On-line Professional Learning Communities: Increasing Teacher Learning and Productivity in Isolated Rural Communities

Dora SALAZAR, Zenaida AGUIRRE-MUÑOZ, Kelly FOX and Lisa NUANEZ-LUCAS
Department of Curriculum & Instruction,
Texas Tech University, 2500 Broadway
Lubbock, Texas 79409-1071, USA

ABSTRACT

On-line and distance professional learning communities provides teachers with increased access and flexibility as well as the combination of work and education. It also provides a more learner-centered approach, enrichment and new ways of interacting with teachers in isolated rural areas. For educational administrators, on-line learning offers high quality and usually cost-effective professional development for teachers. It allows upgrading of skills, increased productivity and development of a new learning culture. At the same time, it means sharing of costs, of training time, increased portability of training, and the exchange of creativity, information, and dialogue.

Keywords: On-line Professional Learning Community, English Language Learners (ELL), Second Language Acquisition, Bilingual Education, Professional Development, Collective Inquiry, Critical Reflection, Digital Resources

INTRODUCTION

The English language learner (ELL)[1] population in the United States (US) is predicted to double by the year 2050. Therefore, at some point during their teaching careers, most teachers can expect to have ELLs in their classrooms. Yet nationally, teachers report they feel least confident in addressing the needs of this burgeoning segment of the student population [1]. Contributing to US teachers' perceptions of under-preparedness is the lack of professional development they receive during in-service training. Only 26% of teachers reported participating in training designed to address ELLs' needs. Of this 26%, the great majority reported less than eight hours of training. This inadequate response is particularly evident in schools in rural areas [2]. In our work with teachers in West Texas, we have found that teachers in rural areas are particularly vulnerable to feelings of isolation in facing their classroom challenges, as there are typically few if any that are trained to provide sheltered[2] or bilingual instruction[3] to ELLs. These teachers also face geographic isolation which makes it difficult to communicate with other teachers to share ideas regarding their instructional practice within the school or district. In addition, limited travel funds to conferences outside the area do not provide ongoing support teachers need for improving instruction [3].

On-line learning could help participants develop a more complete picture of the educational landscape simply through exposure to other participants whose schools present circumstances and limitations different from their own. Fresh insights can serve to mitigate the isolation of rural teachers by acknowledging their existence and special challenges. For example, in a blog posting designed to facilitate collaborative teacher inquiry in the meaning-making processes on second language acquisition, one participant posted,

> *I can see how many schools may find it difficult to find the appropriate bilingual educators or even ESL educators, especially (in) extremely rural districts.*

1. RESEARCH ON ONLINE LEARNING

Online learning has been a source of considerable debate, despite the surge in professional development using online learning environments in recent years [4] both in the US and internationally [5]. Many in higher education feel that online classes and environments do not effectively teach students [6]. Although many of the studies examining the effectiveness of online learning contain some methodological flaws (e.g., comparability of curriculum materials, pedagogy, or learning time) a recent meta-analysis revealed a small but statistically significant effect size favoring online learning [4]. That is, student performance is higher, on average, when they take some or their entire course online than when they take face-to-face classes. Although these differences may be attributed to differences in aspects of the instructional condition other than the medium per se, a key contributing factor was found to be the amount of time students are engaged in the content.

Another important finding of the meta-analysis was that overall critical reflection was effective in improving learning. Online learning is increasingly used as a method for promoting critical thinking, knowledge construction, and learning autonomy [7]-[8]. Regardless of the specific method (self-regulated learning [9], question prompts to activate student reflection [10] or self-assessments [11]), online environments utilized to explicitly prompt students to engage in critical reflection, active engagement in critical reflection was positively associated with learning outcomes [4].

Further, despite the debate regarding the merits of online learning in teacher education, there is considerable consensus that online education is the "most significant long-term strategy for the field of teacher preparation" [12]. This is particularly true for continued professional development in isolated areas where access to training is usually limited.

The online learning environment described in this article was developed to increase the number of teachers who are trained to work with ELLs in west Texas.

2. WHAT IS A PROFESSIONAL LEARNING COMMUNITY?

The extent to which teachers will apply new techniques and practice depends, in part, on the extent to which they have access

to a supportive learning and teaching community [13]. A professional learning community (PLC) is a cadre of educators with shared values, goals, and beliefs and who continuously seek and share learning and then act on what they learn [14]. The goal is to enhance their effectiveness as professionals to improve student achievement [15]. The PLC has been characterized as a powerful professional development approach and a potent strategy for school change and continuous improvement. A core belief of members of a PLC is the concept of continuous improvement, which carries with it the philosophy of *"get it right, and then make it better and better."* Members of a PLC fundamentally reject the philosophy of *"get it right—then keep it going"* [15]. Research both within and outside the field of education has reached similar conclusions about the best path for sustained organizational improvement—the development of collaborative "learning communities" [15].

3. HOW CAN ONLINE ENVIRONMENTS ENHANCE PLCS?

Traditionally PLCs are organized in schools that are motivated to enact fundamental changes to improve student learning. In isolated regions where the population of ELLs is still small but increasing, supervisory and administrative school personnel may not recognize the need to begin the change process at the level of their institution. The teachers of these ELLs, on the other hand, quickly realize that they need additional training and support to address their instructional needs. The internet presents a viable solution in settings where traditional PLCs are less likely to be successful or even feasible. Participants are able to select from and participate in a growing number of evolving virtual options which presently include: interactive video conferencing (iVC), discussion boards, blogs, wikis, and social online networks.

Online learning communities are comprised of a group of autonomous, independent individuals who are drawn together by shared values, goals, and interests and committed to knowledge construction through intensive dialogues, interaction, and collaboration [16]-[17]. The use of an online delivery system offers a convenient way to provide professional development experiences [18]-[19].

The rising generation of teachers requires opportunities for professional collaborations that focus on improving children's learning and that have "a statistically significant impact on the likelihood of teachers staying longer in the classroom" [20]. Online environments can increase the amount of professional development in-service teachers receive as well as increase the number of teachers participating in upgrading their credentials. In the absence of on-site communities, on-line PLCs offer teachers a mechanism for communicating with other teachers about best practice and provide access to resources.

Additionally, technology can afford voice to individuals who are not comfortable speaking up in traditional settings; and blogs, in particular, can "enhance learning, motivate learners and foster collaboration among students" [21]. Not surprisingly perhaps, these circumstances can create an opportunity for frank, critical and often heartfelt observations, the likes of which are not often heard in collegial, teacher enrichment activities provided by school administrators. Consider the following post from an on-line group participant after studying the State's procedures for the Language Proficiency Assessment Committee (LPAC)[4] decision-making process for the Texas Assessment of Knowledge and Skills (TAKS) Program:

> *After going over the LPAC information for Bilingual Ed and ESL students, I feel really, really sad for those students in my school. There is absolutely nothing being done for the students in my school district. Sad, but very true I have to report on their progress in my classroom but they receive no assistance at all. I know nothing about their LPACs. As far as I know, I'm just supposed to get them to pass the TAKS, no matter what it takes, with no experience as an ESL teacher. It has been very frustrating this year.*

4. THE PROJECT TEACH ONLINE PROFESSIONAL LEARNING COMMUNITY

The creation of online learning communities to facilitate professional development is a matter of carefully and deliberatively designing dynamic learning environments that foster a learning culture [18]. Developing such a community requires a pedagogical framework that nurtures the establishment of relationships, intimacy, and trust, where teachers engage in shared learning experiences mediated through technology [18]. As part of a larger teacher preparation model to increase the capacity of teachers in rural regions of Texas, Project TEACH[5] online PLC (PT OnPLC) was developed to improve in-service teachers' effectiveness in meeting the needs of English learners. This model joins components of a PLC with a virtual community involving a cadre of teachers who regularly interact on-line and share common goals, ideals, or values [22].

In a blog designed to invoke collaboration, reflection and dialogue focused on building knowledge of second language acquisition, one can sense the camaraderie, intimacy, trust and fullness of interaction in the learning community:

> *I agree with you 100% I admire your empathy towards [Limited English Proficient] students and their families. I strongly support your comment. The pressure is great on the children, parents and educators as well. That is why we need to make sure that these issues are addressed at the LPAC and ARD meetings and that cooperative efforts are accomplished by everyone involved. I agree that it is hard to process two languages at the same time for the children. Your caring and respect for these children will make you a great teacher for them and I am confident that you would do an excellent job.*

5. A BLENDED/HYBRID MODEL CONTINUES TO EVOLVE

A blended or hybrid approach expands the program's content and delivery options as well as its outreach to participants in a variety of locations, circumstances, levels of technological comfort and accessibility. The blended/hybrid approach allows the program to offer courses and other resource modules in a variety of ways that suit the instructor or expert as well as the colleague or student groups involved. The program works with each instructor to design and execute customized presentation as well as model strategies that take these and other variables into account. For example, sequenced, multi-media modules are available for students to study and participate at their own pace and within the demands of their own schedule**.**

Group opportunities are also enhanced. For example, in one class, participants are able to engage in face-to-face exchanges with the

instructor and two other groups in other parts of the state through interactive video conferencing (iVC) technology. A small group in an isolated geographical area is suddenly part of a larger learning community that can exchange thoughts and ideas in real time. As will be detailed in subsequent sections of the article, there are a variety of ways that group participants respond to module information and prompts.

One popular component is a question and answer session with an "expert in the field" who posts responses to questions that have come directly from colleagues in the learning community. Questions based on situations that arise from their own study and classroom practice can be addressed in a timely and supportive fashion. Project TEACH continues to explore blended/hybrid possibilities where technology can foster professional development for rural educators.

6. COMPONENTS OF PROJECT TEACH ONLINE PLC

The Project TEACH model integrates virtual, web-based learning communities focused on instruction and assessment of ELLs [16], [23]-[24] with elements from successful PLCs [15], [25]-[26]-[27] 28]-[29]. These elements include *collective inquiry*, *critical reflection*, and *digital resources*. This combination of elements is designed to foster collaborative team building and planned interactions which in turn lead to informed action.

Collective inquiry
Collective inquiry refers to planned activities to examine issues or difficulties identified by participating teachers; it also fosters continued improvement, growth, and professional learning [15]. Teachers are expected to question the status quo, seek and test promising methods as well as reflect on those results. Collective inquiry enables teachers to develop new skills that lead to new levels of joint co-construction of knowledge and awareness [29], [30].

Fostering collective inquiry
In the PT OnPLC, collective inquiry is promoted in two ways. First, it engages teachers in technologically enhanced collaborative group projects which reflect instructional issues they encounter in the classroom. For example, teachers use blogs to present their developing mental models of second language acquisition development, processes and issues. Example of such a mental model is presented in Figure 1.

The second strategy utilized to engage teachers in collective inquiry is through the use of *Cmap Tools*, an open source software program, to complete concept maps developed independently or collectively. Concept maps are visual representations of the relationship between and among concepts and key facts [29]-[31]. Teachers are instructed to investigate a concept or theory and construct concept maps representing their understanding of the content. The encircled words, referred to as nodes, represent key concepts and facts; the words in the lines represent the nature of the assocaiton between two concepts. Figure 2 presents: a typical concept map completed by a teacher prior to engaging in online activities (Map A), a group concept map representing teachers' shared understanding half way through an online course (Map B), as well as a map constructed towards the end of the course (Map C). As depicted in Figure 2, students start off with little knowledge of the content; knowledge that is often fragmented. The lack of connections between the three clusters of nodes demonstrates gaps and fragmented knowledge. As teachers engage in the course content gaps begin to fade as evidenced in the amount of nodes used as well as the connections made in Map B. However, the associations tend to reveal misconceptions and/or shallow understanding. For example, Map B contains a link between 'social constructivism' and 'cognitive constructivism' using the linking term 'emphasizes.' A more appropriate association would be 'contrasts with,' as these two theories have clearly opposing perspectives on key language development processes. Finally, Map C (an excerpt from a more detailed map) represents a more complete and accurate knowledge structure of the course content.

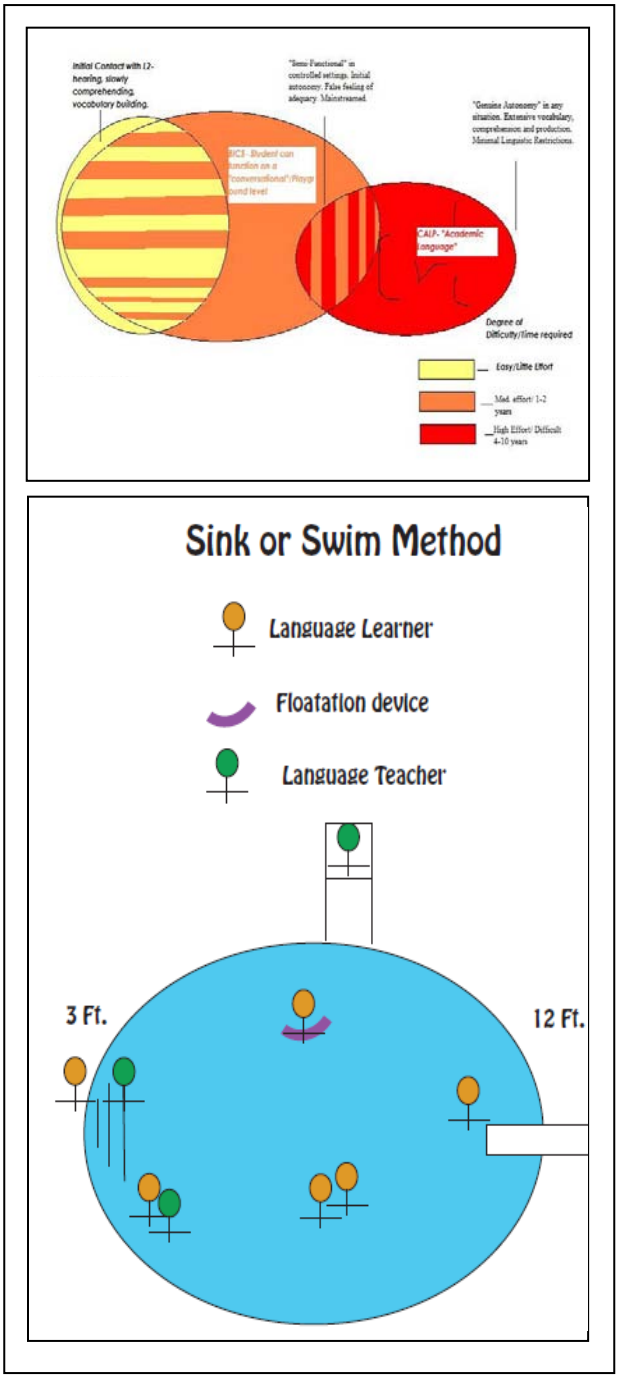
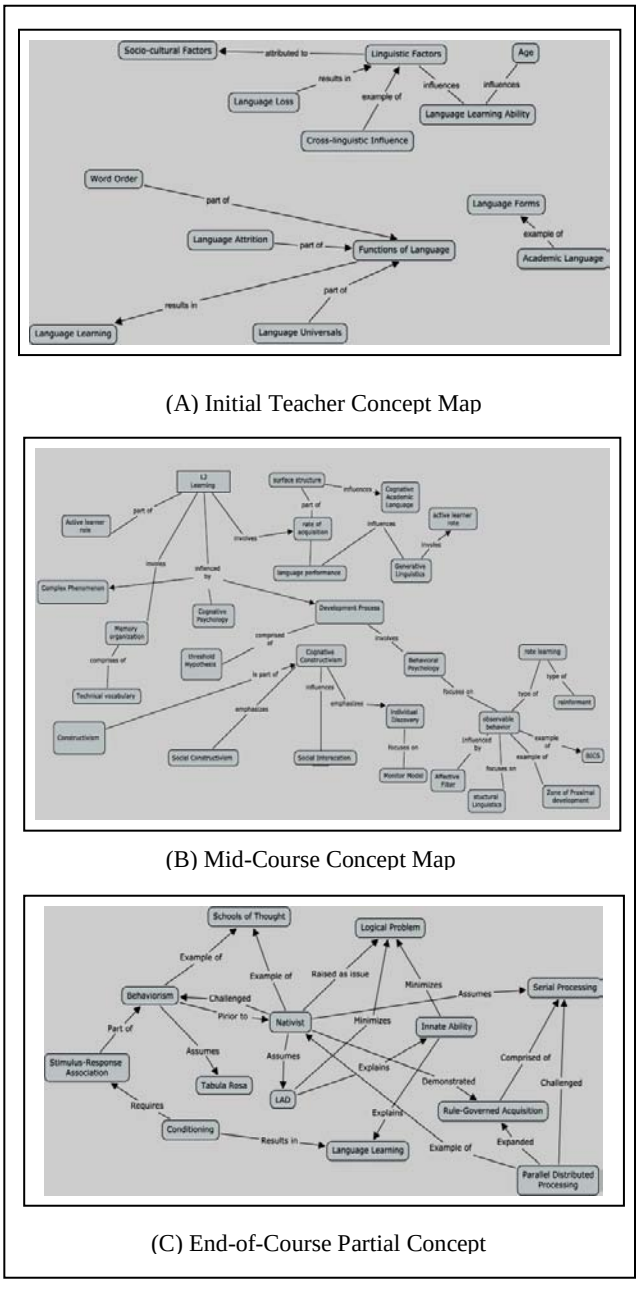


Fig. 1. Teacher Mental Models of Second Language Acquisition

Critical reflection
Critical reflection refers to actively reflecting upon one's own experiences, with a particular emphasis on highlighting and challenging assumptions and beliefs while working toward more informed positions and beliefs [15], [30]. Critical reflection may also allay the concerns of teachers who may have negative attitudes towards online learning. Lebec & Luft (2007) [32], for example, found that engagement in the use of online resources varied according to participants' attitudes toward online learning. Further, experienced classroom teachers bring with them a plethora of experience and pedagogical approaches that do not always transfer to the on-line environment [33].



(A) Initial Teacher Concept Map

(B) Mid-Course Concept Map

(C) End-of-Course Partial Concept

Fig. 2. Typical Initial and Mid-Course Concept Maps

Fostering critical reflection
Blogging is the main platform for critical reflection that promotes knowledge-building [34]-[35] in the PT OnPLC. Each week teachers are provided with thought provoking prompts they are to respond to by posting comments on the course blog site (http://projectteach.wordpress.com/) prior to, during, and after completing course activities for that week. Teachers respond to three kinds of posts on the blog: *Initial Reflections, Theory into Action*, and *Final Reflections.* The *Initial Reflections* prompts focus teachers' attention on the course content and illustrates their knowledge and/or beliefs prior to studying the content in the online module.

Theory into Action prompts are designed to promote the application of course content. *Final Reflections* focus teachers' attention on identifying any gaps in knowledge or misconceptions they may have resolved as a result of the collective inquiry and interaction with the online module. Weekly online chats with other students are guided by the instructor support this process. Table 1 presents a sample of these prompts for one course offered by Project TEACH and typical teacher responses to them.

Digital resources
Digital resources refers to both information and communication technologies (ICT) and digital networks provided to teachers as a vehicle to share ideas, air frustrations, and support the development of professional practice and routines, particularly in areas where teachers are dispersed across a large geographic region. Blogging and wikis are the key platforms for sharing resources [36] and an instrument for combining socially situated learning among teachers in the production of subject-matter expertise [37].

Promoting digital resource use
The PT OnPLC website (http://www.educ.ttu.edu/projectteach/ptnetwork.php) serves as a central location for accessing all the digital resources developed by the project. In addition to providing links to online resources, archives of presentations and videos, the website includes links to blogs and podcasts. The blogs are course specific as well as topic focused, such as the Dual Language Consortium blog developed for in-service teachers who are not taking courses, but want a place to share ideas about lessons and programming for students in dual language classrooms.

Since there is great variation in teachers' comfort and experience levels with respect to the use of digital resources, there is a need to provide ongoing support and training on the use of these resources to increase the rate of engagement [18]. Project personnel offer mini-workshops on the use of these resources in addition to providing demonstration video clips and instructional manuals with strong visual supports that teachers can download to maximize the features offered in the PT OnPLC website.

7. LOOKING TOWARD THE FUTURE OF TEACHER LEARNING

As we look to the future of professional development for teachers, we contend that virtual professional learning communities can and should be used in teacher education to stimulate thinking about important issues of how to best meet the needs of a diversified student population. Project TEACH enables teachers to engage in critical inquiry and reflection by accessing digital resources including blogs, wikis, and podcasts. Teachers who participated in the PT OnPLC recognized that sharing in a virtual setting provides

Table 1: Sample Critical Reflection Prompts and Responses from First & Second Language Acquisition Course

Sample Prompt	Typical Response
Initial Reflection	
Do some individuals have more aptitude for learning a second language? Explain.	I do think that some people have more of a knack for learning a second language. Everyone is unique. Some students find math and science easy and struggle with English or music. Similarly, I think some people may find grasping a L2 difficult to muddle through—I know I do. Some people have an incredible ability to remember things…I would guess that they would have an easier time remember vocabulary words in an L2.
Theory Into Action	
Skinner, Ausubel, and Rogers represent quite different points of view—at least they focus on different facets of human learning. Do you think it is possible to synthesize all three points of view into an integrated understanding of human learning, taking the best from all three points of view? In what ways are they all expressing the "truth?" In what ways do they differ?	…The three theories human learning…can coexist in a language development curriculum. Using Roger's principles…the organization of a classroom is transformed to a constructivist set up were the teacher acts as a facilitator for children to learn rather than a transmitter of knowledge… The teacher creates opportunities for the student to engage in shared-inquiry communicating feely and non-defensively. …
Final Reflection	
Go back and reflect on your initial response(s) to the reflection questions and comment on each of them separately. Be sure your response demonstrates that your knowledge has increased after reading the materials.	Brown notes that aptitude (as we traditionally think of it—high IQ…) does not have a huge impact on a person's ability to learn a language. …people with various IQs have proven successful…However, he goes on to document Gardner… They all add additional intelligences… In essence if we incorporate other capacities of the human mind…I still contend that … two individuals could acquire a [L2], one will likely acquire the second FASTER because of differences in multiple intelligences.

them with an opportunity to transform and broaden their theoretical and pedagogical expertise when working with the ELLs in their classroom. Collective inquiry and critical reflection through online interaction with other professionals allows teachers the opportunity to expand their network with others beyond the confines of their rural classroom and gives them the feeling that they are not alone in facing their shortcomings for instructional strategies that meet the needs of ELLs. Thus, similar to the findings of Young & Tseng (2008) [38], online interpersonal trust is formed through the sharing of knowledge and online anxiety diminishes overtime as teachers critically reflect and translate theory into action that can be used with the ELLs in their classrooms. The following quote from a participating teacher who expressed the most anxiety about using technology for learning expressed the following sentiment about the experience:

> *I was so nervous about this class at first because I have so much trouble with the technology. I contemplated dropping at first. After all the support from the instructor and other students, I realized that this was a great way to learn and expand my thinking on these issues. We are all so busy, without the online component, we would have interacted less, and therefore not gotten as much from the experience. Thank you for this experience.*

8. SUMMARY

As the population and diversity of ELLs increases, their instructional needs pose a greater complexity of challenges for both English-as-a-Second-Language (ESL) and mainstream teachers across the nation. In large rural geographic locations, the need for alternatives to face-to-face interactions is growing. Consistent with recent reviews of online learning [4], we found that when thoughtfully designed, online learning communities, like the Project TEACH OnPLC, may assist teachers to meet these challenges. Further, preliminary analysis of concept maps reveals the online environment can improve their knowledge base regarding first and second language acquisition development and processes, state and federal legislation, and the relationship between both bodies of knowledge. Future papers will report on the results of profile analysis of teachers' learning trajectories as they progress in the program.

Although online environments may present different experiences compared to traditional professional development, they can be used to build knowledge and community [6]. Teachers who participate in the program were exposed to new ideas and issues in bilingual/ESL instruction. An important finding in our initial iteration of the program was that teachers well-recognized its value in meeting their needs for on-going access to information and community [39]. The quote below illustrates a common perception we found reflecting the sense of value of these efforts.

> *(Name withheld), you keep asking some really good questions about what we can be doing as educators. I'm not sure I have an answer. I mean, I think things like Project TEACH are really helpful, but what about the educators that don't do that? Something that I am really starting to think about is how important it is for educators to really be analyzing the things around them. We have to be aware of the things that are going on today in order to be prepared for the changes that will occur…tomorrow.*

Despite our successes, creating assignments and experiences that foster teachers' use and understanding of

the bilingual/ESL education through an online delivery system is a complex, iterative process. Additional changes and augmentations are in process to engage a greater number of teachers as well as maximize learning outcomes. An area of concern is that while teachers' judgments about ELL students appear to increase as a result of this program, complexity in thinking about the educational context of ELLs [40] may not have occurred.

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9. ENDNOTES

[1]Students whose first language is not English and who are identified as not proficient in English upon entry into US public schools.

[2]Sheltered instruction refers to instruction designed to provide access to grade appropriate content knowledge which is achieved by incorporating strategies and techniques that assist in the second language acquisition process.

[3]Bilingual instruction refers to instructional models that provide instruction to ELLs in their native language at least 50% of the instructional time.

[4]Language Proficiency Assessment Committee, used in Texas schools for identifying, gathering assessment data, reviewing academic progress, and exiting English learners from specialized bilingual or English-as-a-Second language education programs.

[5]Project TEACH is an acronym for Teacher Education Alliance Consortium for Higher Education.

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