Globaloria PY-1: New Models for 21st Century Teacher Professional Development

The purpose of this presentation is to describe and explain the vision, goals, and research agenda that emerged during the Globaloria Pilot Year One (PY-1) in West Virginia, through the lens of teacher professional development (TPD). While educators were carefully trained and supported (and also received stipends for their participation), TPD research was not a central focus of the Globaloria research agenda. However, it emerged as an important part for understanding how and to what extent educators benefited from their participation, much like their students. We therefore decided to delineate our process of developing a theory- and research-based teacher professional development model that will help us answer a few overarching research questions:

What is Globaloria?

The Globaloria network and programs use open source social media and Web2.0 technology and resources for learning to empower youth, educators, and education professionals to create, collaborate, contribute, learn and lead in today's digital and globalized world that is driven by the knowledge economy.

Teaching professionals, academics and researchers are -re-examining our priorities in response to the changing purposes of education as our global society manages the complex transitions from the Industrial Era to the Information Age (Web 1.0) to the Social Media Technology Age (Web 2.0). What teachers need to know and be able to do in 21st century school systems is driving new research on how teachers learn and develop their practice.

Today's teachers must be up to the task of teaching these skills and concepts. Darling-Hammond and Bransford argue that teachers must be adaptive experts who continually grow and develop knowledge and skills, rather than work to acquire a core set of skills to be used for an entire career (Darling-Hammond & Bransford, 2005)

We use a matrix adapted from the Dimensions of Effective Learning (DEL), developed by Bransford, Brown and Cocking (Bransford, Brown, & Cocking, 2002). The adaptation, Teacher Dimensions of Effective Learning (TDEL) draws from the research literature on how teachers learn as discussed in *How People Learn* by Bransford and colleagues, as well as from teacher professional development research literature (Whitehouse, 2006). It represents four research-based dimensions that must be present for effective teacher learning and provides a guiding framework for our research:

The TPD Framework

Learner -Centered Learning Dimension
Teachers are active participants and are active partners in decision-making

Knowledge- Centered Learning Dimension
Supports development of technological pedagogical content knowledge (TPACK)

Community- Centered Learning Dimension
Supports teacher professional growth and development through professional learning communities and ongoing professional development

Assessment- Centered Learning Dimension
Teachers collaborate by sharing experiences in teaching and provide effective peer critique of pedagogy and assessment

Cultural-Centered Learning Dimension
Teachers appreciate and explore cultural differences that span from their students to themselves, and ranging from economic, social, racial and ethnic differences and similarities

we build upon the theory of Constructionism to further develop new ways of understanding how teachers and students teach and learn, and to improve teacher and student learning in a 21st century context

The TDEL pictured here is drawn from an empirical research perspective as the dimensions intersect with the following variables: learners, pedagogy and technology. These variables were drawn from the work of Borko (2004) and are considered key design variables for teacher professional development. In Borko's work, the third variable was context, and in this case, we have used technical design as the context because technical design decisions about the communication and digital media used are key factors in the teacher learning experience. Crossed with the Dimensions of Effective Learning, the variables create an analytic matrix through which to frame and explore the design of teacher professional development in Globaloria.

The next slide depicts the Six Contemporary Learning Abilities emerged during PY-1 as we tracked the progress of our teachers as they worked with Globaloria, and arises from an evaluative research perspective, although there are certainly areas for asking why and what as well as how. They arise from the observations of Globaloria staff and researchers, and the observations of teachers. The abilities highlighted are not exclusive, occur in parallel and are achieved through participation in an integrated set of Constructionist activities. The current typical view of "21st Century Learning Standards and Skills" applied in most state-based and school-based programs emphasizes the importance of only a few of the abilities -- mostly Types 5 and 6 (e.g., see 21st Century Learning Association - www.21learn.org). Similarly, the teacher professional development programs that address the so-called "21st Century Learning Skills" tend to

measure only Types 4, 5 and 6 of the 6-CLAs, and do not necessarily take into account new research on how teachers learn. Our program is unique, in that our framework is the first to delineate and prioritize abilities 1, 2 and 3 above in the context of digital literacy initiatives, with a theoretical linkage to Constructionism, distributed cognition and teacher learning.

Six Contemporary Learning Abilities

1. Invention, progression, and completion of an original digital project idea (for an educational web-game or interactive simulation)
2. Project-based learning through online project management in a wiki-based networked environment
3. Publishing and distribution of self-created digital media artifacts (using wikis, blogs, websites)
4. Social-based learning, participation and exchange in a networked environment (cross age, cross expertise)
5. Information-based learning, purposeful search, exploration
6. Surfing websites and experimenting with web applications and tools

We present the set of hypotheses for our research with educators, based on the 6 CLAs. We frame these hypotheses within the TDEL framework in order to highlight the digital literacies and technical fluencies that teachers and learners need in order to teach effectively in a 21st century classroom, and to highlight the need for further research in understanding how, why and to what extent teachers develop them.

Key Preliminary Findings

- Over half the educators who participated in PY-1 had little or no experience with social networking tools or pedagogical experience working and managing a digital design project
- Educators significantly increased web surfing activities, but did not sustain web publishing activities or use social networking tools

These findings, at first blush, might seem discouraging, but they are not, when taken in context. The educators participating in PY-1 began with little or no technology savvy and they have finished the first year with some important skills. Asking teachers to transform their teaching is a big step, and one that can only be accomplished by taking small steps first and be supported over time. The educators generally were very successful in gaining the most accessible CLAs, and made strides in changing their teaching practice that are not visible in this report. We expect Year Two to show more statistically significant gains for the educators who chose to continue their participation. We will also follow up with the educators who choose not to continue in Year 2 in order to understand the nature and extent of any durable and sustainable changes in their teaching.

Key Preliminary Findings

- **Educators increased frequency of engaging in web surfing and generating project ideas.**
- **Educators' *motivation* increased towards information-seeking, publishing and distribution of digital media, and generating creative project ideas.**

Further analysis of case-study findings suggest that educators extended their conceptual knowledge and skills to some extent. Further research is required to provide firm empirical evidence of the extent of these gains:

Knowledge development in Flash design and Web 2.0 expertise
Attitude shifts, such as greater openness to participate as a co-learner
Creative thinking around customizing the Globaloria syllabus to suit the needs of their students
Community building and teamwork with students
Community building with other teachers
Transfer of techniques learned in Globaloria into other courses

Indicated, Not Proven

- Knowledge development in Flash design and Web 2.0 expertise
- Attitude shifts, such as greater openness to participate as a co-learner
- Creative thinking around customizing the Globaloria syllabus to suit the needs of their students
- Community building and teamwork with students
- Community building with other teachers
- Transfer of techniques learned in Globaloria into other courses

Develop strong university partnerships: university partnerships play an important role in Globaloria because researchers from different disciplines examine and explore the impact of Globaloria in schools

      University partners may provide support systems for Globaloria schools

Develop grant partnerships with universities: grants will provide multiple funding streams for Globaloria, as well as support the needs of tenure track research faculty

Develop university/school partnerships to support research and implementation

      This type of partnership is already well established in some parts of West Virginia, so the basic framework exists to develop this model further

Develop Globaloria research fellowships for university faculty and other educators

      Include doctoral and perhaps masters students

      Semester-long or year-long fellowships would allow researchers to delve more deeply into important research areas and have the time to develop refereed articles and conference papers

      Establish a guest speaker series where researchers, educators and students have the opportunity to present their work to Globaloria participants and to parents of students in participating schools

Develop community partnerships with local businesses, schools and university partners that draw from community wisdom and expertise in supporting teachers and students in Globaloria

6.2 Distributed Research Design

Develop and use digital media to establish norms of collaboration and partnerships between researchers across institutions

      Establish norms and a culture of providing feedback and critique to researchers

Develop and establish norms of sharing work, providing feedback and participation in cross-institution research projects

Develop a research mapping system that uses the TDEL model presented in this paper to help Globaloria and its research partners what areas of research we have covered well, and what areas need more research

Establish regular research meetings for all researchers to discuss and develop the overall research model

Develop a researchers' wiki to provide a community space where all research-in-progress abstracts, conference papers and publications are kept for easy reference

Use Webex or other synchronous video and audio media to develop a guest speaker series of expert scholars to enrich Globaloria research

Use digital media to "highlight" Globaloria research partners on a rotating basis so that all researches are included

Partner evaluation research with empirical research whenever possible so that neither is privileged over the other

Encourage researchers to share their work in popular culture venues as well as academic journals.

     Edutopia, Education Week, etc.