the materials therein.

3.4 Preliminary outcome of Framework implementation

As noted above, our Tri-layered Student Online Experience Framework was implemented in a third-year undergraduate Bachelor of Business unit in 2019. A comparison of results from student satisfaction feedback surveys (administered at the end of the unit, in 2018 and 2019) showed that student satisfaction increased by ~30% to 99.2% for face-to-face students (i.e. flipped learning environment) and increased ~40% to 90.9% for the online cohort (fully asynchronous delivery, with no face-to-face classes).

While acknowledging that these findings do not take into account additional variables, and cannot be deemed causal, they do point to higher satisfaction among learners after the TSOEF was implemented.

4. Conclusions and recommendations

Clearly, online learning platforms and education models are key components in all domestic and international education markets. In a post COVID-19 environment, whether or not the displacement of physical classrooms to online spaces is a temporary or long-term proposition (for comment see Crawford et al., 2020; Jones & Sharma, 2020), the increasing move towards digital-based educational experiences will likely hold and persist. Within these online experiences, students' perceptions of quality will no doubt moderate enrolment figures. Thus, even if traditional face-to-face delivery methods remain important in the higher education sector, OLEs will be central to any method of learning. It is therefore important for higher education institutions and their academic staff to continually strive to improve online unit design. As we demonstrated in our discussion above, three main domains shape students' experience with online learning: 'relevance of online content'; 'alignment of online content with student aspirations'; and 'navigation within the online environment'. Our conclusion is that the factors keeping students engaged in an OLE are multi-layered, with design-based factors found to be equally as important as intervention opportunities. It was in this context that we presented our conceptual framework, the Tri-layered Student Online Experience Framework.

Through the lens of our TSOEF, to be successful in delivering online learning offerings it is necessary for an online unit to articulate to students the value proposition of content engagement. It is further necessary for academics, who may have limited instructional design experience, to have access to templates to guide online unit design.

As students likely study multiple units at the same time, and lecturers are relatively free to adopt their own design within their units, it is not unreasonable to expect students to have an increased cognitive load when attempting to navigate the different styles/logic of information presentation. Implementing a framework, such as the TSOEF, while still allowing flexibility in content curation, moves towards providing students a somewhat cohesive journey across the multiple units they navigate simultaneously throughout a semester. We acknowledge that educators do not subscribe to an homogenous design sensibility. Thus, it is important to note that our Framework's is heavily weighted towards prescribing the functionality (yet not the nuanced form) of how information is presented in an online unit. In this context, the TSOEF thus represents a practical tool which offers guidance in relation to design decisions. The ultimate goal of the Framework is to enhance students' online learning experience. Further research is required to gain feedback on the TSOEF from academic staff and education technologists, and to determine the impact of its implementation on students' online experience.

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