Faculty Development to Promote Effective Instructional Technology Integration: A Qualitative Examination of Reflections in an Online Community

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Abstract

The State University of New York's *Tools of Engagement Project (TOEP)* is an online professional development model that encourages faculty and instructional support staff to explore and reflect on innovative and creative uses of emerging technologies through hands-on Discovery Learning Activities. *TOEP* is focused on creating peer-learning communities by providing a venue to experiment with the evolving landscape of social media and the latest web-based technology tools. The concept of lifelong learning and how it relates to technology change serves as a guiding principle of this project. This research examines the reflective summary posts shared by participants in the project's online community to understand their perspectives about their experiences with *TOEP*. Our findings show that participants felt that they gained knowledge from the experiences of peers in the community. Many faculty stated that they integrated technology into their courses while they were participating in the project, or they expressed explicit plans to do so in the future. Many participants also expressed a desire to continue to learn about emerging technologies after their formal participation concluded.

Keywords: faculty development, faculty learning communities, lifelong learning, instructional technologies, technology integration, digital literacy

About TOEP

The *Tools of Engagement Project (TOEP)* is an online professional development model designed to encourage faculty and instructional support staff to explore and reflect upon the effective use of emerging technology tools to expand tech-infused pedagogy. The project was developed through a State University of New York (SUNY) cross-campus initiative and resulted

from the SUNY chancellor's vision to embrace *systemness* (Zimpher, 2012). Systemness occurs when cross-campus teams work together to provide shared services and programs as compared to typical practices where campuses often develop similar, yet isolated, programs and projects at each of the different state university system campuses. Grant funding through the SUNY Provost's office was made available to support systemness and encourage the development system-level collaborative activities. The *TOEP* professional development platform extends beyond options available on any single campus. Over the course of the project's five-year run, nearly half of the 64 SUNY campuses have participated.

TOEP provides an opportunity for faculty to learn at their own pace and in their own time. It is a platform to experiment with cutting-edge technologies and provides knowledge regarding the effective integration of freely available tools into teaching to engage students and improve learning outcomes. Self-directed activities encourage faculty and staff to become familiar with audio, video, ePortfolios, online collaboration, gamification, simulation, and the latest web-based instructional technology tools. After acquiring more in-depth knowledge about how to use these tools, instructors are better equipped to meet the needs and expectations of today's students and go beyond the use of traditional teaching strategies.

The program is supplemented by an online social network community connecting peers to allow them to ask questions and share their learning experiences in a safe and supportive environment. The project also provides a vehicle for personal reflection within an online community of peers. *TOEP* maximizes interactions between faculty members who represent a variety of disciplines and institution types, ranging from community colleges to comprehensive colleges to research institutions, and who have varying degrees of technical knowledge and experience.

Teaching & Learning in a Digital Age

Technology-mediated channels are easily accessible and readily available; they connect people regardless of time and place and enhance creativity. It is now easier than ever for students to create media-rich, compelling resources and for faculty to develop activities and supplements to course materials to increase student engagement. As a result, learners today are more participatory within our media-rich society. Many are now producers of information instead of merely being consumers. Because of this development, the amount of information available has increased exponentially. Students, now more than ever, need to be able to evaluate and sift through infinite amounts of information to identify what is true and accurate. Lifelong learning practices are necessary for students, faculty, and others to gain personal agency and control over their learning to be able to adapt to the changing landscape. Technology fluency needs to become a part of everyone's fundamental literacy skills so that that they can effectively function within today's society (Kivunja, 2014). *TOEP* helps faculty adapt and become more comfortable with and knowledgeable about digital tools. Therefore, students also benefit because faculty then model effective ways to use and apply these tools in scenarios.

Modules & Activities to Explore Instructional Technology Tools

The project design team carefully curated the tools available through the *TOEP* website. After considering the breadth of the tools available, the ones selected were those deemed to be the most relevant and engaging. The collection of instructional technology tools, tutorials, and resources focused on broad categories of emerging technologies, including blogging, wikis, video, mobile apps, online collaborative spaces, simulations, and other examples of the latest web-based

instructional technologies. Each module describes how the particular technology can be used to support traditional, hybrid, and online teaching environments. Beyond providing information, Discovery Learning Activities within the modules provide participants with the opportunity to explore and engage with the tools. The hands-on, self-guided nature of the activities enables participants to discover how the tools might be used to meet their specific needs or the needs of their students.

Supporting Faculty in *TOEP's* Online Community

Upon completion of the module activities, participants submitted posts reflecting upon their experiences into a private online social network community. This online community is available as a space to interact and share experiences and explore the instructional technologies. This exchange has the potential to foster confidence in an individual's ability to successfully integrate technologies into their teaching and thereby positively impact students' learning experiences. The community is only accessible to members from participating campuses. The privacy of conversations is ensured since the project administration team must approve requests to join the community.

TOEP was designed to be an accessible means to explore and discuss emerging instructional technologies. Teachers often feel isolated from colleagues, especially if they teach online. *TOEP* enables teacher-to-teacher communication and allows participants to expand their professional networks. The *TOEP* community not only relieves isolation but also fosters communication across a range of disciplines and institutions. The conversations between faculty and instructional support staff within the *TOEP* community foster interactions between those who have little technology experience and those who have extensive understanding and expertise. In addition, the conversations provide an avenue for collegial exchange, friendly dialogue, and support. The communication forum is an easily accessible and enjoyable opportunity to engage with colleagues from diverse backgrounds and perspectives.

Each year of *TOEP* roughly coincides with the academic year, and spring 2017 marked the conclusion of the fifth year of the project. Each year, faculty and staff are recruited through a network of local-campus fellows at each participating campus. Incentives, including funding to acquire additional professional development opportunities, are awarded based upon behavior in the *TOEP* community and are issued through a peer-review process. First place is awarded to those who share the most pedagogically intriguing use of *TOEP* tools. Second place awards are issued for advanced levels of peer-support and mentorship in the online community. A digital-badge incentive process is in place to encourage project completion and completion of the individual Discovery Learning Activities.

Participants are required to submit a post after completing each of the activities that they choose to explore. After a participant completes a minimum number of Discovery Learning Activities, they are also asked to submit a summary post that includes a reflection about their experience over the course of the academic year. They are asked to think about how they have grown throughout the experience and how they might incorporate instructional technologies into their classroom pedagogy. Participants are prompted to reflect upon their favorite discoveries or exercises, how the program affected lifelong learning goals, and what could be done differently to improve the program.

The Present Research Study

The present study involves the qualitative analysis of summary reflection posts submitted within the project's online social community. These posts were analyzed to understand how participants narrate and reflect upon their experiences and to what extent their participation contributes to their use of instructional technologies. These online community interactions are valuable for understanding learning processes and the development of future iterations of the project. These reflections illustrate each participant's unique self-directed journey through *TOEP* as they explore the various tools to find the ones that most effectively supplement their teaching. This study also contributes to a further understanding of the knowledge and experience that can be gained by participating in an online professional development program. Our analysis reveals information about how participants learn from the experiences of others in the community, their propensity for and readiness to integrate various instructional technologies into teaching practices, and their desire to continue to further their knowledge regarding effective instructional technology integration.

Review of Related Literature

Instructional Technology and Technology Integration

Speaking generally, *TOEP* seeks to educate individuals regarding the effective integration of instructional technologies, which is situated within the broader field of information and communication technologies (ICT). *ICT* refers to communication tools and/or networks to access, manage, integrate, evaluate, and create information to function in a knowledge society (Information and Communication Technologies [ICT] Literacy Panel, 2007). Instructional technologies are one form of information and communication technologies. According to the international ICT Literacy Panel (2007), ICT fundamentally changes the way we live, learn, and work. The ICT Literacy Panel asserts that technology is growing and has enormous importance in people's everyday lives. Therefore, integrating instructional technologies as a regular component within teaching practices is critical.

The Association for Educational Communications and Technology (AECT) describes instructional technology as "the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources" (Januszewski & Molenda, 2013). Karaca, Cran, and Yildirim (2013) define instructional technologies like those used in classroom settings. In this paper, we use *instructional technologies* to refer to the mindful and purposeful integration of digital technology tools into the teaching and learning process. Our project improves faculty members' skills, so they are better equipped and trained to integrate technology into their curriculum successfully. Standard practices often require faculty to integrate technology, but most do not provide adequate training to do so in a way that uses the tools to enhance pedagogy. Due to the evolving nature of instructional technologies, it is essential for instructors to continually participate in professional development to keep pace with rapid advancements and trends in the tools available for use in their teaching practices.

Beyond the need to keep course content relevant and engaging for 21st-century students, technology integration allows course material to become more interactive and engaging. Beetham and Sharpe (2013) state that technology-enhanced learning environments encourage learners to be active participants in the learning process rather than just passive recipients of knowledge.

Technology tools have lowered the barriers to artistic expression, personal voice, and civic engagement, and enable easier sharing and dissemination of personal creations (Jenkins et al., 2009). Technology tools also enhance the ability to seek advice from peers and experts in the field and create social connections which have not been possible previously.

Lifelong Learning

Lifelong learning is learning that spans a lifetime and goes beyond the bounds of formal education. While broadly defined, lifelong learning is the development of human potential in areas of knowledge, values, and skills through a continuously supportive process that is stimulating and empowering while also fostering confidence, creativity, and enjoyment (Hojat et al., 2003). The International Society for Technology in Education (ISTE, 2007) describes the qualities of effective educators in technology as learners who "continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning." In a report by Balestreri, Sambolt, Duhon, Smerdon, and Harris (2014), the authors introduced *The College and Career Readiness and Success Organizer*. Included in the organizer are lifelong learning skills or competencies that are often referred to as *21st-century skills*. The authors of the *Framework for 21st Century Learning* refer to these skills as the "4Cs." The 4Cs include critical thinking and problem solving, communication, collaboration, and creativity and innovation (National Education Association, 2014). These 4Cs are closely related to the design of *TOEP*. Participants improve their critical thinking and problem-solving skills by communicating and collaborating with each other. The focus on instructional technology integration stimulates faculty members' creativity and innovation. Given the importance and the evolving nature of instructional technologies, it is imperative that instructors engage in ongoing, lifelong learning practices. In the context of *TOEP*, lifelong learning is closely related to a faculty member's professional development, and it is one of the most important goals of the project.

It is well established that reflective practitioners think about their behaviors and critically evaluate and analyze events and processes (Schon,). The *TOEP* online social network community fosters reflective practices within a community of co-learners. For a lifelong learning project, especially one that takes place online, collaborative learning has been proved to enhance participants' experiences. Jameson et al. (2006) argued in their research that to improve practice in e-learning in team-based lifelong learning projects, proactive team-working, "collective learning and shared knowledge developed in a distributed-coordinated collaborative leadership model is more effective than traditional leader-centric, authority-based approaches" (p. 14). Further, lifelong learning is driven not only by professional development but also by people's expectations and images of themselves. Research by de Oliveira Pires (2009) pointed out a new aspect of motivation called *existential motivation*, a category of deeper motive linked to the development of the human being, in the personal sphere. According to her research, existential motivation accounts for about 14% of adult motivation, and it is closely related to professional motivation. One of the outcomes that *TOEP* is hoping to achieve is to raise faculty's consciousness about lifelong learning, an essential aspect of faculty development.

Faculty Professional Development and Community

Professional development opportunities represent one avenue for faculty to gain practical strategies to integrate technology into their teaching practices. Participating in a faculty learning community (FLC) is an example of one such professional development opportunity. The term *faculty learning community* was first used by Milton Cox (2004) and his colleagues at Miami

University, Ohio. An *FLC* has been defined as "a cross-disciplinary faculty and staff group of six to fifteen members who engage in an active, collaborative, yearlong program with a curriculum about enhancing teaching and learning and with frequent seminars and activities that provide learning, development, the scholarship of teaching, and community building." FLCs typically provide opportunities for shared learning and skills development. Although Cox's original vision for an FLC included a provision for the size of the group, many larger scale FLCs have since been created and have been effective. *TOEP* represents an example of a larger scale learning community that embodies the fundamental principles of FLCs.

In general, the literature supports the use of FLCs to promote improvement in teaching practice among faculty (Addis et al., 2013; Daly, 2011; Duncan-Howell, 2010.) Duncan-Howell (2010) investigated the effectiveness of a general-topic FLC and found that 77% of faculty reported positive changes to their teaching practice following participation. There is also evidence that learning communities can be utilized to promote a particular behavioral change among faculty that at first seems difficult to achieve. Addis et al. (2013) investigated the use of FLCs to encourage the transition from teacher-directed lecture practices to student-centered active learning practices. They found that those who participated in the FLC were significantly more likely to report (1) experimenting to improve their teaching practice and (2) working to clarify their course learning objectives while ensuring alignment between those objectives and the course content (Addis et al., 2013).

Another aspect of teaching that can be resistant to change is an instructor's use of technology for course purposes. According to Finley and Hartman (2004), two significant barriers prevent faculty from adopting an innovation, particularly a technological innovation. One is the relative advantage/utility (i.e., what does this innovation provide me that I did not have before?). The other barrier is the compatibility of the innovation with existing values and practices (i.e., the desire to maintain consistency between teaching style and forms and use of technology). Concerning the perceived utility of technology, faculty opinions vary, and this causes substantial variation in instructional technology use among faculty (Osika, Johnson, & Butea, 2009). Variance in views regarding the utility of technology is likely attributable to two primary sources: knowledge deficits and performance deficits regarding effective instructional technology use. A knowledge deficit implies a lack of knowledge on the topic (i.e., faculty members do not use technology because they are unfamiliar with the various tools). Conversely, a performance deficit implies the individual possesses the knowledge but is not enacting that knowledge yet (i.e., is not performing it). This may occur for a number of reasons. For example, faculty members may be aware of various available instructional technologies, but they are not integrating them into a course yet. Alternatively, it may be due to a lack of confidence or skepticism that integration will improve an existing course. FLCs can be used to address both knowledge and performance deficits concerning instructional technology integration.

One benefit of online learning communities is that they allow faculty the autonomy to cater their learning journey to their specific needs (Daly, 2011). As such, providing faculty with the ability to customize their learning to meet their particular needs represents one possible way to increase the likelihood that they will integrate technology into their courses.

Rienties, Brouwer, and Lygo-Baker (2013) studied the impact of a web-based professional development program that had the goal of improving the attitude of higher education instructors toward instructional technologies and increasing their intention to incorporate technology in their courses. Their sample consisted of academics from nine higher education institutions, and the

program consisted of a combination of modules and small group discussions via web conferencing. While reviewing the program, the researchers found evidence of participants' increased tendency to implement instructional technologies in their courses. Sherer, Shea, and Kristensen (2003) state that today's technologies enhance communication and can connect more substantial numbers of faculty to "enhance professional effectiveness in teaching and learning and become a much-needed resource for surviving the rapid changes in teaching technology."

Until this point, the literature that looks at the effectiveness of professional development programs for technology integration has relied on the findings of studies that are quantitative. While quantitative studies are valuable in that change on a particular variable can be examined for statistical and practical significance, they cannot answer all of the questions. Qualitative analyses allow for a more in-depth look at the processes that contribute to a particular change. At present, there is a lack of qualitative research studies that critically examine the experiences of individuals participating in a professional development program geared toward effective instructional technology integration. This represents a gap in the literature. The present research study seeks to fill this gap by conducting a qualitative examination of reflection postings made to *TOEP's* Google Plus community to critically examine how individuals narrate and reflect upon their experience participating in *TOEP*.

Methods

The present research involves a qualitative text analysis of the summary reflection posts and comments shared in the project's online community. Data from Phase Two (2013–2014) was selected for this study because it immediately followed a significant overhaul of the community aspect of the project. After the first pilot year, the project switched from public individual blog posts to a process of contributing posts within a private social network community, changing the way people participated and communicated. Instead of requiring participants to navigate between separate blog sites, all conversations were now available within a single page, resulting in much more interactive and dynamic community conversations.

Participants

The final sample for this analysis consisted of 29 participants from the second phase of the project. The sample that was analyzed was predominantly female, with 19 females, five males, and five gender-unidentified participants. Female predominance in the final sample was expected since the demographic reporting from the preparticipation survey indicated that about 80% of the respondents were female. Without further study, it is difficult to state why there is an imbalance in this gender representation. In total, 153 posts were analyzed. These include 25 original summary reflection posts and 128 comments associated with the initial postings.

This research study was developed after the second year of the project completed. Therefore, consent needed to be requested retrospectively. The sample for this research only comprises those individuals who granted their consent. Posts from individuals who did not give their consent were removed prior to our analysis. Once nonconsenting individuals were removed from the community text document, all remaining names, usernames, and other identifying features were removed and substituted with a pseudonym formatted as *user-XXX*. This was done to preserve the confidentiality and anonymity of postings in the community. As a result of consent

being retrospectively obtained, demographic information regarding race/ethnicity, age, position within the university, and academic discipline of the final sample was not available.

Data Collection

The primary source of data for this study was reflective summary posts submitted to *TOEP's* private Google Plus social network community. Google Plus operates similarly to a typical discussion board/forum. The platform facilitated the development of a community for individuals to share their experiences, successes, difficulties, and fears in a safe and supportive environment. Additionally, this online community connected learners from campuses across the state who shared the goal of enhancing the educational experience of their students. Participants read and participated in discussions between individuals with widely varied teaching experience, subject disciplines, and levels of instructional technology familiarity.

The potential for participants to earn incentives encouraged them to share their reflections within the *TOEP* community. Posting a reflection after finishing each selected discovery activity was required as part of the incentive process. Individual activity modules (i.e., audio, video, productivity tools, collaborative spaces, mobile apps, gamification, etc.) provided a platform for participants to learn about a specific tool and to gain hands-on experience using the tool. After completing exercises within the chosen tool-specific module, participants made a posting in the community reflecting upon their exploration with the new tool. Each tool's prompt varied slightly, but the foundational components were the same. Individuals were asked to comment on (1) what they liked or disliked about the tool they selected, (2) the tool's useful features, and (3) how the tool could be used in teaching and learning.

Participants were also required to submit a concluding summary post reflecting upon their entire *TOEP* experience. Generally, the prompt for the summary post asked participants to reflect upon their learning journey. The prompt suggested that participants consider the following aspects of their experience in their final response: (1) their favorite discoveries or exercises, (2) how TOEP assisted or affected their lifelong learning goals, and (3) any takeaways or unexpected outcomes of program participation. Additionally, the prompt asked participants to provide suggestions for possible changes to improve the program for future iterations.

For the present study, only the summary reflection posts were analyzed, and all other interactions were ignored. This decision was made primarily because this analysis was retrospective and consent to analyze postings was not granted by all participants. Interactions could thus not be analyzed in their entirety. Summary reflection postings were more isolated in comparison to the conversations surrounding the Discovery Learning Activities that took place throughout the year. The fact that some participants did not grant their consent was therefore not an issue. The decision to analyze the summary reflections in isolation made the process of analyzing the data for this research much more manageable and considerably decreased the number of posts that needed to be analyzed.

Data Analysis

Once the data was de-identified, the document containing the summary reflection postings was distributed to two members of the research team. Each team member analyzed the data independently. This was done to provide support for the reliability of the findings. After several read-throughs, the individual coders made a list of *codes*, phrases or words that repeatedly occurred throughout the community text document. After a long list of codes was developed by each coder,

the data was re-examined to count the frequency at which each code appeared. Lastly, after the frequency of each code was assessed, the data was further analyzed to look for themes and commonalities that emerged in the codes from the data.

Several themes were identified, and the community text document was again analyzed with these themes in mind. The frequency at which postings reflected each specific theme was noted, and the three themes that appeared most frequently were selected by each of the individual coders. After the individual qualitative data analysis, the research team reconvened, and the individual findings of each coder were discussed. The independent text analyses of each coder revealed that the same three key findings emerged from the summary reflection postings in the Google Plus community. These themes will be explored in detail in the following section.

Results

Several findings emerged from the data through the data analysis process. In this section, three of the most compelling findings are presented and discussed. The findings below are listed in order of the frequency in which they appeared within the community conversations.

Evidence of Immediate Implementation of *TOEP* Tools or Specific Plans to Implement Them

The most common finding to emerge from the data was evidence that participants actually implemented instructional technologies they learned about through *TOEP*. Several people indicated that they were able to immediately implement a specific instructional technology in their course while they were actively participating in *TOEP*. Others shared concrete plans detailing how they would integrate technology into their teaching in the future. Responses were grouped under this finding to the extent that the individual provided a clear example of instructional technology integration into their classroom or indicated a clearly laid out plan to implement one or more technology-mediated strategies in a future class.

In the following quote, Mary reflects upon her experience and provides an example of how *TOEP* knowledge was infused into her teaching practice:

> I tried many new tools even though I had already tried some of the ones described. I think the benefits to my classes are substantive. For my CRS 304 class that is having a major event, Community Problem Solving Day, on April 12 during which they will provide new ideas and action plans to possibly 24 service learning clients, I was able to use a lot of what I was learning. I made a Weebly website for them, added graphics I built on www.Photofunia.com, developed a Diigo site to collect their information sites, and encouraged them to start a Facebook page and a Twitter account…..For EDC 603, I found the Pedagogy Wheel in Other Tools especially helpful.

This quote shows not only that Mary learned about multiple tools but also that she could describe how they were used in her course. She also states that she believes the benefits to her students were "substantive."

One potential obstacle to integrating technology into existing courses is the sheer abundance of tools available. It can be overwhelming for instructors to choose a tool/technology. Furthermore, even if an instructor is aware of and familiar with the multitude of resources and tools available, it is often less obvious how to effectively integrate those resources into courses.

Mary's quote, with its emphasis on using different types of technology for various class elements, illustrates that participation in *TOEP* can be an efficient way to make sense of the myriad of freely available instructional technologies. The *TOEP* website is focused on a limited number of tools which were selected and curated by the project design team. These tools are considered to be the most relevant and substantial examples of the numerous tools that are available. *TOEP* provides the opportunity to learn purposeful and impactful ways to integrate these technology resources to complement existing course content and to increase student engagement with course material.

TOEP helps instructors make sense of the abundance of instructional technologies available and understand both the shortcomings and strengths of specific tools. In the following quote, Brenda speaks of being inspired to search for excellent videos to supplement her content while she simultaneously reflects on how she might create good videos herself in the future:

> The audio-visual module led me to hours upon hours upon hours of searching for good, short videos that I could use as supplemental material for my statistics class. I learned a great deal from this process about what constitutes a good video presentation and, more importantly, what does NOT. This may have been my favorite discovery- how to do/not do a video. I am currently teaching the course that I plan to "flip" next year, so I have been storing many ideas of what I can do/how I can do it as I explore these many tools.

Through Brenda's reflection, it is clear that her experience completing the audio-video module inspired her to continue to explore more about the topic after the module concluded. This example illustrates the depth of knowledge that can be acquired through *TOEP* participation. The knowledge gained from the module about video inspired Brenda to continue her exploration, allowing her to deepen her knowledge of and engagement with this particular instructional technology. Furthermore, Brenda mentions her intention to "flip" the course in the future. Even if instructors do not have a specific use in mind for a tool, this quote illustrates how *TOEP* participation can contribute to the expansion of one's instructional technology toolbox, which can be revisited each time an instructor seeks a new way to supplement course material and increase student engagement with course content. These examples show that *TOEP* educates participants regarding the many tools available and informs them of ways to effectively integrate them.

Prior research supports the notion that high-quality learning experiences, particularly online tutorials and workshops, should be offered to teachers to increase technology competency. When successful, these programs contribute to positive attitudes toward using technology, which increases the willingness to use technology in lessons (Karaca et al., 2013). Specifically, the finding of immediate implementation of instructional technologies corroborates previous findings regarding the impact of professional development programs aimed at educating instructors on the use of instructional technologies.

In this way, the findings of Karaca et al. (2013) and those of Rienties et al. (2013) are both supported by the findings related to immediate implementation of *TOEP* tools in the present research study. Specifically, *TOEP* participation increased positive feelings toward technology integration, leading to the increased implementation of various tools. Faculty are more inclined to try out a new technology tool if one of their colleagues who has encountered similar issues has been successful. Additionally, participation in a professional development program geared toward technology integration was found to be an adequate method to educate faculty and staff (Rienties et al., 2013). The finding regarding the ability for immediate implementation is significant because

it helps illustrate how quickly someone can progress from learning about an instructional technology to implementing it in the classroom with students.

Vicarious Learning Through the Experiences of Others

The next finding to emerge from the data was vicarious learning through the experience of others. Four sources of information that contribute to the expectation of self-efficacy include performance accomplishments, verbal persuasion, physiological states, and vicarious experiences (Bandura, 1977). Vicarious experience refers to learning and the subsequent expectancy formation that occur as the result of observing the experiences of others, rather than from one's own experience. Although personal experience can be informative, vicarious experiences add another layer to the information we acquire from our own experiences as we develop and modify expectations for our performance in light of other's experiences. According to Bandura (1977), when one observes others performing an activity perceived as "threatening" without significant consequences, it can generate an expectation in the individual that they too can improve activity performance with effort and persistence. In the context of *TOEP*, seeing the various ways that other instructors are employing instructional technologies in their courses can be powerful. Specifically, reading about the experiences of others in the *TOEP* community can ease fears and anxieties related to technology integration. As a result, instructors become more comfortable integrating technology in their courses.

Several people mentioned the value of learning from the experiences of others through the community discussions. At the advent of *TOEP* as a program, the project implementation team decided that participants at different campuses should feel like they were part of a community of learners, despite being geographically separated. The community aspect was implemented to give participants an opportunity to reflect upon their experiences in the Discovery Learning Activities. The *TOEP* community also provides a space to facilitate an open and supportive environment where anyone can share their experiences, fears, and anticipated challenges. When people mentioned how much they learned through the experiences of others as one of the most valuable aspects of the project, it provided support for the impact and effectiveness of the *TOEP* community. In the following quote, Ben reflects upon his experience:

> My favorite part of *TOEP* was the Community. I took part in a lot of great discussions. It was great to see how other participants applied various technology and how others feel about tools they have tried. Some of the resources shared in the Community will become part of my Lifelong Learning Toolbox.

According to Ben, he not only learned a lot from the experiences of others, but the community interactions were his favorite part of the whole experience. Ben begins by talking about his personal experience, mentioning his participation in "great discussions." He goes on to talk about what he gained from other participants in the context of those discussions: knowledge of others' trials and tribulations with various tools as well as others' feelings toward instructional technologies. In addition to knowledge acquired through personal exploration, vicarious learning through the experiences of others in the community was a significant means of knowledge acquisition during *TOEP* participation. Another participant, Elizabeth echoed a similar sentiment:

> Rather than talk about tools, and methodologies, I want to focus on the thing I've gotten the most from *TOEP*: The community. The insightful posts on how to use these tools has been the real boon for me. I want to call out James's [pseudonym] post on lecturing in via Explain Everything in particular. It is very inspiring. Also,

www.manaraa.com

> Sally's [pseudonym] post on collaboration and surveying students is great. I'm sure
> there are more good ones out there. I'll be looking through them over the next few
> weeks to find more gems.

Similarly to Ben, Elizabeth indicates that the community was the most valuable part of her experience. In her reflection, Elizabeth gets at one of the fundamental purposes of the Google Plus community: It is a place to share and discuss ways to implement the tools, going beyond what is explored and learned through the Discovery Learning Activities. Elizabeth goes on to acknowledge those who were most helpful along her journey and concludes by mentioning that she will continue to read through the community comments to further enhance her knowledge of instructional technology use. Ben's and Elizabeth's comments help illustrate how learning is enhanced through the experiences of others in the Google Plus community.

The finding of vicarious learning supports past research. Wang, Ertmer, and Newby (2004) examined the effects of vicarious experiences of technology integration on preservice teachers' self-efficacy beliefs. Vicarious experiences were delivered to participants via an instructional CD-ROM that featured the technology practices and beliefs of six K-12 instructors. The researchers found a positive impact resulting from viewing others' experiences. Individuals who watched videos of others' experiences had greater self-efficacy for implementing instructional technologies than those who did not watch the videos. In the Wang et al. (2004) study the participants directly observed teachers' implementation and discussion of instructional technology use. In *TOEP*, however, participants learn through the written accounts and experiences of others. The commonality in these findings is that individuals learn from others' experiences and allow the experiences of others to inform and contribute to their teaching practice and pedagogy. *TOEP* is unique with regard to the community aspect, in which participants actively interact with each other—they can ask or answer questions, request or provide feedback, or just view the conversations among other participants as a casual observer.

Our finding regarding the power and effectiveness of vicarious experiences, specifically within an online community/discussion board, supports prior research findings regarding professional development aimed at increasing knowledge and propensity to use instructional technologies. Specifically, Blonder et al. (2013) found that participants in a professional development program for instructional technology use emphasized the importance of an online community of learners in the development of their technological pedagogical content knowledge. Interviewees indicated that the interactions and experience-sharing processes that occurred in each session enhanced their knowledge regarding successful integration of videos into their course content (Blonder et al., 2013). The findings of Wang et al. (2004), Blonder et al. (2013), and the present research study provide support for the notion that vicarious experiences (i.e., learning through observing the experiences of others) can be used as a mechanism for obtaining information about instructional technology use in the classroom. This information supplements and expands the information that is acquired and learned through personal exploration of the modules. Furthermore, the present research study provides support for the inclusion of online community discussion forums in professional development activities for instructional technology immersion. Specifically, these forums provide a space for interactions as participants share their experiences and learn from the experiences of others, effectively enhancing the experience of each participant.

Expressed Desire to Explore More Tools (Even After Participation Formally Ended)

In the summary reflection postings, an important finding was that several people mentioned wanting to learn more about the *TOEP* tools. Specifically, many people indicated that they intended to either complete more modules informally after their participation was formally over or to participate again in the future. This suggests that participants realize the value of technology to complement traditional instruction and how beneficial it can be to their students' learning experience.

One of the subgoals of the project is to get participants to adopt lifelong learning practices. Since this is not a longitudinal study, we cannot say for sure whether participants are necessarily taking on this identity. However, our findings suggest that those who participated in the project are seeking opportunities to expand their knowledge and increase their effectiveness as an instructor and to make their courses more engaging and relevant for their students. In this way, this finding serves as another indicator that *TOEP* is effective and impactful. In the following quote, Janice reflects upon her experience with *TOEP*:

> I think nothing really ends—certainly not skills that are developed. Instead they morph, transform and recycle into bigger and more useful skills. I have enjoyed this entire *TOEP* program and, in fact, completed all of the modules…. Warning: I'll be back! I couldn't do absolutely everything.

Janice's quote encapsulates the change that we sought to incite in our participants. Specifically, Janice recognizes that having technology skills is not an end point; these are skills that can continuously be honed, refined, and redeveloped. She expresses that she enjoyed participating in the project. Faculty often realize that integrating technology into instruction is important for engaging students. However, unless they enjoy participating in this type of professional development, they will not dedicate valuable time to do so.

This finding that *TOEP* participants want to continue to explore the modules and possibly participate again in the future is noteworthy. Faculty familiarity with technology is particularly necessary because today's students are "digital natives." They have grown up surrounded by technology—video games, smartphones, digital music players, and computers (Prensky, 2001). As a result of this synchronous relationship, Prensky (2001) argues that the students of today think and process information in a qualitatively different way than students of prior generations. One way to infuse technology into teaching and modernize course content to match the information-processing capabilities of today's students is for teachers to expand their knowledge of effective technology integration. Not only does technology integration keep course content relevant and accessible to an audience of digital natives, but today's students *expect* technology to be integrated into their courses. Ipsos (2007) found that students expected technology to be integrated into their school life in much the same way as it is integrated into their life outside of school. In this study, 79% of students believed that instructional technology integration would enhance their learning experience. Further, 62% of students expected technology to be a more substantial component of their learning. This suggests that students today recognize the potential benefit of having technology integrated into their courses, but unfortunately feel that technology has been underutilized thus far. As such, the finding that instructors are gaining valuable knowledge through *TOEP* and enjoying the experience so much so that they indicate a desire to continue exploration and participation is important. This suggests that professional development opportunities aimed at

technology integration represent one way to bring instructors' technology knowledge and skills up to meet the expectations and desires of students to have their courses enhanced by technology.

Discussion

This study examines the reflections of participants in an online social network community to understand how they narrate and reflect upon their experience. This study also explores the extent to which participants were able to take the instructional technology knowledge gained through the hands-on participation in the Discovery Learning Activities and community interactions, and skillfully employ this knowledge in their courses to increase student engagement with course material.

During the analysis, it became clear that in general, the majority of the participants positively reflected upon their experience in *TOEP*. While there was variation regarding participants' favorite Discovery Learning Activities, many expressed that the community was one of the most positive and beneficial aspects of their participation. In the reflection postings, it was clear that they not only learned from their personal experience but also learned vicariously through the experiences of others in the conversations within the related social network community. This indicates that *TOEP* as a whole, and the associated social network community specifically, are effective and impactful. The community aspect enabled participants who are geographically separated at different campuses to feel like they were a part of a community of learners. The community also bridged gaps that are often present between faculty from various disciplines. It was a typical occurrence that faculty from disparate disciplines interacted with and learned from each other. Additionally, the community aspect allowed participants an opportunity to not only reflect upon their experiences but also to engage in an open and supportive community.

Another commonality to emerge from the summary reflection postings was an expressed desire to continue to expand instructional technology knowledge through the further exploration of the tools even after participation had formally ended. Because technology is continually changing, this finding might reflect the desire of these individuals to increase their knowledge, be in step with technology's evolution, and meet the expectations of digital natives. The data suggests participants do not see *TOEP* as an end point; instead, they see it as one stop along a continuing journey. This is a significant finding because encouraging communication and collaboration using instructional technologies and integrating technology into course content is one way for faculty to keep courses fresh and relevant for today's students.

This analysis also illustrates that *TOEP* participation had a positive impact on participants' readiness to integrate technology into their courses during or following participation. In this way, the data suggest that their participation is leading to an increase in knowledge about instructional technologies, which in turn leads to an increase in instructional technology use in participants' classrooms. Further, this finding implies that the turnaround time between learning about an instructional technology and actually skillfully implementing it in the class with students can actually be quite short. This has implications for future professional development programs that are aimed at increasing faculty integration of technology. Specifically, the data suggest that if faculty and staff are provided with information about various technology tools, given the opportunity to experientially engage with the tools, and provided with a space to share their experiences and learn from the experiences of others, the impact of the program can be seen in a relatively short period.

The *TOEP* community provides an opportunity to learn in a safe and supportive environment. Many participants cited the community as the most valuable aspect of their *TOEP* experience. Because the Google Plus community is one of *TOEP*'s unique and defining components, the finding that many felt the community was the most valuable component of their experience is important. This provides evidence-based support for *TOEP*'s program structure and the theory behind the decision to include an interactive social network community. One of the primary goals of the project is to get faculty familiar and comfortable with various instructional technologies to the point that they feel confident integrating the technologies into their existing lessons. The data suggest that *TOEP* has been successful in achieving this goal. Several participants also expressed a desire to continue to explore and engage with the various tools, even after participation formally ended. The willingness of participants to continue to explore the contents of *TOEP* suggests that they have found value in this type of professional development opportunity. Furthermore, they perceived the benefit to be significant enough that it motivated them to want to explore other tools, even when participation in the activities was no longer incentivized.

Limitations

This research is not without limitations. The first and most significant limitation of this research study is that some of the Google Plus community data was not available for analysis because consent was obtained retrospectively. This significantly reduced the pool of postings and interactions to be analyzed. Since consent was not obtained from all participants, difficulty arose when we attempted to examine interactions among participants because one or more of the conversation members had not provided consent. For this reason, we only analyzed the summary reflection postings because these primarily existed in isolation and included fewer interactions between participants. This is a limitation because we were unable to investigate the rich interactions among participants or examine the contents of those interactions to assess their quality. Instead, by exclusively examining the summary reflection postings, we were only able to determine the extent to which participants *felt* their interactions with others in the community benefited their experience.

Another significant limitation of this study relates to individual presence and active participation in the Google Plus community. An individual's presence and involvement in the online community is not mandatory. As such, not everyone who registers for *TOEP* or who completes the Discovery Learning Activities is necessarily present in the community. Even if all *TOEP* registrants were present in the community, there is no way to guarantee active participation from all members. That being said, just because individuals do not actively contribute posts or interact with other community members, that is not to say that they are not observing and taking in the posts and interactions among other people.

Directions for Future Research

Additional questions remain following this research study; specifically, one of the primary goals of *TOEP* is to encourage faculty and staff to expand their technology-based pedagogy. The results of this study only partially contribute to our ability to assess whether this goal was achieved effectively. Additional research needs to be conducted to examine the extent to which instructors' technology-based pedagogy actually expanded or was influenced following participation. Future research should also investigate the extent to which one's level of engagement within the Google Plus community affects participant reflections on their experience. We also need to study the

likelihood of employing what the participants have learned by integrating instructional technologies into their teaching practices.

This professional development program has run successfully for the past five years. Qualitative interviews and longitudinal studies with past participants should be conducted to understand the extent to which technology-based pedagogy actually changed as a result of their participation. Longitudinal research across the multiple years of the project will help guide future directions of the project. Additionally, because the interactions among community members in their entirety were not available for analysis, future research studies should examine all of the complete interactions among members of a community within the context of a professional development program for course technology integration.

Additional SUNY Innovative Instruction Technology Grant (IITG) grant funding has recently been awarded to transition *TOEP* to a Massive Open Online Course (MOOC) targeted to lifelong learning and technology literacy skills for all learners. A MOOC is an open access online course aimed at large numbers of geographically dispersed learners who interact and participate via the Internet. The new MOOC based on the *TOEP* model will target the technology literacy needs of instructors, students, professionals, preprofessionals, and anyone with an interest in enhancing their use of technology for lifelong learning and success. The audience for the MOOC will expand from the instructor-based focus of *TOEP* to include all learners from across the globe who are invested in their personal and professional growth. This MOOC will serve as a resource with ongoing utility for lifelong learning needs, interests, and career advancement and will provide an environment for supportive dialogue and sharing among participants. Anyone who enrolls in the MOOC will build a personal toolbox to enable them to effectively use web-based technology tools for learning and career advancement in today's digital age. The insights from our research from the *TOEP* community discussions will lead to future research and guide the development of the MOOC project.

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