

Meeting Needs of Refugee Children and Preservice Teachers through Educational Technology

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Abstract: As the population of a school or community diversifies, public school teachers must be prepared to work with children from a wider range of backgrounds. A pilot program was conceived to bring preservice teachers and refugee children together in ways that served the educational needs of the children and ways that prepared the preservice teachers to use technology to work with children who were new to American schools. The preservice teachers in an introductory educational technology configured surplus university computers to be given to local refugee children and their families. Developing expertise as a technology-using teacher requires learners to develop technology skills, to practice the use of the technology, to participate in the stages of selection and development of technology resources for K-12 children, and to engage in the pedagogy of technology integration. The project built upon theoretical frameworks regarding meaningful learning—learning that is active, constructive, intentional, and authentic.

As the population of a school or community diversifies, public school teachers must be prepared to work with children from a wider range of backgrounds. A pilot program at the University of North Florida conducted in 2006 was conceived to bring preservice teachers and refugee children together in ways that served the educational needs of the children and ways that prepared the preservice teachers to use technology to work with children who were new to American schools. The program personally connected the preservice teachers with students in area schools, which has been recommended as a key strategy for improving the use of technology in K-12 schools (Brown & Warschauer, 2006).

As of 2004, the United States was by far the largest of the 10 traditional resettlement countries for refugees, having resettled 73,851 refugees (US Department of Housing and Human Services, 2006). Florida, where the program described in this paper took place, ranks fourth in states taking in the largest percentage of refugees resettled in the U.S. (Patrick, 2004), and took in over 19,000 refugees in 2004 (US Department of Housing and Human Services, 2006). The United Nations High Commissioner for Refugees has stated that education is an essential condition for the rehabilitation of refugee children who may have suffered from traumatic experiences such as war, a vehicle for rebuilding lives, even a means toward conflict prevention (2001).

To help refugees overcome their obstacles to success, social services are needed to facilitate adjustment, language instruction is needed by students and their parents, and discrimination should be minimized (O'Brien, 2005). Acquiring academic fluency in English is a major pathway to academic achievement, and fluency results from both school instruction and out-of-school experiences in the culture. In addition, parental involvement in education is an influential factor contributing to a student's success and persistence in school (Fan & Chen, 2001). In order for education for refugees to succeed, teachers must understand the experiences and cultures of refugee children and must welcome them without discrimination (McBrien, 2005). Understanding begins with the awareness of the needs of refugee children and knowledge that they are neighbors in our communities.

The pilot project worked toward two of the three obstacles: assistance with learning English, and combating discrimination. In the project, preservice teacher education students in an introductory educational technology course developed understanding of the value of technology resources for learning by configuring surplus university computers to be given to local refugee children and their families. The structure of the course project involved several stages. The students began with the stories of eight families who had recently arrived in the city from Sierra Leone, Afghanistan, Liberia, and Burma, to become familiar with the educational needs of the children. As they learned concepts in educational technology, these preservice teachers applied knowledge in identifying, locating,

evaluating, and producing educational materials such as video, electronic books, software, and tutorials to place on a computer for each family. During the project's culminating week, students visited each family to work side-by-side in setting up and learning to use the computer and its resources. Thus, the study included an additional focus on issues regarding equity of access and opportunity to strengthen student learning, in this case the learning of both preservice teachers and the children of these new American families.

Theoretical Framework

The theoretical framework within which this project was conceived included the conception of meaningful learning proposed by Jonassen, Peck, and Wilson (1999). However, a second source guiding the study centered on the need to foster social justice as it relates to the purposes for public schooling.

Recent educational literature (Ravitz, Mergendoller, & Rush, 2002; Rothstein, 2004; Wenglinsky, 1998) has described both a digital divide and a pedagogical divide which influence the achievement of students from economically disadvantaged homes. While they have less access to computers at school and at home, they appear to benefit academically when they develop technological skill and use computers for academic work at home (Fuchs & Woessman, 2004; O'Dwyer, Russell, Bebell, & Tucker-Seeley, 2005; Ravitz, Mergendoller & Rush, 2002; Subrahmanyam, Kraut, Greenfield & Gross, 2000; Wenglinsky, 1998). Recognition that refugees are among the more disadvantaged citizens in the community and that refugee children may benefit dramatically from a home computer led to the design of this course learning experience involving university students and eight families. The evaluation of this experience sought to understand the complexities at the intersections of teacher preparation, uses of technology, the challenges faced by refugees, and personalization of learning.

Recent advances in brain research have underscored how students' affective neural networks lead to determinations of importance regarding learning and thereby lead to motivation, engagement, and commitment to the learning process (Rose & Meyer, 2002). Such meaningful learning results in students who are capable and independent learners. In this community-based project, meaningful learning by teacher candidates was a means to the end result of teachers who can effectively learn and teach with technology in ways that make learning meaningful, in turn, for the full spectrum of students in K-12 classrooms.

Meaningful learning, as a construct within this study, refers to learning that is *active, constructive, intentional, and authentic*. It "includes reciprocal intention—action—reflection activities," as proposed in Jonassen's (2000, p. v) activity theory, and occurs when learners make meaning in the context of solving novel problems (Rose & Meyer, 2002).

Developing expertise as a technology-using teacher requires learners to develop technology skills, to practice the use of the technology, to participate in the stages of selection and development of technology resources for K-12 children, and to engage in the pedagogy of technology integration. In this case, the preservice teachers engaged in the processes of identifying, locating, evaluating, and producing educational materials such as video, electronic books, software, and tutorials for computers specifically configured for refugee children.

Active learning engages learners in cognitive effort, facilitated by instructional transactions (Merrill, 1992) designed to guide the learner toward acquisition of specific knowledge and skills. It occurs within an interpersonal, collaborative, learning community and depends on learner interactions with the instructor, with learning materials, and with other learners within the context of a meaningful task.

Constructive learning in teacher education requires the development of pedagogical capabilities by integrating new skills into preservice teachers' existing conceptions of teaching and learning through both reflection and metacognition for application to other contexts (Jonassen, Howland, Moore & Marra, 2003). What results are new learning models. Adopting new approaches to teaching, while unfamiliar and uncomfortable, leads to conceptual change. The role of the instructional technology course is to accelerate that process through immersion and to prepare candidates to continue to construct their notions of technology-supported teaching through the remaining experiences within their teacher-preparation programs.

With *intentional learning*, the goal is to support candidates as they embark on a professional path as lifelong learners and educators who value continuous development. Lifelong learners acquire a level of self-regulation that enables them to identify learning goals and to plan experiences to fulfill those goals. Instructional processes can help learners articulate an intentional learning purpose, for example, with engaging problems to solve (Jonassen, 2000). Coursework in educational technology is particularly useful in providing a rationale for learning and fostering the motivation needed to connect learning to personal goals.

Authentic learning in teacher preparation recognizes that teaching is a complex and ill-structured task requiring practice in meaningful, real-world situations. The inclusion of an educational technology course within preparation programs fits into the continuum of authentic teacher education by immersing candidates in a variety of learning technologies and technology-supported teaching strategies. This particular offering of the course required that preservice teachers work directly with children and families in order to build their foundation for using technology with students in further coursework, field experiences, internship, and early professional practice.

The Course Project

The course was offered at a mid-sized, urban Southeastern university as a prerequisite to entering the teacher education program. Course objectives were correlated to applicable state and national standards established by teacher-education accreditation bodies and advocated by professional organizations in educational technology. All but one of the 12 honors students were freshmen and sophomores who intended to major in various education and human service areas. The female to male ratio was 11:1. The 32 twice-weekly sessions took place in a computer lab in which each student had access to an individual Internet-connected computer and devices including digital cameras, microphones, scanners, CD recorders, and printers. The Blackboard learning management system provided course materials, assignment management, and asynchronous communication.

Multiple sources of information provided data about the students' experiences as learners within an authentic application of educational technology: student journals, photographs and interviews of students in the homes of refugee families, the actual materials collected and produced by the students for the families, the local public radio interview with the faculty member regarding the course project, and a newspaper account of delivering the computers to the families.

At the beginning, midpoint, and end of the course, students provided guided journal entries about their experiences in the course as they discussed how they viewed: technology in aiding K-12 student learning; their roles in addressing the digital divide in their community; how technology changed the way they learned; and the effect of the course project on their progress in becoming technology-using educators.



Setting up computers in the homes of families from Liberia and Afghanistan.

Data from Preservice Teachers

Through the relationship with the children and their families, the project enabled the preservice teachers to build their skills and expertise—from *knowing about* effective uses of technology to experiencing *the use of* technology by real children across grade levels, subject areas, and cultures. The students also began to understand first-hand the multicultural richness in the community they would soon serve as teachers and to appreciate the value of technology as a key to the success of an entire family.

The project built upon theoretical frameworks regarding meaningful learning—learning that is *active, constructive, intentional, and authentic*. The study documented that this community-based course project enabled students to participate as active manipulators of technology tools, to construct and articulate their conceptions of teaching and learning with technology, to reflect on their goals and act intentionally to achieve them, and to situate their learning within a complex authentic problem-based task. This active problem-based learning incorporated effective brain-based learning, including learning with understanding, building on pre-existing knowledge, learning actively, transferring of learning to applied situations, and integrating technology to support learning (National Research Council, 1999). These teacher-education students moved from naïve to nuanced conceptualization of the uses of technology for learning during which both the type and amount of their knowledge grew. At the conclusion of the project, no longer were the students focused on solely on knowing *how* to use technology, but they had begun to know *with* technology (Broudy, 1988; Jonassen, Howland, Moore, & Marra, 2003; Ryle, 1969). Within this rich, authentic learning experience, they witnessed the power of technology to change the lives of people on the other side of the digital divide.

Active learning. The skills demonstrated and the materials produced by all of the students are an indicator of active learning that occurred consistently throughout the course. Students interacted regularly with technology resources, information sources, and standards as they made decisions about materials to include on the computers for each family. The online discussion tools and other electronic communication tools in the course were used by all students to interact with each other and with the instructor.

Constructive learning. As students themselves in the project and the technologies that they integrated to support K-12 student learning, their notions of technology-supported teaching developed. Students arrived in the course with a relatively naïve and superficial understanding of technology as tool to contain facts encountered while learning, i.e. word processors and presentation software, and then focused more on technology for generating ideas, i.e. concept mapping, multimedia production, and synthesizing web-based information. All of the students stated that their views of technology for learning had changed considerably, and they now felt it was an important resource.

Intentional learning. Student time, interactions, and effort were intended to result in solving the problem of equitable access to educational tools posed in the project. The processes of acquiring and applying technology skills and content knowledge were at least as important as the outcome of providing appropriately configured computers for families, and indeed were made possible by the outcome. Because the students were not focused on an abstract group of children they would teach years in the future, but on real families, their intentions were based on concrete and immediate needs.

Authentic learning. All of the students participated in the set up of computers that would be used by nearby families they had come to know. For most of the students, it was the first experience designing materials for K-12 learners and designing materials and lessons that integrate technology for learning. They witnessed the power of technology to change the lives of people on the other side of the digital divide.

Student Journal Comments

Student 1:

At the beginning of the semester when I learned about our computer configuration project I became very excited. First off I was excited to be helping families that were in need. I know how important a computer is to my everyday life, including school work, entertainment, banking, and researching. In return, I wanted to be able to provide these families with the same opportunities as

everyone else. I will admit, however, at first that I was a little intimidated about configuring a computer. This is a task I have never attempted or even thought about. As the semester continued, I realized the task would not be that difficult, but a fun learning process. As soon as we finished putting the programs on the computers, I was ready to deliver them immediately.

On Thursday afternoon I delivered the computer to the family. I could tell Mamie was excited to get the computer just by the smile and look in her eyes. After setting up the computer we sat Mamie down to learn about the programs and functions of the computer. The first task to accomplish was to teach Mamie how to use the mouse. Watching her struggle with controlling the mouse made me realize how much I take for granted. I have grown up with computers and it comes natural to navigate the mouse. After practicing, we showed her all the features. She seemed to like the videos and the Microsoft reader. All in all, I feel so privileged to have been apart of this project. By providing these families with computers, we are helping in bridging the technology divide. As a college student, I have been blessed with much, so it felt rewarding to give back to the community.

Student 2:

When I first learned that we would be putting programs onto computers, I thought it would be very long and hard. In fact, it wasn't as hard as I thought. I also learned that putting a computer together wasn't as complicated as I thought. I really enjoyed delivering the computer to the family. The mom seemed very grateful. It was very new and different watching someone learn how to use a computer for the first time. I have grown up knowing how to do most everything on a computer, and the woman was struggling just to get the hang of the mouse. I really am grateful to have technology at my fingertips. Overall I 'm glad I got to participate in an activity that will help a family, especially the kids, so much. We gave them an opportunity that they probably wouldn't have had, and that feels great!

Student 3:

When we were first told of the computer configuration project, I was very excited because I wanted to help out a family in need. I thought it was very cool that we would be donating computers to refugee families. However, when I got started on the project, I was apprehensive and began to get discouraged because it was very hard to find programs on the computer that did not require use of the internet. Also, I had found everything I needed, but could not find it on the computer the next class period. Although it was somewhat difficult, I felt it was all worth it when I saw the smile on the girl's face who received the computer. She was very excited to be getting the computer. She is a junior in high school, so she needs a computer for homework. When we set up the computer, it took a lot less time then I had expected. The mouse and keyboard we had did not work, so we had to use a keyboard plugged into the USB drive and send a mouse later. This is a great project and even though I did not enjoy the process, I enjoyed the results.

Student 4:

I greatly enjoyed making the deliveries on Saturday. It was so neat and rewarding to see the happy faces of the people we delivered to. All the work I put into finding programs and loading them on the computer was worth it when I saw the people who were so grateful for our work.

Student 5:

Getting together materials for our computers was harder than I thought it would be. At first, I had trouble figuring out which files could be saved to the computer, and which ones needed the internet. Once I figured that out, it was hard to find files that didn't need the internet. It made me realize once again just how dependent we are on the internet. My favorite part of the project was delivering them. The two families I went to were so nice, and so thankful. I enjoyed seeing two very different cultures. I had always imagined setting up a computer to be a long, complicated process, but really, it wasn't so difficult. Definitely worth the effort once I saw the families getting the computers!

Student 6:

When I first heard about our Computer Configuration Project, I loved the idea of using things I was learning in class to help families in need. Helping people is what I enjoy doing most in life. It is what I hope to be able to do in my career as an educator. I had no previous experience working with refugee families, so the project was unique opportunity to learn about something that was new to me. While I was searching for and collecting programs to install on the computers, I had some mixed feelings. My visceral reaction was frustration at how challenging it can be to find quality software free of charge. After I got used to digging, I was excited about the number of quality resources we were able to find. I discovered educational games like the one where players put the states (or continents) in their correct places like puzzle pieces, and fun games like the one where explorers maneuver their way through space and shoot alien attackers.

I participated in two deliveries on Wednesday. Before we left for the first delivery, the Times-Union reporter asked me what I thought about the project. I told her that I was proud of what we had done and I looked forward to seeing the families' reactions. On the way to the first home, I was a little bit anxious, since I had never done anything quite like this before. When we arrived at the house, the mother and youngest son were there, but neither of them was very talkative. I felt quite welcome, however, as an array of cookies and a pot of tea was spread out for us on the coffee table. Soon the oldest daughter arrived and we set up the family's new computer in their living room. Although she was soft-spoken, I could tell that the fourteen-year-old girl was thrilled to have the computer. Then the two younger girls came home and flocked to the computer right away. They knew exactly what they wanted, which was to play games (of course!). I couldn't figure out how to play the abacus game, but one of the elementary-age girls figured it out in no time. From that point on, sound effects from the various games provided the background music for our visit. The children's mother thanked us repeatedly for what we had done, and provided a meal for us (which, I think, is an Afghan tradition).

The second delivery was tricky at first. It took some time to find the apartment, and when we did, it was not that apartment but the one below it where the computer was to be installed. Once the computer was running, the two girls began exploring the word processor and games. The first thing they wanted to know was how to email Liberia. That was the only regret I had about the project. I wished we had been able to provide Internet access for these families who are so far away from their friends and family members in their home countries. The other thing I would have liked to be able to give each family is a printer, especially for homework. It makes me think about the luxuries I take for granted. I can use the Internet any time I feel like it. I can print things out at my leisure. Not only can I turn on the air conditioning in my house when it gets hot, but I have a car with A/C as well. I learned a lot more from this project than I expected to.

Student 7:

When I first learned that we had to program a computer and give it to a family, I was really nervous, but kind of excited too. I had never done any type of programming or set up any computers. I had always left those things to other people who knew more than I did, so I was a little scared about how everything was going to turn out. It ended up being a really fun and rewarding project. Looking for programs on the internet that were free, but still had value and could be useful was a challenge. It was rewarding to find programs and software that looked really interesting and that would help the refugee families with their English/Language skills and math. Actually setting up the computer both in class and at the house was really fun. I was excited to finally put all the software and games that we had found on the computers and to give them to the family. It was really cool that we were able to give a computer to her refugee family. I will say that trying to show Mamie how to work the computer and the mouse was frustrating in a way because I really didn't know how to communicate with her. It was a really good experience though. I hope that the computers are really useful to all the refugee families.

Educational importance

This project demonstrated that contextualized learning in educational technology is not only possible in teacher preparation programs, but significant to the community beyond—to both the children and their families in helping them to maintain their cultural connections and to improve their quality of life in the U. S. Establishing the need for authentic school-home relationships with these preservice teachers can begin to bridge the digital divide and thus to address the complexities embedded in the achievement gap, outcomes that enrich life for all Americans.

References

- Broudy, H. S. (1988). *The uses of schooling*. New York: Routledge.
- Brown, D. & Warschauer, M. (2006). From the university to the elementary classroom: Students' experiences in learning to integrate technology in instruction. *Journal of Technology in Teacher Education* 14(3), 599-621.
- Fan, X. & Chen, M. (2001). Parental Involvement and Students' Academic Achievement: A Meta-Analysis. *Educational Psychology Review* 13(1), 1-22.
- Fuchs, T., & Woessman, L. (2004, November). *Computers and student learning: Bivariate and multivariate evidence on the availability and use of computers at home and school* (IFO Working Paper No. 8). Retrieved July 29, 2006, from <http://www.res.org.uk/econometrics/504.pdf>
- Jonassen, D. H. (2000). Revisiting activity theory as a framework for designing student centered learning environments. In D. H. Jonassen & S. M. Land (Eds.), *Theoretical foundations of learning environments* (pp. 89-121). Mahwah, NJ: Lawrence Erlbaum.
- Jonassen, D., Howland, J., Moore, J., & Marra, R. (2003). *Learning to solve problems with technology*. Upper Saddle River, NJ: Merrill/Prentice Hall.
- Jonassen, D., Peck, K., & Wilson, B. (1999). *Learning with technology: A constructivist perspective*. Upper Saddle River, NJ: Merrill/Prentice Hall.
- McBrien, J. (2005). Educational needs and barriers for refugee children in the United States: A review of the literature. *Review of Educational Research* 75(3), 329-364.
- Merrill, D. (1992). Constructivism and instructional design. In T. Duffy & D. Jonassen (Eds.), *Constructivism and the technology of instruction*, Hillsdale, NJ: Lawrence Erlbaum.
- O'Dwyer, L., Russell, M., Bebell, D., & Tucker-Seeley, K. (2005). Examining the relationship between home and school computer use and students' English language test scores. *The Journal of Technology, Learning, and Assessment*, 3(3), n.p. Retrieved July 29, 2006, from <http://escholarship.bc.edu/jtla/vol3/3/>
- National Research Council. (1999). *How people learn*. Washington, DC: National Academy Press. <http://books.nap.edu/html/howpeople2/>
- Patrick, E. (2004). *The U.S. refugee resettlement program*. Washington, DC: Migration Policy Institute.
- Ravitz, J., Mergendoller, J., & Rush, W. (2002, April). *What's school got to do with it? Cautionary tales about correlations between student computer use and academic achievement*. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.
- Rose, D., & Meyer, A. (2002). *Teaching every student in the digital age*. Baltimore, MD: Association for Supervision and Curriculum Development. <http://www.cast.org/teachingeverystudent/ideas/tes/>
- Ryle, G. (1969). *The concept of mind*. New York: Barnes & Noble. (Original work published 1949).

Subrahmanyam, K., Kraut, R., Greenfield, P., & Gross, E. (2000). The impact of home computer use on children's activities and development. *Children and Computer Technology*, 10(2), 123-144.

Wenglinsky, H. (1998). *Does it compute? The relationship between educational technology and student achievement in mathematics*. Princeton, NJ: Educational Testing Service.

United Nations High Commissioner for Refugees. (2001). *Learning for a future*. Geneva: author.

US Department of Housing and Human Services. (2006). AMERASIAN, ASLYEE (from Northern Iraq), ENTRANT, AND REFUGEE ARRIVALS BY COUNTRY OF ORIGIN AND STATE OF INITIAL RESETTLEMENT FOR FY 2004. Washington, DC: author. Accessed October, 2006 from <http://www.acf.hhs.gov/programs/orr/data/fy2004RA.htm>