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H5P AND CANVAS - THE BEST PAIR SINCE SALT AND PEPPER?

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Abstract

The demand from lecturing staff that desire to improve the engagement levels of their students is continuously increasing. Learning Management System integrations such as H5P are a simple and effective way to improve student engagement and learning within modules. This paper explores the benefits of staff adopting the H5P integration in Canvas for developing engaging and interactive content in the context of higher education. It examines a pilot initiative developed by Munster Technological University's Department of Technology Enhanced Learning that investigated the needs of individual staff members and how they could make small changes to their teaching content to help improve student engagement. The results of this pilot indicated that participating staff had improved knowledge surrounding the development of interactive content through the use of H5P following one-to-one sessions carried out as part of the initiative and revealed that staff intends to apply the H5P approach to their everyday teaching activities to encourage student motivation and engagement in modules. This paper discusses further plans for the use of H5P within the Learning Management System at Munster Technological University and how it will be facilitated by the Department of Technology Enhanced Learning.

Introduction

This paper explores the benefits of using the H5P integration in Canvas for developing engaging and interactive content in the context of higher education, as the H5P integration continues to become more platform-agnostic. This paper focuses primarily on Canvas, as this is where Munster Technological University's (MTU) institutional focus is, and looks at the various ways MTU staff are interested in H5P within Canvas, reflected through the piloting and evaluation of a one-to-one training initiative set up by MTU's department of Technology Enhanced Learning (TEL). This paper also discusses the future prospects of continuing to use H5P within the context of Munster Technological University and how the department of Technology Enhanced Learning can further improve related resources for staff.

Enabling Engagement through the LMS

Canvas is the Learning Management System (LMS) implemented within MTU. One of the many integrated tools available within Canvas is H5P. H5P is a simple way to improve student engagement and learning in any Canvas module. Reports show that including Online Interactive Activities as part of module delivery increased student engagement, and improved grades (MacKenzie, & Ballard, 2015). Some additional benefits of using H5P include ease of access, the ability to create various content types, and ease of use.

H5P allows instructors to chunk content into manageable pieces and enables students to apply knowledge easily and come better prepared for class (Singleton, R., & Charlton, A., 2020). It also allows instructors to develop a more diverse range of content for students to interact with before, during, or after lessons, all of which can be viewed at <https://h5p.org/>. This can be done by incorporating content as pre-learning material, to increase student motivation and participation, and as assessment tools or knowledge checks. H5P can also be used, for example, to increase student motivation and participation in class through the use of Quizzes, Interactive Videos/Presentations, and creating gamified content types (Chen, S. 2022).

Current literature shows that institutions are inclined to use plugins such as H5P for an array of reasons, a popular justification for developing content using H5P among higher education professionals is for Open and Distance Learning (ODL) and for the creation of "Open Educational Resources" (OER). Open and Distance Learning is an education system where students do not attend live classes on campus. The learning process instead typically takes place at a distance and without the need to physically meet up with an instructor. Instead, a variety of alternative asynchronous methods are facilitated such as online classes, recordings of classes, online class discussions via course discussion boards, and individual or group projects (Moore, Dickson-Deane,

& Galyen, 2011). OERs within the context of open education - are most often commonly understood by a 2019 UNESCO definition: “Open Educational Resources (OER): Open Educational Resources (OER) are learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, repurpose, adaptation and redistribution by others.” (UNESCO, 2019).

The H5P integration works well with Canvas in a variety of ways, for example, it is mobile-friendly, which allows students to interact with content types from their smart devices in an environment that suits their circumstances. Having mobile-friendly integrations are important for online learning for convenience, portability, and overall ease of use as it facilitates the ability to ‘learn anytime and anywhere’ and for learning content to be widely available and accessible for those that do not have easy access to computers. Several studies yielded positive results on the efficacy of mobile learning (Luo et al., 2015). These studies confirmed that mobile devices worked well in learning vocabulary, and writing skills (Dolgunsöz, Yıldırım 2021). The way in which devices are used for course-related activities varies, with reasons for use including note-taking, reading course materials, downloading those materials, communicating, and socialising (Kukulska-Hulme, 2002). According to a recent report, more than 95% of people in developed countries now use a mobile device, while desktop PC usage is about 77% (Pew Research Center, 2021).

A recent study by Mohan et al. (2020) which looked at the impact of the COVID-19 pandemic on second-level education in Ireland finds that half of the schools surveyed reported issues with a lack of access to high-speed broadband and/or a lack of access to appropriate digital devices for their students. This figure increases to approximately 58% for disadvantaged schools characterised by lower-than-median household incomes (Mohan et al., 2020). Therefore the kind of mobile-friendly flexibility offered by H5P to MTU students is crucial to student success in a context where connectivity is often done through phone data plans rather than wifi/broadband at home.

Below are the usage statistics from Moodle.org that highlight the number of Moodle sites currently using the H5P plugin (https://moodle.org/plugins/mod_hvp/stats). The number currently sits at 26630, which has more than doubled since the beginning of the COVID-19 pandemic, and the corresponding demand for remote learning content to be made available within Higher Education.

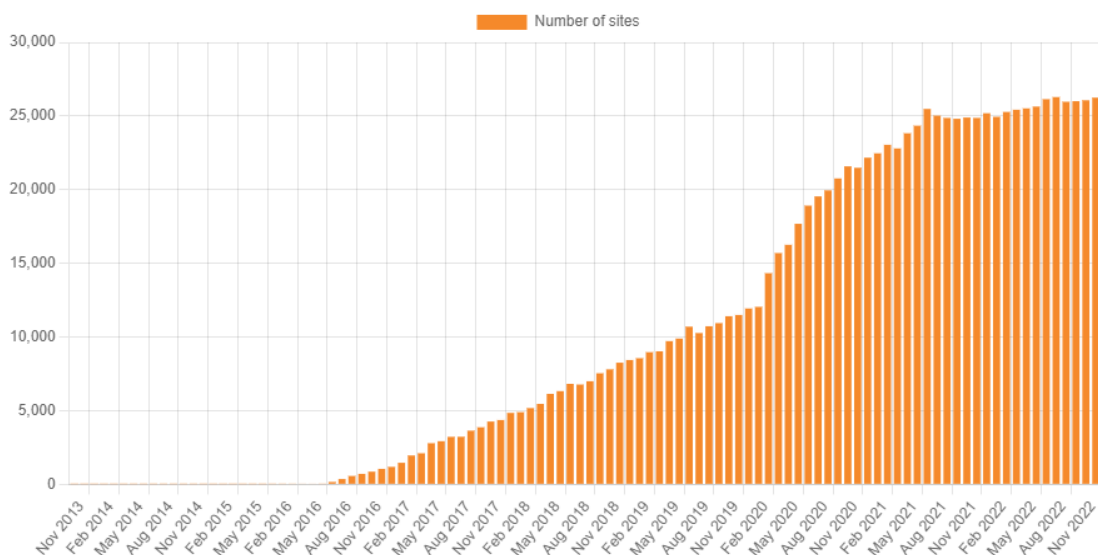


Figure 1. Usage stats - Number of sites using H5P plugin: 26630

The H5P integration within Canvas is currently used by lecturers within MTU to develop a variety of content types including Course Presentations, Interactive Videos, and Multiple Choice Questions. There is an interest and demand among the teaching staff at MTU to develop new and engaging content for students. This statement is reflected in the views of one of the recent H5P training videos offered by the department of TEL, which has 5,484 views on the department's YouTube Channel. The recording of the training session introduced staff to H5P and

gave them an overview of the integration within Canvas and how to access it from inside of a module. The session also covered how to develop a variety of H5P content types such as Course Presentations, the Documentation Tool, and Interactive Videos/ Images. The training session gave staff insight into how they can implement these types of content into their Canvas modules and existing content to increase student engagement. The training session also covered the reporting features (Drill Down Reports) inside of H5P, which allows for tracking of student access to these resources and keeps a record of student interactions, scores of students, and answers given by students.

Promoting Small but Mighty Changes in Digital Practices

The interest and demand among teaching staff to develop new and engaging content for students were also reflected through a series of 1-1 training sessions conducted by MTU's department of Technology Enhanced Learning throughout the first semester of this academic year (2022/ 2023). MTU developed and piloted a new initiative named 'TEL Me More!' with teaching staff over the first three weeks of Semester 1. This initiative encouraged staff to sign up for one-to-one sessions with members of the Technology Enhanced Learning Department, designed to assist lecturers in finding out how their Canvas module can do more for them and their students using a range of tips and tricks designed to reduce manual effort and/or support engagement. Although group staff training sessions were provided by the department of Technology Enhanced Learning throughout the year, these sessions did not necessarily lead to 'on-the-ground' change. Training sessions are typically broad and one-to-many, and although useful, these sessions do not really address the specific needs of individual users/ circumstances. Feedback from these training sessions indicated that many staff felt they couldn't ask specific questions during the group training sessions. Therefore, the department of Technology Enhanced Learning launched the one-to-one initiative to create an individual experience for staff. The one-to-one initiative was designed based on The Prosci ADKAR (Awareness, Desire, Knowledge, Ability, Reinforcement) Model (Hiatt, 2006), and the Student outcome-led design model by UCEM (University College of Estate Management).

Throughout this pilot, the largest number of queries from staff indicated they would like to develop more engaging and interactive content for their learners. Some of the participants of this initiative expressed their interest in making classes more engaging and interactive through the use of activities. Staff that teaches primarily online, had queries revolving around how to increase student engagement within a module. The department of Technology Enhanced Learning offered a variety of resources, tips, and tricks to assist lecturers with these queries. Some of the tips centred around making content more engaging through the use of Canvas features such as Scheduled Announcements, Grade Messaging, Video Messages, and using the H5P integration to update or enhance existing content.

Throughout these sessions, the department of TEL looked at H5P content types that staff needed and how they would be beneficial for staff and students. Discussions included 'when and where to use H5P in Canvas', with examples being demonstrated in Canvas Pages, Announcements, Assignments, Discussions, etc. Throughout these sessions, the department of TEL also looked at what H5P items staff wished to use, and their benefits. The department of TEL identified three content types that the staff were most interested in during these sessions. Participants were shown how to develop the content types, given examples of them in use, and shown how to use content types such as Branching Scenarios and an Interactive Book to link various content types and activities together for the students. The following is a short overview of the content types recommended to staff during the one-to-one sessions. These content types were recommended as they are some of the most effective digital teaching approaches.

1. Video - This content type is perfect for when staff already have a video clip (e.g. as an MP4 or a YouTube video), that they want to enrich with interactive elements, as outlined by Noetel et al (2021), Video presents many benefits for learning, including allowing learners more control, which can improve student motivation and regulate their cognitive load. The department of TEL suggested that lecturers facilitate differentiated learning by adding in-depth information such as pictures, tables, text, and links that the learner can interact with during video playback. There is a variety of interactive elements that can be included in the videos such as puzzles for the learners to solve at any given time in the video. These puzzles can be included by adding Multiple Choice Questions, Fill in the Blanks, Drag and Drop questions, and Summaries. The interactive content types typically consist of three steps: Upload/ embed video, Add interactions, and Summary task. These three steps represent a natural workflow for creating

interactive content. Figure 2 shows a video training session on 'Remote Teaching' developed by the department of TEL, which has interactive elements included. These elements are broken up by Bookmarks indicated by the white circles throughout the video where the interactions have been placed. In this example, the interactions include a Multiple Choice Question, a Fill in the Blanks activity, and a Drag and Drop activity.

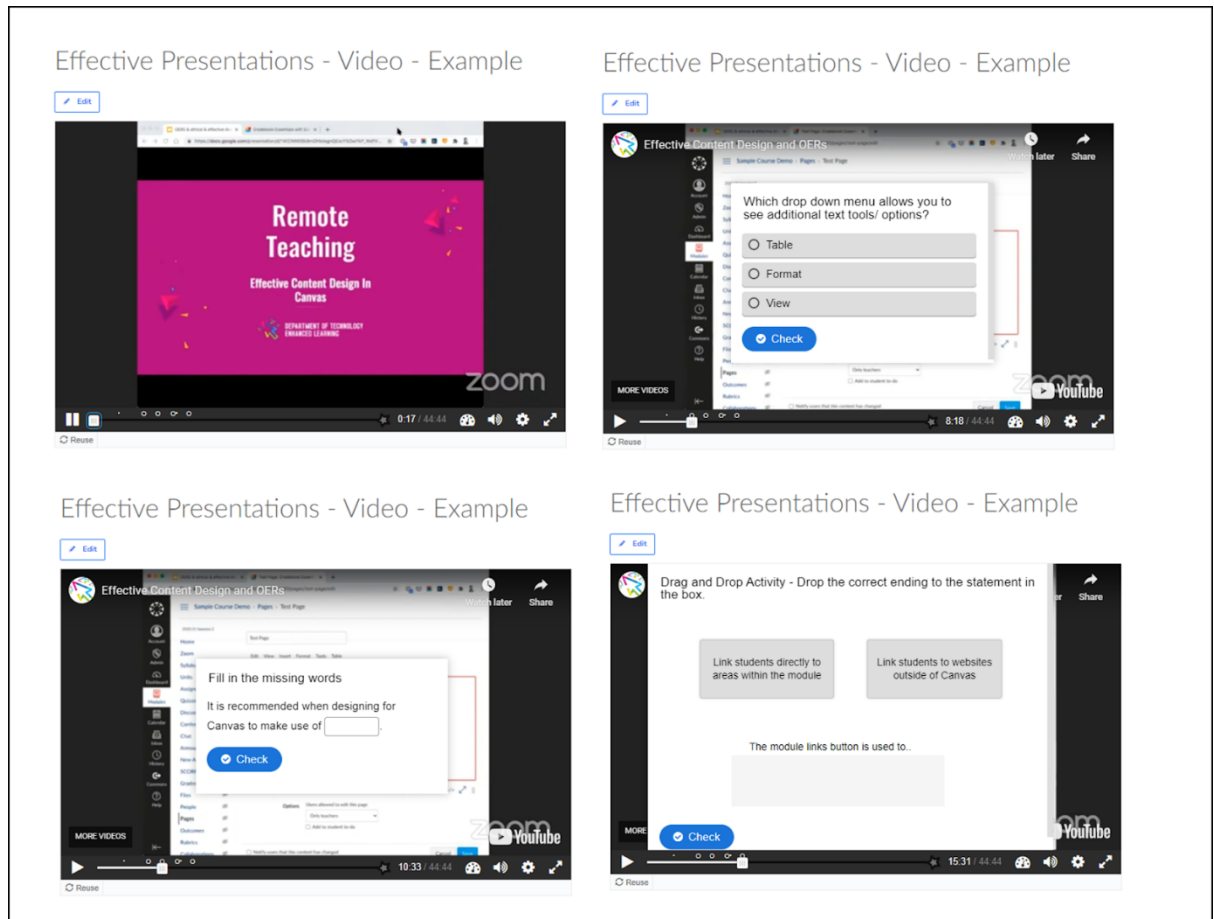


Figure 2. Interactive Video Example

2. Image - This content type is great for staff that has images that are important for student learning, this activity facilitates turning static images interactive, as noted by Sinnayah et al (2021), image-based activities may be "peppered throughout the course to actively engage and stimulate students with an asynchronous teacher presence". The department of TEL suggested using interactive images as both a way for students to access relevant useful information and/ or as a formative assessment activity. Examples of H5P content types were suggested to staff, which included turning a static image such as a diagram relevant to the module into an Image Hotspot using H5P. Hotspot images are interactive images where students can click on specific areas to access additional information, links, etc. When designing the content, staff choose a background image and have the ability to place hotspot markers around the image to make it more interactive by adding text, links, images, etc to the hotspot areas. Below is an example of an interactive image (Figure 3) created to assist students with learning about referencing software. Students can click on the purple plus icons and pop-ups will show additional text relevant to the part of the image.

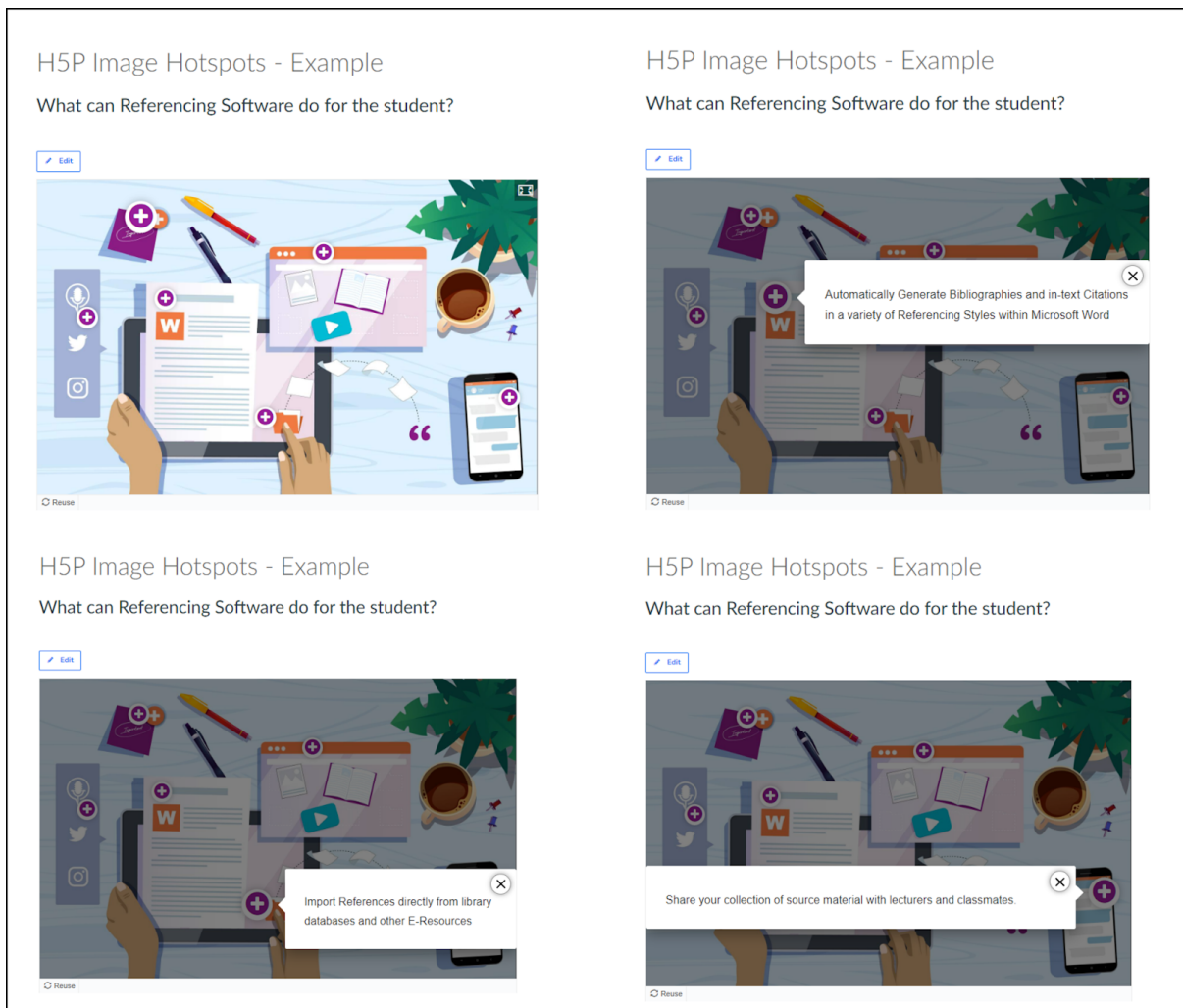


Figure 3. Image Hotspot Example

3. PowerPoint Presentation - This activity type is one that the department of TEL recommended to many staff that had a PowerPoint Presentation which they used regularly and wanted to develop into more interactive/ engaging content for students. Course Presentations contain slides where you can add various multimedia and interactive elements to engage the learner. This activity type allows the creator to add elements on top of their existing PowerPoint including additional Text, Links, Videos, Images, Quiz pop-ups, Drag and Drop exercises to make the presentation more engaging and interactive for students. Below (Figure 4) is some examples of slides from a Course Presentation on 'Edtech for staff' put together as part of a staff training session to help them visualise some of the elements they could create using H5P. Course Presentations are used by staff who want to package a piece of learning content in a structured and interactive format. Learners can swipe through the slides to experience the learning material while solving various quizzes, completing activities, or watching videos along the way. Course Presentations were recommended to staff as an alternative to presenting their learning content as PowerPoint Presentations, PDFs, or text-based web pages. Course Presentations are very flexible to use, as they are simple to create, publish and edit. Presentations can also be built into other features such as Interactive Books and Branching Scenarios. These two content types allow for a mixture of various content types all in one place.

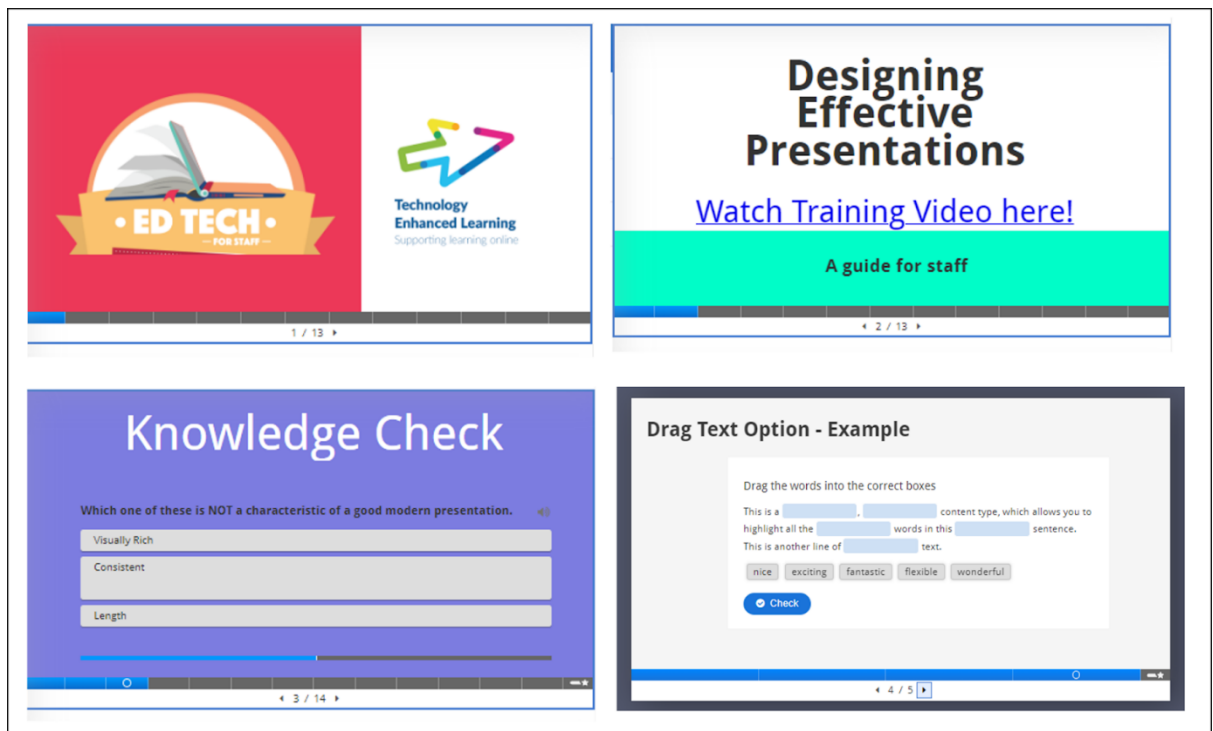


Figure 4. Interactive Course Presentation Example

4. **Branching Scenario** - A Branching Scenario content type is used for creating interactive content through developing decision-based paths. The department of TEL recommended to staff that they make use of this content type to develop learning materials that branch to different paths based on the student's answers and to incorporate a variety of content types into one activity. One of the features of the Branching Scenario is to branch out questions that will determine the branching logic. The staff has the ability to create a question by dragging a "Branching Question" and dropping it on available drop zones. Staff can add as many alternatives as needed for their lesson, and each alternative will send the user down a different path determined when developing the content. Staff also have the ability to specify what should happen if an alternative is chosen, and feedback can be provided to the student if using 'correct' and 'incorrect' answers, or custom feedback can be given to the student using the designated input fields.

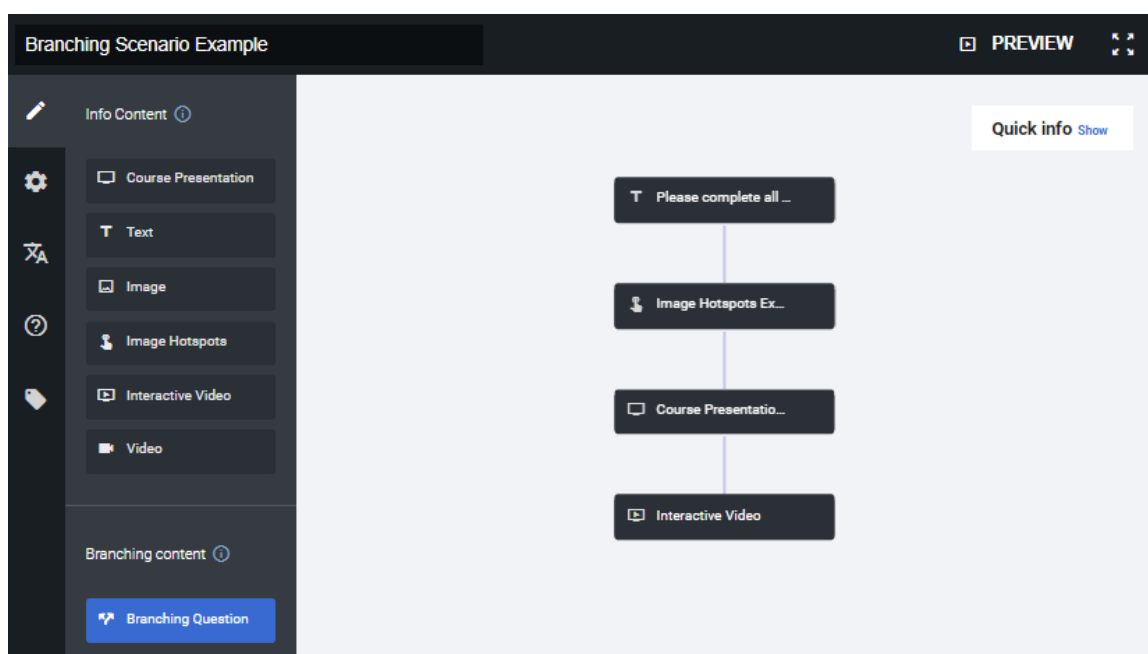


Figure 5. Branching Scenario Example

Conclusions and Outlook

Following the pilot of this initiative, a total of 28 participants took part in the one-one sessions over a three-week period. All participants are part of the lecturing staff at MTU, teaching a variety of courses. Some of these courses include Biological Sciences, Process Energy and Transport Engineering, and Tourism and Hospitality (Figure 6). After each session, the participants were sent additional resources to facilitate them in developing more engaging content and to assist them with the implementation of what they have learned throughout the sessions into their classes. Staff were also sent an evaluation survey after each session. The evaluation survey was sent to all 28 participants, 16 participants responded to the survey with their feedback and evaluation of the initiative. Resources provided to participants included a recording of the session, guides on topics discussed, and interactive resources such as the department of TEL's 'Learn H5P Module' on Canvas. The results of the survey showed that 94.1% of respondents marked the usefulness of the initiative 5/5 and 5.9% marked it 4/5. Results also showed that all participants who responded to the survey felt they have the potential to apply what was learned in the sessions to their everyday teaching activities and that staff has improved knowledge of the topics covered in the sessions (Figures 7 and 8).

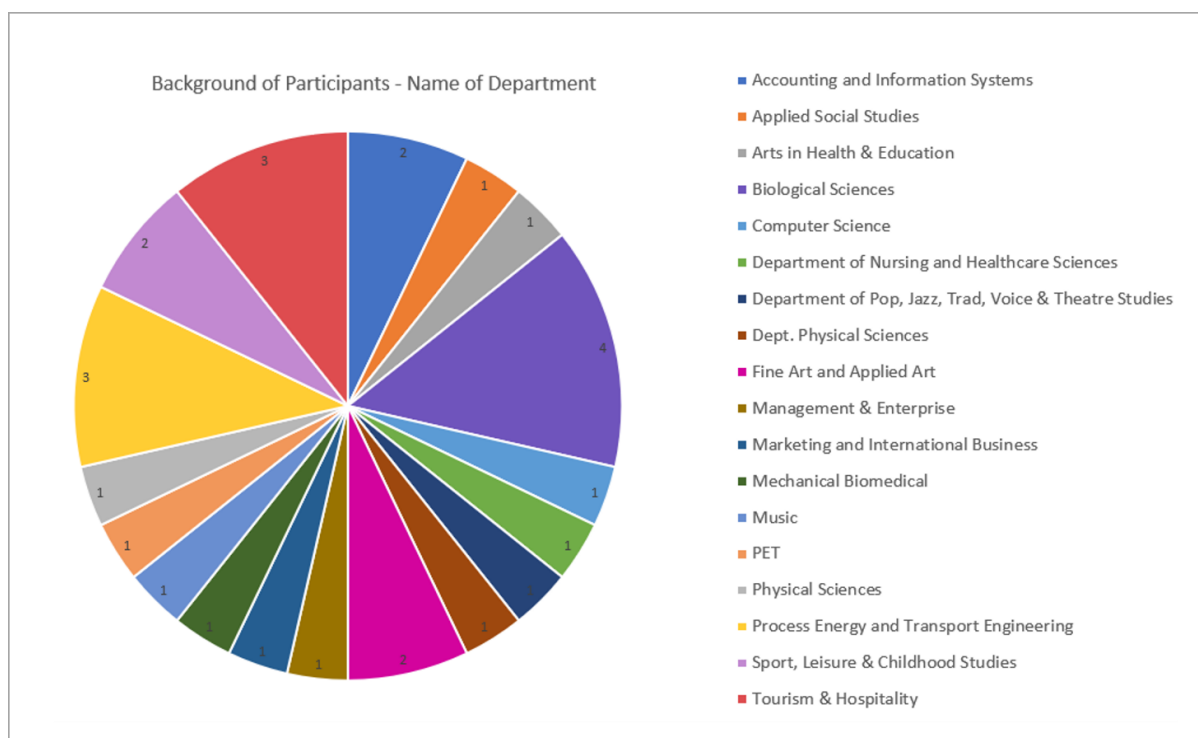


Figure 6. Background of Participants – Name of Department

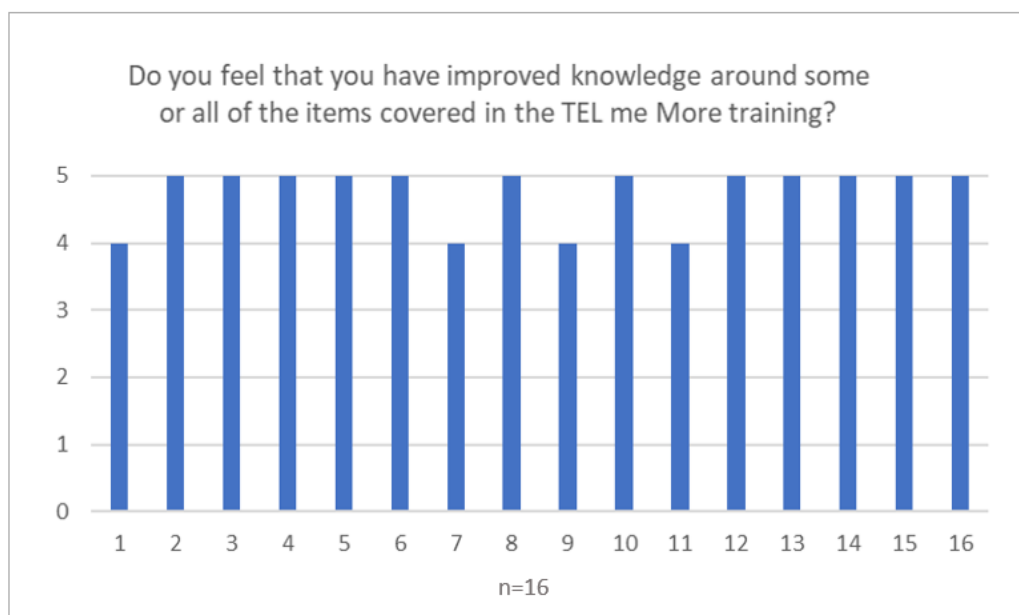


Figure 7. Survey question regarding improved knowledge around training topics.

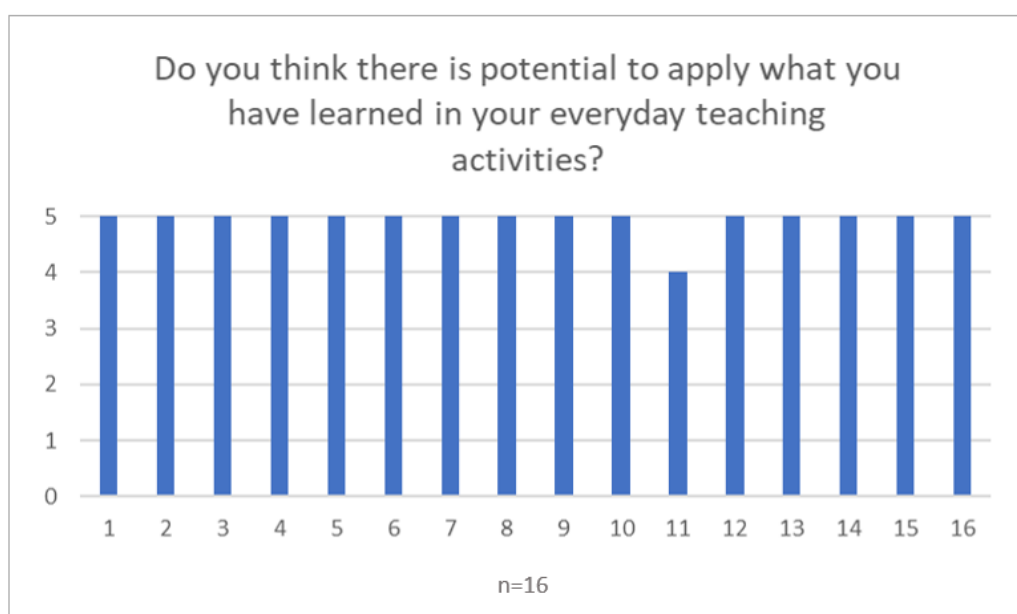


Figure 8. Survey question regarding applying knowledge to everyday teaching activities.

Overall, the department of Technology Enhanced Learning was pleased with the engagement, interest, and feedback of staff throughout the pilot of the one-to-one initiative. Future plans for the department of TEL regarding H5P are to continue to engage with staff to further increase their knowledge of developing interactive content types using H5P in Canvas and improve engagement levels in their modules. This will be facilitated with a range of resources developed by the department of Technology Enhanced Learning such as group training sessions, recordings on the department's YouTube Channel, a self-paced 'Learn H5P module,' the 'TEL knowledge base' filled with 'how to' guides and continued 1-1 sessions with teaching staff. These resources have been developed and maintained by the department of TEL to increase accessibility for staff looking to learn more about H5P and Canvas.

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