

Teaching for Tomorrow Today Study

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Current debates in education point to the fact that our educational system continues to be in crisis. The rhetoric is a cacophony and messages are conflicting—raise test scores, teach to the basics, give students an education that will prepare them for the future in an ever-changing world, educate them for innovations. While debates swirl, teachers are in their classrooms working with students. Few people ask teachers how they make sense of all of the debates and demands, and bring their students the best experiences they can, even though they recognize that the teacher is the most important linchpin in the whole system.

This research will examine how teachers are making sense of the many demands they are facing. It will be especially concerned with how teachers are considering and responding to the calls for “education for innovation” and “21st Century learning.”

What is the education for innovation call? According to The Partnership for 21st Century Skills (2008), the central economic competitiveness issue is to create an aligned, 21st century public education system that prepares students, workers and citizens to triumph in the global skills race. These skills, which include creativity and innovation, communication and collaboration, research and information fluency, critical thinking, problem solving and decision making, and digital citizenship must be integrated into K-12 education. The arguments for a 21st Century education are often made with American education in mind, yet they are being made worldwide.

Students will need to be educated citizens and workers with the ability to respond flexibly to complex problems, communicate effectively, manage information, work in teams and produce new knowledge. Education will need to prepare students to actively participate in a society where problems are increasingly complex and innovation skills are essential. The implications for education that follow from such a charge include a focus on innovation, creativity, critical thinking, problem solving, communication and collaboration for preparing students for the future.

The 21st Century arguments are compelling, and are not lost on teachers. Many are trying to organize learning experiences for their students that will accomplish these demanding learning needs. Some do this through choice of curriculum, some through classroom projects, and some through in-school or out-of-school clubs, competitions and collaborative challenges. They are always striving to balance the work they know they

have to do with accountability demands. This is especially true for teachers working in public schools, where accountability is high and resources are low. In a recent study only 16 percent of teachers reported they are assigning projects that help students develop problem-solving skills (Project Tomorrow, 2009). The “education for innovation” calls require new visions of the content, teaching and learning process, uses of assessments and technologies, and ways to develop and deploy resources. Incorporating all of these new ideas takes a tremendous amount of time and energy on the part of schools and teachers, which is extremely difficult considering the high demands they already face.

Major Goal

The overall goal of Teaching for Tomorrow Today is to depict how teachers are thinking about and working to bring 21st Century learning to their students. The project is interested in what teachers are thinking, doing, and rejecting. It seeks to understand the demands teachers face and the resources they feel they need to meet the goals for educating students for the future. When completed, the study should characterize where teachers are, what they are wanting, and what resources might best help them achieve their goals with students.

Project Deliverables

- Conduct an in-depth interview study of teachers to explore their thinking about and experiences of 21st Century learning demands.
- Share interim analyses with Oracle Foundation and Lime Design Associates for use in the design of future initiatives
- Share what is learned through a project report to the Oracle Education Foundation and through papers at educational conferences and other publication channels.

Methods

This will be an interview study of 20-25+ teachers who range in experience, geographic location, grades and subjects taught, and experience with technology and diverse pedagogies. We expect the interview to be in-depth, lasting from 50-75 minutes. We will be seeking the teachers’ accounts of their teaching, goals, experiences with technology, and different classroom activity structures (didactic teaching, collaborative learning, projects, lectures, etc.). We are developing a semi-structured interview protocol to elicit the teachers’ stories about their work. Since all of the teachers will answer many of the same questions, we will

be able to see how a range of teachers consider and educate for the future.

Recruitment of Participants. Teachers will be recruited in several ways. Goldman has networks that will enable her to recruit teachers in the Bay Area and nationally. The Oracle Education Foundation will also assist in recruiting teachers across the US and internationally. The goal of teacher recruitment will be to have a diverse set of teachers who work in diverse schools and educational settings. While we expect to have 20-25 teachers in the study, if time permits, we will interview more. All teachers will be told about the study and will give consent before they are interviewed. We expect one, in-depth interview, but will check with teachers a second time to see if there is anything they wanted to tell us, but only thought of after the initial interview. Teachers will also be told that they will receive a small honorarium for participation in the study.

Protocol Development. The first part of the study will involve the creation of the interview protocol. The protocol will be a semi-structured interview designed to set the stage for conversations with the teachers wherein their stories and accounts about their work are elicited (see draft questions in Appendix A). The interviews will aim to have the teachers discuss their thoughts and activities, allowing them to give us particularized versions of their experiences. The interview will be structured to give each teacher ample space for describing his/her experiences in detail, while also collecting certain information from all teachers. The protocol is designed to allow variability while enabling us to elicit responses to similar questions. All of the interviews will be audio recorded.

Data Analyses. The analyses of the interviews will proceed through several stages and treatments. Three are particularly necessary for the analyses: content logging, identification and coding of educational topics and rhetoric in teachers responses on topics the protocol initiated, and a theory building analysis to generate major themes in teachers' responses. Together, these analyses will help us characterize teachers thinking and hopes for moving forward in educating today's students for tomorrow's world.

Results. Our results will be organized around the findings that emerge from the interview data. Since the analyses will be ongoing throughout the interview process, we will report preliminary findings as we get them. To share the findings, we will integrate quantitative evidence from our coding analysis with textured examples from the interviews to describe important aspects of teachers work to be considered and supported into the future.

The study will provide a broad stroke overview of teaching and teachers. Results should provide the Foundation with background research for its future work and direction setting. It will be useful to, and complement, the work in deciding ThinkQuest's future and be useful to Lime Design Associates in the ThinkQuest Redesign Studio Workshop.

Work Plan and Project Time Line

We propose an 11-month project that includes recruitment of teachers, interviewing, analysis, and final reporting. The time line is outlined below:
October 4–29, 2010 Teacher Recruitment Development of Interview Protocol and recruitment of participants with OEF assistance. Subjects to include a broad spectrum of educators, including existing ThinkQuest members, teachers who have no experience with ThinkQuest, and staff at youth organizations and after-school programs.

November 1, 2010–January 31, 2011 User Interviews & Research Interviews conducted and deliver preliminary findings to OEF and Lime Design Associates by the end of the month of January. Example of findings may include data about teacher ideas, constraints, and supports; quotes; survey data; and audio clips.

February 1-25, 2011 OEF Staff Brainstorm OEF reviews preliminary findings, brainstorms ideas, and prepares Proposal for Board Meeting.

April 2011-August 31, 2010 Research Reporting Shelley delivers Research Report (white paper) to OEF on April 30th. Report may include the following:

- * Executive Summary
- * Scenarios / Profiles

Paper is written for publication and shared at a conference for educators and researchers.

Results

Products from initial project results will be delivered to the OEF and Lime Design Associates for use in brainstorming processes. We expect these products to be scenarios or case studies that highlight most pressing or promising aspects of 21st Century learning as teachers see them. Results of the full interview study will be made available in a report to the Oracle Foundation. While we cannot say what the results will be, we expect them to paint a picture of teachers' needs and the kinds of supports they are hoping for as they enrich their students' educational experiences. We

expect that these portraits of teachers will have impact on the work of the Foundation going forward. We expect they will also be relevant to other educators, and we plan to disseminate the results so they can be known more widely.

Project Staff

The TTT study will be conducted at Stanford University. Shelley Goldman, will be responsible for the accomplishment of the project work.

Shelley Goldman is a Professor of Education (Teaching) and by courtesy, Mechanical Engineering at Stanford University. She holds a doctorate from Teachers College, Columbia University. She has been a teacher and has conducted research and development in the intersection of math, technology learning, and design for 25 years. Goldman is on the faculty of the Learning Science and Technology design doctoral program and Faculty Adviser for the Learning, design & technology master's program in the School of Education. She is also on the board and leadership team of the East Palo Alto Academy charter school. Goldman is working on how to best create environments for teaching and learning in the 21st century.

Goldman will draw on senior level researchers and a graduate student to assist in the study.