Digital Curation and Mobile Technology in Teacher Education

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Abstract

Technological Pedagogical Content Knowledge (TPACK) is presented by Mishra and Koehler [1] as a form of complex, situated knowledge that is a prerequisite to seamless and successful technology integration into educational spaces. This form of knowledge is believed necessary for technology use to transform classrooms into vibrant, collaborative spaces that build 21st century skills – a transformation that has been elusive in K - 16 spaces. Preservice education programs are poised to develop this type of knowledge in future teachers to contribute to the development of educators that can cta s change agents. This study evaluated course experiences on preservice educators' level of TPACK. These experiences included digital curation and generation of original content using Web 2.0 tools and mobile technology. Results indicated nuanced considerations related to planning, aligning technology with learning objectives, creation of a digital space to extend the community of practice, shifting power dynamics in higher education spaces, and unexpected situational dilemmas associated with digial citizenship. Qualitative results highlight specific strategies, benefits, challenges, and perceived impact of using Web 2.0 platforms to actively construct and represent knowledge.

1. Introduction

There is evidence that the ubiquitous nature of technology in almost every realm of our society has not yet translated into seamless and pervasive technology integration in K-12 learning spaces [1, 2, 3, 4]. Even when teachers use technology in the classroom, they largely report uses that are indicative of traditional teacher-led activities – or "low level" purposes [5] - rather than learning activities that capitalize on the affordances of digital tools to alter the way students engage with others and construct knowledge. Depending upon the use of the wide array of tools afforded by innovation, integration into learning spaces could empower teachers to address the needs of individual learners [6], allow for flexible and engaging presentation of content [7],and transform teacher-directed learning into student-centered facilitation [8]. There appears to be some consensus in the literature that preservice education experiences are one way to bolster educators' capacity to use technology as a tool for transform classrooms into vibrant, collaborative learning spaces that prepare K-12 students for the 21st century workforce [9, 10, 11, 12].

2. Theoretical Framework

Mishra and Koehler [1] provide a useful conceptual framework that encourages preservice teacher educators to consider course design that facilitates and supports the acquistion of Technological Pedagogical Content Knowledge (TPACK). The cornerstone of the TPACK framework (Figure 1) is "the understanding that teaching is a highly complex activity that draws on many kinds of knowledge" (p. 1020). The authors conceptualize necessary teacher knowledge as a combination of three areas of knowledge: technology knowledge, pedagogical knowledge, and content knowledge. The authors describe the knowledge of content, knowledge of pedagogy, and knowledge of technology as "central for developing good teaching (p. 1025). This model of knowledge was used to design course experiences and also to assess preservice teachers' understanding of how to wield technological tools to facilitate learning.

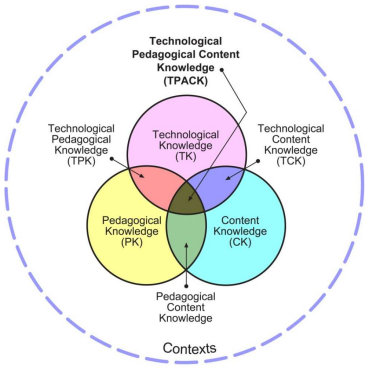

Figure 1. TPACK Framework. TPACK = Technological Pedagogical Content Knowledge. Adapted from www.tpack.org, 2010.

3. Course design

Participants included 28 college students enrolled in the dual certification program in Early Childhood/Special Education at a small, private college in the northeast United States. Students were enrolled in a series of five Special Education content courses all taught by the researcher. In designing the course experiences, priority was given to modeling of digital technology across courses that was aligned with the learning objectives rather than teaching discrete technology skills. The focus of this paper is the advantages and challenges associated with two aspects of the courses: digital curation using Storify and backchanneling using Twitter.

A backchannel is the practice of using mobile devices to comment and converse alongside the primary presentation. The courses used Twitter as the platform for the conversation. Hashtags enabled all comments to be tracked in the Twitter feed and the backchannel feed was projected separately from the presentation material that supported the content for the day. Participants could post to the feed using mobile devices. Students could ask questions, make comments, or share resources.

Storify was incorporated into course experiences as a platform for students to construct a digital story that showcased and disseminated their learning over the course of the semester. Storify is a free, Web 2.0 tool that allows users to craft digital stories using media from the web and original content to create a coherent narrative. The students were challenged to create a digital story that incorporated several elements. These elements included personal responses to resources, course content, and participation in cultural events; snapshots of their participation in conversations about education in various social and digital media outlets; and a variety of resources on topics pertinent to education and the course content.

4. Effectiveness of course design

4.1 Benefits of Digital Storytelling and Backchannel

The Storify assignment realized several benefits. It allowed students to create a digital story that supported a variety of media and curation of web content in one platform. Resources collected from around the web could be interspersed with user created content including reflections, responses, and commentary. Students could also capture their participation in social media as they ventured into active in ongoing, dynamic dialogue about education and students with special needs in a variety of online spaces including blogs, Twitter chats, and Ning communities of practice.

The Storify project encouraged preservice teachers to explore the wealth of information that is available to them, to critically evaluate sources, and to begin to establish a PLN. One participant noted, "… doing this research has helped me hone my own teaching style and beliefs. I know that I can continue to use Storify to share my thoughts with other teachers, as well as develop as a professional. It's a lifelong tool!" Another student ended her digital story with the provocative statement, "THE END. (Though not the end of me using technology like this...just the end of my first experimental story). Through this massive story I have created this semester I have learned so much from people that I will most likely never meet! It is amazing the connections you can find with people halfway across the globe."

This project proved a potent method to disrupt the traditional, professor-led learning activites for students to craft their own learning experience and to build on their knowledge. The assignment incorporated flexibility and enabled students to craft their own learning experience in one aspect of the course. As one student stated, “With no parameters for choosing articles and forums, I was free to learn exactly what I wanted. That is such a powerful concept for college-level classes. As a result of this project, I understand certain topics more than others, so I know where to continue my research.”

Using Twitter as a platform for a backchannel effectively repositioned students during face-to-face class time. The backchannel made their experience participatory and allowed free commentary that was essentially unregulated by the professor. The course designer was no longer soley determining the topic or context of the conversation alone but was influenced by the will and interest of the group.

Many of the course participants were not Twitter users when the tool was introduced, but have continued to use the microblogging platform for social and learning pursuits. The continued use is promising given the wealth of resources and networks that are readily available among a variety of active communities of practice. The very nature of the work place in general and education specifically requires a penchant for lifelong learning using ever-evolving, participatory spaces.

The ability of students to contribute commentary during class meetings added a certain amount of levity and playfulness to the classroom milieu. While this addition could be interpreted as a distraction from the serious task of content acquision, there is also literature to support that play is a ‘habit of mind’ [13] that can further the learning process rather than detract from it. The shifting dynamic from a more traditional model to a space that is truly co-created – for better or worse – can be disconcerting.

4.2 Challenges

During course design, extensive guidelines for Storify project had not been drafted. It was envisioned more as a creative process led by the individual student, but it became apparent the first few weeks of the course that the students required more guidance than had originally been intended. In response to the constant barrage of questions, a rubric was designed that attempted to strike a careful balance between flexibility and structure. Even with the addition of the rubric, some students expressed feeling overwhelmed by the task of using a new tool and unfamiliar platform to accomplish the requirements.One student stated, “I have to admit, like many other students in our class, I was a little overwhelmed by this Storify project. The number of articles and multiple website features made the project seem intimidating.” This student went on to reveal, “However, I have found that using Storify is actually pretty helpful and it's easier to maneuver now that I've spent more time using it.”

Other students felt that the requirements were too ambitious. For example, one student commented, “I feel like this project might have been more enriching if there was less articles required. I sometimes found myself storifying articles just for the sake of meeting the requirement.” Future use of the assignment will have to take into account that the research has largely refuted the idea that young adults always exhibit behaviors that are indicative of “digital natives” [14] and many college students are not “agile adopters” (p 162) [15]. Thus, the assignment was ‘packed’ with learning a new tool, critically evaluating digital information sources, actively connecting materials to new course content, participating in online spaces populated by professionals, and representing all elements in a cohesive and coherent fashion.

An unexpected challenge that arose was an eposide of inappropriate comments posted to course participant Twitter feeds that were not hashtagged and thus visible on the backchannel display, but were viewable to other students that followed the users. A course module on digital ethics was incorporated in response to the incident and future courses using social media will include a module on cyber bullying, professionalism, and appropriate use.

A more expected difficulty was the lack of institutional capacity to support flexible use of digital tools in the college classroom. Equipment included only one projector, so backchanneling required an additional media cart. Mobile devices also did not consistently connect to the wireless network and multimedia presentations invariable required extensive problem solving to successfully incorporate. In short, it was very time consuming to have two functional and connected displays in addition to connected mobile devices in outdated classrooms.

5. Conclusion

Effectively integrating technology across content courses in preservice education programs is an essential to adequately prepare educators to capitalize on the affordances of technology in the K-12

classroom. This potential will only be realized when teachers have a robust TPACK that allows them to use digital tools to craft participatory and collaborative spaces.

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