ASCILITE 2017
4–6 DECEMBER

Using an e-authoring tool (H5P) to support blended learning: Librarians' experience

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With an increasing emphasis on blended learning at Victoria University (VU), all the units are to be redesigned and delivered in a blended approach by the end of 2020. This presentation will outline VU librarians' experience in the use of an open source e-authoring tool (H5P) to support the University's blended learning strategy. We will discuss using the H5P tool to enhance library instructional videos and create interactive learning objects to support a specific unit. By using these enhanced resources, students are actively engaged with the content and can easily revisit and review at any time and are able to complete self-assessment activities at their own pace and receive immediate feedback on their performance. Furthermore, this presentation will showcase various H5P learning objects created by librarians that are reusable and shared with all VU staff, who can access from the learning objects library in VU's learning management system (VU Collaborate). Instead of duplicating learning resources, teaching staff and other librarians are able to save time through reusing the learning objects/activities. In addition, we will outline the data that were accessible through VU Collaborate and feedback received from the teaching staff. The benefits of the tool outweighs the limitations and future plans are suggested to continue utilising this tool for the University's First Year Model.

Introduction

Advances in technology has steered academic librarians to create digital learning objects that focus on actively engaging students with the content rather than passively reading, watching or listening. Traditionally, librarians at Victoria University (VU) have been producing videos to support students with information literacy and library research needs in either the face-to-face environment or embedding these videos in the online guides. However, the videos did not give students the option to interact or engage with the content thus, encouraging passive learning. With the university's focus towards the blended learning approach, new learning objects are to be developed and existing digital learning objects need to be enhanced, so that students are able to actively engage with the content and reflect on their learning. This paper outlines the role of librarians in supporting a vital piece of learning for students in an academic environment. In particular, producing the APA referencing interactive videos and embedding into a core unit of the sport management course. This was achieved using an innovative approach, utilising specific technology to allow for flexible student access and active learning opportunities.

Background

VU is a dual sector university providing tertiary education for students in the West of Melbourne and beyond. There is an increasing emphasis on blended learning at VU where all the units are to be redesigned and delivered in a blended approach by the end of 2020 (Victoria University, 2017). Blended learning refers to learning that happens in face-to-face context as well as online and often involves the use of technology accommodating diverse learning needs of students (Alammary, Sheard, & Carbone, 2014). The purpose for introducing blended learning was to not only improve student engagement and success but also provide students with the flexibility of accessing course content and learning from anywhere and at any time.

Librarians at VU are accustomed to designing and delivering information literacy in the face-to-face mode. However, to support and promote the blended learning initiatives of the university and the library, librarians had to think of various ways of utilising the technologies to blend library tutorials.

Why we created interactive learning objects

Initially, a project was instigated to create online learning objects to support 'Introduction to Sport and Active Recreation' (SSM1101), a unit within the university's blended learning project. This unit is a core unit of the sport management course, which is a three-year undergraduate course. In first semester, all students commencing the sport management course are required to attend information literacy classes, integrated in the 'Introduction to Sport and Active Recreation' (SSM1101) unit. The information literacy class provides support to students with finding information, critically evaluating information sources and using information ethically for their assessment tasks including referencing skills. Previously, for this cohort, two information literacy classes were designed and delivered in a face-to-face mode in weeks two and seven. However, with the university's move towards blended learning and teaching, the SSM1101 unit was scheduled for blend development in semester 2, 2016 to be completed and delivered entirely in a blended approach in semester 1, 2017. The discipline librarian was invited to the unit's redesign meeting and this opened up a dialogue to redesign and blend the two library tutorials.

It was suggested to reduce two face-to-face library classes to one face-to-face class in week three. Instead of cutting out essential information literacy content altogether it was decided to adopt a flipped approach and create an online module. The flipped approach is a teaching strategy that reverses the traditional instruction where students gain exposure to the unit's teaching materials prior to attending the face-to-face class through recorded video lectures, audio, readings or other resources that are posted online (Arnold-Garza, 2014; Brooks, 2014). This included utilising existing content (quizzes, videos) and developing new interactive content to support student learning in a blended learning environment. In this context, the embedded online modules were created as pre-class activities (keyword searching activity, using the library activity, plagiarism quiz activity and APA referencing activities) for students to complete in their own time and at their own pace before coming to the face-to-face library tutorial. This resulted in reducing didactic instruction and facilitating more time for active learning opportunities during class time.

Using the H5P tool to create interactive learning objects

In addition to the existing videos and quizzes that were adapted and modified for students to complete pre-class, a suite of APA referencing videos were created using the tools GoAnimate, PowerPoint and Camtasia and hosted on the library's Vimeo channel. In creating these videos, librarians followed the library's digital learning object guidelines, ensuring that the videos were planned and designed following best practice. The guidelines were created based on the principles of Richard Mayer's Cognitive Theory of Multimedia Learning. For instance, in order to reduce content related load on student memory, a decision was made to divide the content into four separate videos. Presenting information or concepts in short sections or chunks assists learners to easily process the information and focus on each component at a time (Mayer, 2014; Oud, 2009; Stiwinter, 2013; Hess, 2013). Moreover Hess (2013), suggests learning objects/videos being made available through multiple access points to further enhance the findability of these learning objects (Bowles-Terry, Hensley & Hinchliffe, 2010). As a result, the videos were made accessible via the library's Vimeo channel and utilised to complement the referencing guides available through the library website. Developed using the Springshare LibGuides software, the text based online guides provide students with detailed instructional information for the referencing style. Embedding the videos into the APA online guides provides instructional information in a multimodal medium and supports the various learning styles of our students (Dewald, 1999; Dewan & Steeleworthy, 2013). Furthermore, the videos are supported by transcripts to ensure accessibility for all students (Hess, 2013).

The APA videos were produced and to make the learning interactive and more engaging, the H5P tool was utilised to further enhance the videos. H5P (HTML5 package) is an e-authoring tool to create rich interactive HTML5 e-learning content allowing it to be shared and reused (H5P, 2017). Various authors have highlighted the importance of incorporating interactive activities to promote meaningful and active learning (Dewald, 1999; Dewan & Steeleworthy, 2013; Mestre, 2012; Oud, 2009). The learning activities can take the form of quizzes, multiple-choice questions, drag and drop tasks or any self-assessments that allow the student to directly apply what they have learnt. Mestre (2012) found students performed better when they could apply what they were learning during the tutorial and Stiwinter (2013) pointed out that interactivity assists learners to stay focused and engaged with the content. Librarians decided to use the H5P tool, as it was a free and open source software integrated with the university's learning management system (LMS), VU Collaborate. Since the university supported the H5P tool, librarians were aware that the learning objects created using this tool would be easily embedded into a VU Collaborate unit space. Library learning objects when embedded within the LMS are more effective as the visibility of the resources is increased (Dewan & Steeleworthy, 2013; Snowball, 2014) and is placed at learners' point of need (Hess, 2013).

The H5P tool is easy to use and does not require any advanced technical skills. Support is available through online help guides and tutorials on the H5P website

https://h5p.org/. The tool supports various content types such as quizzes, interactive videos, course presentation and timelines with an advantage of creating mobile friendly content. It does not require the end user to install any plugins or install any software. Additionally, the H5P tool is accessible via most devices as it uses the HTML5 to create the interactive content. This is unlike flash-based content, which can be problematic as it creates accessibility issues for people accessing the content on screen readers and mobile devices (Martin & Martin, 2015). However, as an author to create, publish and administer the content you need to install the H5P plugin in your LMS. This was not an issue for librarians as the systems administrators had already installed the plugin into VU Collaborate.

Outcome

A suite of APA referencing interactive videos was created using the H5P tool and introducing the fundamental rules of the APA style: APA referencing: the basics, APA referencing books & e-books; APA referencing: journal articles; APA referencing: web content. The interactive elements in the videos were a combination of drag & drop questions, multiple choice, single choice, statements, pop-up texts and links. Including the interactive elements in the video allows students to review and gauge their understanding of the APA referencing concepts presented. Studies confirm engaging learners with the content makes the learning process active rather than passive (Zhang, 2006; Dewald, 1999; Oud, 2009). Additionally, the interactive elements such as the multiple choice, single set questions and statement activity within the video provide students with immediate feedback on their performance. Providing immediate feedback to students is a great way of encouraging and motivating students to perform a task and reinforce their learning (Mayer, 2014; Oud, 2009; Stiwinter, 2013; Martin & Martin, 2015). The H5P tool also allows for multiple attempts where learners can retry a question. If the student provides an incorrect answer, comments and links can be inserted into the feedback to direct the student to further information and help them identify their knowledge gaps.

The four APA interactive videos (see figure 1) were embedded in the Introduction to Sport and Active Recreation (SSM1101) unit space as a pre-class learning activity for students to complete prior to attending the face-to-face library research class. Apart from the SSM1101 unit, these interactive videos are incorporated into four other first year units. As the librarians acquainted themselves with the H5P tool, additional interactive content was developed. For instance, the image hotspot activity was created for the students doing the Evidence and Health (HHB1105) unit, pointing out elements of an annotated bibliography (as a post class activity), a set of quizzes on plagiarism, and searching in SportDiscus database interactive video created for Growth Development and Ageing (SHE1002) and Exercise Psychology (AHE1106) cohorts.

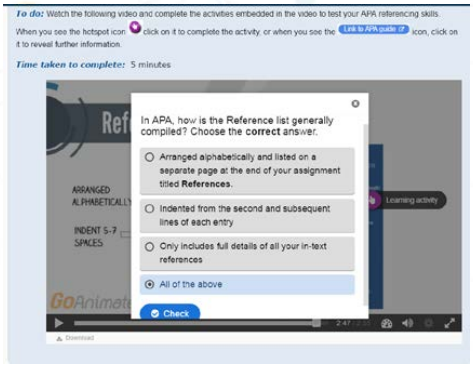

Figure 5: Pre-class activity: APA referencing (Part 1): multiple choice question

All the interactive digital learning objects including the APA referencing interactive videos created using the H5P tool enable learners to have control over their learning and provide greater flexibility. Therefore, learners can do activities at their own pace (ability to pause, review, and fast-forward the video) and in their own time (Mayer, 2014; Zhang, 2006; Oud, 2009; Martin & Martin, 2015). This also affords self-paced and self-directed learning. Considering that these H5P learning objects are embedded in the unit space in VU Collaborate, students are able to revisit these videos.

Furthermore, the H5P learning objects created by the librarians are reusable and shared with all staff, who can access from the learning objects library in VU Collaborate. Reusing activities saves time for the teaching staff and other librarians, which would otherwise duplicate learning resources, and at the same time, there is less content to update (Thornes, 2012). Teaching staff can reuse the content and adapt it to suit their learners' needs. For instance, any teaching staff can clone or copy the APA referencing interactive videos and modify the types of interactive content within the video or alter the questions to make it more meaningful for their learners.

Data

VU Collaborate also provided basic statistics of usage at an individual student level. These statistics presented an insightful picture of how many students watched the videos and attempted the inbuilt quizzes. For example, in the APA referencing tutorials (pre-class activity in week 3) only 46 students out of 141 (32%) completed the activity. It was anticipated students would require 20 minutes to complete the APA referencing tutorial. However, most students viewed the series of tutorials only once, spending an average of 6:43 minutes on the page. From the limited data available, it would be difficult to determine how many of the four tutorials students

attempted and completed. Additionally, there is no data available that shows at what point the individual student played and stopped the videos.

As previously mentioned, students completed a series of other pre-class library activities including the keyword searching activity. However, teaching staff decided to use this five-minute keyword searching activity in-class during week 1. The following data shows that a greater percentage of students engaged with the content when required to complete it in-class. In this instance, 102 out of 141 (72%) students completed the activity. Of the students who completed the activities, 60% viewed the video multiple times and spent an average of 4:12 minutes on the page.

Challenges and future plans

A noted limitation of the H5P tool includes using the interactive videos outside of VU Collaborate. Consequently, the interactive videos cannot be embedded into the library referencing guides. For librarians, there are limitations with accessing more detailed data including results for students who had attempted the self-assessment activities. Therefore, it is difficult to identify what concepts students find challenging and where they require additional assistance. This will require further investigation with the VU Collaborate administrators and technical staff to enable librarians to access detailed statistics. It is important to plan future library tutorials to capture comprehensive statistics and collect feedback from students using survey tools. Collecting this information is vital to further improve future library tutorials and hopefully increase the number of students completing flipped classroom activities. Moreover, at the end of the semester, the librarian met with the SSM1101 unit coordinator and the tutor to get feedback about the flipped library session. Teaching staff were very optimistic and positive about the flipped library class and the way the pre-class activities were designed especially the interactive APA videos. However, the teaching staff had also observed that the students had not completed pre-class activities that they had assigned for students to complete in their flipped sessions. This highlights that student participation in flipped classroom activities was also an issue for the teaching staff.

Through the statistics in VU Collaborate, it was evident that a percentage of students were not viewing the APA videos pre-class or attempting the pre-class and post class activities. The next steps include working with unit coordinators to encourage students to utilise the interactive APA videos independently. Literature discusses the notion that grades are an important motivator for students so therefore, it is important that teaching staff also reinforce the importance of referencing for assessments (Stiwinter, 2013; Rosser & Willis, 2016; Loo et al., 2016). Furthermore, for librarians, when embedding interactive videos into VU Collaborate, it is important to highlight through instructions the relevance of the learning activities to the assessment task. Librarians will also continue to work with coordinators across units in the College of Sport and Exercise Sciences and College of Health and Biomedicine to embed the enhanced APA referencing videos into their online learning spaces and in flipped library classes. As the H5P tool offers a range of enhancement tools, there are opportunities to customise the interactive elements for specific units. Finally, the library is in the process of developing a suite of similar videos also enhanced with the H5P tools for other referencing styles used within the university. Having experienced using the H5P tool, librarians can support the university's blended learning projects by promoting the tool to teaching staff and provide assistance with creating enhanced digital learning objects for their own units.

Conclusion

This paper has summarised librarians' experience in developing interactive learning objects using the H5P tool to enhance information literacy tutorials in particular APA referencing. Aligned to the university's blended learning strategy, these tutorials were designed using a flipped approach to promote active and meaningful learning. Additionally, the use of embedded self-assessment activities allowed students to control the progress of their learning and reinforce key concepts and skills.

Reflecting on our experience and the challenges associated with transforming traditional face-to-face classes to a flipped approach will allow for further improvements to the re-designing of other blended library tutorials. With the increasing importance of the library's role in facilitating information literacy and digital literacy skills development, it is envisaged that the H5P tool or similar e-authoring tools will be further utilised by the librarians to create sharable and reusable interactive learning objects for blended library instruction.

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Please cite as: Singh, S. & Scholz, K. (2017). Using an e-authoring tool (H5P) to support blended learning: librarians' experience. In H. Partridge, K. Davis, & J. Thomas. (Eds.), *Me, Us, IT! Proceedings ASCILITE2017: 34th International Conference on Innovation, Practice and Research in the Use of Educational Technologies in Tertiary Education* (pp. 158-162).

Note: All published papers are refereed, having undergone a double-blind peer-review process.