

Research in Action: Teachers, Projects, and Technology

by Heide Spruck Wrigley

It's tough being a teacher in the age of accountability. It is no longer enough to teach to the best of our knowledge and ability, we are now asked to use methods that are based on scientific research, preferably experimental research that uses random assignment to control groups. This method is seen as the Gold Standard of research, and it stands on contested ground. While some reject the notion of experimental research altogether as inappropriate for education, others find the current definition of what counts as acceptable research too limiting. Still others point toward the millions of dollars in resources that would be required to conduct a Gold Standard study in adult literacy and suggest that the monies might be better spent for more direct and immediate program improvement. But while the field waits to see what kinds of studies (if any) will be funded over the next few years, we still must bear the burden of basing our programs and our teaching on accepted research if we receive federal dollars under the Workforce Investment Act (WIA). In this article, I will argue that there are practically no studies available that meet the Gold Standard for research and that we must look at alternative studies to guide our practice. I then present a program in Socorro, Texas, on the U.S.-Mexico border where we are working with teachers and staff to put an adult literacy program into place that is based on what we consider the best available research for adult learners in family literacy programs who are new to English.

Scientific research using random assignment trials are quite popular in medicine, fairly common in the social sciences (including K-12 schooling) but very rare in adult literacy. The few studies that have been conducted using experimental designs don't meet established criteria for scientific rigor either because the sample size was too small, there was high attrition or because of other methodological problems. Of the two national studies conducted in adult ESL literacy (for both of which I was the content expert), one was a series of case studies (Wrigley, 1992). The second, the study on *What Works for Adult ESL Literacy Students?* (Wrigley, 2003) was a quasi-experimental study that examined instructional practices and related those to student skill increases in reading and oral communication skills. Other recent studies using correlational designs with beginning ABE learners conducted by Apt Associates, not yet released, and the Level 1 Learner studies carried out by ETS will also not be able to demonstrate causal relationships between instruction and learner outcomes.

So where does that leave those of us working in adult literacy as we try to implement quality programs that meet the needs of our learners? One option is to ignore the federal requirements or declare the search for scientific studies over since Gold standard research is not available. In other words, we continue business as usual under the motto "anything goes" or "whatever." Another might be to base program practices on common sense and local teacher experience and continue with practices that we know in our hearts and minds to be effective with our students. What makes this approach difficult is that we really don't know what works across classes since individual teachers

can lay claim to success for such widely disparate approaches as grammar-focused learning, still popular with ESL learners, competency-based methods fashionable with many state agencies, and open-ended participatory approaches that receive a great deal of attention and support in the literature. A third option looks critically at both field experience and available research and selects studies that reflect what we know about language and literacy development and about the ways people learn. It is an approach that is driven by principles of learning and teaching, and not by any particular method found to be effective in a single study or even a series of such studies. An approach driven by principles rather than methods allows us to accept non-experimental research where a preponderance of evidence points in a certain direction and rejects research that seem to run counter to what we know (or think we do) about how adults learn. It also allows us to look at our own practice and that of others critically and move away from an ad hoc way of teaching where anything goes, to a more principled way of teaching. Such an approach requires that we provide justification for why we use a particular approach or a set of practices rather than another and asks us to think about what we hope students will take away from the learning experiences we provide.

Interestingly enough, federal guidelines provide support for such an approach. When the U.S. Department of Education calls for "evidence-based practice" it is helpful to remember that this means "combination of (1) the best research available and (2) professional wisdom based on years of practice and experience."¹ This means, we are free to choose research that reflects scientific principles such as using "rigorous systematic methodologies and make claims that are appropriate for and supported by the methods that are employed" (Education Sciences Reform Act of 2002). This research can then be combined with action research and other forms of observation and analysis that are part of classroom teaching. Evidence-based practice does not mean uncritically accepting any study or set of studies that highlight single variables. There is sufficient science to document that adult literacy encompasses a highly complex set of skills influenced by emotional, cognitive, socio-cultural, and political factors and that factors such as "phonemic awareness" may be necessary but are hardly sufficient. The next section will outline the studies we considered when building a small scale EL Civics research-based demonstration project in Socorro, Texas.

**Border Civics Program Participant,
Gabriela Munoz**



Part II: Building a Local Project Based on Learning Principles and ABE/ESL Research

The Model: Integrating PBL, Civics, and Technology into Adult ESL and Family Literacy

After having been part of research in language acquisition and adult literacy for about fifteen years, I was itching to help develop new models that would make the link between research and practice in ways that make sense to teachers. I was thrilled when three years ago Jim Powrie and I had the opportunity to work with the Socorro Even Start and Adult ESL program in creating, implementing, and documenting a staff development model that would take advantage of the insights offered by the research in adult ESL, teacher change, and multimedia. The project team looked like a Dream Team. We would get a chance to work with Vicki Smith and the teachers from the Socorro ISD, as well as Barbara Baird of El Paso Community College.² We all supported the idea of a project based on both principles of language learning and recent research in adult literacy. We created and put into place a staff development model designed to integrate EL Civics and technology into an existing family literacy program. We chose Project-Based Learning (PBL) as our instructional model, building on the earlier success of Project IDEA, the five year Texas state wide initiative which had operated from 1996 to 2002 (with Barbara Baird as director and Rebecca Davis as coordinator). Funding for the project was provided through the federal EL Civics money administered by the State of Texas and awarded through competitive grants. The name of the project became "EL Civics on the US-Mexico Border" and later, simply "Border Civics."

Research that Guides Border Civics

Since we wanted to integrate technology with project-based learning (in our view, a marriage made in heaven) we used the CyberStep Principles as guidelines to create and select materials and to evaluate video and web-based resources (see also <http://www.cyberstep.org/TESOL/>³). We also built on the findings of the six year national study on "What Works with Adult ESL Literacy Learners" (Condelli, Wrigley et al forthcoming), a study that showed a strong relationship between certain instructional approaches on the one hand, (such as linking classroom work to the literacy demands of every day life) and learner progress, on the other. We knew that earlier studies with adult learners had shown similar results. For example, a NCSALL study conducted by Victoria Purcell-Gates also showed a positive correlation between the uses of authentic texts (coupons, TV guides) and changes in the way learners used literacy in their daily lives. While these findings do not prove causality between intervention and outcomes, these results certainly suggest that this could be the case. Taken together, and buttressed by Tom Sticht's work that showed the benefits of functional context instruction, these studies provide justification for teachers' continuing to focus their literacy work on materials and tasks that matter in students' lives.⁴ Based on previous experience, now supported by research, we focused the instructional component of the model on connecting students to their community through classroom work, inquiries, and field experiences. We then designed demonstration lessons, draft interviews, guide to cultural visits, and suggestions for investigation into civic processes such as defending one's rights in a Small Claims Court. These drafts were then adapted and put into practice by participating teachers and students.

From Research to Practice in Staff Development

We had designed the Socorro model with a focus on both staff and curriculum development. To start, we reviewed K-12 studies but ended up relying in large part on the meta-analyses of staff development research conducted by Cristine Smith and Beth Bingam of NCSALL. They report, not surprisingly, that staff development is most effective if it incorporates the following criteria: it is ongoing, involves teachers in decision making, links the content of training to teacher interests and needs, and allows for discussion and reflection.⁵ Since the Socorro project would span a minimum of 2 years, we had the opportunity to put these principles into practice. As a researcher and staff developer, I had long known that one-shot workshops, as interesting as they may be for teachers (especially if offered in semi-exotic locales such as Orlando) are not particularly successful in effecting changes in teaching practice (particularly since adding another bingo game to your list of teaching tricks doesn't count as instructional change).

Research in Collaborative Learning

Through my previous work with Project IDEA, we were familiar with the research in collaborative learning in K-12 that suggests that when language minority students work together to share information and complete tasks, achievement often increases (Slavin,

1990; 2003; Johnson and Johnson, 1989). We also knew about the success of various forms of action research (see Wrigley in Focus on Basics 1998) and were familiar with the high levels of engagement that this approach brings about. A PBL model seemed particularly appropriate for the student population in Socorro, a group of parents (mostly younger and mostly women) and a second group of displaced workers (mostly older, split fairly evenly between men and women). A model that provided opportunities for learners at varying proficiency levels to learn and use English as part of project work made a great deal of sense. We would also plan projects to be showcased to a larger audience of community members and through them offer opportunities for authentic communication that were lacking in Socorro since students lived in neighborhoods where Spanish was the dominant language and English was hardly ever needed.

Descriptive Research in Multi-Media

We also reviewed smaller descriptive studies that don't use tests of any kind but rather investigate learning processes to find out what works. These qualitative studies offer insights into important linguistic or cultural phenomena through ongoing observation, examination of various "learning events," and interviews. Case studies are especially useful in areas that are still emerging and where we know very little about what makes learning happen. The relationship of literacy and multi-media is one such area. We were especially intrigued by the work of James Gee and his comparisons between how kids use literacy to play and win video games and how literacy and technology are used in schools. Three key concepts highlighted by Gee made particular sense to us: (1) The use of "smart tools" allows kids to be successful even if they struggle with literacy; (2) Kids develop problem solving skills by working with peers who may know more than they do or who may be smart in different ways;⁶ (3) Help appears "just in time" and on demand" so that skills emerge as tasks become more complicated, a model quite different from sequential school-based models where necessary skills are first pre-taught and then applied.⁷ Finally, using multi-media as part of game playing allows young people to take on a new identity as they become wizards, capable of creating magic.

We immediately saw the advantages of a "just-in-time" model for ESL literacy learners with no or few technology skills. From our experience working with language minority adults, we also knew that it is very easy for ESL students to define themselves not by what they can do, but rather by what they can't do: speak English well, write in English, or "know computers." To help move students toward competence fairly quickly, we created a model that would shift students' expertise from "novice" to "apprentice" to "expert" in a relatively short amount of time and offer success in ways that, while related to language and literacy growth, was nevertheless not entirely dependent on one's proficiency in speaking or writing English.

Part III: Implementation with a Focus on Multi-Levels

We all agreed on a model where the staff development would be ongoing. We would meet 3 or 4 times a year as a group⁸ but also offer sufficient time and opportunity

between trainings for teachers and students to meet with the facilitator, Barbara Shull to share and plan, and discuss the progress of their projects, and show samples of what was being accomplished. This focus on both process and products proved to be key in keeping both students and teachers on task and engaged. It also added an edge of competitiveness as classes worked to outdo each other in both the quality and the quantity of the projects they produced each year.⁹

We knew that multi-levels would be a concern for both staff and students with some teachers much more experienced and steeped in academic knowledge of literacy and language learning than others. We also knew that in terms of attitudes toward technology we might find both enthusiastic early adopters, reluctant users, and uneasy resisters among the 10 teachers we would work with. Student proficiency and experience played a role as well with levels ranging from zero proficiency in English for the group living in the colonias near Socorro to high intermediate levels among some of the displaced workers who lost their jobs in the Levy Strauss plant closings on the border. To account for all those differences, we needed a flexible model that allowed each group of teachers to take from the training what they could and apply it to their classrooms in ways that matched learner interests and proficiency levels. Since some of the teachers were highly experienced instructors, we also wanted to offer sessions that challenged the high achievers among the staff while providing enough support to novice teachers so they could feel both competent and confident in implementing projects using technology.

In the end, we created a model that included the following components development of instructional materials for the teachers to try out with their classes; demonstration lessons on ESL and civics coupled with hands-on work in technology (both low tech and high tech); the sharing of print resources and discussion of new language learning CD-ROM and videos. We also included information from national and international conferences on the latest developments in research and policy and practice in adult literacy and language education. Jim Powrie also developed a technology plan for the program with specifications as to the kind of gear that the program might purchase to facilitate the production of student projects. After three years, the gear purchased included a digital camera for each class, a video projector, editing software, and a digital video camera to be shared among classes. Not all the technology was used by all the teachers - while all classes embraced digital cameras and PowerPoint as the backbone of their presentations, some classes went further, producing CD-ROMs, videos and web-based projects. Eduardo Honold's class probably went farthest in terms of technology, producing a clickable community map, a web-based Q and A on domestic violence, and a student produced news cast that included sports, news, and weather segments along with ads for a new kind of sports drink that the students made up.

Students Strutting Their Stuff

The EL Civics grant that funded the project called for a conference during which information would be shared with other teachers in the wider community. We used this conference as a showcase for the projects created by each class, offering each group

an opportunity to display and discuss their work, while at the same time raising the bar much higher since an audience of outsiders (other teachers, administrators, community officials, parents) would no doubt have higher standards of performance than generally exist in our language and literacy classrooms. We were reluctant to put students under pressure to perform the first year, but thought they might be ready to present in year two. To everyone's delight (and to the surprise of many), the students rose to the challenge by spending both in class time and many hours outside of class trying to perfect their projects and getting them ready for prime time. Since we had asked students to present their projects, to the extent they could, in English to a city wide audience, they spent many hours discussing what they would say and how they might say it. In the process, they learned a great deal of new vocabulary and acquired the new sentence structures needed to get their point across. The projects were also presented bilingually in English and Spanish to other parents in the school district who were not part of the Border Civics Effort.

Part IV: Documenting Promising Practices

We had designed the project as a model that was informed by existing research and grounded in teacher experience. But we wanted to document what it takes to help teachers embrace new technologies, to show what works and to describe promising practices. Through this process we would be able to both take advantage of the existing knowledge base in language and literacy teaching and contribute new ideas and insights. Although the standard model for research dissemination occurs through books and journals written for an academic audience, we wanted to get the word out directly to practitioners. To that end, we created joint presentations with teachers, worked with staff to get their lessons web ready and encouraged them to offer workshops on their own. We also created a web site (<http://www.bordercivics.org/>) as a way to share lesson plans, model lessons, teaching tools, and resources.

So What? Examples of What Worked

Now in its third year, the project has been highly successful, based on ongoing feedback from the ten teachers who participated and from the administrators, Vicki Smith, the Director of Community Services, and Martha Serna, the Even Start coordinator.¹⁰ Student test scores, as measured by the BEST test look encouraging but have not been analyzed.

Progress in Skills Related to Technology and Team Work: Teachers report that students are engaged and highly motivated and have taken to the technology with a vengeance creating a wide range of projects including a mini-documentary of a visit to an art gallery, interviews with school staff (library personnel, school crossing guards, security officers) to find out more about their jobs. PowerPoint was king as students created presentations on issues important to the community, including a presentation on diabetes and another on training opportunities for displaced workers. Low tech projects such as the creation of community maps, alphabet books and artifact activities have been successful as well, as have more high tech efforts such as the production of a

series of "How to" CD-ROMs, a learner produced newscast ("The Socorro News"), mentioned above, and a set of commercials that students wrote, acted out, and then video-taped. As part of this work, knowledge of technology and experience in teamwork increased tremendously. The smart tools that are offered by the technology along with the cognitive apprenticeship that occurred as teachers mentored students and students mentored each other built a strong foundation in "work essential skills" (see also Wrigley, 2003). It is easy to see how these skills may transfer to new settings at home, at work, or in interaction with others in the community. In fact, several students mentioned that their friends and families had benefited from the skills they acquired in using computers, creating CD-ROM, producing videos, and utilizing editing and publishing software.

Increase in English Use: Students' competence and confidence in using English outside of the classroom improved by leaps and bounds as well. In that respect, the showcases that prompted students to show their work were critical to the success of the program. Having an audience provided an important challenge, while it offered, at the same time, the opportunity to show off new skills and gain recognition for work well done. As mentioned above, in terms of learning English, time on task increased tremendously as students spent hours working on both the oral and written English needed for their presentations.

Psychological and Social Gains: Being able to produce and create projects in English using popular technology moves the work that students do into a different dimension: they now become creators of knowledge; they do work that other smart people do and are involved in efforts that are recognized as important, not just by fellow students and their own teachers but by the "real world" outside of the classroom. In the end, the students involved in these projects no longer define themselves by what they cannot do (speak English fluently, read and write well) but rather by what they can do: film, edit and produce video and CD-ROM; give a presentation using print, visuals and animation, or present a skit on stage. In many cases, students are now able to accept and project a new identity for themselves as smart and competent individuals who are creators of clever work, who have mastered technology that eludes not only their neighbors, friends and spouses but most of the teachers they know (after all, who of us out there is able to produce a tight and funny video with titles, music, credits and outtakes?). These students glory in the respect they now get from their families and friends who are in awe of their skills as they watch the finished products at home or during the showcase ("Mom, you did a CD-ROM? Cool!" was one response from a child).

Staff Development Gains: In many ways, the experience of the teachers parallel that of the students. Initially somewhat leery of the technology, they gained confidence through hands-on training that allowed them to work as teams as they wrestled with the various projects they might try in the classroom with their students. Having access to a wide range of examples and tools along with options for working on different kinds of projects allowed them the kind of autonomy that we all cherish in our jobs. Having a wide range of materials available in the training meant that not all ideas had to be implemented by everyone and allowed teachers to go along with ideas that they were not crazy about

initially. For example, some of these ideas (such as story boarding or creating life maps) seemed silly to the teachers at first. One or two then tried them with their students who became quite enthusiastic users of these tools. Similarly when we showed previews of a number of new ESL videos, teachers thought that students would prefer regular classes, only to find that some of the videos were a big hit and students looked forward to the opportunities they offered for language development through listening practice, discussion of what was happening and why, sharing personal experiences and expansion of vocabulary. So far, teachers report that the model has increased their repertoire of teaching strategies and improved their expertise in facilitating project work done by students. The tools and strategies they now use are not simply tricks of the trade, but are part of an integrated approach that combines skill acquisition focused on project tasks with experiential learning that borrows from apprenticeship models. As such, the Border Civics model reflects sound principles of learning and teaching and is grounded in both research and teaching practice.

Research-based demonstration models can make important contributions to the field and we have been excited about the opportunities afforded by this work.

However, the ultimate thrill for all of us has been to see students embrace the technology, take control of their learning, and run with the ball. Goaaaaaaallll!!!

A similar model for training in Project-based Learning will be offered this fall by the Socorro GREAT Center.

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Footnotes

¹ For definitions on evidence-based practice see <http://www.shed.ac.uk/~scharr/ir/def.html>.

² During Year 1, Avance, a community-based organization in El Paso was part of the project. Avance has since secured their own EL Civics funding and runs their program independently.

³ Jim Powrie and I had worked on developing these principles for the federally funded CyberStep project.

⁴ In adult ESL at least, we still don't know what difference it might make if we also focused our attention on print awareness and comprehension strategies as part of our contextual work. Studies in this area are still lacking.

⁵ Beth Bingman and Cristine Smith presented their review of the literature at the Rutgers University RISE Invitational Conference in November 2003

⁶ This process is also known as cognitive apprenticeship although Gee does not use that term.

⁷ Gee points out that kids will reject any game that requires them to read the manual ahead of time, but they will consult the manual to help them get better once they have mastered the basics.

⁸ Training was set for 3 two-day sessions a year with a fourth session devoted to a teacher conference the first year and a student showcase the subsequent year.

⁹ Not all instructional time was spent on projects; projects were integrated into the regular curriculum.

¹⁰ Sanjay Mathur, Executive Director of Avance who was only part of the first year was quite positive about the experience of his teachers but during the year also experienced difficulties with the data collection requirements of the state and with finding access to computers for his teachers and students.

About the Author

Heide Spruck Wrigley is a senior researcher with LiteracyWork Associates in San Mateo, CA with a specialization in linking research and practice. She has been involved in several national research studies in adult ESL and is now directing a multi-year research and development effort on Youth Literacy in Vancouver, BC. Over the last three years she has worked with the teachers in the Socorro Family Literacy and Adult Education Program to create a research-based approach that integrates technology, EL Civics, and family literacy through project-based learning. She has been involved in a long-term involvement with Project Forward and Project IDEA. Heide holds a Ph.D. in Education from USC with an emphasis on language, literacy, and learning.