Evaluation of the use of VoiceThread for Assessments

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Although multimodality is increasingly used in teaching, learning and assessment, there is little in the literature that speaks to how VoiceThread (VT) is used for assessment purposes in higher education. This study contributes to this knowledge by evaluating how VT was used for assessment purposes at one Australian university and exploring how lecturers and students experience the use of VT in assessment tasks. Data were collected through interviews with lecturers, surveys and a focus group with students and review of the use of the VT tool itself. A five-part VT assessment process was identified and support structures for staff and students were mapped. The study found that despite the multimedia capability of VT, text only slides and text with visual slides were the most common design of student created media, while text, audio and video commenting were used across the six units in the study. Lecturers primarily used audio comments and grades in the feedback process. While assessment submission was not always straight forward, and students required extra support with this unfamiliar tool, the opportunity to engage in multimodal assessment tasks was received positively by students and staff as an opportunity to enhance the diversity of assessment and feedback.

Keywords: VoiceThread, Assessment, Multimodal, Educational Technology

Introduction

This paper presents an evaluation of the use of VoiceThread (VT) for assessment at Charles Darwin University (CDU), a regional, dual sector institution based in the Northern Territory of Australia. VoiceThread is a cloud-based application that is linked into the Learning Management System (LMS) via a Learning Tools Interoperability (LTI) configuration and is the recommended tool at CDU for multimodal assessments and discussions using multimedia. A Thread can have slides added using over 50 different types of media (VoiceThread, 2017). Each slide can have comments added in either voice, video or text. While considerable research has been undertaken in the use of VoiceThread for conducting online discussions in online education (Kirby & Hulan, 2016; Ma, Yu, Xiao & Thor, 2017), there has been little research on the use of VoiceThread as an assessment tool. This study addresses the gap in the literature relating to the use of VoiceThread for multimodal assessments.

VoiceThread was introduced into the Charles Darwin University LMS in 2016. In a two-year period ending February 2019 there were 2,558 Threads created (staff and students) and an average of 8 hours a day spent by all users in this tool. The term Thread will be used in this paper to refer to a VoiceThread created by the students for assessment purposes. The evaluation reported in this paper focused on online units that use VT for assessment tasks and did not include Threads that were used for teaching purposes only. The user-orientated evaluation was conducted across three disciplines and six units of study in two colleges at CDU during the first semester on 2019. Six lecturers participated in the study, all whom were responsible for teaching the online units that were the focus of this study.

The study examined how the capabilities of VoiceThread were used by students to create assessment work and by lecturers to provide feedback on that work. A VT assessment process has been proposed to assist lecturers understand the different activities that both lecturers and students engage in to design, enact and respond to assessment tasks. We identified six key stages in this process: assessment design, student creation and submission of work, lecturer receiving work and providing feedback and the support mechanisms in place for the use of the tool.

Literature Review

With students creating multimodal work with new educational technology tools, new ways of thinking are needed in the design of assessments and feedback processes. Wyatt-Smith and Kimber (2009) compared the term multimodal to print-centric and looked at how VT was used with image-verbal and other combinations of media including music, video and animation in texts. When students work in multimodality it helps to break down the separation between print-based and digital texts (Baldwin, 2016). As students need to acquire multimodal

literacies in order to create these assessment pieces, providing them with explicit instructions, technical support and a theory-driven rubric for multimodal work is recommended (Buchanan, Sainter & Saunders, 2013; Hung, Chiu & Yeh, 2013).

Teachers need to be explicit in their teaching practices and expectations when incorporating multimodality into assessment design in order to guide students to present academic ideas in new ways (Gourlay, 2016). Svärdemo Åberg and Åkerfeldt (2017) identified that teachers' assessment practices need to encompass a pedagogy of multi-literacies and this can challenge students in the design process of the assessment work. Gray, Thompson, Sheard, Clerehan and Hamilton (2010) discuss that to support students use of Web 2.0 authoring for assessments teachers need to provide clear links to specified learning objectives, adequate support and relevant marking rubrics.

To be able to increase student engagement in the feedback provision and foster a more personalised learning there is a need to move from text-only feedback to other modes. Hung et al. (2016) discuss transforming feedback from unimodality (text) to multi-modality (text plus audio and video). The importance of feedback is identified in the Assessment Design Decisions Framework (Bearman, Dawson, Boud, Hall, Bennett, Molloy & Joughin, 2014) as is the design of assessment tasks and the assessment context.

Adoption of educational technology requires more than just installing a product. Change management processes that include providing teachers with information and examples of the differences between the new tool and the previous tools can impact on uptake (Roberts, 2008). Rolim and Isaias (2019) present evidence showing that distrust of e-assessment systems, the fear of technical issues and the lack of knowledge of the systems prevent some teachers from using technology for assessments.

VoiceThread is a flexible tool that can be used for a variety of teaching and learning applications. VT provides the flexibility of a choice of media for students and teaching staff to communicate with. VoiceThread has elements that are humanizing, and which enable the communication of "emotion, personality, and other nonverbal cues conducive to better understanding and interpretation of meaning" (Fox, 2017).

As well as investigating student and lecturer use and perspectives of VT in this study, VT was also the chosen media for conducting the focus group discussion with students. Moyle (2006) found that the use of technology in conducting focus groups can be beneficial to the nature and depth of the conversations held. As students involved in this study were familiar with VT, an additional benefit of using this tool was that no extra training was required.

Methodology

This study was guided by the key question: How is VoiceThread being used by students and staff for assessment purposes in Higher Education at Charles Darwin University? The study was approved by the Charles Darwin University Human Research Ethics Committee (approval H19029).

The evaluative research was conducted in six units across three disciplines in two colleges at Charles Darwin University (CDU). This allowed for a deep exploration of the media used in student submissions and the academic feedback methods in diverse discipline units. The research evaluation investigated the following sub questions:

- What media and types of comments were used by the student in the assessment creation?
- Did students experience any difficulties in using VoiceThread?
- Were students provided with enough support to use VoiceThread?
- Were the students satisfied with the format (or mode) of the feedback given on their submitted work?

The user orientated evaluative research approach (Denzin & Lincoln, 2017) adopted in this study enabled the research team to look at the use of VoiceThread through the eyes of the users, both students and staff. This approach enabled triangulation of the research findings and provided views of VoiceThread from different perspectives.

Methods

A mixed methods approach to data collection has been used. VoiceThread software provided data on how the tool was used. This information combined with lecturer interview details informed the questions for the focus group discussion with students. MyView is the standard student survey mechanism at the University. Lecturers were requested to add three customized questions related to the use of VoiceThread. Student focus group discussions were facilitated through a shared VoiceThread and provided data to expand understanding of the student

experience. Data collected from the focus group discussions included audio and text comments by students. All data collected relate to units taught in the first semester of 2019.

Unit Selection

Units were selected for this study based on information obtained from the University ticketing system which records staff calls for LMS support. Fifteen staff members lodged 38 tickets relating to VT in 2018. Of these, six lecturers from the Higher Education sector were found to be using VT for assessment purposes in their teaching units and these lecturers all agreed to participate in the study.

Unit 1 (referred to as U1) was from the College of Nursing and Midwifery, Units 2 to 6 (referred to as U2 – U6) were from the College of Indigenous Futures, Arts & Society. Units spanned three disciplines: Nursing, Indigenous Studies and Languages and Linguistics. All units were online reliant which indicates that students must access the online unit for learning and assessing purposes. Some units had an intensive delivery component. Delivery of each of the units was through the LMS for students enrolled in external and internal mode.

Student and Lecturer Profiles

The lecturers (L1 to L6) had different levels of experience in teaching online and in using VT for assessment. L1, L3, L4 and L6 had used VT for assessment since its introduction into the LMS in 2016. The most experienced lecturer (L4) had the least experience in using VT but had used equivalent programs over the years and was able to apply this experience in using VoiceThread.

Student numbers enrolled in the units varied from three to more than 65 with a totally of 105 students enrolled in the six units included in the study. Students had the choice to opt-out of the study by completing a question in the LMS, and a total of seven students opted out. Five units were predominately delivered to students enrolled in external mode while U2 students were mostly enrolled as internal. U1 students made up 66% of the total student cohort to take part in the study.

Assessment Process

The process for using VoiceThread for assessment is shown diagrammatically in Figure 1 starting with Assessment Design. Students create a response to the assessment and may use a selection of different tools to do this. Submission is required through the LMS with a VoiceThread submission point that is linked to the Grade Centre. Lecturers receive the submissions and provide feedback in several ways. All work is given a numeric grade which is transferred from VT to the LMS Grade Centre.
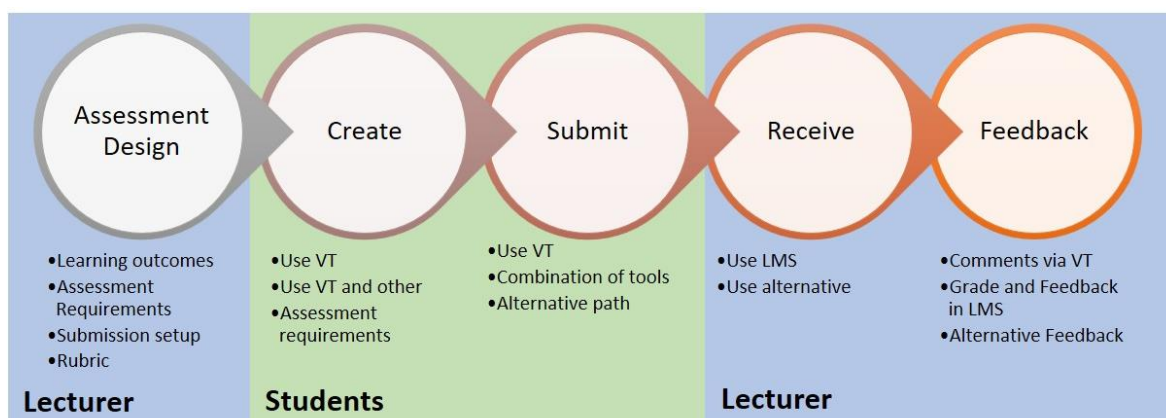

Figure 1: Assessment Process using VoiceThread

Figure 2 shows the various methods of gaining support for using VT: students (S) gain support from lecturers or call the LMS vendor student support. Lecturers (L) provide support for students and may call on University based educational designers for pedagogical support on assessment design or the LMS support team for technical support. The University internal LMS support team are skilled in all areas of the LMS and can escalate queries to the vendor technical support team which has a specific area for VT support.
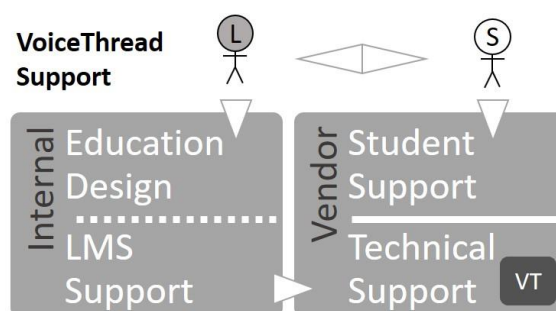

Figure 2: VoiceThread Support

The mixed methods approach enabled triangulation of the data collected (Denzin & Lincoln, 2017). No single method used could provide the level of detailed data required to answer the research question and hence, collection of data from various sources was deemed necessary. Table 1 shows how the data collected is mapped to the Assessment Process as shown in Figure 1.

Table 1: Data Collection Mapped to Assessment Process

Data Source	Assessment Design	Create	Submit	Receive	Feedback	Support
VT assessments	X	X	X	X	X	
Lecturer Interviews	X	X	X	X	X	X
Student Survey	X	X	X		X	X
Student Focus Group		X			X	X

Limitations

The researcher who conducted the interviews with lecturers was part of the University LMS support team and this may have biased the understanding of responses from the lecturers during semi-structured interviews. For future iterations, more than one member of the research team with complimentary skills (technological and pedagogical) will conduct the semi-structured interviews to reduce researcher bias.

The researcher observed from lecturer interviews that students are most likely to contact the lecturer if unhappy or something doesn't work. It was also noted that the majority of students who filled out the MyView survey were happy with VoiceThread. Future iterations of this research will keep the mixed methods approach to ensure these different perspectives are captured and verified.

As the online focus group was run after grade release, it is likely that this resulted in the small number of students that participated. Online focus groups will be conducted as soon after grading as possible and a different tool considered for a synchronous session to encourage dialogue.

Findings

VT is an educational technology tool that can be used in different ways. Assessment design needs to optimize on the functions of VT that can be used for the assessment task and associated feedback.

Support of students and lecturers is critical at different levels. Lecturers need the most support in understanding VT capabilities before designing an assessment task, understanding the student view of VT, and learning how to provide feedback in the tool. Students need detailed instructions on how to submit the assessment.

If alternative paths of submission are taken by the student (e.g. sending attachment via email instead of through VT) this results in alternative methods of receiving the work and providing feedback. This can increase workload for the lecturer and scatter the evidence of assessment work inside and outside of the LMS which can make it difficult to maintain evidence of assessment for internal and external auditing purposes. These key findings are supported by the discussion below.

Assessment Design

Lectures (L1 and L4) expressed optimism for the potential of using VT for both assessment and teaching and learning purposes. L1 advised that students liked the novelty factor of having an assignment that was different to other assignments. Students backed up this view by commenting 'enjoyed the variety' and 'love the way all the assessments are designed and planned' (U1 student, Survey).

Lecturers set requirements for the use of VT to respond to assessment tasks in different ways. While L2 required the students to use video to promote a conversational style response and in order to see the student, L4 uploaded slides for students to record answers in the target language. While L4 gave simple instructions for students to record audio comments, L3 encouraged a voice-over PowerPoint presentation to be created and then uploaded to VT. In U1 and U4, lecturers modeled the use of the VT through using it for teaching. This provided students with an example to follow, and gave the lecturer experience of creating a Thread. L1 mentioned that this gave the lecturer an appreciation of the student effort required to create a suitable Thread.

While L1 and L3 prepared a rubric for the multimodal assignment, others did not include a rubric but included requirements in the assessment description. Lecturer L1 customised a rubric over several teaching periods to include aspects of multimodal work and used this for marking transparency.

There was a discussion on the assessment design using the VT and online tools as compared to how assessment would take place in the classroom. L6 explained that in the classroom, students would stand up in front of the class to deliver their assignment, but was not aware that equivalent oral delivery of assignments could be done online using the sharing and peer review functions available in VT.

The student survey encouraged comments on areas of improvement in VT. One student from U4 succinctly said 'change voice thread'. Another student from U3 commented that more detail was needed of the oral assessment.

In summary, the assessment design process is critical to the student experience of VT, as is the need to provide explicit instructions to students on how to engage in a multimodal assessment task in VT. Lack of instructions (as in U2, U3 and U5) affected the way that students chose to create the assignment. L1 and L4's use of VT in teaching is a recommended strategy for all lecturers planning to use VT for assessment purposes. Extending this idea further, L1 shared a vision of having a conversation with the students in VT around the assignment work, although this is yet to eventuate.

Create

VoiceThread accepts a wide range of media types and these are summarized into five different styles: text only, text with images, images only, and video or audio. Table 2 shows that range of ways that students created material to add to a VT. While the most popular modality was text with images, U1 had the most variety in the design of the student created material. U2 shows that all students submitted a video, as required for that unit. U4 used lecturer (L4) created material and students added comments only (see Table 3).

Table 2: Student Numbers and VT Design

Unit	Student Numbers	Student Created Media	Text only	Visual and text	visual only	video	audio
U1	63	578	45%	52%	3%	1%	0
U2	4	3	0	0	0	100%	0
U3	3	31	87%	13%	0	0	0
U4	9	126	0	0	0	0	0
U5	4	54	69%	31%	0	0	0
U6	15	115	11%	85%	0	1%	3%

Table 3 describes the comments which were added to the slides in each assessment submission. The primarily method of comment was student spoken word (audio recording). Across the student submissions, all features of the tool were used: text, audio and video. U2 video comments are shown in brackets as the students uploaded a video recording but did not overlay that with any comments in VT. U1 had the strongest use of the VT text commenting feature. This was due to specific referencing requirements in the task where most students used the Text Comments to add required references.

Table 3: Student Comments on VT Media

Unit	Text Comment	Student spoken comment	Student Video
U1	19%	78%	3%
U2	0	0	(100%)
U3	0	100%	0
U4	0	100%	0
U5	0	100%	0
U6	0	100%	0

L1, L2, L3 and L4 reported that students felt stressed with using new technology and they felt that students in their course were not very IT literate. As reported above in Assessment Design, most lecturers allowed the students to create media with any tool and encouraged students to use all the VoiceThread Comments types (audio, video or text). However, only one student in U1 took advantage of this freedom to be creative by using an animation software with an audio comment to present the assignment.

L3 felt that it would be better for the students to just create the presentation with voice over in PowerPoint. However, students then had issues in submitting large file types. While VoiceThread provided the benefit of being able to accept large file sizes, the lecturer felt that VT provided no other benefit. A student commented from U1 that VT was a basic program compared to PowerPoint and a student from U3 commented in the survey that 'VoiceThread was a little bit convoluted'. L1 and L4 had prepared Threads for teaching purposes and this helped them recognise the work effort that was required by students to create a similar standard of Threads.

The University standard student survey tool was deployed, with four of the six Units adding questions relating to VT, with a 31% response rate. Figure 3 shows results with question 1 (Q1), which asked about the ease of use of VT. This question relates to the create section of the assessment process shown in Figure 1. Q2 asks students if they felt that the support provided was sufficient for using VT. The majority of results were on the agreement side. Q3 had the strongest positive result, asking students if they were satisfied with the feedback given for VT assessments.
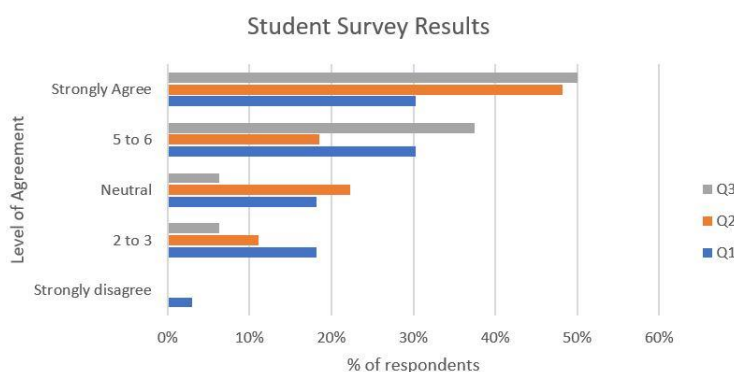
Figure 3: Results from Student Survey

Students were invited to participate in a focus group discussion run in VoiceThread. There was a low response rate (4%). The low participation rate in the Focus Group may have been caused by two factors. Firstly, asking students to voluntarily participate after they received their grades and secondly, while students were emailed from their respective study units, they had to follow a number of steps to get to the point of participation in the Thread. One student participated with a voice comment and said how appreciative they were of the extensive voice feedback from the lecturer and it helped to hear diction in the target language. Figure 3 shows one student's comment from U1 that shows that VoiceThread enabled student confidence in the subject content through the ability to record and re-record comments. This student recommended VT for future assignments.
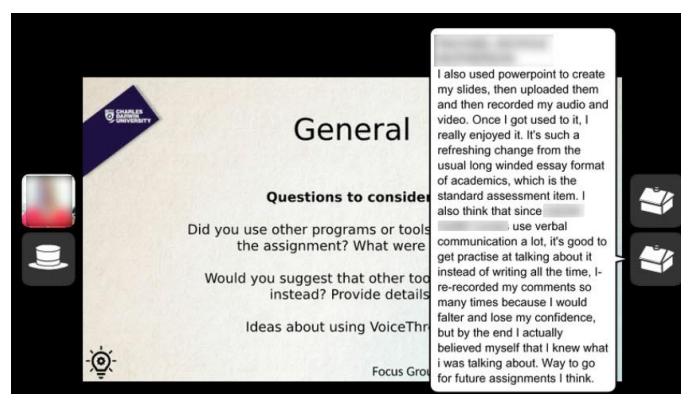

Figure 4: Student Comment from Focus Group VoiceThread

In summary, while most students used VT to add media and comments, many students used PowerPoint with a voice over and used VT to get the results to the lecturer. L3 and L5 believed that students preferred PowerPoint because the tool had been around longer than VoiceThread and they were more familiar with the features it provides.

Submit

Many students had issues at the submission stage. A lecturer (L6) reported that students would ask about different options when submitting and L6 was not aware of the correct answer to give. In one case, the student clicked the wrong option and other students could see the submission work. This reduced confidence of the lecturers in the VT submission process.

A student from U2 reported technical issues around submission time and this was unresolved after a call to the vendor support area. This is shown in Table 2 in U2 where one student managed to submit a blank VT. The work was submitted to the lecturer (L2) via email.

One aspect of submission that was mentioned by both lecturers and students was the impact the tool took on presentation appearance. When PowerPoint was used to create the presentation, uploading it to VT changed the placement and size of images and text. This impacted the lecturer's (L3) ability to provide accurate feedback even

if the appearance was listed as part of the criteria of the assessment. L3 advised that one student in U3 provided the PowerPoint presentation as evidence of the text and image placement in that version. This supported the lecturer's belief that there was little benefit for the students in using VT. L3 and L5 mentioned that the only benefit was that VT allowed larger files to be submitted than the LMS standard submission points.

In summary, submission of assessment work often went wrong for students, either in technical difficulties or because VT changed the look of the presentation. Alternative methods of student submission included using email to submit work or creating the thread in a separate area and not using the VT submission area. If alternative methods of submitting work were taken, a higher workload for lecturer ensued in the remaining areas of the assessment process (refer Figure 1).

Receive

The researcher noted that lectures were required to access VT differently to other types of submission points in the LMS. L1, L4 and L6 reported that sometimes they could see student threads in the VT group folder but not in the submission point. Even if assessment work was successfully received, the lecturers found the different location of assessment work frustrating as the grading process did not allow them to give feedback in the same way.

While there was minimal mention by lecturers of any other difficulties or issues in receiving student assessments, it is important to note this step in the assessment process (shown in Figure 1) as lecturers' workload increased if an alternative path was chosen by the student at the submission point.

In summary, when alternative paths are used to submit assignment work, the lecturer requires alternative methods to receive and provide feedback on the work. This can increase the workload of the academic as different areas of the LMS or tools outside the LMS (such as email) are used.

Feedback

Lecturer feedback was variable across the six units. Table 4 shows that while L1 responded with a variety of comments in U1, in U4 and U5 students were not provided feedback in VT. L4 explained this as a holistic approach and feedback was provided on VT exercises leading up to the assessment.

Table 4: Lecturer Feedback in VT

Unit	Lecturer audio comment	Lecturer text comment	Lecturer media added
U1	26%	46%	27%
U2	100%	0	0
U3	0	100%	0
U4	0	0	0
U5	0	0	0
U6	83%	17%	0

L1, L2, L3 and L6 reported a high workload in providing feedback to the students in VoiceThread. They felt that for them there was no benefit from using VT for assessment, although they thought that students benefited in using VT to create multimodal work and responding to assessment questions with tools other than text. Providing customised audio feedback for students was a lot of work with comments being manually written down before being recorded.

In U1, L1 created a customised rubric which was developed over several semesters with the assistance of an educational developer. This supports the support model shown in Figure 2. L1 uploaded the rubric image into the Thread and augmented it with an audio comment to provide customised feedback to the student. This feedback was valued by students, as noted by their positive responses to question 3 in the Student Survey (Figure 3).

L2, L3, L5 and L6 were concerned that students were not seeing their feedback. As audio comments in VT had to be retrieved in a different way to all other types of assignments in the LMS, the lecturer was not confident that

students heard the feedback and consequently preferred to provide feedback through the LMS gradebook. Some students reported to the lecturer that they had not seen any feedback.

In summary, while using VT for feedback created a high workload for lecturers compared to other types of assessment submissions in the LMS, students appreciated the feedback provided in multiple modes. VT provided a unique opportunity in the way that audio and text feedback could be integrated within the student submission.

Support

Some of the complexity of interfacing internal and external support areas with students and staff are shown in Figure 2. From the evidence of the staff interviews it was clear that students have multiple and different issues in using the tool. L1 and L4 reported that they spent significant time in supporting the student in using VT before and after assessment. The methods of support that were used to support students included using VT for teaching purposes to model the type of Thread required for assessment, giving detailed instructions and sending individualised emails to students. While external vendor support is available, L2, L3, L5 and L6 expressed doubts that students got the support they required as students had contacted them after contacting vendor support to complain. L3 expanded on this to state that students found it difficult to describe the actual issue and this made solution finding difficult. This was supported by student survey comments that advised that voice recording was difficult and there were issues that had not been resolved even after seeking student helpdesk advice.

L2 and L3 agreed with the researcher that they needed further support to understand the tool, that they were learning about the tool all the time and had taken part in self-direct professional development. Even then, they did not feel confident that they supported the students sufficiently. In relation to collegial support, L3 and L5 reported that it was easier for them to use the tool because they were in the same College and were able to assist each other. The other lecturers reported that they did not know of any other academics in their Colleges who used the tool and that using VT was an isolating experience for them.

While one lecturer (A6) reported that they felt that most students were technically savvy and would be able to work it out, the other lecturers reported that their students felt nervous when required to use a new tool such as VT for assessment.

In summary lecturers need to be familiar with all the support structures in place to support their students. Lecturers need a sufficient level of understanding of VT to be able to design assessment taks and troubleshoot student queries. Lecturers that have used VT for teaching have built their skills this way. Most students in this study were using VT for the first time and needed explicit support in order to create and submit their assignments.

Conclusion and Recommendations for Action

In conclusion, the six-part VT assessment process depicted in Figure 1 helped the authors to conceptualise how VT is used by students and staff and guided the data collection and analysis. This study found that all commenting VT functions were used across the units, but that assessment design has a large impact on how the tool is used. Students appreciated that VT allowed them to respond to assessment tasks in new ways, and that functions such as the ability to re-record comments allowed them to produce high quality work. Students primarily created media that was either all text or text and visually based, and many students used PowerPoint to create the underlying presentations that were uploaded to VT. Lecturers primarily used audio and grades for feedback purposes.

The success that students had in submitting assessment work through VT was variable. Accessing the correct support was also variable and this was exacerbated by students being unable to sufficiently describe the difficulties experienced in this unfamiliar tool. Students did not always gain the required support from the external vendor helpdesk but were usually able to work with the lecturer to resolve issues. VT facilitates timely, detailed, audio and interactive feedback which students acknowledged and valued, however, lecturers found a high workload in providing this type of feedback and felt little benefit in using VT over other ways of receiving assessable work.

The small student numbers in five of the six units in a single University in this study, and low student response rates in the student survey and focus group limited the data about the range of ways that VT is used at CDU. While the student survey data was largely positive in relation to VT, the design of the comments section in the survey only encouraged responses that related to what needed improvement. A larger student response rate to the survey may have delivered more details. The focus group had low representation as students did not return to the Thread to have a dialogue with the researcher. This limited the ability of the researcher to clarify some of the responses provided in the survey.

While we acknowledge these limitations, this study has provided a clear and detailed picture of VoiceThread as a powerful and multifaceted tool that students can use to respond to assessment tasks. The practical implications from this study can be seen in the following recommendations for actions which address some of the findings:

1. Provide extra support to students in using unfamiliar tools for assessment. Ensure that submission instructions and support options are clearly detailed in the online units and not hidden behind multiple clicks.
2. Provide detailed support for lecturers at the assessment design stage. Staff in the pedagogical and technology LMS support areas could provide examples of feedback methods and how different VT assessments can work.
3. Facilitate interdisciplinary knowledge about VT. Using existing University-wide mechanisms, create an online space where lecturers and support staff can interact to share knowledge of how VT is used for assessment. For example, experienced staff could share efficient ways to create feedback.

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