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A Cross-Disciplinary Framework for Collaborative Course Learning Outcomes toward Technology Integrated Service Projects

Susan Elwood
Associate Professor
Instructional Design and Educational Technology
Curriculum, Instruction, and Learning Sciences Department
Texas A&M University
Corpus Christi

Misti Kesterson
Clinical Associate Professor
Kinesiology & Military Science Department
Texas A&M University
Corpus Christi

Kelli Bippert
Assistant Professor
Educational Leadership
Curriculum and Instruction Departments
Texas A&M University
Corpus Christi

Heather DeGrande
Assistant Professor
College of Nursing and Health Sciences
Texas A&M University
Corpus Christi

Abstract

The year 2020 has had its challenges in the field of education at all levels. This paper highlights a developing framework with protocols to a collaborative university faculty model to facilitate community partner and service to community projects from combined course learning outcomes. Key educational technology and collaborative partnering frameworks are presented and woven into the team's progressive goal of integrating technology standards throughout educator preparation and related degree programs. This study's data was comprised from a collaborative review of literature and sharing of reflective journals with partnering faculty in a college of education and human development with a nursing educator program. The resulting model is based upon the team's comparative reflective journals and progressive experiential learning developments.

Keywords: Higher Education, Experiential Learning, Teaching, Technology in Education

Background

The lead author has facilitated the integration of the International Society in Teacher Education (ISTE) Educator technology standards prior to Covid 19 throughout the department's educator preparation program. Given the need for other more integration of other educator preparation standards, the technology standards were placed on hold. The College of Education and Human Development Dean of the southern university extended an invitation to the entire college faculty for anyone interested in further assisting the educator preparation program with preservice to inservice educator classroom technology support, given the 100% online mandate that started March of 2020. We deemed it appropriate to model a technology integrated, cross-curriculum project among faculty within our university, which included a college of health science and nursing faculty member. Our Sport management professor is guided by the Commission on Sport Management Accreditation (COSMA). Experiential learning projects are considered a key tenet of the educational process for sport management and other students (COSMA 2012, McKelvey 7 Southhall, 2008), providing the opportunity to blend theory, practice and professional development.
For this experiential project, sports management students were charged with developing an event in conjunction with an instructional design and educational technology, a reading content educator preparation class, and a health sciences class. Preparation for the project began months prior to the semester, meeting with colleagues, discussing our "passion projects," which is the Discovery process in applying Appreciative Inquiry (Black, et. al., 2017). These were current or past projects utilized in our respective classes or projects that were endearing to us in our teaching, our service and in our research. We continued to work together over the next few months to develop the overall vision and design of the project in accordance to our course objectives and outcomes. The mission of the event was to showcase action planning that students completed in and out of class toward one collaborative, culminating service to community event.

Aligning Technology Standards to Support Professional Collaboratives

Multiple sources of technology standards within K12 and higher education exist. To best meet the needs of all involved professionals, a combined crosswalk and alignment of standards was deemed necessary. This section briefly overviews each of the pertinent sets of standards or competencies commonly used in educator preparation programs, the key crosswalk alignment, and a collective alignment table that can be directly used or adapted, depending upon one's set of technology state standards.

TETC to ISTE educator standards crosswalks

The ISTE Educator standards meet needs and provide goals for preservice and inservice educator needs in serving their K12 students. The Teacher Educator Technology Competencies (TETC) provide higher education educators professional competencies in supporting their higher education students' learning environments.

State, TETC, NSQ online, ISTE educator, ISTE student domain alignments

Of primary importance are the K12 learners, whose technology needs are met through International Society for Technology in Education (ISTE) Student standards. The TETC and ISTE Educator standards have already been overviewed. The National Standards for Quality (NSQ) Online Learning inform and provide goals for all grade levels of educators teaching online. Given the recent pandemic needs, teaching online involves every educator within our greater audience. Finally, each state has their own comprehensive set of state standards for the K12 teachers. In this case, the Texas Teacher Evaluation and Support System (T-TESS) domains and standards guide the K12 educators' integrated professional goals.

Design Thinking through TPACK and SAMR

Key framework perspectives regarding the consideration of integrated technology within the collaborative process and individual course learning artifact design are informed by three key concepts related to technology in learning environments. These include 1) design thinking through 2) technology, pedagogy, and content knowledge (TPACK) enhanced by the 3) substitution, augmentation, modification, and redefinition (SAMR) model.

Design thinking: the ongoing, iterative process

Design thinking (D. Stanford, as in Pontis, 2015) is used both in working with the service partner and when working in collaborative faculty groups towards service to community projects. Design thinking can help identify solutions to problems that may occur for a service partner. The service partner can be a business, a school, a community organization, etc. Identification of a question or problem that needs to be addressed is the first step in working with a service partner. Possible solutions for the service partner are generated by finding more innovative solutions in

alignment with professors' individual and collaborative course learning outcomes. Sheila Pontis (2015) provides a design thinking process, complete with definitions of each phase and suggested research methods.

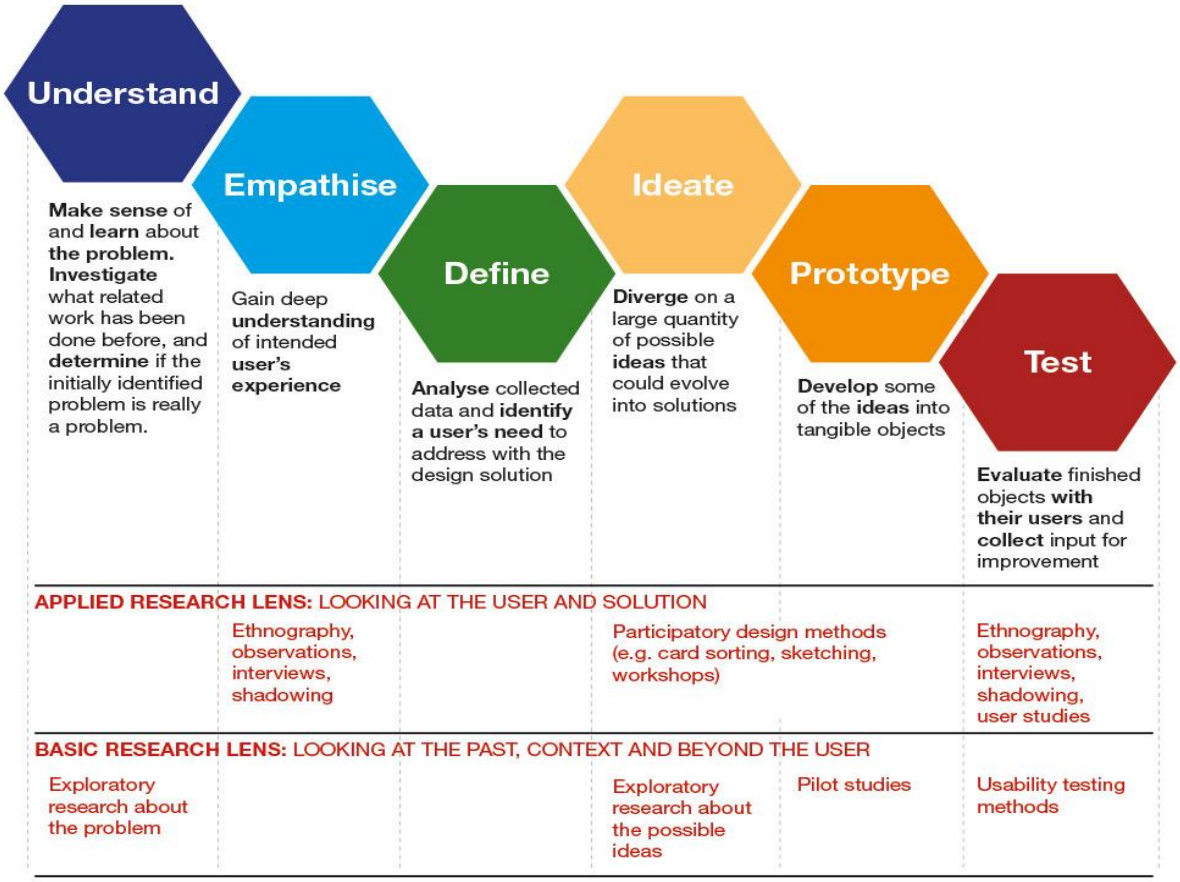

Figure 1. Design thinking revised (Pontis, 2015).

The goal of Design Thinking (Plattner, 2018) at Stanford University is to "make more innovative scholars or scientists by approaching the research process with a playful mindset [through] applied research rather than basic research" (Pontis, 2015, para. 4). This allows a less rigorous way of study while supporting the "playful spirit of design" (Pontis, 2015). Design thinking respects and values applied research in which "data and findings are directly applied in response to a specific situation" (Pontis, 2015, para. 6), which is very conducive to the collaborative nature of such service to community collaborative projects among faculty.

TPACK and SAMR: core to individual and collaborative technology integration

The Technology, Pedagogy, and Content Knowledge (TPACK) model is one of the core and most cited models in educational technology research (Davies & West, 2014; Niederhauser & Lindstrom, 2018). "To avoid the problem of 'narrowness', TPACK needs to be integrated in other models of technology integration that complement TPACK with a multilevel- and process-oriented perspective" (Petko, 2020). When working with preservice educators, it is important for them to be made aware of several educational technology models; especially those that pair well. TPACK is a model that can be more deeply explored when paired with SAMR (Figure 2).

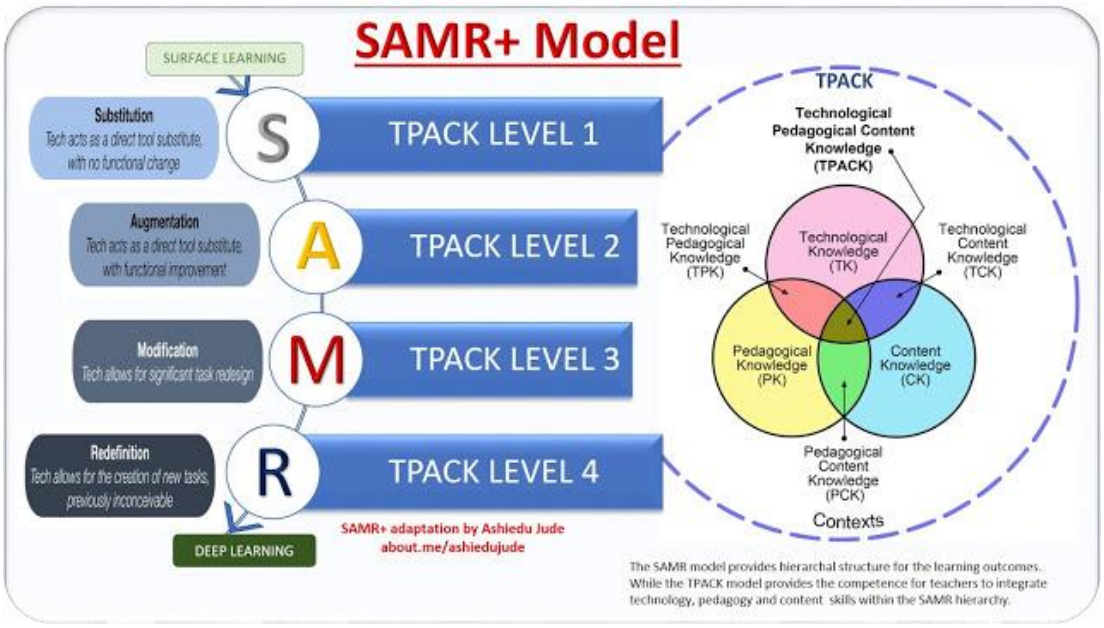

Figure 2. SAMR PLUS model (Jude, 2018).

Puentedora's (2006) Substitution, Augmentation, Modification, and Redefinition (SAMR) framework categorizes four different degrees of classroom technology integration. The levels move from substitution, or a direct tool substitute with no functional change, to redefinition, where tech allows for the creation of new tasks previously inconceivable. TPACK's Mishra and Koehler (2006) suggest, "Theories, frameworks, or models can be seen as conceptual lenses through which to view the world. They help us in identifying objects worthy of attention in the phenomena that we are studying, highlighting relevant issues and ignoring irrelevant ones" (pp. 1043-1044). TPACK through a SAMR lens is the chosen and recommended model mash-up when it comes to educational technology integration.

Supporting Faculty Collaborative Course Learning Outcomes toward Service Projects

Faculty and service partner cognitive framework and process support is important when trying to serve the course learning outcome needs, as well as the service partner needs. A Community of Inquiry model with Appreciative Inquiry was deemed an appropriate fit for these needs. The Inquiry- and Culture-based Community of Inquiry presented below is influenced by some previous work done by some of the authors. The Appreciative Inquiry mash-up additions provide more social-cultural depth to desired questions.

Influence of inquiry-based learning, culture-based community of inquiry

Communities of inquiry (Kozan, 2016) is a concept partially derived from situated learning. Situated learning (Lave & Wenger, 1991) states that learning occurs from interaction and collaboration within groups who share a common goal or purpose. Participants interact socially and culturally through collaborative goals. For purposes of a technology collaborative, learning to integrate technology in education involves active engagement with technology and supportive social interactions with colleagues, students, and community members. The use of inquiry-based learning intertwined with culture-based guiding questions adds to the deeper facilitation of collaboration based upon the Communities of Inquiry model. See Figure 1 below for a graphic representation.

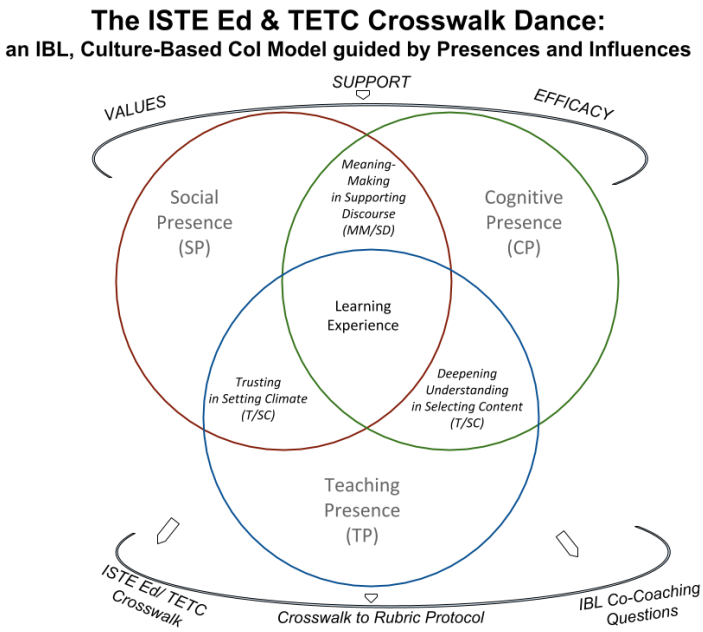

Figure 3. The ISTE Ed & TETC Crosswalk Dance (Elwood, Bippert, 2019).

The key cultural model components of value, support, and efficacy inform the communities of inquiry presences and influences within the above framework. Such use of Presences and Influences (Peacock & Cowan, 2016) are deemed more useful in providing greater support to depth of design. Presences include trusting, meaning-making, and deepening understanding "as accurately as possible to the rigor of contributions expected from each interweaving of Presences" (p. 272). Influences include meaning-making in supporting discourse, trusting in setting climate, and deepening understanding in selecting content. These culturally infused Presences and Influences provide guidance and support to facilitate collaborative co-coaching questions.

Influence of appreciative inquiry within communities of inquiry

The Appreciative Inquiry change model that "asks people to develop, rather than to 'change,' although the outcome may in fact be positive change. This inspires them to good habits." (Cooperrider, 2020). Appreciative Inquiry often starts with questions to help focus a topic:

- How can we work well together?
- How can we enable our young people to flourish?
- How can we tap into the creativity of this partnership?
- How can we find solutions that, as far as possible, benefit all stakeholders?
- How can we combine our strengths to build a sustainable community?

People then follow the stages of Appreciative Inquiry. The AI change process is conceptualized within 5 stages; the last four being cyclical in nature to provide a "positive core" (Smith, 2020) of change interaction:

1. Definition: topic to work on
2. Discovery: What's already working?
3. Dream: Overall vision
4. Design: Options to make it happen
5. Delivery: Action planning

Method and Findings

Method

Consciously acknowledging values instead of attempting to control the researcher's values through methods or bracketed assumptions is the aim of the reflective journal process. Researchers use their journaling to examine "personal assumptions and goals" to help clarify "individual belief systems and subjectivities" (Ahern as cited in Russell & Kelly, 2002, p. 2). This reflexive process "is now widely accepted in much of qualitative research"

(Ortlipp, 2008, p.1). Such a process encourages researchers to talk about "their presuppositions, choices, experiences, and actions during the research process" (Mruck & Breuer, 2003, p.3).

A reflective journal method was used by the authors in order to support and reflect upon the emergent, collaborative design. Each author reflected upon her own experiential journey according to the following question prompts that centered around the partner and colleague relationship building:

- How did or could the Crosswalk Dance model of an inquiry- and culture-based communities of inquiry (CoI) model guided by the CoI Presences and Influences inform your individual and collaborative learning environments?
- How did or could Appreciative Inquiry help guide the Crosswalk Dance CoI model?

All authors individually created a reflective journal regarding their collaborative experiences. The resulting themes are presented next.

Findings

Of the three classes and a student club involved, forty students were able to provide feedback. Varied findings resulted among the different groups of students involved. This was, in most part, due to the variances in course learning outcomes across the different disciplines and courses.

A common theme among involved the confusion of transitions from station to station due to a lack of communication of the transitions. These were to occur every 15 minutes. Such was difficult to communicate due to regulations set by park officials. Since this was an environmental park, we were asked to not have loud music during the event. We did use a microphone and speaker to communicate, but it was not effective within the setting. One student suggested the use of walkie talkies or "TeamSpeak".

Another common theme was brought up throughout the evaluations involved students feeling comfortable to step outside their comfort zones. Many students stated they were hesitant to speak up during team meetings. "I did not feel I had a lot to contribute to our project because all the main decisions were made by certain people who had more experience. Therefore, I need to work on my confidence." The ability to freely express ideas or interact with others at the event was also echoed by other students. Fears of standing out for various reasons were noted.
A third theme was brought up in post-reflection for a more constant interaction; especially with technology. "It would have been good to have had complementary apps, for example, at all the stations in relation to their content. We had more free time within the 15 minutes at some stations than others."

Discussion & Future Directions

The tools presented in this paper support and assist all professionals within a collaborative research, teaching, and service environment. The authors have created a Service, Teaching, and Research (STaR) Journey collaborative team for such projects. Future STaR Journey directions include synthesizing key steps and processes of the collaborative frameworks into efficient project management steps across courses and student organizations. The below table is a revision of the initial framework questions (Table 1) when communicating with service partners. These questions will help focus all participating partners' thoughts toward mutually beneficial needs within an experiential learning environment.

Table 1. AI, CoI Framework for service partner co-coaching with educational technology.

Design Thinking & Smith's adapted Appreciative Inquiry model	*Communities of Inquiry Presences and Influences [Crosswalk Dance Framework]*	*Co-Coaching IBL, Technology-Infused Questions [SAMR+ TPACK; Technology Standards]*
Understand & Definition: Work topic	Teaching Presence	*What are some of your favorite community education experiences at your site? How our team can further these with our contributing Course Learning Outcomes are…*
Empathise / Define (identify need) & Discovery: What's already working	Trusting in Setting Climate Influence	*What are some needs or desires? My one (to two) top, creative, fun contribution(s) that can help shape this collaborative learning and development opportunity is/are…*

Ideate & Dream: Overall vision	Social Presence	*What I hear each of you saying your key need(s) and outcome(s) for your needs within this collaborative are…*
Design: Options to make it happen	Meaning-Making in Supporting Discourse Influence	*I think my desired learning outcomes and your need / desired outcomes could best complement each other by…* *How can we best use readily available technologies for social collaboration and collaborative outcome?*
Delivery: Action planning	Cognitive Presence	*How can I help us move forward with these technology-infused tools?*
	Deepening Understanding in Selecting Content Influence	*My top technology standards/competencies, supporting learner objectives, and resulting outcome to this professional collaborative is tentatively outlined as...* *What will be our tasks, timeline, and developmental feedback checkpoints?*

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