TPACK Newsletter, Issue #15: March 2013

Special Spring 2013 Conference Issue

Below please find a listing of TPACK-related papers/sessions that will be presented at the SITE conference in March in New Orleans, Louisiana; at the AERA annual meeting in April in San Francisco, California; and at the ISTE conference in June in San Antonio, Texas. (That's 61 TPACK-related conference sessions in just 3 months!)

SITE 2013 TPACK-Related Presentations

Atkins, H., Roberts, C., & Higdon, K. (2013, March). *On becoming digital educators: Supporting faculty and student growth in technological pedagogical content knowledge.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38196/

Abstract:
"Three university professors (department chair and English education professor, social studies/literacy professor, and educational technology professor) share the on-going process of faculty and student development as digital educators. Founded on the belief that it is the responsibility of all faculty members to prepare pre-service teachers to use technology effectively and that it must no longer be relegated to the realm of the instructional technology faculty or course, the department of education in one small, liberal arts university transformed itself from a deficit to setting the standard for the rest of the university. This paper chronicles the path faculty have traveled, learning with and often from their students in adopting technology in pedagogically sound ways – operating under the theoretical underpinnings of the TPACK model, focusing not on the technology tools, but on how to make learning happen in each content area integrating technology to support the learning."

Date/Time: Tuesday, March 26, 3:25-3:45 PM

Bakir, N. (2013, March). *Developing TPACK theoretical model in content-specific technology course.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38651/

Abstract:
"Using the technological, pedagogical, and content knowledge (TPACK) framework (Mishra & Koehler, 2006), this study investigated the impact of a required technology course on pre-service English teachers' TPACK. Date sources included student reflections that were part of the assignments within the class and pre and post TPACK surveys. Mixed methodology analysis was conducted using qualitative and quantitative data. Data in the form of assignments were collected throughout the course of the semester."

Date/Time: Thursday, March 28, 3:25-3:45 PM

Baser, D., & Ozden, M. Y. (2013, March). *A TPACK development model with specified constructs.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/39489/

Abstract:
"The purpose of this study to explore how preservice foreign language teachers perceive required knowledge and skills for successful technology integration. In the study, it is intended to specify knowledge types for technology integration into English language teaching based on TPACK framework. For this purpose, interviews were applied to the instructors who are experienced with technology related courses given for foreign language department. Based on data collected through interviews with instructors, national and international teacher competencies, and other TPACK studies, a TPACK instrument was developed and validated. Then, it was applied to the preservice foreign language teachers, so their perceived self-efficacy skills for successful technology integration into FLE were described. Data collected through the TPACK survey is going to be elaborated through interviews conducted with the snowballed preservice service foreign language teachers."

Date/Time: Wednesday, March 27, 4:00-5:00 PM

Bruewer, A. (2013, March). *Perceptions of first year social studies teachers: Understanding their technology knowledge and use in the classroom.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38626/

Abstract:
"Using TPCK as a starting point, this qualitative case study focuses only on the area of technology knowledge, investigating first year social studies teachers understanding of their knowledge of technology in the areas of society, democracy, and education, adding to the literature on using TPCK in the social studies methods classroom. Participants engaged with the author in a semi structured interview which was developed through a review of the literature, with participants responses recorded, transcribed and analyzed, in order to expand what is known about current first year social studies teachers understanding and use of technology for democracy, in society and education. Results are forthcoming."

Date/Time: Thursday, March 28, 5:15-6:15 PM

Chase, K., & Courey, S. (2013, March). *Blended learning and how teachers immigrate into technology rich pedagogical practices.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38432/

Abstract:
"Technology is rapidly becoming a prominent mediating tool that permeates all aspects of personal and professional life. In accordance teachers are challenged to both develop skills for recognizing when and how technology can be successfully integrated into instruction. As digital immigrant not all teachers have sound practices for developing Blended Learning instructional pathways, and must work to develop the skills of integrating their Pedagogical, Technological and Content Knowledge, and theory known as TPACK. Applying this theory within the context of urban high schools, this paper examines a pilot Blended Learning program in four mathematics classrooms and the impact on both teacher practice and student performance."

Date/Time: Wednesday, March 27, 6:15-8:00 PM

Digiovanni, L. (2013, March). *Developing TPACK thinking with pre-service teachers: "Bring your own technology" in teacher education contexts.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from
http://academicexperts.org/conf/site/2013/papers/38258/

Abstract:
""Bring your own Technology," or BYOT, has become a viable possibility in K-12 classrooms over the past several years with the proliferation of smart phones, tablets, and other Wi-Fi capable devices. While some districts resist the notion of allowing students to use their own devices, others are embracing it, and expect teachers to well utilize technology in their classrooms. Teacher educators and pre-service teachers alike must begin the process of learning to incorporate these learning devices when thinking about how to educate 21st century learners into the teacher education curriculum. This paper highlights one teacher educator's attempt to begin the scaffolding of teacher candidates to move towards BYOT thinking and TPACK considerations in their own K-5 classroom contexts."

Date/Time: Thursday, March 28, 3:45-4:05 PM

Dinh, H. (2013, March). *Developing and validating a self-assessed survey instrument to measure Vietnamese EFL teachers' TPACK.* Virtual paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from
http://academicexperts.org/conf/site/2013/papers/38115/

Abstract:
"The Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) has gained increasing interest by the educational technology research community. The use of survey instruments have become a popular means of measuring teachers' TPACK. However, existing survey instruments have mainly been developed for use with pre-service or in-service teachers in developed countries such as the

United States. They therefore do not meet the context needs if they are to be applied for teachers in developing countries such as Vietnam. This paper presents an analysis of the development and initial validation of a self-assessed survey instrument to measure Vietnamese EFL teachers' TPACK knowledge."

Ervin, L. (2013, March). *TPACK and technology using teacher assessment practices.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/39541/

Abstract:
"This study seeks to add to the body of research around the TPACK framework through an investigation into the current practices of self-identified technology-using teachers. The research will focus on how these teachers use technology to assess student learning. Assessment practices were chosen as an area that is illustrative of pedagogical content knowledge (Shulman, 1987). Examining how technology is used in the assessment process should provide insight into the intersection of technological, pedagogical and content knowledge (Mishra & Koehler, 2006)."

Date/Time: Wednesday, March 27, 6:15-8:00 PM

Ervin, L. (2013, March). *Using technology tools to develop formative assessment TPACK: An investigation of online professional development for technology-using teachers.* Roundtable discussion hosted at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38676/

Abstract:
"This mixed-methods study seeks to better understand how technology using teachers develop knowledge and skills around formative assessment. The participants in the study will take part in an online workshop series about using technology tools to enact strategies for embedded formative assessment. A pre-post test assessment literacy survey, as well as qualitative data from the workshop, supporting online community and participant interviews will be examined. It is hoped that roundtable participants will discuss insights into the TPACK framework, technological formative assessment, and the transformational potential of online professional development."

Date/Time: Tuesday, March 26, 10:15-11:15 AM

Figg, C., & Jaipal, K. (2013, March). *Using TPACK-in-practice workshops to enable teacher candidates to create professional development workshops that develop tech-enhanced teaching.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38292/

Abstract:

"The TPACK-in-Practice Workshop is derived from the Framework of TPACK-in-Practice, a framework of teacher characteristics and actions that demonstrate TPACK used by teachers when they teach with technology. The workshop model uses four specific types of professional development experiences to promote teaching with technology, rather than teaching the technology, with the goal that teachers leave the workshop being able to understand how to integrate one tech-enhanced activity into their own daily instructional practices. Significance of the study is that teacher candidates who use the TPACK-in-Practice Workshop Model to design and deliver technology workshops in their practice teaching placement schools develop a richer understanding of individual tech-enhanced teaching practice, which promotes a paradigm shift from teaching the tool to tech-enhanced teaching. Preliminary findings indicate that the workshop model may be a practical and efficient method for engaging teachers and teacher candidates in the development of tech-enhanced teaching practice."

Date/Time: Thursday, March 28, 2:00-2:30 PM

Forbes, L. (2013, March). *Situating TPACK in the teacher knowledge base: Creating a shared theoretical vision.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/39663/

Abstract:
"To meet the need for a shared theoretical framework situating Technological Pedagogical and Content Knowledge (TPACK) in the teacher knowledge base, this comparative analysis examined TPACK in relation to elements of the teacher knowledge base as identified by NCATE, INTASC/InTASC, NBPTS, Danielson's Framework for Teaching, Shulman, and the National Research Council's How People Learn framework. This paper identified contexts influencing TPACK through the process of curriculum mapping. A theoretical framework titled TPACK/LAC is proposed. TPACK/LAC reorganizes the elements of previous frameworks to highlight the position of TPACK within the teacher knowledge base to provide common language for scholars."

Date/Time: Wednesday, March 27 2:45-3:45 PM

Gillow-Wiles, H., & Niess, M. (2013, March). *Using multiple digital technologies in an online MS program to develop TPACK.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38098/

Abstract:
"Technological pedagogical content knowledge (TPACK) is a critical knowledge set teachers rely on to create learning experiences where students use technology in developing higher order thinking and deep cognitive understanding. Technology is seldom used in isolation. More often, multiple technologies are used in concert to

accomplish a task. This study investigated using the 5 E's learning framework (Bybee, 2009; Lederman, n.d.) as a learning trajectory in framing an online continuing education course with K-12 inservice teachers, focusing on developing TPACK with temperature probes and Jing video technology used in concert. Additionally, the impact of utilizing text-based forum discussions and written essays as collaboration and reflection tools on the development of TPACK was investigated. Results indicate interweaving multiple technologies with a learning trajectory pedagogical framework supports TPACK development with both technologies individually and together."

Date/Time: Thursday, March 28, 11:15-11:45 AM

Harris, J., Van Olphen, M., & Hofer, M. (2013, March). *Incorporating knowledge of students systematically into TPACK-based instruction: An illustration.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/39687/

Abstract:
"How might teachers' knowledge of students' specific learning needs and preferences be incorporated into their TPACK, and subsequently into their practice? How can this knowledge help teachers to select and employ particular technologies in specific ways that can accommodate students' differing learning requirements? Building upon previous work that supports teachers' TPACK-based instructional planning with taxonomies of learning activity types in nine different curriculum areas, we developed a taxonomy of teaching strategies, each supported by recommended digital technologies, that are specific to particular learners' needs. In this first TPACK-based teaching strategies taxonomy, the needs of English Language Learners (ELLs) are addressed. The new taxonomy is designed to be used in concert with one or more curriculum-based learning activity types taxonomies, scaffolding the development and use of teachers' TPACK while they are planning curriculum-based, well-differentiated instruction."

Date/Time: Wednesday, March 27, 2:00-2:30 PM

Herring, M., Redmond, P, Thomas, T., Combs, B., Smaldino, S., & Williams, A. (2013, March). *Leadership needs to develop TPACK-ready teacher candidates.* Panel presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38623/

Abstract:
"At the 2012 National Technology Leadership Summit, the AACTE Innovation and Technology committee met with deans and school leaders to wrestle with the "wicked problem" of changing school culture and practices to ensure that teacher candidates are ready to grow as TPACK proficient teachers when they leave their teacher preparation

program. This session will share a theory of action, implementation process, and case studies by the AACTE Innovation & Technology Committee."

Date/Time: Thursday, March 28, 1:30-2:30 PM

Hu, H-W., & Hsiao, W-Y. (2013, March). *Developing pre-service teachers' understanding in division of fractions by using TPACK.* Roundtable discussion hosted at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38379/

Abstract:
"Although previous studies have demonstrated pre-service elementary school teachers (PSTs) lack of understanding of the division of fraction, little is known about PSTs' conceptual understanding toward this content area. The research on the TPACK (technological, pedagogical, and content knowledge) model is used to explicate PSTs' capacity to learn and teach specific content such as division of fractions with technology. A case study approach was used in this study to look at PSTs' TPACK development levels in a framework, and that framework facilitates description of their conceptions and their difficulties in this integrating processes."

Date/Time: Tuesday, March 26, 11:30 AM-12:30 PM

Kafyulilo, A., Fisser, P., & Voogt, J. (2013, March). *Supporting teachers' collaboration in design teams to develop technological pedagogical content knowledge: The case of science teachers in Tanzania.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38312/

Abstract:
"This study assessed the effect of support on the teachers' collaboration in design teams and development of Technological Pedagogical Content Knowledge (TPACK). The study was carried out in two secondary schools in Tanzania: Chang'ombe and Jitegemee secondary schools. From each school 10 teachers participated in the professional development program intended to develop TPACK. Four supports were provided during the professional development program: collaboration guidelines, online learning materials, exemplary lessons and human support (an expert). The pre and post intervention assessment of teachers' perceived and observed knowledge and skills of integrating technology in teaching was done through questionnaire and interview. Other data collection instruments were observation checklist and focus group discussion. Findings revealed a significant different between the pre and post intervention teachers' TPACK. Through support, teachers' discussions in the design teams were precise, focused to the goals of the meeting and time efficient."

Date/Time: Tuesday, March 26, 5:55-6:15 PM

Kafyulilo, A., Fisser, P., & Voogt, J. (2013, March). *TPACK development in teacher design teams: Assessing the teachers' perceived and observed knowledge.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/39139/

Abstract:
"In this study, teacher design teams were adopted as a professional development approach to develop Technological Pedagogical Content Knowledge (TPACK) among science teachers at Kibasila secondary school in Tanzania. Twelve science teachers participated in a training, design of technology integrated lessons, lesson implementation and reflection with peers. The study utilized a wide range of instruments, such as questionnaires, interview, focus group discussion, observation checklist, and researchers' logbook. Triangulation of findings from the questionnaire and the observation checklist indicated limited teachers' knowledge of the technology related components of TPACK before the intervention and enhanced knowledge in all TPACK components after the intervention. Interviews, focus group discussions, reflection questionnaire and the researchers' logbook provided potential information on the characteristics of design teams that accounted for the development of TPACK."

Date/Time: Wednesday, March 27, 10:15-11:15 AM

Krauskopf, K., & Forssell, K. (2013, March). *I have TPCK! What does that mean? Examining the external validity of TPCK self-reports.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38333/

Abstract:
"Two studies using a TPCK self-rated knowledge scale provide insights into the construct being measured by that scale. These validity studies from two different populations of accomplished teachers in the United States and pre-service teachers in Germany examine the correlations between TPCK and a variety of knowledge, belief, and attitude variables. Both studies show the TPCK measure correlating most strongly with personal experience and pro-technology attitudes, and less strongly with objective knowledge measures."

Date/Time: Thursday, March 28, 4:00-4:30 PM

Krauskopf, K., Williams, M. K., & Foulger, T. (2013, March). *Probing TPCK usability in a pilot study on (not) understanding TPCK by a Venn-diagram.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38326/

Abstract:

"A recent review on TPACK research has concluded that there is great need for empirical research regarding the development of this specific knowledge base. Based on a Venn diagram visualization of the framework we created a graphic assessment tool to (a) tap into teachers' understanding of the proposed TPACK sub-domains and to explore (b) the usefulness of this tool for professional development. Extending the common TPACK diagram, we introduced variability in size and amount of overlap of the basic sub-domains (TK, PK, CK). The pilot study presented here reports the results of semi-structured interviews with two German in-service teachers. Overall, the teachers' understanding of the knowledge sub-domains raises important questions regarding our conceptualization of what TPACK is and how it could be further developed. The hypothesis derived for future research is that TPACK is related to both a better integration of the sub-domains as well as a better understanding of the distinct basic sub-domains."

Date/Time: Tuesday, March 26, 11:50 AM-12:10 PM

Kulavus-Onal, D., & Vásquez, C. (2013, March). *The mediation of technological pedagogical content knowledge in a global online community of practice: A case of in-service English language teachers.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38485/

Abstract:
"Situated in communities of practice (CoP) and technological pedagogical content knowledge (TPACK) frameworks, this multiple case study explores the mediation of TPACK in a globally-distributed online community of practice of English language teachers, called Webheads in Action (WiA). Derived from a larger online ethnography conducted with this community, the study uses field notes from online participant observation, interviews, and archived email data to describe the characteristics of this community's activities and culture, as well as two selected members' lived experiences in their involvement with this community as it pertains to pedagogically-sound technology integration. Through content and inductive analysis, we demonstrate ways of and argue for the potential of developing an understanding of meaningful technology integration through participation in an online community of practice, which provides a mediational space for in-service English language teachers."

Date/Time: Friday, March 29, 2:30-3:00 PM

Kumar, S., & Leeman, J. (2013, March). *Critical adoption of content-specific technologies in pre-service teacher education.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38649/

Abstract:

"An educational technology course for pre-service social studies teachers was explicitly designed to focus on technological pedagogical content knowledge (Mishra & Koehler, 2006) and Hooper and Rieberís (1999) model of teacher use of technology as a theoretical framework. Students' (n=15) perceptions of their learning during the course were recorded in their reflections during and at the end of the course. An analysis of the reflections highlighted the usefulness of using an explicit design framework for educational technology courses that integrates technology, content and pedagogy."

Date/Time: Thursday, March 28, 4:00-4:30 PM

Kurt, G., Mishra, P., & Kocoglu, Z. (2013, March). *Technological pedagogical content knowledge development of Turkish pre-service teachers of English.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38476/

Abstract:
"Changes having occurred in the field of education have affected the body of knowledge that teachers need to promote successful language learning of their students (van Olphen, 2008). The present study aims to examine the TPACK development of Turkish PTs of English as they participated into a study explicitly focusing on the framework of TPACK and designed following Learning Technology by Design approach. Participants were 22 PTs enrolled in the ELT program of a state university in Istanbul, Turkey. During the 12-week study, PTs were informed about the TPACK framework, explored various technologies collaboratively, developed technological materials, designed technology-integrated lessons and taught in a real classroom setting. Data came from the adapted version of the Survey of Pre-service Teachers' Knowledge of Teaching and Technology (Schmidt, et al., 2009). Results showed that there was a statistically significant increase in TK, TCK, TPK and TPACK scores of PTs of English from the beginning to the end of the study."

Date/Time: Wednesday, March 27, 10:35-10:55 AM

Leeman, J. (2013, March). *Guiding pre-service teachers toward technology supported learner-centered instruction: Using the TPACK literature to inform teacher educator pedagogy.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38521/

Abstract:
"This paper explains the way in which the literature on developing pre-service teachers' technological pedagogical content knowledge (TPACK) was used to redesign a graduate-level, content-based technology integration course. Common obstacles preventing pre-service teachers' ability to utilize technology to support learner-centered pedagogy are addressed, as well as various approaches taken to develop pre-service teachers' TPACK."

Date/Time: Wednesday, March 27, 11:30-11:50 AM

Lyublinskaya, I. (2013, March). *Integrating TPACK framework into coursework and its effect on changes in TPACK of pre-service special education teachers.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38092/

Abstract:
"The present study focuses on the development of Technological Pedagogical and Content Knowledge (TPACK) in mathematics and science of pre-service special education teachers via one course. This course provides an introduction to a variety of strategies and techniques for using instructional technology in teaching concepts in science and mathematics to children with learning and behavior disabilities. The TPACK Levels Rubric developed by Lyublinskaya and Tournaki (2011) was used to assess participants' lesson plans created as part of the required course work at the beginning and at the end of the semester. The t-test revealed that upon completion of the course requirements, the participants' TPACK scores increased significantly between lesson plan 1 and 2, but still the highest level of TPACK remained quite low, i.e. with the score of 2 out of 5. Implications for teacher education programs are discussed."

Date/Time: Thursday, March 28, 1:30-2:00 PM

McBroom, E. *Teaching geometry with technology: A case study of one teacher's technological pedagogical content knowledge.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38614/

Abstract:
"This qualitative case study investigated how high school teachers developed and used their knowledge in teaching geometry with technology. In particular, this study focused on teachers' technological pedagogical content knowledge (TPACK) and their integration of dynamic geometry in the classroom instruction. This paper reports findings from one of the four cases. The sources of data included: an initial interview, observations, documents, a closing interview, a survey, implementation questionnaires, professional development attendance records and the researcher's log. Data analysis utilized the TPACK Development Model to describe participant's dynamic geometry integration and to identify her TPACK development levels. The researcher was able to identify all TPACK development levels for the participant, which was an unexpected finding since the participant was an experienced teacher and long-term technology user."

Date/Time: Thursday, March 28, 4:30-5:00 PM

Mitchell, M. (2013, March). *A comparative study of mathematical content, pedagogy and technology using a paired t-test of the means of seven domains.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38778/

Abstract:
"My paper will discuss a study that is ongoing in a preservice elementary mathematics content course. I am interested in examining how preservice teachers in elementary mathematics develop and apply TPACK knowledge in a course entitled "Mathematics Through Computers". I did a comparative analysis between pre/post test scores for a class that is taught traditionally and a course that is taught online. I used the mean pre/post scores and conducted a Paired T-Test on seven knowledge domains.. I used the Survey of Preservice Teachers' Knowledge of Teaching and Technology (Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009) to collect the data from a Pre and Post Survey. They include: technology knowledge (TK), content knowledge (CK), pedagogical knowledge (PK), pedagogical content knowledge (PCK), technological content knowledge (TCK), technological pedagogical knowledge (TPK) and technological pedagogical content knowledge (TPACK)."

Date/Time: Tuesday, March 26, 10:15-11:15 AM

Redmond, P., Herring, M., Thomas, T., Smaldino, S., & Williams, A. (2013, March). *AACTE innovation and technology leadership initiative to develop TPACK-ready teacher candidates: A practical solution for transforming teacher preparation programs.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38507/

Abstract:
"At the 2012 National Technology Leadership Summit, the AACTE Innovation and Technology committee met with deans and school leaders to wrestle with the "wicked problem" of changing school culture and practices to ensure that teacher candidates are ready to grow as TPACK proficient teachers when they leave their teacher preparation program. This session will share a theory of action developed by the committee and suggested steps for implementing the change process."

Date/Time: Wednesday, March 27, 1:50-2:10 PM

Redmond, P., & Lock, J. (2013, March). *TPACK: Exploring a secondary pre-service teachers' context.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38024/

Abstract:

"Twenty-first century teacher educators need to design learning experiences integrating technology for transformative learning. Bringing together the power of deep content knowledge, pedagogical knowledge and technological knowledge in an integrated manner is critical in the design of today's learning experience. The TPACK framework assists educators to gain competency and confidence to design technology-enhanced learning in ways that transform the learning experience for both students and teachers. This paper describes the TPACK findings of secondary pre-service teachers who have just completed their second professional experience placement in conjunction with a curriculum and pedagogy course. Pre-service teachers reported that they were developing the necessary confidence in working with the technology and designing learning using a TPACK framework. From the data, it was apparent that teacher educators are able use the framework to design, model and explore innovative teaching with technology to design TPACK learning experiences that are mindful and thoughtful."

Date/Time: Thursday, March 28, 4:00-4:30 PM

Sabo, K., & Archambault, L. (2013, March). *Tracking the evolution of TPACK in graduate teacher education: A mixed-methods study.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38499/

Abstract:
"This study will investigate graduate teacher education students' knowledge and practice of teaching with technology as well as how that knowledge and practice changes after participation in an educational technology course. This study will use a mixed-methods research design. Participants will be education students enrolled in coursework in pursuit of their graduate degrees. A Technological Pedagogical Content Knowledge (TPACK) survey will be administered before and after the courses. Participant lesson plans from students enrolled in an educational technology course will be scored using a TPACK rubric and will be analyzed with text analysis software. Finally, educational technology students will be selected for interviews based on their TPACK survey scores. This study will provide a more complete view of the development of teacher knowledge of and practice in teaching with technology that can be used to develop future courses and programs."

Date/Time: Wednesday, March 27, 10:15-11:15 AM

Sampaio, P., & Coutinho, C. (2013, March). *Teach mathematics with technology: Put into practice a theoretical framework.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38885/

Abstract:
"This paper is a report on the findings of a study conducted to examine the results of implementing an educational technology course focused on interactive whiteboard

classroom applications according to TPACK Mathematics. It was examined the change in teachers' attitudes toward using technology and perceived ability to integrate interactive whiteboards in Mathematics class, 9 months after and 3 years later. It is exposed the theoretical TPACK about integration of educational technology in the teaching/learning process, reflecting on the need for teachers to have continuous professional development. It was observed a positive evolution about their use of ICT in classroom context and their level of competence in ICT use, reporting that this kind of training is usefulness in their teaching practice and can contribute to improve student learning by their professional development."

Date/Time: Tuesday, March 26, 10:55-11:15 AM

Searson, M., Slykhuis, D., Lee, J., Hofer, M., & Bull, G. (2013, March). *National Technology Leadership Coalition TPACK initiative: Illustrating TPACK through video-based teaching cases.* Panel presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/39456/

Abstract:
"SITE is collaborating with peer associations in the National Technology Leadership Coalition (NTLC) to develop video-based teaching cases illustrating effective use of TPACK. Participating associations developing pilot teaching cases include the Association of Mathematics Teacher Educators (AMTE), the Association for Science Teacher Education (ASTE), the NCTE Conference on English Education (CEE), the NCSS College and University Faculty Assembly (CUFA), the Organization of Teacher Educators in Reading (OTER), and the Council for Exceptional Children (CEC). In this panel, SITE leaders will present an initial set of teaching cases illustrating TPACK integration in science, mathematics, language arts, and social studies. They will discuss initial results in a preservice teacher education course and plans for future development. Editors from the CITE Journal will discuss guidelines for SITE members who may wish to develop and publish similar teaching cases."

Date/Time: Thursday, March 28, 2:45-3:45 PM

Shafer, K., & Mudzimiri, R. (2013, March). *The role of mathematical content knowledge on TPACK development in pre-service teachers.* Roundtable discussion hosted at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/39508/

Abstract:
"The overarching question that will be addressed in this roundtable session is "can/should TPACK developmental models be differentiated to account for teachers with varying levels of content knowledge (high or low)?" Our goals are to 1) explain our research and teaching experiences with pre-service teachers who have high and low levels of CK and how this was a contributing factor to their TPACK development; 2)

review current models focused on TPACK development; 3) facilitate a discussion on the role content knowledge might have on TPACK development; and 4) outline tangible "next steps" for mathematics educators and researchers."

Date/Time: Wednesday, March 27 2:45-3:45 PM

Smart, V., Sim, C., & Finger, G. (2013, March). *A view into teachers' digital pedagogical portfolios showing evidence of their technological pedagogical reasoning.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38298/

Abstract:
"This paper is a report on the findings of a study undertaken with a number of teachers who have completed their SMART Classrooms Professional Development Framework - Digital Pedagogical License (SCPDF-DPL). These SCPDF-DPL's provide rich descriptions of a teacher's professional values, relationships, knowledge and practice with using digital technologies. This study extends Shulman's (1986, 1987) work on pedagogical reasoning to include technology. The aim of the larger study was to understand how teachers, across various career stages, reason with technology. As part of a large study, some teachers gave access to their online Digital Pedagogical License. These DPL's were reviewed using Shulman's Model of Pedagogical Reasoning and Action as a lens. Findings indicate there is evidence of Pedagogical Reasoning with technology embedded in the portfolios of four teachers at the proficient career stage."

Date/Time: Thursday, March 28 5:00-5:30 PM

Voogt, J., Mishra, P., Thompson, A., Crawford, D., Wang, W. Niederhauser, D.,…Agyei, D. (2013, March). *Measuring TPACK: Parts 1 & 2.* Symposia conducted at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38404/

Abstract:
"This symposium discusses several ways in which (pre-service) teachers' TPACK can be measured. The first two studies unravel the TPACK survey (Schmidt et al., 2009), a self-report instrument to determine TPACK, and try to revalidate the survey in two different pre-service teacher education contexts: The US and the Netherlands. The third study triangulates findings from the TPACK survey with other instruments to better understand teachers' development of TPACK that resulted from teachers' collaborative design of technology integrated lessons. The last contribution focuses on measuring transfer of TPACK, as it studies how beginning teachers, who had TPACK training during their pre-service education, demonstrated TPACK in their practice. Similarities and differences in the ways TPACK were measured and its implications will be discussed."

Date/Time: Wednesday, March 27 10:15-11:15 AM & 11:30 AM-12:30 PM

Wang, A. Y. (2013, March). *The impact of digital storytelling on the development of TPACK among student teachers.* Virtual poster session presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/39142/

Abstract:
"There has been the need for the teacher preparation program to develop TPACK among future teachers in Taiwan. Digital storytelling, incorporating expressive abilities, creative abilities, and technology abilities, appears to be a solution. This study observes the development of TPACK among student teachers, and investigates the influence of digital storytelling on the development. In total, 101 student teachers from three different classes, taking the same course in the education program, participated in the research. Two groups did digital storytelling as a required assignment, while one group did not. Data collected includes the pretest and posttest scores of a TPACK survey, open-ended questions in the survey, transcripts of interviews, class reflections, and their digital storytelling files. Data are analyzed to observe if there is any significant change on the development of TPACK. The paper concludes with suggestions for future research and practices."

Wang, W., Crawford, D., & Niederhauser, D. (2013, March). *An investigation of how preservice teachers develop TPACK after content methodology courses.* Paper presented at the meeting of the Society for Information Technology and Teacher Education, New Orleans, LA. Abstract retrieved from http://academicexperts.org/conf/site/2013/papers/38391/

Abstract:
"Emerged from Schulman's idea of Pedagogical Content Knowledge (1986), Technological Pedagogical Content Knowledge (TPACK) was designed as a useful framework to understand the complexities that Pre-K-12 teachers encounter when integrating technology into their curricular practices. However, it is difficult to develop methods to measure TPACK and its sub-domains. This study investigates preservice teachers' development in technology, pedagogy and content knowledge (TPACK) through triangulated assessments (survey, interview and open-ended questions) after completing the required content specific methodology courses. Data were collected at multiple times during the preservice teachers preparation program. Findings suggest that the method courses may play a critical role in developing preservice teachers' knowledge in content and pedagogy. However, lack of support in technology integration in actual classrooms may result in the decrease of TCK and TPACK domains."

Date/Time: Tuesday, March 26 2:45-3:15 PM

Editors' Note: *The 36 SITE 2013 sessions listed above are those that appear to address TPACK directly and prominently, based upon the contents of their online abstracts. Descriptions of additional sessions that list TPACK as one of multiple descriptors can be viewed here:*
http://academicexperts.org/conf/site/2013/topics/TPACK/.

AERA 2013 TPACK-Related Presentations

Angeli, C. M., Valanides, N. C., & Georgiou, K. (2013, April). *Learning how to teach with spreadsheets: A technological pedagogical content knowledge perspective.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=606706&PHPSESSID=a3k1dp0i7bkk9o86bjunrp3p77

Abstract:
"The teaching of spreadsheets in K-12 settings, tertiary education, and teacher professional development programs focuses primarily on demonstrating the technical capabilities of Excel. As a result, students and teachers often fail to recognize how to use spreadsheets to support thinking and learning. The author herein proposes technology mapping (TM) as an approach for teaching the pedagogical affordances of Excel in contextualized ways while demonstrating at the same time its technical features. While the findings showed that preservice teachers greatly benefited from the TM approach, students faced difficulties in using Excel as a modeling tool, implying that more time and effort should be devoted to teaching students about modeling and how Excel should be used as a modeling tool."

In Session: Technological and Pedagogical Content Knowledge
Scheduled Time: Mon, Apr 29 - 2:45pm - 4:15pm
Building/Room: Parc 55, Third Level - Mason

Baser, D., & Ozden, M. Y. (2013, April). *Validation of a TPACK (technological pedagogical content knowledge) survey developed for preservice foreign language teachers.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=614708&PHPSESSID=fad0u6q8igqor9oeobcqgth2m0

Abstract:
"The purpose of the study is to develop and validate an instrument to assess preservice foreign language teachers' perceived TPACK built on relevant literature and qualitative data in which specific knowledge for the components of the TPACK framework. Qualitative data were collected from the six experts who were the instructors of technology related courses given for preservice teachers in the department of Foreign Language Education. And 245 preservice foreign language teachers participated in the study to explore the factor structure of the TPACK survey. A 9-point Likert scale including 39 items was analysed through exploratory factor analysis and seven-factor structure model was found for the new TPACK survey developed which supports the TPACK framework."

In Session: Assessing Teacher Practice in Teacher Education
Scheduled Time: Sat, Apr 27 - 12:00pm - 1:30pm
Building/Room: Hilton Union Square, Lobby Level - Golden Gate 6

Bilici, S. C., Bulut, O., Guzey, S., Demirelli, H., & Durak, N. (2013, April). *Evaluation of the technological pedagogical content knowledge (TPACK) framework using structural equation modeling.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=611610&PHPSESSID=knd2g0e7svt6efmu00rvc1vs40

Abstract:
"Since Mishra and Koehler (2006) proposed the model of technological pedagogical content knowledge (TPACK) numerous studies have been conducted about the nature and development of TPACK. However, the model of TPACK has been criticized by many researchers since it is complex, has a lack of theoretical clarity and undefined constructs. This study aimed to examine components of the TPACK model and to understand how each component contributes to the model. Structural equation modeling (SEM) was used to analyze the TPACK data collected from 808 pre-service teachers. The findings show that technological knowledge (TK), pedagogical knowledge (PK) and content knowledge (CK) construct the TPACK while the relationship between PK, CK and TPACK are stronger than the relationship between TK and TPACK."

In Session: Rethinking Technology, Instruction, Cognition, and Learning
Scheduled Time: Tue, Apr 30 - 8:00am - 9:30am
Building/Room: Sir Francis Drake, Second Level - Empire

Brantley-Dias, L., Davis, E. L., Richardson, C. C., Ball, M., & Sarsar, F. (2013, April). *Design tasks and podcasts – Helping pre-service teachers develop TPACK.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=618480&PHPSESSID=4avoa1r2ekm4itcmeesvkfro52

Abstract:
"As TPACK has taken hold in the teacher education landscape, researchers and practitioners have begun the difficult task of developing tools and techniques for identifying and assessing this type of teachers' knowledge (Abbitt, 2011). The purpose of this exploratory multi-case study was to examine if podcasts, along with other the design tasks, help foster a better understanding of pre-service teachers' TPACK growth and development. Over 150 data artifacts, such as assignments, podcasts, reflection papers, and discussion postings were analyzed from seven participants enrolled in an extensive six-week Master's level course. The study found that podcasting helped

participants exhibit TPACK by building the participants' confidence as well as developing their TPACK over the course of the semester."

In Session: Instructional Technology SIG: Paper Session: Teacher Education, Technology Integration, and TPACK (Technological Pedagogical Content Knowledge) I
Scheduled Time: Tue, Apr 30 - 2:00pm - 3:30pm
Building/Room: Parc 55, Fourth Level - Mission I

Doering, A., Koseoglu, S., & Scharber, C. (2013, April). *Technology integration in K-12 geography education using TPACK (technological, pedagogical, and content knowledge) as a conceptual model.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=606637&PHPSESSID=u2cag9lkculgocv8lovfp47et4

Abstract:
"There is a need for designing quality professional development programs and instructional models addressing the needs and challenges of K-12 technology integration. In this longitudinal study, we examine the impact of a professional development program that was designed   with an explicit focus on developing in-service K-12 geography teachers' technological, pedagogical, and content knowledge (TPACK) utilizing mixed method surveys and observations. We conclude that introducing teachers to GeoThentic, a learning environment grounded in TPACK and situated learning, as well as to the conceptual TPACK framework itself improved teachers' understanding and application of current and emerging technologies. We emphasize the role of authentic learning and the affordances of content-specific learning tools and resources, and discuss commonly experienced barriers in K-12 technology integration."

In Session: Teachers and Technology: New Answers to Old Questions
Scheduled Time: Wed, May 1 - 8:15am - 10:15am
Building/Room: Parc 55, Second Level - Divisadero

Habowski, T., & Mouza, C. (2013, April). *Improving technological pedagogical content knowledge among pre-service science teachers.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication+For+Extra&publication_id=604927&PHPSESSID=4avoa1r2ekm4itcmeesvkfro52

Abstract:

"This study assessed pre-service science teachers' knowledge development as a result of their participation in a content-specific educational technology course that situated technology within science content and pedagogy. The course was taken in conjunction with field experience, which allowed participants to co-teach with a cooperative teacher. The study was grounded in the framework of Technological Pedagogical Content Knowledge (TPACK), which incorporates seven domains associated with technological, pedagogical and content knowledge. Results demonstrated significant improvements in all TPACK domains and exposure to valuable models of technology. Findings have implications for researchers and teacher educators preparing pre-service teachers to use of technology."

In Session: Instructional Technology SIG: Paper Session: Teacher Education, Technology Integration, and TPACK (Technological Pedagogical Content Knowledge) I
Scheduled Time: Tue, Apr 30 - 2:00pm - 3:30pm
Building/Room: Parc 55, Fourth Level - Mission I

Hagevik, R. A., Falls, I., Stringer-Barnes, P. J., & Horton, J. (2013, April). *Improving technological pedagogical content knowledge and reconnecting with nature using geospatial technologies.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=615514&PHPSESSID=n429fqrt2aevp7boiahbf0fa23

Abstract:
"This study examined how geospatial technologies were used to improve developing technological pedagogical content knowledge and connect twenty preservice and inservice science teachers to nature. Data analyzed included pre and post Environmental Attitudes Survey and TPACK instrument and participants' artifacts and interviews. Analysis of the survey showed a slight improvement in environmental attitudes. A significant increase was found in technological knowledge and geospatial knowledge with no pre to inservice teacher group differences. Analysis of artifacts and interviews revealed that participants gained: (1) new ways to use technology in the classroom, (2) a commitment to use the natural environment as a teaching tool, and (3) a renewed connection to nature and conservation."

In Session: Approaches to Teaching and Learning in Science Education
Scheduled Time: Mon, Apr 29 - 8:15am - 9:45am
Building/Room: Parc 55, Fourth Level - Cyril Magnin Foyer

Hubbard, J. D., & Price, G. (2013, April). *Cross-culture and technology integration: Examining the impacts of a TPACK-focused collaborative project on pre-service teachers and teacher education faculty.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from

http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=606979&PHPSESSID=otjvhg7ni0h7ukd0gkvhd7ea12

Abstract:
This action research study with 83 K-6 pre-service teachers examined the impacts of a TPACK-focused collaborative project, between teacher education and technology faculty, which integrated cross-cultural learning experiences, social studies inquiry skills and activities, and digital storytelling. While pre-service teachers gained technological skills and an awareness of cultural similarities and differences, no evidence suggests that they developed an ability to recognize transferrable pedagogy for future classroom use. Teacher education faculty members were satisfied with most of the project's learning activities, but overall they required further technological experiences to replicate the project's design. Findings suggest that pre-service teachers need more information about how to recognize teaching strategies for future use, and instructors need involvement in all stages of the project.

In Session: Whose Social Studies Is This? Research on Curricular Access and Inclusion
Scheduled Time: Wed, May 1 - 8:15am - 9:45am
Building/Room: Hilton Union Square, Fourth Level - Tower 3 Union Square 10

Koh, J. H. L., Chai, C. S., Tay, L. Y., & Yuen, M. D. (2013, April). *An analysis of school-based technology integration lesson design with the TPACK-in-Action framework.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=606016&PHPSESSID=p335gc8bisrar4rh0avre7mnn6

Abstract:
"This study uses a TPACK-in-Action framework to analyze how teachers design technology-integrated lessons with respect to Cultural/Institutional, Physical/Technological, Interpersonal, and Intrapersonal factors in a school-based environment. Transcripts from lesson planning meetings held by 25 teachers from an elementary school revealed that Physical/Technological factors determined the types of technologies teachers used whereas administrative duties were Institutional factors that curtailed their discussions about technology-integrated lesson design. While the school system encouraged teachers to adopt technology-driven student-centered pedagogies, teachers have yet to reconcile these with strategies used to prepare students for high stakes examinations. The TPACK-in-Action framework can be used to enrich teachers' design capacity for maneuvering contextual opportunities and constraints. Its applications are discussed."

In Session: At the Crossroads of Technology Integration, Students' Scaffolding, and Online Education

Scheduled time: Tue, Apr 30 – 12:10pm – 1:40pm
Building/Room: Parc 55, Second Level – Haight

Kramarski, B., & Michalsky, T. (2013, April). *Leveraging teachers' technology pedagogical content knowledge using a self-regulated learning program: The TPCK-SRL model.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=604632&PHPSESSID=ru5h6u59dmm0cv76v950a5pbv6

Abstract:
"The article examined whether enabling student science teachers to use the TPCK-SRL model for integrating SRL (Self-Regulated Learning) into TPCK (Technology Pedagogical Content Knowledge) linked to teachers' pedagogical beliefs about student-centered learning and their ability to apply TPCK in their own lesson design. We compared three groups of these teachers (n =146): teachers who had practiced the TPCK-SRL model, teachers who practiced only TPCK, and teachers who practiced PCK without technology emphasis. The findings indicated that teachers in the TPCK-SRL and TPCK groups outperformed their PCK peers in lesson design and had more positive student-centered beliefs. TPCK-SRL teachers also exhibited the strongest self-construction beliefs and stressed the added value of using technology in their lessons more strongly."

In Session: How Do We Know What We Know?
Scheduled Time: Sun, Apr 28 - 4:05pm - 5:35pm
Building/Room: Hilton Union Square, Ballroom Level - Imperial Ballroom B

Lee, C-J., & Kim, C. M. (2013, April). *Developing a TPACK-based instructional design model for preservice teachers' technology integration learning: A case study of design-based research.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=2&cmd=Multi+Search+Search+Load+Publication&publication_id=606986&PHPSESSID=u7t3ufmafulsrfhov8nt9ukf93

Abstract:
"This study was conducted to develop a subject-neutral TPACK-based instructional design (ID) model for preservice teachers' learning of technological pedagogical content knowledge (TPACK). We applied the design-based research (DBR) approach to plan, develop, implement, and evaluate the prototypes of the ID model, so as to study and improve the effectiveness of the model and develop theories from the cyclic testing processes. DBR includes the phases of (1) preliminary research, (2) prototyping, (3) summative evaluation, and (4) systematic reflection. In this proposal, we report (a) the theoretical framework and the initial design principles developed during the preliminary

research and (b) the first prototype tested during the prototyping stage. Findings from all the four phases will be presented at the conference."

In Session: Preservice Teachers Learning in Digital World
Scheduled Time: Tue, Apr 30 - 8:00am - 9:30am
Building/Room: Hilton Union Square, Ballroom Level - Imperial Ballroom B

Ottenbreit-Leftwich, A. T., Kopcha, T. J., & Jung, J. (2013, April). *Assessing preservice teachers' technology integration abilities using TPACK: Comparing three measures.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=617304&PHPSESSID=af7v03u42bqq522a1r99dvrvu2

Abstract:
"A number of different techniques have been used to measure the technological pedagogical content knowledge of pre-service teachers. We implemented three different measures of 27 elementary preservice teachers' TPACK to investigate which measures most accurately reflected a preservice teacher's ability to integrate technology (a survey, rubric score for a case analysis and artifacts, and a holistic analysis of his/her electronic portfolio). Twelve cases seemed to be aligned between all three measures. Fifteen cases had higher survey scores than rubric scores. Further research is necessary to investigate whether these results are due to the population (students early in their teacher education programs) or whether multiples measures are necessary to measure preservice teachers' technology abilities."

In Session: Instructional Technology SIG: Roundtable Session: TPACK (Technological Pedagogical Content Knowledge) and K-12 Technology Integration
Scheduled Time: Wed, May 1 - 2:15pm - 3:45pm
Building/Room: Sir Francis Drake, Second Level - Empire

Polly, A. B. (2013, April). *Deepening pre-service teachers' knowledge of technology, pedagogy, and content (TPACK) in elementary school mathematics through a methods course.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=617624&PHPSESSID=7oennpgrpim1pmqnio4n3r2a64

Abstract:
"This paper presents the findings of a study that examined pre-service teachers' development of knowledge about technology, pedagogy and content (TPACK) during a mathematics pedagogy course focused on primary school mathematics in the United States. Data sources included work samples from pre-service teachers as well as an

open-ended survey collected at the end of the semester. Inductive analysis of the data indicated that pre-service teachers demonstrated varying levels of technological knowledge, but all demonstrated greater gains in their knowledge of mathematics content and pedagogical content knowledge. Implications for the design of pre-service mathematics education courses focused on primary school mathematics are also shared."

In Session: Instructional Technology SIG: Roundtable Session: TPACK (Technological Pedagogical Content Knowledge) and K-12 Technology Integration
Scheduled Time: Wed, May 1 - 2:15pm - 3:45pm
Building/Room: Sir Francis Drake, Second Level - Empire

Pringle, R. M., Ritzhaupt, A. D., & Dawson, K. M. (2013, April). *Using Technological and Pedagogical Content Knowledge to study the practices of science teachers involved in a technology Integration initiative.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication+For+Extra&publication_id=607059&PHPSESSID=a3k1dp0i7bkk9o86bjunrp3p77

Abstract:
"In response to national mandates, science educators and school leaders have renewed their efforts to promote the integration of learning technologies and inquiry-based educational technologies in curricular enactment. In this study, we used Technological, Pedagogical Content Knowledge (TPCK) (Mishra & Koehler, 2006) as a framework to examine teachers' technology integration practices as evidenced through lesson plans submitted at the beginning and end of a one-year technology integration effort. The participants were science teachers participating in a statewide initiative. Specially trained individuals reviewed and coded 525 lesson plans. The resulting online rubric was exported into IBM SPSS Statistics 19. Data analysis occured around seven constructs and revealed an increase in technology related practices but little improvements in fostering inquiry-based science."

In Session: Technological and Pedagogical Content Knowledge
Scheduled Time: Mon, Apr 29 - 2:45pm - 4:15pm
Building/Room: Parc 55, Third Level – Mason

Sandoval, V., & Hsu, P-L. (2013, April). *The development of the "technological pedagogical content knowledge" theory for teaching and learning.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication&publication_id=616830&PHPSESSID=vs0fis4pfs7jf3ah3noho35v37

Abstract:
"The theory of Technological Pedagogical Content Knowledge (TPACK) has been suggested as a powerful theory to integrate the component of technology into curriculum design and teaching practice. The purpose of this paper is to introduce and discuss the development of the TPACK theory through analyzing studies related to TPACK. Three important development dimensions of TPACK are identified: (a) a need for a better definition of TPACK, (b) "Integration" and "Transformation" perspectives in TPACK, and (c) developing contextualized teaching theories based on TPACK. These findings provide a summative introduction of the TPACK theory development and suggest possible directions for future studies of TPACK."

In Session: Rethinking Technology, Instruction, Cognition, and Learning
Scheduled Time: Tue, Apr 30 - 8:00am - 9:30am
Building/Room: Sir Francis Drake, Second Level - Empire

Shinas, V., Ozden, S. Y., Mouza, C., Karchmer-Klein, R. A., & Glutting, J. J. (2013, April). *Examining domains of technological pedagogical content knowledge using factor analysis.* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=1&cmd=Multi+Search+Search+Load+Publication+For+Extra&publication_id=604928&PHPSESSID=a3k1dp0i7bkk9o86bjunrp3p77

Abstract:
"This study examined the construct validity of the Survey of Preservice Teachers' Knowledge of Teaching and Technology through an exploratory factor analysis using responses from 365 preservice teachers in the United States enrolled in an educational technology course in a Mid-Atlantic University. The survey is grounded in the framework of Technological Pedagogical Content Knowledge (TPACK) and is designed to measure seven domains associated with technological, pedagogical and content knowledge. Findings revealed that participants did not always make conceptual distinctions among various TPACK constructs. Findings of this work have implications for theory and practice."

In Session: Technological and Pedagogical Content Knowledge
Scheduled Time: Mon, Apr 29 - 2:45pm - 4:15pm
Building/Room: Parc 55, Third Level - Mason

Young, J., & Lea, J. V. (2013, April). *The use of confidence intervals as a meta-analytic lens to summarize the effects of university classroom instruction on preservice teacher technological pedagogical content knowledge (TPACK).* Paper presented at the meeting of the American Educational Research Association, San Francisco, CA. Abstract retrieved from http://convention2.allacademic.com/one/aera/aera13/index.php?click_key=2&cm

Abstract:
"The validity and reliability of Technological Pedagogical Content Knowledge (TPACK) as a framework to measure the extent to which teachers can teach with technology hinges on the ability to aggregate results across empirical studies. The mean difference effect sizes from university classroom studies using the survey of pre-service teacher knowledge of teaching with technology (TKTT) were synthesized using confidence intervals (CIs). The mean effect sizes for the influence of classroom instruction on pre-service teacher TPACK were characterized by graphing CIs across studies from 2009 until 2011. The results present approximations of TPACK population parameters and implications for researchers and teacher educators."

In Session: Technology Impacting Teaching and Learning Poster Session
Scheduled Time: Tue, Apr 30 - 12:10pm - 1:40pm
Building/Room: Parc 55, Fourth Level - Cyril Magnin Foyer

ISTE 2013 TPACK-Related Presentations

Atkins, H. (2013, June). *Using digital backpacks to bring emerging technologies to rural schools.* Poster session presented at the meeting of the International Society for Technology in Education, San Antonio, TX. Abstract retrieved from http://www.isteconference.org/2013/program/search_results_details.php?session id=80436312&selection_id=82538393&rownumber=9&max=9&gopage

Abstract:
"The experiences of pre-service teachers and university faculty involved in a year-long grant titled "Backpacking Across the Digital Divide" will be shared in this interactive poster session.Presenters will begin by sharing a brief overview of the grant, including its purpose: To offer pre-service teachers in rural, technology-poor locations with technology tools that would support the pedagogical best practices learned in university classes. Presenters will share digital photos of grant participants in monthly technology trainings. Presenters will also share postings and comments made by pre-service teachers and faculty on the community blog. Presenters will share graphical representations of the TPACK survey administered to the pre-service teachers at three points during the year-long project. Presenters will share graphical representations indicating which technology made available to the pre-service teacher was used most frequently in their field placements. Presenters will bring a sample digital backpack with the technology tools given to the pre-service teachers. Participants will be provided with handouts of the content shared digitally."

Theme/Strand: Professional Learning – Teacher Education (Preservice & Advanced)
Audience: Teacher Educators/Higher Ed Faculty, Teachers
Date/Time: Tuesday, 6/25/2013, 1:00pm-3:00pm

Baker, C. (2013, June). *Strategic integration of social media for learning and teaching.* Poster session presented at the meeting of the International Society for Technology in Education, San Antonio, TX. Abstract retrieved from http://www.isteconference.org/2013/program/search_results_details.php?session id=80783310&selection_id=82538393&rownumber=6&max=9&gopage

Abstract:
"This poster presentation will provide an overview of how to systematically integrate social media into the classroom to enhance learning and engagement. Using Mishra & Koehler's (2008) Technological Pedagogical Content Knowledge (TPACK) framework and Roblyer & Doering's (2012) Technology Integration Planning (TIP) model, a university professor collaborated with a K-12 teacher to evaluate free social media tools like Twitter, Facebook, Edmodo, and Google+ Hangouts in relation to their own knowledge and comfort level. Both worked through the TIP model to strategically integrate these emerging technologies into the curriculum and evaluate results. Outcomes and lessons learned at both the K-12 and post-secondary level will be provided and discussed with participants."

Theme/Strand: Digital-age Teaching & Learning – Innovative Learning
                       Technologies
Audience: Teachers, Teacher Educators/Higher Ed Faculty
Date/Time: Monday, 6/24/2013, 11:00am-1:00pm

Cook, M., Lee, S., & Sawyer, D. (2013, June). *Engaging, technology-rich literacy activities: Using technology and the TPACK model.* Lecture presented at the meeting of the International Society for Technology in Education, San Antonio, TX. Abstract retrieved from http://www.isteconference.org/2013/program/search_results_details.php?session id=80835325&selection_id=82538393&rownumber=1&max=9&gopage

Abstract:
"Today, technology is too often integrated, especially in literacy instruction, at surprisingly low levels—at the bottom of Bloom's Revised Taxonomy. Teachers and educators often jump on the bandwagon of the latest and greatest technological tools pushed by their districts and principals, with little time to practice, explore, or plan for deep, authentic, and meaningful classroom uses. Additionally, teachers are often not comfortable using technology. Many avoid using technology themselves and fear that implementing these tools into their instruction will lead to a question they cannot answer or a situation they cannot manage. Teachers rely on technology coordinators and facilitators to solve even minor technology glitches, suggesting that whole-class instruction using these tools is outside of their comfort zone. With that said, even those teachers who consider themselves digital natives and fully fluent in technology and 21st century skills compound the relationship between technology and school further. While they often introduce students to computer programs and digital tools, they rarely make explicit and tangible connections between the tools students use in-school, those they use outside-of-school, and their pedagogical and content goals."

Theme/Strand: Digital-age Teaching & Learning – English Language Arts
Audience: Teachers, Technology Coordinators/Facilitators
Date/Time: Wednesday, 6/26/2013, 8:30am-9:30am

Poyo, S., Carbonara, D., & Wilson, B. M. (2013, June). *Teacher preparation: Active and strategic learning through lesson transformations.* Poster session presented at the meeting of the International Society for Technology in Education, San Antonio, TX. Abstract retrieved from http://www.isteconference.org/2013/program/search_results_details.php?session id=80658541&selection_id=82538393&rownumber=7&max=9&gopage

Abstract:
"This presentation demonstrates the active engagement of teacher candidates in collaborative lesson design. It models the practice of assimilating the NETS-S standards and TPCK Activity Types for Social Studies (Hofer & Harris, 2009) in order to improve existing lesson plans based on the ten NCSS-NCATE interdisciplinary thematic

standards. It provides examples of pre-service teachers as leaders using NETS-T critical thinking and problem solving to enhance learning objectives through technology and matching Common Core Standards with NETS-S standards. Participants of this session will be encouraged to share their experiences with the authors and will be encouraged to continue the conversation after the conference."

Theme/Strand: Professional Learning – Teacher Education (Preservice & Advanced)
Audience: Teacher Educators/Higher Ed Faculty, Teachers
Date/Time: Tuesday, 6/25/2013, 1:00pm-3:00pm

Price, G., Rice, M., & Wright, V. (2013, June). *Impact of integrated TPACK development approach on preservice teachers.* Paper presented at the meeting of the International Society for Technology in Education, San Antonio, TX. Abstract retrieved from http://www.isteconference.org/2013/program/search_results_details.php?session id=80742292&selection_id=82538393&rownumber=2&max=9&gopage

Abstract:
"The purpose of this study is to measure the impact of the researcher-contrived Integrated Triadic Model (ITM) on the development of TPACK among a group of preservice teachers and to better understand which course experiences they report contribute the most to their development of TPACK. Applying the ITM to a content-specific methods course, participants build an understanding of learning activity types, design and implement lessons, and engage in continual reflection about teaching with technology. The study uses multiple instruments to determine the extent, if any, that preservice teachers' TPACK changes while enrolled in a technology-enhanced teaching methods course. The study also explores preservice teachers' perceptions about which course experiences they report contribute most significantly to the development of their own TPACK."

Theme/Strand: Professional Learning – Teacher Education (Preservice & Advanced)
Audience: Teacher Educators/Higher Ed Faculty
Date/Time: Monday, 6/24/2013, 8:30am-9:30am

Smart, V. (2013, June). *Exploring teachers technological pedagogical reasoning through digital portfolios.* Paper presented at the meeting of the International Society for Technology in Education, San Antonio, TX. Abstract retrieved from http://www.isteconference.org/2013/program/search_results_details.php?session id=80852603&selection_id=82538393&rownumber=1&max=1&gopage

Abstract:
"The project seeks to understand how teachers' reason with technology and what influences them to use technology in their teaching. The purpose of this study is to reveal the voices of teachers, at multiple career points to determine how they develop

Technological Pedagogical Reasoning. To understand this, graduate, proficient, highly accomplished and leads teachers have volunteered to participate in this project."

Theme/Strand: Professional Learning – Achieving the NETS for Educators
Audience: Teacher Educators/Higher Ed Faculty, Teachers
Date/Time: Tuesday, 6/25/2013, 12:15pm-1:15pm

Williams, M. (2013, June). *Innovative pedagogy to develop 21st century skills in STEM content.* Paper presented at the meeting of the International Society for Technology in Education, San Antonio, TX. Abstract retrieved from http://www.isteconference.org/2013/program/search_results_details.php?session id=80801245&selection_id=82538393&rownumber=3&max=9&gopage

Abstract:
"Two major factors affect the acute need to effectively integrate 21st century skills into classrooms. First, The newly published Colorado P-12 Academic Standards are in the initial stage of implementation at the district and school levels. These standards embrace 21st century skills as a key component. "The 21st century skills are the synthesis of the essential abilities students must apply in our rapidly changing world. Today's students need a repertoire of knowledge and skills that are more diverse, complex, and integrated than any previous generation" (Colorado Department of Education, 2010). The Colorado 21st century skills include: Critical Thinking and Reasoning, Information Literacy, Collaboration, Self Direction, and Invention. Development is needed for how to incorporate these ideas into content curriculum. The integration of technology tools or skills, which are necessary for preparing students for the 21st century workforce, are not explicitly included in the standards. A growing body of scientific evidence indicates that appropriate uses of technology positively impact P-12 student learning across the curriculum. Second, America's economic growth depends on a highly educated workforce capable of using rapidly developing information and communication technologies. These factors make it imperative that students be educated in classrooms that embrace 21st century ideas and technology tools to effectively and efficiently learn content.

      This study specifically strives to describe the integration of these skills into STEM content in six classrooms located in various districts in north-eastern Colorado. It also explores the influence of the process on teacher's technological pedagogical content knowledge and student engagement."

Theme/Strand: Professional Learning – Teacher Education (Preservice & Advanced)
Audience: Teacher Educators/Higher Ed Faculty
Date/Time: Monday, 6/24/2013, 4:15pm-5:15pm

Worley, G., Bauer, W., Gabriel, S., Gorman, S., & Haebig, C. (2013, June). *Models of tech integration: Over the hills and through the woods.* Learning stations presented at the meeting of the International Society for Technology in Education, San Antonio, TX. Abstract retrieved from

Abstract:
"Participants attending this session will learn about three models of technology integration. After attending this session participants will know:
- characteristics of the SAMR, TPACK, and TIM models
- how models of technology integration can be used to guide instructional practices and engage learners
- that moving across or up levels of the models leads to higher levels of thinking (Bloom's)
- How the models support and build upon each other
- Where the models might contradict each other"

Theme/Strand: Digital-age Teaching & Learning – Technology Integration
Audience: Professional Developers, Teachers
Date/Time: Monday, 6/24/2013, 8:30am-9:30am

Standard End-Matter

If you have questions, suggestions, or comments about the newsletter, please send those to tpack.news.editors@wm.edu. If you are subscribed to the tpack.news email list, and — even after reviewing this impressive publication — you prefer not to continue to receive the fruits of our labors, please send a blank email message to sympa@lists.wm.edu, with the following text in the subject line: unsubscribe tpack.news

- Judi & Diana

…for the SITE TPACK SIG leadership:

Candace Figg, Co-Chair, Brock University
Mark Hofer,   Co-Chair, College of William & Mary
Judi Harris,   Wing Chair, College of William & Mary
Mario Kelly,   Futon, City University of New York
Matt Koehler,   Chaise Lounge, Michigan State University
Punya Mishra, Recliner, Michigan State University

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