TPACK Newsletter, Issue #6, January/February 2010

Welcome to the sixth edition of the TPACK Newsletter, with 642 subscribers (representing a 13% increase during the past 2.5 months), now appearing twice each fall and spring semester. If you are not sure what TPACK is, please surf over to www.tpack.org to learn more.

Gratuitous Quote about Technology
"Technology presumes there's just one right way to do things and there never is." ~Robert M. Pirsig

0. In this Issue:

1. Recent Journal Articles and Conference Papers about TPACK
Journal Articles

Angeli, C., & Valanides, N. (2009). Epistemological and methodological issues for the conceptualization, development, and assessment of ICT–TPCK: Advances in technological pedagogical content knowledge (TPCK). Computers and Education, 52(1), 154-168.

"In this paper, several issues regarding the epistemology of technological pedagogical content knowledge (TPCK) are first raised for the purpose of clarifying the construct. Specifically, the transformative and integrative views are juxtaposed for exploring the epistemology of TPCK, and, at the end, the transformative view is adopted concluding that TPCK is a unique body of knowledge that is constructed from the interaction of its individual contributing knowledge bases. Then, ICT–TPCK is introduced as a strand of TPCK, and is described as the ways knowledge about tools and their affordances, pedagogy, content, learners, and context are synthesized into an understanding of how particular topics that are difficult to be understood by learners or difficult to be represented by teachers can be transformed and taught more effectively with technology in ways that signify its added value. One model for the development and another for the assessment of ICT–TPCK are then discussed. Technology Mapping is proposed as a situative methodology for the development of ICT–TPCK, and three forms of assessment, namely, expert assessment, peer assessment, and self-assessment are proposed for assessing teachers' competencies to teach with technology. The paper also reports on the empirical findings of a study that was undertaken to investigate the impact of the proposed models on student learning within the context of two design tasks in a pre-service primary teacher education course. Repeated measures within-subject effects were tested and the results indicated that ICT–TPCK competency significantly improved over the course of a semester. The results of this study clearly show that the theoretical models proposed herein can positively impact the development of ICT–TPCK. Lastly, these results can be used as baseline data in future studies that may be conducted to further validate or improve the proposed models in different contexts."

Kramarski, B., & Michalksy, T. (2009). Three metacognitive approaches to training pre-service teachers in different learning phases of technological pedagogical content knowledge. Educational Research and Evaluation, 15(5), 465-485.

"Our study investigated 3 metacognitive approaches provided during different phases of learning technological pedagogical content knowledge (TPCK) in a Web-based learning environment. These metacognitive approaches

were based on self-question prompts (Kramarski & Mevarech, 2003) which appeared in pop-up screens and fostered the Self-Regulated Learning (SRL) of pre-service teachers (n = 144) through 1 of the 3 learning phases (Zimmerman, 2000): planning, action and performance, and evaluation. Four measures (pre/post) were administered in the study: SRL self-report questionnaires in the contexts of pedagogical learning and teaching and TPCK in the comprehension and design lessons. Mixed quantitative and qualitative analyses showed that fostering students' SRL through the evaluation phase was the most effective for the pre-service teachers' perceived SRL in both the learning and teaching contexts and for their TPCK (comprehension and design lessons). Furthermore, students from the planning approach outperformed the students from the action approach in most of the SRL and TPCK measures."

Mostert, M., & Quinn, L. (2009). Using ICTs in Teaching and Learning: Reflections on Professional Development of Academic Staff. International Journal of Education and Development Using Information and Communication Technology, 5(5).

"Focussing on professional development of academic staff as higher education practitioners, this paper reports on the relationship between ICTs and teaching and learning in higher education, and on the way that that relationship plays out in a formal staff development course offered at Rhodes University, South Africa. The Technological Pedagogical Content Knowledge (TPCK) framework developed by Mishra and Koehler (2006) is used as a theoretical lens for demonstrating the undesirability of an unnatural separation of ICTs from teaching and learning in dominant discourses within institutional and national environments. The paper concludes by highlighting some implications of the TPCK framework for staff developers and curriculum design in higher education. "

Samuel, R. J., & Bakar, Z. A. (2008). The effectiveness of 'VELT' in promoting English language communication skills: A case study in Malaysia. International Journal of Education and Development Using Information and Communication Technology, 4(3).

"Virtual learning environments could be utilized to boost the development of English language skills among Malaysian primary school students. English Language proficiency has been deteriorating over the years and basic oral skills have been appalling due to lack of usage and reflective practice. English lessons that incorporate multimedia applications can exert powerful motivation and provide bored students with exciting new ways to learn. The aim of this paper is to examine if the newly created Virtual English Language Tool (VELT) could be used to improve the listening and speaking skills of primary school pupils in a sub-urban environment in Malaysia. A Year 5 class used VELT for a period of nine months. Donald Kirkpatrick's four-level model was used to evaluate this e-learning tool. The findings of the case study were quite encouraging. "

Schmidt, D. A., Baran, E., Thompson A. D., Koehler, M. J., Mishra, P. & Shin, T. (2009). Technological Pedagogical Content Knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. Journal of Research on Technology in Education, 42(2), 123-149

"Based in Shulman's idea of Pedagogical Content Knowledge, Technological Pedagogical Content Knowledge (TPACK) has emerged as a useful frame for describing and understanding the goals for technology use in preservice teacher education. This paper addresses the need for a survey instrument designed to assess TPACK for preservice teachers. The paper describes survey development process and results from a pilot study on 124 preservice teachers. Data analysis procedures included Cronbach's alpha statistics on the TPACK knowledge domains and factor analysis for each domain. Results suggest that, with the modification and/or deletion of 18 of the survey items, the survey is a reliable and valid instrument that will help educators design longitudinal studies to assess preservice teachers' development of TPACK."

Trautman, N.M., & MaKinster, J. (2009). Flexibly adaptive professional development in support of teaching science with geospatial technology. Journal of Science Teacher Education, DOI: 10.1007/s10972-009-9181-4.

"The flexibly adaptive model of professional development, developed in the GIT Ahead project, enables secondary science teachers to incorporate a variety of geospatial technology applications into wide-ranging classroom contexts. Teacher impacts were evaluated quantitatively and qualitatively. Post-questionnaire responses showed significant growth in teachers' perceived technological expertise, interest, and ability to integrate geospatial technology into

their science teaching. Application of the Technical Pedagogical Content Knowledge (TPACK) framework to three case studies illustrates such growth. Crucial aspects of professional development in support of teaching science with geospatial technology include intensive training, ongoing support, a supportive learning community, and flexibility in terms of support provided and implementation expectations. Implications are presented for design of professional development and use of TPACK in evaluating impacts."

SPECIAL NOTE: Congratulations to Drs. Trautman & MaKinster for winning the Association for Science Teacher Education's 2009 Award IV: Innovation in Teaching Science Teachers for this work!

Conference Presentations

McGrath, A. & Morrow, D (2009). Did the impact of imposed course structure change lead to positive outcomes for lecturers and students? In Same places, different spaces. Poster session presented at Ascilite 2009 Conference, Auckland, New Zealand.

"Dissatisfaction with an ICT (Information and Communication Technology) course for secondary pre-service teachers was the catalyst for this research study. Problems identified included the tension present while striving to meet the skills' needs of pre-service teachers with varying ability and time spent (or lack of it) on developing pedagogical understanding of their curriculum. Reflection and discussion on the question led to a major change in our teaching methodology, which was to include technological pedagogical content knowledge (TPCK) as a theoretical framework. The impact of the mandated changes on us and the course we developed was ultimately positive. We began to work together as a community as we grappled with the challenges thrust upon us. We instigated changes that resulted in positive outcomes not only for us but (more importantly) for our students."

Weimer, G. & Hall, T. (2009). TPCK : A revision of the technology course for teachers. Paper presented at the 2009 Annual Meeting of the Association of Small Computer Users in Education. North Myrtle Beach, SC.

"During the spring of 2008 the chair of the Department of Teacher Education began discussions regarding redesigning the technology curriculum. Publication in 2008 of the Handbook of Technological Pedagogical Content Knowledge (TPCK) for Educators edited by the AACTE Committee on Innovation and Technology began to have an impact on the way universities and others viewed preparation of teaching candidates to apply technology in their teaching. It was time, thought our chair, to study this body of research and apply it to our curriculum."

2. Recent TPACK Related Dissertations

Schul, J.E. (2009). *Historical practices and desktop documentary making in a secondary history classroom.* Unpublished dissertation. The University of Iowa.

"A surge of interest in desktop documentary making by history teachers and students has unearthed a series of important questions regarding its role in history teaching and learning. Desktop documentary making requires students to manipulate visual and aural primary and secondary sources, with aid from conventional written sources, to adduce a story about the past. Because desktop documentary making elicits a new and unique way of doing history, an examination into its integration into classroom instruction is warranted. I, therefore, explored in this study the historical practices in both the teacher instruction and student composition of desktop documentaries in a secondary history classroom. I focused this case study on one AP History teacher, his AP European History classroom, and five of his students during a unit that featured desktop documentary making during March 2008. I inductively analyzed teacher and student interviews, classroom observations, student think-alouds, and document data to generate themes and categories that elicit new understandings of the historical practices involved with the integration of desktop documentary making into a classroom.

Uniquely employing Technological Pedagogical Content Knowledge (TPCK) and Cultural Historical Activity Theory (CHAT) together as theoretical frameworks, I reveal through this study how a teacher's instruction fostered an activity system wherewith his students composed their desktop documentaries. This activity system included various inquiry-based skills and instructional rules that affected student compositions. This activity system allowed

for students to construct historical narratives over a span of time and to transform the content and aesthetics of their documentaries into something that they hoped their classmates and other viewers would find useful and meaningful. Additionally, students employed various practices of professional historical scholarship while also creating their own practices in order to produce their desktop documentary.

This study has significance for history teachers and teacher educators who seek to integrate desktop documentary into their own instructional practice. Furthermore, understanding the historical practices involved with the integration of desktop documentary making into a classroom can inform teachers and teacher educators about the problems and potentialities that surround the use of desktop documentary making as an instructional technique.

Scott, L.. *Through the wicked spot: A case study of professors' experiences teaching online.* Ed.D. dissertation, University of California, San Diego and California State University, San Marcos, United States — California. Retrieved January 17, 2010, from Dissertations & Theses: Full Text.(Publication No. AAT 3379753).

Due to the exponential growth in demand for online courses, there is a need to better understand how to prepare faculty to successfully teach in the online environment. Based on the Technological Pedagogical Content Knowledge (TPACK) framework, this study examined how two professors with different levels of online teaching experience integrated technology, pedagogy, and content into their online courses. In addition, connections between TPACK and the Concerns-Based Adoption Model were discovered. This two-case study included questionnaires, document analysis, and screen-capture elicitation–a new method for observing online courses. Extensive online teaching experience was not found to be necessary for achieving TPACK. A more important factor was professors' understanding of how to use the technology to support their content in the online environment."

3. Join a Fireside Chat about TPACK
Sean Nash, of Nashworld fame, has begun a series of "fireside chats" on ning related to TPACK. The ning is more generally "created for collegial conversation, [and] for sharing thoughts about education. Reflective practitioners, philosophers, psychologists, teachers of all kinds, doctors, scientists, administrators, students, learners of all ages: post and ponder." There are many educational chats for you to join, but of course, the TPACK chats are particularly interesting.

4. TPACK at SITE 2010 Conference
The Society for Information Technology & Teacher Education (SITE) Conference, March 29 – April 2, is sneaking up fast! This year it is in beautiful and sunny San Diego, CA. TPACK will be strongly represented again at the conference, so make sure to catch the early registration deadline of February 10th. See the SITE Website for more information.

The TPACK SIG meeting is scheduled for Wed, March 31, 8am-9am. Please mark your calendars.

The conference's Website should offer a preliminary schedule soon so you can find all the TPACK related papers and talks [Search on the topic area: Technology, Pedagogical & Content Knowledge (TPACK)]

5. TPACK Handbook Reviews
The first Amazon.com user review of the TPACK handbook has appeared, calling it a "a must have resource." Click through to read the full review.

6. The Future is Now … So Now What?
The American Association of Colleges of Teacher Education (AACTE) recently held a webinar series featuring TPACK called the "The Future Is Now… So Now What?" This Web conference addressed "creative teaching and learning in the digital age. Designed within the Technological Pedagogical Content Knowledge (TPACK) framework these sessions by top-notch scholars, researchers and practitioners [covered] a range of topics: including the educational potential of social networking, the expanding use of GPS, intelligent use of video to teach science, and the role of cloud computing in face to face and online classes. The goal [was] to help participants think creatively about integrating multiple technologies into varied teaching and learning contexts." Visit AACTE's Web site for more information.

7. Learning and Doing More with TPACK

Interested in learning more about TPACK or getting more involved in the TPACK community? Here are a few ideas:

1. Visit and contribute to the TPACK wiki at: http://tpack.org/
2. Join the TPACK SIG at: http://site.aace.org/sigs/tpack-sig.htm
3. Join and contribute to the TPACK Google group at: http://groups.google.com/group/tpack/
4. Review and provide feedback on the TPACK Learning Activity Types at: http://activitytypes.wmwikis.net/
5. Access past issues of the TPACK Newsletter at: http://punya.educ.msu.edu/research/tpck/newsletter-archive/
6. Or at: http://mkoehler.educ.msu.edu/tpack/
7. View recent (but unedited) mentions of TPACK (including tweets) on the Web at Matt Koehlerâ€™s "All Things TPACK".

Feel free to forward this newsletter to anyone who might be interested in its contents.

Even better, have them subscribe to the TPACK newsletter by sending a blank email to sympa@lists.wm.edu , with the following text in the subject line: subscribe tpack.news FirstName LastName (of course, substituting their own first and last names for 'FirstName' and 'LastName' — unless their name happens to be FirstName LastName, in which case they can just leave it as is).

If you have a news item that you would like to contribute to the newsletter, please send it to:
tpack.news.editors@wm.edu
If you are interested in volunteering to help run the newsletter (we need help!), send email to:
tpack.news.editors@wm.edu

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

Have a great winter break, everyone! Weâ€™ll be back in late December with issue #6 of the TPACK Newsletter.

- Judi, Matt, Mario, and Punya

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