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Pre-Service Teachers' Perceptions of Technology Integration in the K-12 Classroom

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Pre-Service Teachers' Perceptions of Technology Integration in the K-12 Classroom

The purpose of this study was to explore what pre-service teachers knew and believed about using digital technology in their K-12 teaching practice. All 69 participants were students in one of four sections of a *Digital Technology and Social Media Applications* course at the University of Windsor during the 2017-18 academic year. During the course, participants had completed five 90-second video responses using Flipgrid (www.flipgrid.com), a video discussion platform, addressing various topics and practices related to using digital technologies in the classroom. The 343 videos included in the analysis totaled 7 hours, 37 minutes and transcription resulted in nearly 68 000 words. The transcribed videos were coded through an inductive process which resulted in a number of key themes and ideas. The results below are broken down by video topic.

Theoretical Understandings

Participants were asked to describe and provide examples to illustrate key theoretical concepts related to using digital technology in the classroom. Two videos were submitted by each participant, one related Mishra & Koehler's (2006) *Technological Pedagogical Content Knowledge* (TPACK) framework, and the other to Puentedura's (2013) *Substitution Augmentation Modification Redefinition* (SAMR) model. The Majority of students provided accurate descriptions of these theories, however, various abilities to apply these theories emerged. Many participants provided examples which were too general and not connected to specific teaching methods or content. Interestingly, participants from the second-year (junior-intermediate division) section of the course provided far more detail and were able to apply the theories to specific content areas. From this result, it is possible that a lack of practicum teaching experiences might explain the lack of specific examples provided by participants.

(Digital) Concept Mapping as a Pedagogical Strategy

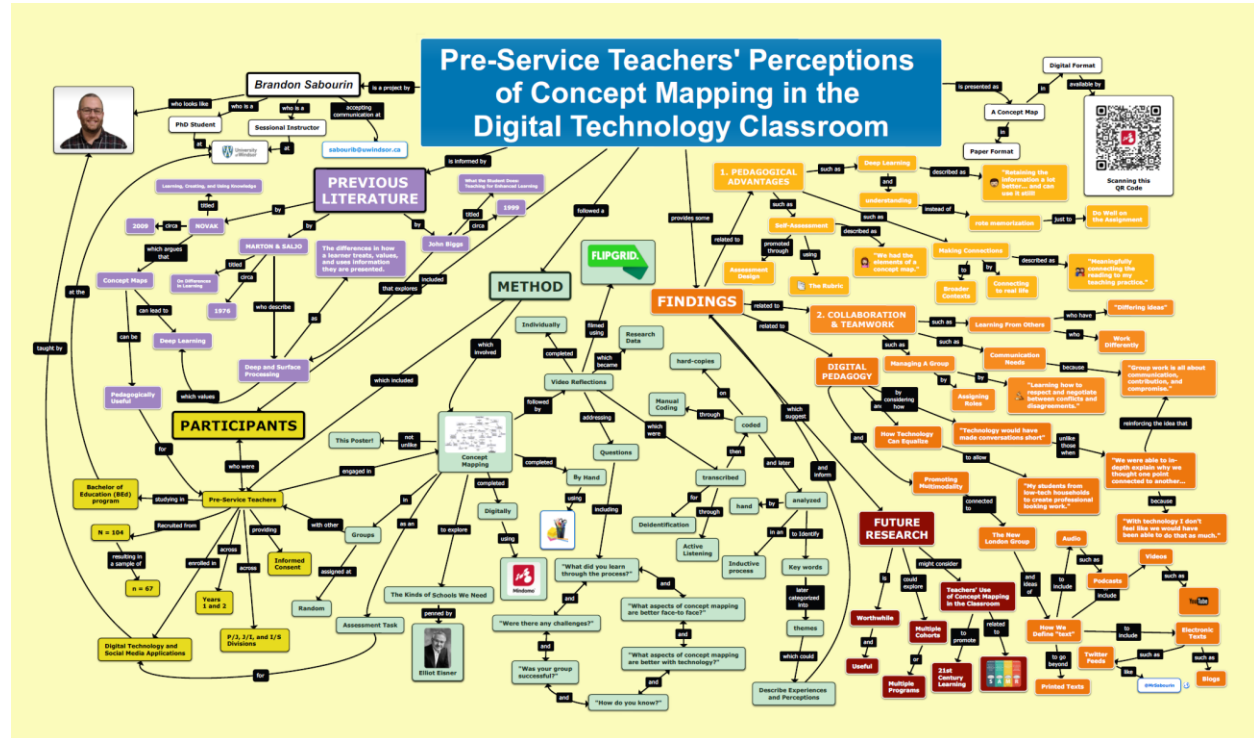
Participants reflected on their experiences creating concept maps in groups during two in-class assessment periods. Participants had the opportunity to complete both digital concept maps using Mindomo (www.mindomo.com) as well as using physical resources (i.e., chart paper, pens, markers, sticky notes, glue, scissors, etc.). Overall, the participants affirmed that concept mapping allowed them to consider content and ideas in a more conceptually-deep way and draw links between theory and practice. Participants appreciated the opportunity to complete concept maps in both modes, and a majority noted a preference for the digital format. Further results included connections to various pedagogical advantages (i.e., deep learning, understanding vs. memorization, and self-assessment), collaboration and teamwork (i.e., collective learning, communication needs, and group work dynamics), and digital pedagogy (i.e., conversations online and multimodal representations of knowledge). A number of participants identified that they had used some form of concept mapping in their teaching practicum as a result of exposure to the practice in this course.

Explaining Technology Use to Parents of Students

The final video topic asked participants to address the fictional parent of a student in their K-12 class who is apprehensive about the use of technology in the classroom. A capstone response of sorts, participants were not prompted to provide any specific information in their justification of their use of technology. The dominant notion was that the participants felt as though using digital technology allowed them to prepare their students for life in the 21st century, where technology use is becoming increasingly ubiquitous. The majority of participants provided specific examples to teaching practices they would use, and some supported their practices by citing theories such as TPACK and SAMR.

Publication of Results

The following poster was presented in March 2019 at the Graduate Education Research Conference at the University of Windsor. Further publications are currently in review.



References

- Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A framework for teacher knowledge. *Teacher's College Record*, 108(6), 1017–1054. <https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Pudentadura, R. R. (2013). *SAMR: Moving from enhancement to transformation* [Web log post]. Retrieved from <http://hippasus.com/rrpweblog/archives/000095.html>