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Using curriculum design principles to renew teaching and learning in developmental psychology

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The curriculum for an undergraduate developmental psychology course at a regional Australian university was redesigned, using the university's new curriculum design principles: learning centred, constructively aligned, standards based, and career and future focused. The new experientially-based curriculum was facilitated by using a technology-enabled, tiered learning space, which supported collaborative and blended learning, with applied activities to understand how a human lifespan grows and develops. Learning outcomes and assessment were constructively aligned, whilst a range of technologies supported blended learning for students. In addition to structured course activities, students made video vignettes (formative assessment) and wrote reflections (summative assessment) to demonstrate their understanding of adolescence and old age. The vignettes were innovative, creative, engaging, and insightful. The benefits of the authentic nature of the assessment was evident, as students who embraced the vignettes demonstrated greater depth of understanding and insight, and subsequently gained higher grades in their reflections. Curriculum renewal is an ongoing process. Whilst the student feedback was largely positive, variability in the weekly activities, and clarity surrounding the purpose of online lectures and formative tasks will enhance the course. Future research would benefit from exploring age and cohort effects longitudinally. For psychology students, this experiential approach allows for more 'real world' application of the content for career-readiness, and is also transferrable to various levels, courses, and disciplines. Overall, the curriculum design was successful according to all markers of achievement, and was an enjoyable experience for both facilitators and students alike.

Keywords: curriculum design principles, experiential learning, authentic assessment

Introduction

The student experience is central in higher education with particular emphasis on student engagement (Matthews, Andrews, & Adams, 2011). A growing body of literature highlights the association between positive and relevant learning experiences and student engagement, subsequent academic achievement, and retention of students (Matthews et al., 2011; Chi, 2014); whilst staff in higher education increasingly recognise that learning occurs in social contexts and is not an independent cognitive process (Matthews et al., 2011). Furthermore, learning is best conceived as a transformational process rather than in terms of acquisition and recall;

enhancing a more authentic connection between the content, reflective practice, and the ‘real world’ (Kolb, 1984). According to the Experiential Learning Theory, as described in the seminal paper by Kolb (1984), ideas are not fixed immutable elements of thought, as traditional methods of education suggests, but are part of a dynamic process of forming and reforming through experience. Through this perspective, education should move away from the tendency to define learning in terms of content and outcomes toward a greater recognition that it is a dynamic and reflective transaction between the person and the environment (Kolb, 1984).

As students’ preferences for learning, expectations, and ambitions evolve, so too must the curriculum and the learning spaces; especially as pedagogical practices in higher education start to move toward a more learning-centred approach (Matthews et al., 2011). An experiential learning approach to the renewal of a 2nd year developmental psychology course was undertaken at a regional university. Curriculum renewal at this university is guided by four curriculum design principles: Learning-centred, standards based, constructively aligned, and career and future focussed. These principles provided a framework for the experiential course redesign and for the provision of authentic assessment; and were enacted in a technology-enhanced, tiered learning space, all of which are evaluated in the current study.

Curriculum design principles

Learning-centred pedagogy

Learning-centred pedagogy is evidence-based, drawing on disciplinary and transdisciplinary research. The success of such a curriculum is contingent upon the alignment of in-class and online activities and resources, assessment and outcomes which are focussed on supporting and enabling learning for all students, as defined by the Coursework Curriculum Design - Academic Policy (University of the Sunshine Coast, 2016). Psychology’s pedagogy is primarily built on the theory of cognitive constructivism; which places emphasis upon the individual as an active, rather than passive participant in their own learning (Stewart, 2012). The current diversity in the field of psychology reflects this individual construction of knowledge; with many careers requiring the graduate’s application of the information, rather than focusing on just the acquisition of content (Lipp et al., 2007). Strategies that incorporate pedagogical alignment from a learning-centred approach are recommended. This is to facilitate students’ awareness, understanding, and perceived importance of developing graduate attributes, psychological literacy, and subsequent career readiness.

Standards-based

Standards-based curriculum is achieved through regular internal and external benchmarking where appropriate to maintain accreditation. The Tertiary Education Quality and Standards Agency established the Higher Education Standards Framework, and the standards for degree programs are provided by the Australian Qualification Framework. Whilst psychology courses are accredited by the Australian Psychology Accreditation Council, to ensure uniformity of learning and teaching for subsequent registration for the practise of psychology. In addition, universities have their own internal standards in which curriculum must adhere.

Constructive alignment

Constructive alignment is student-focused and is based on the premise that students construct meaning through relevant teaching and learning activities. Assessment tasks are intrinsically aligned to the intended learning outcomes, providing a more satisfying and successful learning and teaching experience for both students and teachers (Biggs & Tang, 2007). Research has criticised a more explicit demonstration of the curriculum as having a deleterious effect on

students' learning (Norton, 2004), arguing that 'spoon feeding' the student can detract from the engagement of learning by encouraging a more mechanistic view on assessment (Biggs & Tang, 2007). Despite these critiques, constructive alignment facilitates a deeper approach to learning, whilst allowing the teachers and students to recognise precisely what, how, and to what standard is expected (Biggs & Tang, 2007; Morris, Cranney, Jeong, & Mellish, 2013; Treleaven & Voola, 2008). Given that cognitive constructivism is a central part of psychology's scientist-practitioner pedagogy, it is an intuitive step to adopt a more constructively aligned curriculum.

Constructive alignment and psychology

Constructive alignment is already present in the Australian Psychology curriculum, although research indicates that significant improvements can also be made, particularly to be more learning-centred and 'real world' (Morris et al., 2013). Biggs' formulaic approach to designing the curriculum can address these needs, facilitating greater consistency and understanding for the student and teacher (Lipp et al., 2007), whilst also providing a frame of reference for the other aspects of the curriculum to build upon (Biggs & Tang, 2007).

In the second year undergraduate developmental psychology course (12-unit, N = 185) described here, constructive alignment meant each week was aligned to a lifestage, progressing from beginning to end of the lifespan. The learning outcomes were focussed on understanding and explaining developmental theories, evaluating and analysing content, and formulating clear and concise arguments, as supported by research. With the learning outcomes in mind, lecture content aligned with tutorial activities using the ePortfolio software Pebble Pad, which linked to the assessment items and marking criteria. Furthermore, all activities were collaborative and simulated the real world, which supported the experiential intention of the course redesign and subsequent delivery.

Career and future focused

The final curriculum design principle, career and future focused, enhances the students' employability and development of work-ready skills and qualities by providing authentic learning and assessment experiences. Authenticity facilitates the development of knowledge, skills, and qualities necessary for engaging with the complex and diverse world.

Undergraduate psychology programs in Australia are under increased pressure from employers, university policy, evolving government policy and regulatory systems to maintain quality assurance and disciplinary integrity through the integration of graduate attributes (Cranney et al., 2012). The pressures for students to be employer ready, and psychology's requirements regarding application of complex knowledge, can lead students to feel a lack of conceptual clarity surrounding what is being taught and why (Cranney et al., 2012; Green et al., 2009). As such, there is a need for tightening and aligning of the framework that facilitates career-readiness within the psychology program; especially given only 25% of psychology students become registered psychologists (Morris et al., 2013). Self-awareness of students' strengths and weaknesses can be fostered through assessment tasks that compliment both the learning environment and the intended learning outcomes, again highlighting the importance of strategies drawn from a purposeful, authentic, learning-centred perspective.

Technology enriched learning spaces

Universities and classrooms across the world are changing to align with the needs of 21st Century students (Greenaway, 2016). Blended learning and technology-enhanced models of education, including simulation-based experiential methods, are now fundamental to the way

that university students interact with course content, their teachers and peers, and the professional and personal world (Johnson, Adams Becker, Estrada, & Freeman, 2015).

To improve navigation and access, the University deploys Blackboard Plus, to deliver a complete course in a virtual learning space. A set of core elements, which are the minimum standards that all course sites need to meet, provide a framework for course redesign. An essential part of Blackboard Plus is the consistency in navigation that reduces the cognitive load; whereby students can focus less on deciphering course structure, and engage more in the course materials. In addition to the Blackboard Plus redesign, virtual learning spaces were extended to include an electronic workbook to structure and standardise the students' tutorial experiences, using PebblePad.

To support a learning-centred, experiential approach to learning and teaching, the regional university created a tiered learning space, enabling students to experience problem-based and active learning. The affordances of the tiered learning space provide an environment for collaborative learning in which students can develop characteristics of effective teamwork strategies, cogenerate a solution to a problem and to develop confidence in being a lifelong contributor to achieve common goals.

The small group experience in traditional tutorial classrooms tends to encourage cooperative deconstruction and division of the activity, in order to provide separate parts to construct the whole (Dillenbourg, 1999). Collaborative learning, in contrast, allows for a regulation of each other's understanding through the social interaction, and subsequently facilitates deeper 'real world' construction of knowledge (Mitchell et al., 2010).

Formative and authentic assessment

The final aspect to be considered for the new curriculum is changes to assessment. Active participation through authentic learning experiences is an important factor in increasing the effectiveness of adult learning (Fanning & Gaba, 2007; Lipp et al., 2007). Authentic assessment refers to the learning that is gained through 'real world' tasks in meaningful contexts (Swaffield, 2011). This allows students to become active learners who seek to understand complex subject matter, are better prepared to transfer what they have learned to new contexts, therefore developing a competence in the discipline area. Although real-world tasks are usually collaborative, can be subjective in nature, and therefore difficult to grade on an objective scale, formative assessment lends itself well to introducing authenticity into the curriculum. This is a process whereby the facilitator aims to monitor and regulate the progress of the students' learning to assist the student reach the intended summative outcomes. Not only does formative assessment facilitate learning and aids in the development of self-regulatory mechanisms, it also increases the students' intrinsic motivation for tasks and assessment (Readman & Allen, 2013).

Good course design incorporates a learning-centred, career and future focussed approach, is constructively aligned, and meets necessary standards. Explicitly articulating the curriculum using these guiding principles, facilitated by the online and physical environments, and assessing the students in an experiential and authentic manner, we should see students collaborate and creatively engage with the content and assessment, and subsequently achieve higher performance standards.

The current study

Despite the research surrounding student centred approaches, experiential learning and authentic assessment learning, the efficacy of implementing these methods in a blended learning space has yet to be researched. The curriculum for an undergraduate developmental psychology course at a regional Australian university was redesigned, using the university's new curriculum design principles. By using the tiered learning space the course was transformed from lecture-based, theoretical learning into learning-centred, hands-on, applied activities to understand how a lifespan grows and develops. The purpose of the present study is to evaluate the efficacy of the curriculum redesign, through student outputs and their satisfaction and results.

Based on the experiential learning theory, and the research surrounding good course design, the current study proposes three hypotheses. It is hypothesised that:

1. Compared to the previous year, there will be a difference in the distribution of grades across the levels of pass, credit, distinction, and high distinction.
2. The new authentically based assessment pieces will facilitate greater student engagement, as evidenced by the creativity of, and collaborative participation in the video vignettes (formative) and reflections (summative).
3. The new experiential method of design and delivery will be well received by the students (as shown by student evaluation, focus groups and unsolicited feedback).

In addition, the course design was evaluated. It was expected that through the implementation of Blackboard Plus, the course site will achieve the Developed level of the Core Elements assessment rubric.

Methods

Participants

The participants in the new curriculum design were the teaching staff ($N = 5$; i.e., course coordinator, tutors, academic support) and enrolled students ($N = 185$) of a second year, undergraduate psychology course (Introduction to Human Development).

Materials

The tiered learning space facilitated the experiential intentions of the new design. Virtual learning for the students to access and engage with course content and assessment included Blackboard Plus, which underpinned the formal structure for the activities each week; and PebblePad as the digital workbook that each student accessed each week to engage with the activities.

The measures of success included the quality of work which is indicative of engagement, unsolicited feedback from the students, grades achieved through the summative assessment items, and the Student Evaluation of Teaching and Courses and feedback from the formal focus groups, which were both received post semester.

The standards by which the curriculum in the Blackboard course site was based were evaluated using a rubric designed to assess the inclusion of the Blackboard Plus Core Elements in the Blackboard course site. The core elements were graded using the scale beginning with First steps, then Developing, Developed and Outstanding. Meeting the core elements ensures the course site has a consistent structure to the learning materials and is easy for students to navigate

thus reducing the cognitive load on students enabling them to concentrate on the learning materials.

Procedure

Approval for the research was gained from the university's ethics committee (A15762). The changes to the course structure were designed to align the activities and assessments with the intended learning outcomes for the course. Engagement to the course was informally monitored over the 13 weeks and objective measures of learning and engagement were gathered. Each week, students participated in a two-hour workshop divided between studying human development and completing assessment tasks, using PebblePad to record these activities. The new assessment tasks were formative (group work to produce video vignettes about two lifestages [adolescence, older adulthood]) and summative (independent work on weekly online quizzes, an essay, and written reflections on the two lifestages). The video vignettes were presented in class time, in the week following the lifestage being part of the curriculum. Final grades were calculated from the summative assessments and the percentages of students in each grade (Pass, Credit, Distinction, High Distinction) were compared with previous years' grade distributions, using Chi squared test for Goodness of Fit. Creativity and participation with regard to the video vignettes, and subsequent quality of the reflections, was monitored for evidence that the inclusion of authentic assessment facilitated engagement. Student evaluations and unsolicited and focus group feedback was collated to assess whether the experiential redesign was well-received by the students.

Results

The new curriculum was successfully implemented for the 2nd year developmental psychology course. According to the measures of success, the experiential method of teaching, which included authentic assessment and real-world class activities; all constructively aligned to the intended learning outcomes, the students indicated engagement to the material, enjoyment, and academic success.

Hypothesis 1

A chi-square test for goodness of fit was used to assess whether there would be a difference in distribution of grades over two years (before and after the course redesign). Table 1 lists the percentages per grade level across 2015 and 2016 and the increase or decrease in the proportion of students achieving that grade.

Table 1: Distribution of grades, as percentages of total numbers of students enrolled in that year, for 2015 (N=173) and 2016 (N=166)

Grade	% in 2015	% in 2016	Change in percentage
Pass	16.8	28.9	+12.1
Credit	49.1	25.9	-23.2
Distinction	31.2	35.5	+4.3
High Distinction	2.9	9.6	+6.7

The Chi-square test was statistically significant, $\chi^2(3) = 35.03$, $p < .001$, indicating that the distribution of grades was significantly changed across the grade levels, increasing upwards (11% more Distinctions and High Distinctions) and with fewer of the lower grades. The effect size, Cohen's $w = 0.66$ which was considered large.

Hypothesis 2

Learning-centred pedagogy

The physical teaching space facilitated the collaborative and technology-based activities, allowing rich, organic discussions that aided the students' learning of the content, and which students reported at the time, to be interesting and enjoyable. Through the video vignettes and reflections, the students demonstrated an insight into their own and others' development in adolescence and older adulthood. From a facilitator's perspective, and based on peer feedback, the students produced innovative, creative, funny and insightful vignettes. All video vignettes were unique, but had similar developmental themes, which reinforced learning of those themes and engagement to the course. Furthermore, the reflections demonstrated greater depth and understanding of human development which, taken together, evidenced the success of the learning-centred experiential intention within the curriculum redesign. For example;

I found my understanding of the impact social media plays in today's generation changed as I began to consider the negative implications of vulnerable adolescent's that idolise and imitate 'role models' on social media and how this can lead to confusion in identity. ... In watching the video vignette, I began to reflect on how social media figures...can create a false sense of identity and influence behaviours such as how we dress, act and those who we associate ourselves with. This correlates with research by Giles and Maltby (2004), establishing the increasing importance of media stars and pop culture present in adolescent's lives. ... In conclusion, the experience of the video vignettes further heightened my awareness to the impact of today's increasing reliance for technology, and use of social media ... and confirmed the struggle adolescent's face... (Student, 2016)

It is interesting that the first video vignette on adolescence was enthusiastically embraced by the students, whereas the second, on older adulthood was less so, although as shown above, completing the formative task lead to better quality reflections.

Hypothesis 3

Redesigning the curriculum and using longer workshops gave students more authentic experiences of the developing lifespan which can be applied to their future occupational needs (in psychology, counselling, and occupational therapy). This was evidenced by the student evaluation, following semester completion. The majority of responses were positive, including one student's dismay of peers who had not participated in the video vignettes. For example;

1. "I'm still marvelling at everybody's video vignettes.....!!!!"
2. "(I disagree with) other students being lazy and not bothering with video vignettes..."
3. "I agree that the group video vignette should not count towards individual final grades, it should be compulsory in order to complete the course."

Many of the negative comments were associated with the formative nature of the video vignettes (i.e., the students wish the task was graded). Similarly, the students were polarised on the online lectures (from very convenient, to finding it more difficult without a face-to-face lecture). The focus groups largely reflected the student evaluations and unsolicited feedback, in that students were highly engaged with the course content and staff, wanted the vignettes marked, and had opposing views on online lectures.

1. “Video vignettes were beneficial. Forced you to “process the material”. Though they were not compulsory, the citations used in them could be used in subsequent written piece, therefore doing the vignettes was useful.”
2. “Some students did not do them (video vignettes) because they were not compulsory. They should have had a mark attached to them, even a small one.”
3. “Online lectures were great. Provided lots of flexibility and were focussed in their material.”
4. “I’m paying for this on-campus course. I’d do a Distance Ed degree if I wanted to view lectures online.”

Course design

Constructive alignment and standards-based

An independent evaluation conducted by the Learning and Teaching Centre at the University rated the structural elements as Outstanding for Assessment and Learning Content and Developed for Course Organisation, Course Structure, and Collaboration. The assessment of the collaboration opportunities offered refers to the collaboration within the Blackboard course site using tools such as the discussion board. Collaboration opportunities were effectively facilitated by the layout of the physical environment and were encouraged during the class activities.

Discussion

The new curriculum was facilitated by using a technology-enabled, tiered learning space, whose affordances supported collaborative and blended learning. The course was transformed into an experientially-based model that is learning-centred, collaborative, and included applied activities to understand how a lifespan grows and develops. This research evaluated the efficacy of the experientially-based curriculum redesign, through student outputs and their satisfaction and results.

Firstly, the increase of higher grades is indicative of the overall success of the experiential course redesign. This is consistent with previous research on technology enriched learning spaces for learner-centred pedagogical practice (Greenaway, 2016), and the effectiveness of authentic learning experiences (Fanning & Gaba, 2007; Lipp et al., 2007; Readman & Allen, 2013). The creativity and engagement in the video vignettes demonstrated how authentic learning activities involve developing, producing, thinking, watching, and reflecting on a topic, here, e.g., the lifestages, facilitating deeper learning. The authentic nature of the formative task meant that the risk of being ‘wrong’ or ‘right’ was removed. Students were given permission, and were rewarded for being experts in their field; instilling confidence and therefore encouraging engagement. These positive results are consistent with the experiential learning theory, with learning being a dynamic and reflective transaction between the student and the learning environment, rather than simply outcome-dependent (Kolb, 1984). Furthermore, the success of the reflections following participation in the video vignettes emphasises the suggestion that formative assessment increases engagement and motivation for subsequent summative tasks (Readman & Allen, 2013). Interestingly, compared to the first video vignette on adolescence, students found it harder to develop ideas for the second vignette on old age. This may reflect the depth and recency of adolescent knowledge and more limited experience with older people or old age. The formative nature of the video vignettes may also have counted

against completion. Regardless, the reflections were of better quality for those who had participated in the formative task.

The student evaluation and focus groups provided an honest assessment of the changes in the curriculum. Although there were some negative comments associated with the students requesting that the vignettes were graded, these highlight the students' engagement in the task and wanting formal acknowledgment for their efforts. Similarly, the students were polarised on the online lectures. Some found them very convenient, and others found it more difficult to fit in listening to them without a dedicated face-to-face lecture time. It is a considerable challenge to design a single course to meet everyone's individual learning styles; regardless there was a sense that even those respondents who raised objections, bothered to do so because they placed value on the course, had engaged with the content to some degree (enough to be 'interested') and had been open to the course in its redesigned form. This is consistent with research into formative assessment with regards to the development of self-regulatory mechanisms, student engagement and intrinsic motivation for tasks and assessment (Readman & Allen, 2013).

Finally, careful consideration during the development of the course ensured the learning outcomes for the course provided the foundation for the alignment of the course curriculum. The structure of the learning materials within the Blackboard course site supported by the classroom activities, those recorded in the eportfolio PebblePad and the formative and summative assessment are all constructively aligned to assist students to meet the learning outcomes. A constructively aligned course curriculum and online materials support the experiential and learning centred approach taken providing opportunities for students to construct meaning through relevant learning activities.

Ensuring each design principle was incorporated, scaffolded deeper learning for the students and facilitated a greater sense of engagement. Ultimately, the success of the current experientially-based course redesign is consistent with the literature that highlights the association between positive and relevant learning experiences, student engagement, and academic achievement (Matthews et al., 2011; Chi, 2014).

Limitations

There are a number of limitations in which to be aware. Although the variety and depth of the content was very well received, it was evident after the first three weeks that the structure of the two-hour workshops was quite repetitive. This may have impacted on attendance and engagement to the material; however, given that the level of engagement was considered high, the impact of this oversight may be negligible. Additionally, the proportion of students who did not pass the course were not included, due to the variability in the reasons why (i.e., fail-absent [those who do not participate after census], withdraw-fail, and fail). However, only one student out of 185 failed after completing all assessment tasks, indicating that the majority of the fail results were due to withdrawing or not participating in the course after census date. Moreover, as the student evaluation is anonymous and voluntary, the extremes of student opinions may have been overrepresented, and therefore may not provide a balanced perspective of the student experience. Furthermore, given that this study was only a comparison over two years, cohort effects need to be considered. Age differences would also be useful to investigate. Future research could address these limitations and assess the curriculum changes longitudinally.

Conclusions and Implications

Curriculum renewal is an ongoing process. During the production of this paper, this design has been carried over to a third-year adult development psychology course. Anecdotally, this was well-received and facilitated a more authentic experience for the students. Additionally, the 2nd year course has been further adapted based on the issues discovered from this study, and is about to be delivered to a new cohort of students. This study is evidence that the evolution of curriculum and learning spaces is necessary to support the evolution of students' learning styles, expectations and ambitions. This approach is transferrable and adaptable to various levels, courses, and disciplines. In particular, psychology students gain more 'real world' application of the content to prepare them for a successful career in this field. Overall, the experiential curriculum design was successful according to all markers of achievement, and was an enjoyable experience for both facilitators and students alike.

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