THE VALUE OF VOICE THREAD IN ONLINE LEARNING
Faculty Perceptions of Usefulness

Alexandra Salas
Walden University and Mercer County Community College

Leslie Moller
Walden University

Given the rise of online education with the widespread use of learning management systems and instructional technology and apps, vetting the most suitable e-learning tools can be a daunting process. This case study examined faculty perceived usefulness of Voice Thread, a cloud-based multimedia application that expedites content development, commenting and sharing. The technology acceptance model and Mayer's cognitive theory of multimedia learning form the theoretical base for the research. This case study explored: (a) what are faculty's perceived usefulness of voice authoring tools such as Voice Thread?; (b) what are faculty's perceived ease-of-use regarding Voice Thread?; and (c) why would faculty plan to use Voice Thread. Findings revealed that faculty want to provide students with engaging learning experiences, and they realize that voice and video tools can bridge the gap present in text-dominant online courses.

INTRODUCTION

Current research describes the impact in academia of voice authoring tools that combine text, video, and images, such as Voice Thread (VT), and potentially support collaboration, social presence, learning engagement, but it does not examine faculty perceived usefulness toward specific tools like VT in the classroom. However, research examined does recognize how attitudes toward a technology can make or break the decision to adopt it (Birch & Burnett, 2009). In an exploratory case study at the University of Southern Queensland, Birch and Burnett (2009) found "negative attitudes toward change and technology, particularly understanding of how technology can be used to improve learning outcomes, appears to heavily influence academics' predisposition to develop or engage with e-learning" (p. 125). Consequently, faculty opinions should not be underestimated in technology acceptance discussions.

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• **Alexandra Salas**, Walden University and Mercer County Community College. E-mail: edutechtalks@gmail.com

The Quarterly Review of Distance Education, Volume 16(1), 2015, pp. 11–24 ISSN 1528-3518

instructional apps, vetting the most suitable e-learning tools can be a daunting process. This case study examined faculty perceived usefulness of, a cloud-based multimedia application, which expedites content development, commenting, and sharing. By collecting impressions about this tool, the case study provided a closer analysis of how faculty may value VT's impact on classroom engagement and learning. This information is of consequence as it can reveal if faculty value the tool and would consider its classroom integration.

If academic institutions are considering integration of education technology innovations, faculty input is a relevant factor that could influence the overall decision, as well as the degree of implementation preparation and training. By including faculty input, resistance could reduced, "by choosing a change approach that allows for cooperation and involvement of relevant stakeholder" (Boonstra, 2004, p. 466).

CONCEPTUAL FRAMEWORK

The technology acceptance model (TAM) and Mayer's cognitive theory of multimedia learning theory, provided the theoretical framework for this study. TAM contemplates perceived usefulness toward a given innovation. While there are limitations to the theory in identifying specific reasons behind perceived ease of use variables, Chuttur (2009) noted that it has been instrumental in predicting technology adoption behavior. As Porter and Donthu (2006) noted, "According to the TAM, perceived usefulness and perceived ease of use are beliefs that are presumed to (1) influence attitudes toward new technology and (2) mediate the relationship between external variables and attitude" (p. 1000).

Mayer's cognitive theory of multimedia learning identifies that many learners are audiovisual learners and that is accomplished complemented by words and images (Mayer, n.d.). One can use Mayer's cognitive theory of multimedia learning to support the use VT that can facilitate this type of instructional presentation and learning. Mayer's (2009) discussion of the qualitative rationale toward multimedia explains the notion that "two channels are not equivalent; words are more useful in presenting certain kinds of materials … whereas pictures are more useful for presenting other kinds" (p. 7). This concept undergirds his theory that "understanding occurs when learners are able to build meaningful connections between pictorial and verbal presentation" (Mayer, 2009, p. 7). These theories provide a theoretical lens through which the study results concerning faculty perceived usefulness toward VT will be explained.

Venkatesh, Morris, Davis, and Davis (2003) conducted "longitudinal field studies at four organizations" to examine user experience and perceived usefulness with new technology to validate the advancement of cumulative unified theory of acceptance and use of technology (UTAUT) that is inclusive of several theoretical constructions used to examine the reasons behind user acceptance. Venkatesh et al. "sampled for heterogeneity across technologies, organizations, industries, business functions, and nature of use (voluntary vs. mandatory)" (p. 437). While factors like age and gender have an affect on perception, the authors submitted that unified theory of acceptance and use of technology embodies a range of models such as TAM, the motivation model, innovation diffusion theory and social cognitive theory and it is an appropriate determinant of perspectives influence behavioral intention or user acceptance.

> While each of the existing models in the domain is quite successful in predicting technology usage behavior, it is only when one considers the complex range of potential moderating influences that a more complete picture of the dynamic nature of individual perceptions about technology begins to emerge. (p. 470)

Scholarly research continues to recognize the merits of faculty perceived usefulness. Schulte (2010) noted that

> there was a need for additional research designed to understand faculty use and perceptions of online education technology. Such research for faculty would be greatly beneficial to distance education students, administrators, technology experts, and distance education as a whole. (p. 4)

In Taiwan, teacher attitudes, organizational innovation climate coupled with ease of use were factors discussed in a study of 335 technological and vocational school teachers. Using structural equation modeling to identify causal relationships between several variables, Chou, Hsiao, Shen, and Chen (2010) analyzed data from "a 43-item survey questionnaire to measure participants' self-efficacy, uses of technology, and demographic information" (p. 39). The findings indicated that teacher attitudes influence computer competence and technology use or acceptance: "teachers' perceived innovative culture and job autonomy will enhance teachers' new ideas, evaluations, and implementation of e-teaching" (Chou et al., 2010, p. 42). Consequently the authors suggested that "measures to enhance technological and vocational school teachers' continuous use of e-teaching are as follows: allow teachers to perceive the importance and growing trends in e-learning through teacher studies and job promotions" (Chou et a., 2010, p.44). This is useful in that it can help organizations make more appropriate e-tool selections as well as classroom integration recommendation and policy changes.

As institutions vet technologies in light of expanding massive open online courses and online programs, researchers emphasize how faculty input is a determinant of technology integration and success. Faculty input and support concerning technology integration are issues Nicolle and Lou (2008) examined in a mixed-methods study at a Research I university, where 129 faculty members participated. Faculty attitudes toward information technology and stages of adoption of technology survey instruments were used. The researchers noted the negative effects of excluding the input of would-be mainstream users of a technology. "The eventual result is that without the information inputs and other assistance from the change agents, the later adopters are even less likely to adopt" (Nicolle & Lou, 2008, p. 237). Nicolle and Lou (2008) reiterated the importance of exchanges between change agents and potential users: "communities of practice are where individuals develop, negotiate, and share the practical, the theoretical, ideals, reality, talking, and doing" (p. 237). Consequently, communication and consideration of perceived usefulness are invaluable to discussions and decisions about innovation adoption.

Personal technology use, fear of failure, as well as convenience, also have an impact on how much or little it is used in the classroom. In a study examining the impact of faculty rank on technology adoption, Ho Yu, Brewer, Jannasch-Pennell, and DiGangi (2010) concurred with other researchers' findings that point to perception and concerns as having impact on the adoption process. Data from 1,846 faculty was collected in 2007; the online survey employed consisted of "211 closed-ended and 11 open-ended items" (p. 136) "Without faculty support and interest in using new technologies, investments in the new tools may not lead to anticipated teaching practices and learning outcomes" (Ho Yu et al., 2010, p. 132). Using the concern based adoption model, the authors concluded that faculty perspectives should be considered to maximize the adoption (p. 133) as adoption, like change, is a process that happens over time. Using a diamond plot, "treated as a visual equivalence to a *t* test or ANOVA" (Ho Yu et al., 2010, p. 136) to identify patterns, the authors found that there is a relationship between employment rank or tenure and technology interest; nontenure and part-time faculty tend to be more interested in technology adoption. However, extended interviews with participants noted that not all faculty groups expressed "a high degree of interest," confirming the researchers' hypothesis that technology "adoption follows a path from awareness to passive consumption and … that the initial promotion

of technology use should not emphasize the production component, especially if the faculty support is lacking" (Ho Yu et al., 2010, p. 140).

Another theme examined concerns the proposed technology's purposefulness and ease of use. In other words, faculty need to consider the tool's utility in comparison to existing tools, as well as be prepared and willing to participate in training. "Faculty need to see the perceived ease of use and the perceived usefulness of ICT tools in their teaching practices" (Keengwe, Kidd, & Kyei-Blankson, 2009, p. 24). The authors examined 25 narratives (in a qualitative narrative study) at a "large mid-southern public university" and highlighted several predominant themes: "organizational support, leadership, training and development, and resources" (Keengwe et al., 2009, p. 25). As this case study explored, Keengwe et al. (2009) believed "data collected … could help university administration understand the multiple forms of resistance, hindrances, and influences that faculty encounter as part of their daily efforts in adopting and using ICT to support quality teaching" (Keengwe et al., 2009, p. 25). This information can help stakeholders develop a better sense of user needs and desires that impact education technology considerations.

Burden and Atkinson (2008) discussed the pedagogical value of VT in an ongoing study of an online pilot project for the Joint Information Service Committee in the United Kingdom. Diverse learning styles and student needs represent ongoing academic challenges that e-tools like VT can help address. Atkinson and Burden (2008) used the digital artifacts for learner Engagement framework: DiAL-e framework "to chart the affordances and uses which educators might find valuable" (p. 121), which underscores the value of user perception. The authors have found that

> the affordances of a specific technology … do not stand alone from other considerations such as the social and cultural settings in which the learning is situated. Our initial experiences with VoiceThread and other similar Web 2.0 applications strongly underline the importance of sound planning, imagination and creativity on the part of the tutor in designing meaningful learning experiences with these technologies. (Atkinson & Burden, 2008, p. 124)

VT offers students and faculty with multimedia options they can use commensurate with the learning objectives. To reinforce learning with written activity, VT, for example, is recommended given its text component that allows individuals to use text to support the visual and recorded elements. Heinrich, Milne, and Moore (2009) concluded that e-tools should be considered by faculty to create "formative assessment" by completing an extensive literature review of e-learning tools from 2001–2006 and conducting interviews with 90 instructors. Overall, the authors affirmed the importance of user involvement in e-tool choice so that use is purposeful and aligns with the assignment. For written-based tasks, e-tools can also be instrumental to "provide meaningful feedback, enabling student learning. The literature paints a clear picture of the importance of essay-type student work and the value of formative feedback for supporting learning" (Heinrich et al., 2009, p. 186).

METHODOLOGY

Using a case study approach consisting of a prefocus group questionnaire, a focus group, and follow-up interviews, this research method provided an examination of faculty perceived usefulness of an instructional technology, VT. The purposes of the study were to learn:

1. What are faculty's perceived usefulness of voice authoring tools such as VT?;
2. What are faculty's perceived ease of use toward VT?;
3. What aspects of their classrooms could feature this tool?;
4. Why would faculty plan to use VT?; and
5. How can VT be effectively used in classroom activities?

By examining faculty perceived usefulness and how faculty would integrate the application in their respective pedagogical practices, the research could expound how teachers feel VT could impact learning, classroom engagement, and assessment. Moreover, it could illustrate the importance of considering potential user feedback in education technology adoption decisions.

This qualitative study comprised the following steps: a prefocus group online questionnaire, a focus group, and follow-up individual interviews that utilized the same questions used during the focus group. The goal was to conduct a collective case study of faculty participants to examine faculty perceived usefulness toward voice-authoring tools in the online classroom. The research population consisted of faculty from one community college. Participants were accepted on a first-come first-serve basis given that the computer labs seat up to 20 people.

The limitations of the study concern its size and the knowledge of some of the participants about VT. Without the participation of a larger pool, the results mirror only a sliver of faculty perceptions and broad representative statements about faculty perceived usefulness could not be said to be reflective. Nevertheless, the number of participants were ideal for conducting case study research and provided an opportunity for participants to share their opinions about VT's usefulness.

EduTechTalk Online is the distance learning arm of EduTechTalk Community College. Online faculty comprise of full-time and adjunct instructors, all of whom have completed a 3-week online training certification course hosted on the college's learning management system featuring variety of online tools. VoiceThread is not part of its training.

An e-mail confirming the 10 participants was sent containing the link to the prefocus group questionnaire, and consent form outlining the purpose of the study, the methodology and the researcher and the participants' roles. With in a week of receiving consent forms, the focus group date was set and an e-mail announcement was sent including the date, time, and focus group location. In order to record audio and chat comments, the researcher and participants joined the session through Adobe Connect to have a record of all exchanges.

HyperResearch software was used because it can handle various data points—the online questionnaire responses, researcher notes, and recorded interviews. HyperResearch is a user-friendly tool that enables the researcher to organize a variety of data, for example, recorded and transcribed interactions, and questionnaire data, in one location.

Demographics

Ten faculty participated in the study. Nine of the participants were female and one was male. Five of the participants were full time faculty and five were adjuncts. Four individuals—three adjuncts and one full-time faculty—participated during the initial focus group date on October 23. All were female. On the alternate focus group date, on October 29, five individuals participated. Among them were two full-time faculty and three adjuncts. One member was male and four were female. One full-time faculty member who could not attend on the alternate date due to a scheduling conflict asked to contribute during the follow-up question phase. Based on the prefocus group questionnaire it was learned that all participants recognized multimedia tools and their possible use in the classroom, but had limited experiences with multimedia integration, with the exception of 3 participants, who described regular use of videos, recorded lectures, presentations, and online discussion forums. No questions were asked about prior training or specific technology training. Three participants shared during the focus group that they were already users of VT. One of the three participants was an active user of VT; a second participant used it as a course introduction announcement, and a third participant employed VT in a student discussion assignment.

Data Collection Tools

The first data collection tool used was the online prefocus group questionnaire (Appendix A) that participants could complete at a time of their choosing without the need to schedule an appointment.

The first open-ended question in the prefocus group questionnaire was what is your position on the use of multimedia tools in the classroom? In response to the question, keywords and phrases used to express positive perceptions were: essential, interactive, forged stronger relationships, enhance, enrich, invaluable. One respondent commented:

> I think multimedia tools are essential for hybrid courses and fully online courses because they enable the course to be interactive and for the instructor to have a presence in the course. I think these tools help forge a stronger relationship between the instructor and the students, and that increases student achievement. For face-to-face courses, I think multimedia tools (in addition to enhancing the classroom experience) also strengthen the relationship between the instructor and the students. The multimedia tools take the focus away from the instructor and allow the students and the instructor to interact in a more natural way. I think the instructor may then act as more of a facilitator of a discussion rather than the focal point of the lesson.

Overall comments from the prefocus group questionnaire framed the use and importance of multimedia as the new normal in classrooms. One respondent noted that multimedia offers faculty teaching alternatives: "It is another avenue to reach each student. This can be closer to the kinesics learning mode." A second comment on the prefocus group questionnaire about multimedia's impact on learning that also transpired throughout the focus group exchange was: "I feel that multimedia is another tool for classroom instructor that can supplement our courses. It is great for students to replay instructor's material and reviews."

Lastly, another comment contributed to the prefocus group questionnaire equally resonated with the tenor of the focus group that discussed in the second stage analysis about the omnipresent role of technology and the benefit for faculty to experiment with these tools: "I don't think multimedia is even optional any more—we have to use it to connect with students' worlds. All our students, including the nontraditional ones, interact with many kinds of media on a regular basis."

Other themes raised on the prefocus group questionnaire was sensitivity to learning styles and retention strategies. "I believe that they [multimedia tools] enhance teaching and thus student retention and learning. Students have many different ways of learning. Hearing a lecture can be boring for some students. If multimedia tools are used it could keep the students' attention." Similarly, another statement reflected on the questionnaire echoed this idea about how multimedia tools can be used to develop more instruction-conducive presentations: "Gives a greater understanding of 'text'—that narrative can be delivered in sound and in pictures. Gives yet another cultural object with which students can use for critical thinking and writing."

The invitation to comment on the effect of multimedia tools in the classroom also reflected ideas about their role in retention; one response posited how the use of multimedia can contribute to information reinforcement and a reassuring learning environment.

> The incorporation of multimedia tools within the learning environment enhances both student performance and teaching practices. To this end, the learning environment and teaching practices work in tandem. At a minimum, the desired outcomes are to reinforce students' learning and retention of information; promote student cooperation, shared learning and effective thinking; build and further enhance students' skills acquisition in content areas and technology; afford teachers an opportunity to better engage and motivate students to assume a greater role in their learning; and provide teachers with an addi-

> tional venue to address student learning modalities.

A discrepant voice about the use of multimedia shared how technology knowledge is not broad based. "I want to use them more frequently, but oftentimes the disparities in student comfort levels with technologies makes its use a time waster."

On the subject of interest in technology integration, comments were positive. Words or phrases reflective of this mindset toward technology integration include: enthusiastic, willing, interested and in need of training. One responded remarked: "I am quite enthusiastic about the prospect of acquiring greater knowledge and skills in the application/integration of multimedia tools in the classroom."

Key findings from the focus group were that participants found VT to be useful, intuitive, and engaging. Ease of use also received critical mention as it relates to potential for faculty adoption and application in classroom interactions.

Examination of responses to each research question served as the framework to identify themes such as: learning curve, course personalization, and provide student support. Some of the responses that resonate from the data include personalization, customization, multidimensional, easy to use, practice opportunities, enhance, reservations, and improve communication. For example, participant (F2) commented about VT's indiscriminate intuitive capability:

> In my class I have had a 65-year-old woman and a 19-year-old boy and they were both able to use it, so it's not that these people are more tech savvy so it was intuitive—it seems to be intuitive in general … if you can get in to the VT then you can utilize all the different tools … no need to provide an introduction to VT. For me, I think it is fairly intuitive. It says click here and it tells you what to do. It's only a few minutes so there is not a lot of information that they have to follow. I might be assuming that it is more intuitive than it is, but again, I'm a tech idiot and it's not hard. If I was able to do it and create one too, i think it is not too hard.

There were several discrepant cases of participants who expressed reservations about using VT in the future, for reasons that centered on time, incompatibility with the course the instructor teaches, and the need to learn how to use the tool. One perspective, however, cautioned against using technology as a replacement for actual teaching. "Multimedia is helpful to enhance course content. Only the teacher can teach. Technology does not = [equal] good teaching: good teaching is only done by an experienced instructor working in contact with students. I think this is often misunderstood: in online environments, 'infotainment' gets confused with real teaching."

Overall, what was learned from the focus group is that faculty want to provide students with engaging learning experiences, and they realize that voice and video tools can bridge the gap present in text-dominant online courses. Participants agreed that VT provides a communication opportunity that can support and complement instruction interactions, although they made it clear how the application should always be purposeful, and the instructional-engagement payoff should be worth the while. In addition, participants noted the importance of assessing the time needed to create and integrate the tool and the possible training or learning curve that may be necessary as relevant criteria to adoption.

RESEARCH QUESTIONS EXAMINED

- Question 1: What are faculty's perceived usefulness of voice authoring tools such as VT?

While there were minor reservations about student access to recording tools such as a webcam or microphone, in general participants expressed how VT was an engaging alternative classroom and other types of communication interactions that offers opportunities to person-

alize, engage, advise, explain, elaborate, chunk, present, and practice.

One participant (F9) who uses VT for instructional purposes opted out of discussion forums in favor of VT. "It gives a human presence to something that would otherwise be inhuman … it does give that intimacy as much as one can in that synthetic environment and timeline, a human presence, but also students are able to put their voices. and you can hear other students so you don't feel like you are interfacing with a computer program. it is one attempt to bring a human aspect. I think to another wise sterile environment."

- Question 2: What are faculty's perceived ease of use toward VT?

Overall participants noted that VT appears to be easy to use. Participants concurred that the tools have a relatively shallow learning curve and how simple it is to create a voice thread. In addition, they were relieved about VT compatibility across devices and browsers.

While most participants agreed that VT is a straightforward, easy-to-use tool, one participant (F6) was concerned that for some students use of this tool could "add another layer of instruction." Unless VT is integrated into the institution's learning management system, students and faculty need to sign in every time they need to use it.

- Question 3: What aspects of their classrooms could feature this tool?

Participants shared various ideas about where they would integrate VT in their classrooms. Some suggestions included as an orientation module in lieu of the discussion forum or in addition to the discussion forum, or as an in-class or online class individual or group project such as a presentation.

- Question 4: Why would faculty plan to use VT?

Participants suggested how VT could help them model learning, chunk information, reinforce lectures and discussion, and even survey students. One participant (F5) submitted that VT supports her ideas of providing students with materials that can supplement their learning. "I'm toying with that possibility. Certainly in terms of explaining difficulty concepts, terminology, theories behind it. The arguments, tiers, scaffolding to help them understand how elements are connected."

- Question 5: How can VT be effectively used in classroom activities?

Participants who have used VT shared personal examples such as utilizing the tool as a course introduction (F2) and in place of the traditional discussion forum (F9). Another participant (F5) is considering VT for group projects: "it might allow students to work in teams." All participants agreed that VT would also be useful to help clarify course content for students.

> It gives instructors the opportunity to further elaborate, further clarify difficulty points, theoretical points … can anticipate that certain areas that students may have difficulty with, certain concepts so that you can anticipate that and give additional explanation, give additional input, facilitate an easier understanding of the difficulty material. (F5)

Discrepant Cases

Several of the participants cautioned tentatively about the possibility of using VT. One adjunct faculty member, F6, who already practiced with VT indicated how time consuming it can be particularly for her group of students who tend to need additional instruction. A second adjunct faculty member who has not used VT recognized the tool's appeal but hesitated that it would be effective for her course, (F1), which was more writing intensive than interactive. A third participant (F10) acknowledged the advantages of VT but underscored how the learning how to use it would be a factor for individuals not comfortable with technology. "I didn't like it because its going to have to take time … in the long run its very advanta-

geous but time is a factor. For me it would be a huge learning curve. I'm not as savvy with this kind of technology." Participant F7 had little experience with the tool, but shared her optimism: "I have not gotten into the details but on the surface in terms of accessing it and managing it, it appears to be fairly easy." A concern shared by Participant F7 that sparked additional discussion was the notion that students would view VT as a substitute for class attendance. "My fear, not having tried this, is that in their minds they will be like oh, this is so much better than high school—I don't even have to go class because she has this thing on the computer." To this participant F2 responded and others agreed that how the VR or any other tool is used makes the difference. Students should be prompted to engage and not just view or listen.

DISCUSSION OF FINDINGS

In all, despite faculty participants' level of experience with instructional technology or actual experience with VT, the participants shared their excitement toward the tool as well many of the same concerns about technology-based communication or assessments. All expressed an interest in the need for a "human element" in online courses, and responded positively to VT's recording capabilities that facilitate adding voice or video. In terms of usability, participants underlined how time limitations are a consideration in whether or not they adopt a tool. They referred to time in terms of how long it would take them to learn how to use the tool, and how much time they would need to invest in developing an interaction using VT. A minimal learning curve increased the usefulness factor and their ease of use perception about VT.

Participants repeatedly voiced their opinions about VT in terms of how it could be beneficial to the online teaching and learning process as well as classroom engagement and tasks, which builds on conclusions drawn by Deaney, Chapman, and Hennessy (2009), Persson, Fyrenius, and Bergdahl (2010), and Stoltenkamp and Mapuva (2010) that information and communication technologies (ICTs) can be beneficial to teaching and learning and through discussions about user experiences can academia arrive at suitable integration decisions. For example, Charbonneau-Gowdy and Cechova (2009) and Lorensen (2010) discussed in their research how multimedia technology that reinforces interaction can enrich language acquisition.

Minimal learning curve and ease of use were also presented as two critical factors by the participants, as this would potential shorten the amount of preparation time involved setting up and delivering content through this medium. Participant F7, who had not used VT, shared ideas about integrating VT in her classroom to provide students with additional support: "If I sense that a student is struggling it will give me a way that I can take a paragraph that I know is filled with words that may be troubling the student and I can rewrite that entire paragraph in a way that student can read it and understand it. And it will help build up the student's self-confidence. This will allow me to customize that for them." Participant comments support findings in Percival and Percival (2009), who found that users' ability to learn and adapt to technology impact future application.

Time invested in preparing the VT was more of a concern to the participants. In addition, how much preparation time is involved is a critical factor that academic administrations should consider as part of the instructional technology acquisition decision-making process. Participant (F2) noted:

> sometimes that's what it really it comes down to most of the time—how much time will it take me to introduce new activities [using a new instructional technology]. I don't have a lot of extra time to figure out how to do all these things. but if it's quick and easy, then I can do it.… It was easy to create. Anyone who has participated in my classroom has had an easy time adding their comments by text or by voice or by video. I've had all the

> different types of comments. Everyone seems to find it very easy. And as far as I know, it seems to be compatible with all their different types of technology. I haven't had anyone come back and tell me, "I was doing this on my iPhone and I couldn't get through," which I get sometimes with the LMS system used to deliver the course.

Specific themes identified in literature—faculty perceived usefulness of e-tools, faculty perceived purposeful technology, and ease of use—all resonated with the findings in this case study. An overarching connection that can be made between the themes is that participants expressed an interest in a tool that would add personalization and something more to their classrooms than already existed. Participant F6 noted: it's easy to lose them [online students], so I think that just for that … to make that personal stamp, it's worth it. and for that I would use it again."

In addition to organizational support, there would need to be a purposeful application of the tool that could be sustainable by the faculty and students. Therefore the tool, in this case VT, should be not complicated to learn. This mirrors research by Abuhamdieh and Sehwail (2007), who noted that ease of use and usefulness can impact user and acceptance. Consequently, the learning curve for classroom tools and innovations presented should be straightforward. Furthermore, in terms of technology access concerns, which all participants cited as always being an issue when new tools are being considered, participants liked how VT offered several ways to record that would provide flexibility to student users. While participant F3 noted, "I guess everybody in this day and age in the class would have some sort of speaker capability but I don't have to force it on them," participant F2 replied: "I tell them the computer lab here is really good so they do have access to it; there is no excuse for technology."

Participant F6, who supports the use of VT in the classroom, also echoed this notion of technology access and the learning curve:

> [sharing the tool with students so they could set up their accounts] that is one thing I struggled with. I had success with it, but it would have been easier [if the entire class would have had seamless access to VoiceThread through the course LMS without have to complete individual sign-ups.]

Participant F6 noted that once it starts being inconvenient for you and very time consuming, it reduces the instructional tool's usability factor. Participant F3 added that VT easily enables students to review content shared as needed. "I would say that's good usability, they can go back and instead of sending me e-mails questioning certain things, that to me is a plus. We went over it in the class and then they didn't pay attention … and that is a gap."

A concern among faculty participants is time necessary to devote to using technology. Participant F7 noted faculty's return on investment in terms of time: "if I did [a VT] for the fall semester, I wouldn't have to do it again for the spring, so semester to semester the investment in time is getting it started." Another participant (F9) noted the importance of knowing the technology before getting involved and sharing it with students as that can also detract from its purpose and from learning.

> I just had a rain of emails [from students who had a problem using VoiceThread], even though I have been using it since last January. This is true of all beyond, you code it wrong and you don't know you have made a problem for yourself until you have a rain of emails coming from your students telling you it doesn't work.

Participant F8 concurred: "I do like the idea of being able to use it in the class and it would be helpful to liven up the experience, to help with brainstorming. I especially like the idea of using it with foundation students although the reservation I have is their technical expertise." Similarly, Chen (2009) concluded that strategic use of "technology-mediated distance education" such as open source materials and tools have the potential to reduce faculty workloads,

which is a viable concern shared among faculty.

Subthemes that emerged were classroom engagement, possible tool application, learning curve, providing student support, and course personalization. To this end, participant F6 addressed how making connections is especially critical in online courses and with foundation students with whom it is essential to personalize and

> make your handprint … I feel that many of them get through the course because of their instructor. There is so much handholding and support … and you somehow have to be able to convey that online and I think that VoiceThread can just do something like that. If it helps you create moments and connections, that's what's important."

Participant F1, who was conservative about the introduction of any tool, added: "When you make that individual connection with students it is much more valuable. I just don't want it to be overly difficult for them, and it doesn't sound as though it is." This reflects the literature in that Nakagawa (2010) who also compared VT to similar tools touted this cloud-based option as a means for facilitating connection building, collaboration and communication in and outside of the classroom.

Participants also acknowledged learning styles and the need to be able to provide student support and materials as needed. Faculty participants highlighted the integration of voice as a key feature the contributed to classroom engagement. Voice added new options for faculty and student presentation of materials and deliverables as well as student support. Participant F6 noted,

> I thought, if I am going to do this, I want all voices. For me to just click on tiles and read type, it is quicker to just have a blog or a discussion board. that's not worth my time, but to hear their voices … it was triumphant what some of them came up with. so I thought for that, I don't mind putting the time in if it going to be worth it. and I thought it was worth it for them.

The potential to increase engagement was an important factor for participants. Participant F4 added: "with this tool you are having more interaction and more participation than in a discussion board, if it is easy and they have access, it makes sense."

In the same vein as Nicolle and Lou (2008) and Tanzman and Dunn (1971), who noted advantages, rewards, and comparison to other tools as relevant in order to make technology choices that are purposeful and accessible to instructors and learners, faculty participants compared VT to other familiar tools such as Powerpoint, Yodio, and YouTube. They deliberated about VT's potential as a purposeful technology option as well usability factor. Playing devil's advocate, participants discussed how other tools like Camtasia, Jing, Screencast, Screenr, Powerpoints with voice-overs, and the like could champion VT. However, they acknowledged that students may not have access to some of the tools mentioned that could produce multimedia-rich content. VT, on the other hand, can be equally accessible to both faculty and students, which can empower students with the same tool faculty are using.

The participants in this study who already used VT seemed committed to figuring out purposeful ways to expand its use in the classroom in an effort to positively affect student learning. Some suggestions included: to be used as a student presentation tool, group project presentations, to synthesize discussions, invite guest speakers, orientation modules, faculty lectures/discussions, course announcements, and individual dropbox assignments. Participant F3 submitted:

> when I do my orientation, it is the only time I get to know something about them. [By using a VoiceThread] they could put all that there and then I don't have to go back to my notes, so it helps me too. In addition, I can use VT to address issues related to quiz questions where students did not do well.

Participant F3 also touted how VT could enrich the classroom experience: "to me it is

enhancing something that I'm not capable doing now easily online. I like the idea of doing projects … we took projects out, but now I can put projects back in." Participant F7 explained VT would be useful as an orientation component, class introductions, and to expound on "points where the students are not fully getting the textbook readings, it's my opportunity to breakdown those textbook readings." Participant F2 agreed that VT facilitates the provision of supplement materials for students. "This is another way of them learning and reinforcing the info … not pretending that they are listening to the information, they are actually interacting with it." Inasmuch as participants noted the instructional value of this tool, future research could take a closer look at VT applications to identify how VT-related assignments and tasks affected learning outcomes.

All faculty participants, including faculty who were not experienced with VT, shared reservations about the tool, agreed that faculty exchanges to discuss and showcase the use of instructional technology were crucial to technology adoption decisions, and widely concurred about the benefits of faculty demonstrations. The idea of faculty demonstrations aligns with Brown et al.'s (2009) and Nicolle and Lou's (2008) findings about the invaluable role of communities of practice on perceived usefulness regarding technology use. Graham and Jones (2011) also agreed that positive experiences, faculty sharing, and discussions are critical to technology integration and adoption. Similarly, Birch and Burnett, (2009), and Harasim, Hilz, Teles, and Turoff (1995) submitted the benefits of faculty peer interactions in technology learning and acceptance.

Participant F4 shared the benefits of ongoing dialogue or sessions to learn more about peers' instructional technology uses: "we can show snippets of how we are using it in our online or real classrooms, you can start marketing it and say 'look at all the different ways that we are using it with these other faculty'" Participant F2 concurred: "I got some really great ideas from this focus group about how to use it and I'm already using it." While faculty make individual academic choices about education technology, participants agreed about the value of interdependent discussions that can inform organizational technology adoption decisions.

A tool that facilitates meeting student learning styles—auditory or visual, for example, was perceived positively by participants who noted how it can assist faculty in enhancing student learning, which also supports Mayer's (2009) multimedia learning theory that "understanding occurs when learners are able to build meaningful connections between pictorial and verbal presentation" (p. 7). Participant F10 submitted about VT: "for those students who have a problem with comprehension who are more visual it is a very good thing. It's repetitive in the learning process and in the comprehension process."

RECOMMENDATIONS

Recommendations for future research could include:

- A quantitative study to compare the affect of VT-related assignments on student learning outcomes. Grades of two groups could be compared: one group would have VT assignments and a second classroom would not.
- A case study to examine student perceptions about VT as a learning tool.

IMPLICATIONS

If academic institutions are considering integration of education technology innovations, faculty input is a relevant factor that could influence the overall decision, as well as the degree of implementation preparation and training. It is important to note that much of the scholarship evaluated for this study interchangeably employed the words perspectives, attitudes, opinions, perceptions, and perceived

usefulness in the classroom as discussed in the technology acceptance mode, which suggests how perception, including perceived usefulness and ease-of-use of a given innovation affects user intention to engage (Porter & Donthu, 2006, p. 1000). By including faculty input, resistance could be reduced, "by choosing a change approach that allows for cooperation and involvement of relevant stakeholder. Interventions to support this change strategy are survey feedback, conference methods, process management, and third-party interventions" (Boonstra, 2004, p. 466).

REFERENCES

Abuhamdieh, A., & Sehwail, L. (2007). A comparative study of campus portal user acceptance: Student and faculty perspectives. *Journal of STEM Education, Innovations, and Research, 8*(3&4), 1–10.

Birch, D., & Burnett, B. (2009). Bringing academics on board: Encouraging institution-wide diffusion of e-learning environments. *Australasian Journal of Educational Technology*, *25*(1), 117–134.

Boonstra, J. (2004). *Dynamics of organizational change and learning*. Hoboken, NJ: Wiley.

Brown, A., Brown, C., Fine, B., Luterbach, K., Sugar, W., & Vinciguerra, D. C. (2009). Instructional uses of podcasting in online learning environments: A cooperative inquiry study. *Journal of Educational Technology Systems*, *37*(4), 351–371.

Burden, K., & Atkinson, S. (2008). Evaluating pedagogical "affordances" of media sharing Web 2.0 technologies: A case study. In *Hello! Where are you in the landscape of educational technology? Proceedings of ascilite Melbourne 2008*. Retrieved from http://www.ascilite.org.au/conferences/melbourne08/procs/burden-2.pdf

Charbonneau-Gowdy, P., & Cechova, I. (2009). Moving from analogue to high definition e-tools to support empowering social learning approaches. *Electronic Journal of E-Learning*, *7*(3), 225–237.

Chen, B. (2009). Barriers to adoption of technology-mediated distance education in higher-education institutions. *Quarterly Review of Distance Education*, *10*(4), 333–338.

Chou, C., Hsiao, H., Shen, C., & Chen, S. (2010). Analysis of factors in technological and vocational school teachers' perceived organizational innovative climate and continuous use of e-teaching: Using computer self-efficacy as an intervening variable. *Turkish Online Journal of Educational Technology - TOJET*, *9*(4), 35–48.

Chuttur M.Y. (2009). Overview of the technology acceptance model: Origins, developments and future directions, Indiana University. *Sprouts: Working Papers on Information Systems, 9*(37). Retrieved from http://sprouts.aisnet.org/9-37

Deaney, R., Chapman, A., & Hennessy, S. (2009). A case-study of one teacher's use of an interactive whiteboard system to support knowledge co-construction in the history classroom. *Curriculum Journal*, *20*(4), 365–387. doi:10.1080/09585170903424898

Graham, C. M., & Jones, N. (2011). Cognitive dissonance theory and distance education: Faculty perceptions on the efficacy of and resistance to distance education. *International Journal of Business, Humanities, and Technology, 1*(2) 212–227.

Harasim, L., Hiltz, S., Teles, L., & Turoff, M. (1995). *Learning networks: A field guide to teaching and learning online*. Cambridge, MA: MIT Press.

Heinrich, E., Milne, J., & Moore, M. (2009). An investigation into e-tool use for formative assignment assessment: Status and recommendations. *Journal of Educational Technology & Society*, *12*(4), 176–192.

Ho Yu, C., Brewer, L, Jannasch-Pennell, A., DiGangi, S. (2010). Adopting Web 2.0 for instruction: The effects of faculty rank and employment status. *Journal of Technology Integration in the Classroom, 2*(2), 131–143.

Keengwe, J., Kidd, T., & Kyei-Blankson, L. (2009). Faculty and technology: Implications for faculty training and technology leadership. *Journal of Science Education & Technology*, *18*(1), 23–28. doi:10.1007/s10956-008-9126-2

Lorensen, T. (2010). Online assignments: Free web 2.0 tools in German language classes. *Die Unterrichtspraxis, 43*(2), 194–204, 206.

Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge, MA: Cambridge University Press.

Nakagawa, A. S. (2010, April). *Using Voice-thread for professional development: Probeware training for science teachers.* Presentation at the 15th annual Technology, Colleges, and Community Worldwide Online Conference.

Nicolle, P. S., & Lou, Y. (2008). Technology adoption into teaching and learning by mainstream university faculty: A mixed methodology study revealing the "how, when, why, and why not." *Journal of Educational Computing Research*, *39*(3), 235–265. doi:10.2190/EC.39.3.c

Percival, J., & Percival, N. (2009). A case of a laptop learning campus: How do technology choices affect perceptions? *ALT-J: Research in Learning Technology*, *17*(3), 173–186.

Persson, A., Fyrenius, A., & Bergdahl, B. (2010). Perspectives on using multimedia scenarios in a PBL medical curriculum. *Medical Teacher*, *32*(9), 766–772. doi:10.3109/01421591003688381

Porter, C. E., & Donthu, N. (2006). Using the technology acceptance model to explain how user attitudes determine Internet usage: The role of perceived access barriers and demographics. *Journal of Business Research, 59*(9), 999–1007.

Schulte, M. (2010). Faculty perceptions of technology distance education transactions: Qualitative outcomes to inform teaching practices. *Journal of Educators Online*, *7*(2).

Stoltenkamp, J., & Mapuva, J. (2010). E-tools and the globalised world of learning and communication. *Contemporary Educational Technology*, *1*(3), 208–220.

Tanzman, J. & Dunn, K. J. (1971). Using instructional media effectively. West Nyack, NY, Parker.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3).