

## **Teaching US-Born Elementary Digital Native English Learners from Technopoly Settings: Lessons from Non-native English Teachers**

**Dr. Valentin Ekiaka Nzai**

Assistant Professor & Graduate Coordinator (M.S. in Bilingual Education)

Department of Teacher & Bilingual Education

Texas A&M University - Kingsville

Msc 196, 700 University Boulevard

Kingsville, TX 78363-8202, USA

**Dr. Jenelle Reeves**

Associate Professor

Department of Teaching, Learning and Teacher Education

University of Nebraska-Lincoln

44C Henzlik Hall, USA

### **Abstract**

*This paper explored how four digital immigrant non-native English speaking (NNES) English language learner (ELL) teachers overcame the different stages of their digital immigrant status in order to effectively meet their US-Born K-5 digital native ELL/Bilingual children learning need, in a predominantly subtractive bilingualism setting. Findings suggested that formal information technology training and informational learning have being used as transformative conditions aimed at helping NNES ELL teachers develop their digital native-like and/or digital native citizenship in an ESL context.*

**Key words:** digital native learner, technopoly, early digital immigrant teacher, late digital immigrant teacher, teaching vision adjustment, formal training, informal learning

### **Introduction**

In the English language learning (ELL) field in the United States of America, non native English- speaking teachers (NNES) have taught along-side native English-speaking teachers (NES). However, the commonly accepted view, deeply embedded in many educational institutions and language pedagogy, has been that NNES are second in knowledge and performance to native speaking teachers (Canagarajah, 2007; Llurda, 2012), regardless of the degree of their culturally responsive competence. Moreover, being a NES does not mean automatically, serving the learning needs of all US-Born K-5 NNES children whose lives are deeply immersed in the digital native and/or technopoly settings.

Claim (Prensky, 2001, 2010 & 2012) has been made that school-aged digital native children think differently than their digital immigrant teachers. US-born K-5 digital native children, even from low SES communities and/or non-native English speaking families spent most of their lives surrounded by digital technologies and computers. As a result of intensive and systematic exposures to digital environments and the total volume of their interaction with digital technologies, today's US-born K-5 non-native English speaking children also think and process information fundamentally differently from their parents and teachers. As authentic citizens of the digital world, US-born K-5 non-native English speaking children, regardless of their English language proficiency, seems to embrace the technopoly (Postman, 1992) way of being while the majority of their teachers do so from digital immigrant approach (Prensky, 2001, 2010 & 2012).

It does follow from the above discussion that digital immigrant teachers struggle to view electronic and digital media and resources as pedagogical allies to effectively teach digital native children. This situation might partially contribute to broaden the achievement gap among many K-5 US-born non-native English speaking children, since the majority of digital immigrant teachers were trained under tool-used and/or technocrat teaching-learning settings.

Therefore, the main purpose of this research consisted of exploring how four active digital immigrant non-native English speaking ELL teachers were overcoming the different stages of their digital immigrant status in order to effectively meet their US-Born K-5 digital native ELL/Bilingual children learning needs through the examination of the following two research questions: a) Considering the inherent digital life settings of today's elementary children in the United States of America, are non-native English speaking teachers aware of the digital gap between the majority of ELL teachers, born and trained in a pre-digital area, and current US-born K-5 digital native ELL/Bilingual children? b) How are non-native English speaking ELL teachers overcoming the different stages of their digital immigration in order to effectively teach their US-born K-5 digital native ELL students?

At this stage of this research, K-5 digital native ELL/Bilingual students referred to elementary students, born in the United States of America, from families who speak other language rather than English at home-, and spend more than 40,000 hours yearly in playing videogames, watching digital TVs, sending instant messages, using digital cellular phones, etc. (Prensky, 2001, 2010 & 2012); and digital immigrant NNES ELL teachers referred to Foreign and/or US- born Elementary ELL teachers, educated in tool-use or technocrat cultures in the United States of America or Abroad. A Brief overview of the notion of technopoly, the focus of the next section, will help my readers understand the theoretical frame of this paper.

### ***Brief Theoretical Overview: Notion of Technopoly.***

Postman (1992), in his book, *Technopoly: The Surrender of Culture to Technology*, coined the term technopoly. Regardless of his own position on this topic, the fact is technopoly is the current life setting of the majority of current US-born K-5 ELL/bilingual children. To help our readers grasp the basic ideas of the technopoly phenomenon, we are going briefly to summarize Postman's ideas on how culture has been gradually evolving from tool-using to technopoly.

In *Technopoly: The Surrender of Culture to Technology* (1992), the author identified three phases of cultural evolution that are based upon the development of technology. According to Postman (1992), the three phases of culture are tool-using, technocracy, and Technopoly. At the present time, Postman admitted that although the first phase of culture is quickly becoming extinct but its features might still be found, even in some societies considered as "modern". The main characteristic of all tool-using cultures is that their tools were largely invented to do two things: to solve specific/urgent problems of physical and social life.

Contrary to the tool-using stage, in a technocracy, tools play a central role in the thought-world of the culture. Everything must give way, in some degree, to their development. The social and symbolic worlds become increasingly subject to the requirements of that development. Technocracies are all about the invention of tools and techniques without endorsing the idea of creating a technology-dependant society. Changes in customs and procedures brought about as a result of many use of technology are considered to be just residual effects of the use of tools invented during the age of technocracy.

With the rise of Technopoly (1992), one of those thought-worlds disappears. Technopoly is a state of mind and culture, which means that the culture seeks its authorization in technology, finds its satisfactions in technology, and takes its orders from technology. This requires the development of a new kind of social order – a technology-depend one, and of necessity leads to the rapid dissolution of much that is associated with traditional beliefs, creeds, methods of education, politics, business, history, truth/ethic/moral, privacy, intelligence, communications, social organization such as family and technocrat lineal thinking schemata, etc.

It does follow from Postman's postulates that technology does order people's lives today. Without any doubt, the digital native life setting of the majority of US-born ELL/Bilingual children is not well understood by some NNES ELL teachers. Given the aforementioned digital gap, the main topic of inquiry of this research paper consisted of exploring of the different strategies that four NNES digital immigrant ELL teachers used to move toward higher levels of their digital competences development in order to effectively meet their US-Born K-5 digital native ELL/Bilingual children learning needs.

## **Methods**

This study was grounded in the symbolic interactionism which serves as the framework for understanding the actions and behaviors of research participants (Creswell, 2009). From this basic tenet, we appropriated the use of the grounded theory research techniques for this qualitative study, in which the focus of inquiry consisted of exploring how four active tool-used and/or technocrat non-native English speaking ELL teachers were overcoming the different stages of their digital immigrant status in order to effectively meet their US-Born K-5 digital native ELL/Bilingual children learning needs. Data were collected and analyzed using a grounded theory frame (Strauss & Corbin, 1998) -regardless of the low number of participants- which advocates that meaning for situations of success or failure, is constructed through symbolic interactionism. Classroom observations and interviews were used as main data collection tools during two years.

Four NNES agreed to participate in this project. From the grounded theory research method approach, we contended that the use of digital technologies in English language classrooms should be the hypothetical central phenomenon of project. The purposeful sampling was used giving the scarcity of NNES teachers in the research site. Only participants who represented variation in the phenomenon of interest were selected. The type of variation we were looking for included: participants' abilities to effectively use digital technologies when teaching US-born K-5 digital native ELL/Bilingual children and the different strategies used by participants to catch-up technologically. The theoretical sampling criteria for participants' selection included the following: participants had to be PK-12 English as second language or college ESL student in the United States of America, and be active ELL teachers in Public schools. For the sake of confidentiality and clarity in describing the data, we assigned a pseudonym to each participant.

Therefore, the participants will henceforth be referred to as Marina, Samantha, Prudencia and Felipe. They had an average of 5 to 29 years of teaching experiences. Marina had experience in teaching kindergarten, first, second and third grade ELLs. Felipe had experience in teaching first, four and fifth grade ELLs. Prudencia had been teaching, fourth and fifth grade ELLs while Samantha had experience in kindergarten, first, second and third grade ELLs. Two research participants hold graduate diplomas.

Three participants were from families that speak only one language at home: Spanish. One participant (Prudencia) spent her childhood in the southern border region of the United States of America. The other two (Marina and Felipe) learned English during elementary and middle school years in an ESL context. One participant (Samantha) is from an interethnic family, therefore she was raised as a trilingual child (Spanish, Portuguese and native language). Samantha also learned English during elementary and middle school years in an EFL context, but completed his/her English language learning process in an ESL context.

Approval for informed consent which included procedures and protection of human subjects was obtained from participants. The data collection process included field visits, observations and interviews. After signature of the informed consent form, we contacted them to schedule two initial classroom visits and observations. One more classroom visit and observation was scheduled after the in-depth interview. Three formal classroom observations and two to five exploratory visits were performed in total per research participant. These consisted of observing the research participants within their classrooms. All classroom visits and observations lasted 90 minutes and were scheduled according to each observed teacher preferred schedule. Before classroom observations, we explained to each observed teacher the purpose of classroom visits. Throughout classroom visits and observations, we paid attention to how participants were using digital technologies for teaching US-born digital native ELL students. We used a paper and pencil classroom observation protocol to record data.

Two audiotaped in-depth interviews, which lasted 60 - 90 minutes, were used to validate the emerging themes. Each participant was informed of preliminary outcomes by the end of the in-depth interview and was asked to comment on preliminary data's relevance. Interviews were semi-structured, audiotaped and followed topical outlines included in the two research questions. We reviewed the audiotapes several times while reading along with the transcription in order to assure data accuracy. At that point themes or categories began to emerge from the data and we continued to do so until all categories was saturated throughout the data analysis process.

Data analysis was conducted using comparisons. Interviews were transcribed immediately after realisation. Observational field notes were typed and stored in the researcher computer the day after. They were reviewed continually along with the transcribed interview data to generate the research themes.

We then went back and associated specific lines of this research theoretical framework that supported the identified themes, thus grounding the theory in the data (Creswell, 2009 & 2011). The constant comparison was employed to keep the concepts closely to the data. From the themes, a theory was postulated by inter-relating the themes and rendering a model of the process.

Data analysis process included the open coding, coding for categories which identified relationships among the hypothetical central phenomenon and abstract constructs. Concepts helping to articulate the emerging theory, called axial codes (Strauss and Corby, 1998), were attached to each category at the early stage of data analysis. Furthermore, contexts, conditions and strategies explained the relationship between the central phenomenon to participants' technological and multimedia applications' training.

Trustworthiness of the research project findings was addressed through: a) constant data comparative processes. Data from field and classroom observations were compared to in-depth interview responses to ensure data credibility; and b) sharing emerging conceptualizations with participants once the initial conceptual frame was developed. Finally, a narrative of research findings was written as part of the iterative process of developing the theory.

### ***Findings***

Data from the field confirmed that participants thinking schemata were essentially different to their current US-Born K-5 digital native ELL students. In this section, we offered a brief description of our research findings. Immediately after, we framed some conclusions and recommendations for NNES ELL teachers' training.

The first research question was: considering the inherent digital life settings of today's elementary children in the United States of America, are non-native English speaking (NNES) ELL teachers aware of the digital gap between the majority of ELL teachers, born and trained in a pre-digital area, and current US-born K-5 digital native ELL/Bilingual children? Three themes emerged from data analysis: digital gap mandates teaching vision's adjustment; moving from late to early digital immigrant status and moving from early digital immigrant to digital native citizenship

***The teaching vision adjustment.*** As indicated above, participants had 5 to 29 years of teaching experience in the United States. They have taught a variety of ELL students in multicultural classrooms. However, the massive influx of current US-born K-5 ELL students, authentic citizens of the digital world is shaking their traditional teaching vision. This idea was well-expressed when Marina argued: *"I am really proud to be a teacher in the United States for more than 20 years. Being able to teach in American schools is one of my highest professional achievements. In fact, my parents are proud of me because I am the only one in my family who went to college and who is currently excelling professionally. However, I feel like I have to re-new and re-learn again in order to better teach my students. I have to learn how to use computer and several multimedia applications to better teach my ELL students who are naturally different from the ones I had ten or twenty years ago"* (Quote from audiotaped Interview of October 05, 2008).

Marina's teaching vision was similar to Felipe's expectations of being a teacher in American School systems too. It looks as though both participants are more concerned with their professional future within American school systems as effective teachers rather than upgrading themselves technologically in order to meet their US-born digital native ELL students' learning needs. Since, they viewed their current teaching career to be the pinnacle of their professional success.

Based on classroom observation data collected throughout during data collection period regarding the systematic and abundant use of digital, multimedia and assisted reading technologies when instructing their students English reading, writing, speaking and listening, during in-depth interviews, we asked both Marina and Felipe why they didn't use a variety of resources available to them to teach their students instead of limiting the use of media to just watching one video 30 to 60 minutes video in class per week (Marina) or biweekly (Felipe).

Felipe clearly stated that *"I still do not feel confident myself in including most of technology-based materials in language class. Maybe this is due to my own life and professional background. I need to learn more, to be trained in these newer technologies in order to be able to use them in my classroom"* (quote from audiotaped Interview of October 05, 2008).

Echoing Felipe's views, Marina admitted that *"I really need to adjust my teaching style, to make it more technology – driven since this is the current life setting of my US-born students. My current experience as a grand –mother, is helping me to understand how today's US-born ELL/bilingual, authentic citizen of the digital world, learn with technologies. For example, my grand children can spend two to four hours without any interruption playing digital games or reading interactive digital books on the computer. This is something I am learning and I want to find different strategies to include these natural skills that my ELL/Bilingual students bring with into my teaching. I shall admit that most NNES ELL teachers do not explore their students' technological skills"* (quote from audiotaped Interview of October 05, 2008).

Prudencia and Samantha, in contrast, were relatively young ELL teachers with different approaches of teaching. Both were attending graduate education, therefore, we could easily observe how their graduation education was helping them to adjust their teaching vision. As graduate students, they took most their course work at a distance (online and videoconference). This experience helped them to better understand the impact of digital technologies on their own lives. Moreover, they understood that what they needed to do in order to become authentic digital citizens.

Field visits data analysis suggested that both, Prudencia and Samantha, wanted to move beyond the mainstream practices of educating new immigrant children. Both strongly disagreed with the subtractive approach of teaching English as second language to new immigrant students which emphasizes more the acquired identity while devaluing others.

During one of the follow-up interview, Samantha argued that being a teacher in today's world, dominated by the assault of digital technologies in our lives, meaning that: *"I must design my own ongoing learning plan in order to survive, since digital technologies change quickly. I do not want to be an outdated teacher. Having a child might help me to better understand what digital technologies in English and Spanish will help me to foster my child bilingualism. I must be familiar with in order help my child. This is an advantage that many ELL teachers with family responsibilities might have over others"*. (Quote from an audiotaped Interview of December 09, 2008).

In addition, Prudencia believed that, given the increasing number of US-born ELL students who bring a variety of skills within the classroom, an outstanding ELL teacher must think outside the box: dream big and take a risk (Clark, 2011) in order to meet his/her student's learning styles. So far, it looked like that NNES ELL teacher's background may be a determinant of their professional vision. As my readers might observe, data presented so far, evidence the difference between my research participants. Two of them (Marina and Felipe) are operating under technocrat teaching – learning settings, therefore, remaining professionally competent is their ultimate goals. However, Prudencia and Samantha believed on the imperative need for ELL teachers to develop their own ongoing learning/training plan in order to promote deep learning within ELL classroom. This later cannot occur if there is a digital distance between the teacher and US-born K-5 digital native ELL students.

***From late to early digital immigrant status.*** Classroom observation data demonstrated suggested that Marina and Felipe's teaching by telling style, use of weekly and/or biweekly jurisprudential teaching strategies, reluctance to graduate education programs, completely taught at a distance, absence of digital technologies within their classroom, lack of motivation to fight for resources in order to get more computers and digital technologies for students' use within the classroom,, ignorance vis – as –vis to the most popular children animated programs, movies and web-based games, and accent to technocrat logical reasoning, and fear to be assaulted by the technopoly world suggested that they displayed the basic characteristics of a digital immigrant citizen as suggested by Prensky (2001; 2010).

To some extent, we postulated different stages within the digital immigrant status, since both participants were not at the same level of technological appreciation or expertise. From classroom observation, we suggested that Felipe was a late adopter of digital technologies while Marina was an early one. Maybe Marina life setting of being a grand-mother of US-born bilingual children and NNES ELL teacher helped her to quickly adjust herself from being a late to an early digital immigrant.

**From early digital immigrant to digital native-like or digital native citizenship.** Certainly, being an early digital immigrant improved Prudencia and Samantha understanding and adoption of the digital and multimedia resources. Contrary to Felipe and Marina, citizen of the tool-used and technocrat world who are moving from the tool-using and/or late stage of their digital immigration towards acquisition of higher level of digital competences, Prudencia and Samantha feel on the imperative need to moving from being an early adopter of digital technologies to acquire digital native citizenship. Both believed that ELL teachers who currently have family responsibilities have the golden opportunity to acquire the digital native citizenship.

Because, being mother in today's digital world require them to teach their children what they know (Howard, 2006). Therefore, they can positively explore their" motherness" capacities toward the acquisition of digital native citizenship. Prudencia and Samantha, who played videogames when in College, did not have any major difficulty to be up with newer digital technologies. The only limitation was "money" to acquire newer devices. They were technologically using a variety of web-based resources and other home-based digital devices. They knew how to navigate within their school districts in order to get equipments for their classrooms. In fact, Samantha classroom had four times more computers than Marina.

Field visits data demonstrated that Samantha and Prudencia, included hybrid teaching in their daily lesson plans. Assisted reading technologies were widely used in their English reading class. Maybe the fact that they had they ongoing education plan helped them to move quickly from being early digital immigrant towards the acquisition of digital native-like or digital native citizenship. As digital native-like teachers, both believed on the power of electronic and digital media resources as learning tools. This power was even more perceptible for children who came from disadvantage homes who lack access to quality childcare or preschool (Jusoff, & Sahimi, 2009; Pempek, Kirkorian, Richards, Anderson, Lund, & Stevens, 2010). If non-native English speaking teachers shall be aware of the power of digital technologies in fostering learning, the topic of inquiry consisted in exploring how their overcame their own digital immigration status, in order to meet their students learning styles, since they could teach what they did not know (Howard, 2006). This topic is discussed in the next segment.

The second research question was: How are non-native English speaking ELL teachers overcoming the different stages of their digital immigration in order to effectively teach their US-born K-5 digital native ELL students? Data from interviews suggested that NNES ELL teachers used two different strategies to close their digital gap: formal training and Informal learning.

**Formal training** through professional development and multimedia application workshops, sponsored by their school districts as integral part of school technology plan, was the formal learning/training strategy used by Marina and Felipe to relatively close their digital gap. To reach the goal of preparing teachers for effective technology use, a well-designed professional development program is essential new definitions and new resources. To be highly effective, integral formal Information Technology (IT) training cannot take the traditional forms of individual workshops or one-time training sessions. Instead, it must be viewed as an ongoing and integral part of NNES ELL teachers' professional lives.

The intent of formal training through professional development and multimedia application workshops consisted of helping teachers to create interactive learning environments. Felipe frequently attended IT training, but the adoption and application of digital technologies within his classroom has been coming slowly. He identified himself being technologically a late adopter while Marina considered herself has early adopter, therefore Marina learned at a faster pace than Felipe. Prudencia and Samantha, in contrast, included advanced information technology, software and digital game design, web streaming and related courses in their graduate education degree plan. However, informal learning was the key factor that helped them to move toward the acquisition of digital native citizenship.

**Informal Learning.** Samantha and Prudencia believed that NNES ELL teachers with young children under age of 12 have the unique opportunity to informally learn at home with their kids. As mother, they must be able to help, guide, nurture and scaffold their US-born bilingual children to navigate in today's digital world. As informal teachers and mothers, they could not teach what they did not know. They had the obligation to unpack the digital world where the first pre-school teacher is right there in their living room. NNES ELL teachers shall take advantage of their quality experiences and prior knowledge as mother of K-5 digital native students when teaching English language classrooms.



It was under this logic that Samantha, who just got married recently and was about to become mother for the first time, understood her process of developing her digital citizenship. She believed that non-native English speaking teachers, raising children under age of twelve, should explore their prior knowledge relating to child bearing experiences in a digital world in order to design innovative learning environments for English language classrooms.

### ***Conclusions and Recommendations for NNES ELL Teachers' Training***

Data analysis suggested that all non-native English speaking ELL teachers were aware of the digital gap between themselves, born and trained in a pre-digital area, and current US-born K-5 digital native ELL/Bilingual children. Systematic interaction and exposure to US-born K-5 digital native ELL/Bilingual children's life settings led not only to the adjustment of NNES ELL teachers' teaching vision, but also assisted them in moving from tool-using settings to late digital immigrant stage (Felipe); from late digital immigrant to develop early digital immigrant competences; and from early digital immigrant to the acquisition of digital native-like or digital native citizenship (Prudencia and Samantha).

Moreover, further data analysis shown that two different learning strategies helped NNES ELL teachers to relatively close their digital gap in order to effectively teach their US-born K-5 digital native ELL students: formal training and informal learning. Institutional IT training was the formal learning strategy used by Marina and Felipe to relatively close their digital gap. To be highly effective, integral formal Information Technology (IT) training cannot take the traditional forms of individual workshops or one-time training sessions. Instead, it must be viewed as an ongoing and integral part of NNES ELL teachers' professional lives. Prudencia and Samantha supported the assumption that NNES ELL teachers, raising children under age of twelve should explore their prior knowledge relating to child bearing practices in today's digital world in order to design innovative learning environments for US-born K-5 digital native ELL/Bilingual children. Figure #1 summarized the emerging theory from overall data analysis (see Appendix #01).

Theoretically, we postulated that the development of current NNES ELL teachers' digital native citizenship shall follow the learning dynamic where NNES ELL teachers' technological settings, transformative conditions, optional learning contexts and teaching outcomes are clearly identified. Digital cultural-match through formal institutional IT training and positive use of prior knowledge can be accredited as suitable transformative conditions for NNES ELL teachers' digital native-like and/or digital native citizenship development. This later should be recognized as the starting point of meeting US-born K-5 ELL/Bilingual students' learning needs. Some recommendations were formulated from the aforementioned conclusions.

### **Recommendations NNES ELL Teachers' Training**

Considering not only the digital gap between in-service and pre-service native speaking ELL teachers, trained in a pre-digital area, but also foreign-born NNES ELL teachers' background, ELL/Bilingual teacher educators should provide differentiated training curriculum for foreign-born or bilingual NNES ELL teachers aimed at putting them on their road towards the development of digital native citizenship. For some NNES ELL teachers, the process of developing digital citizenship implied moving from tool-using culture to the technopoly one which required a deeper and systematical immersion in the digital world, because developing digital native-like or digital native citizenship could not be achieved overnight.

Thus, there exists a huge difference between teaching English to foreign – born ELL students (in many cases from tool-using and digital immigrant backgrounds) who partially attend elementary school in their first language, and teaching English to US-born K-5 ELL students from middle class families deeply immersed in the digital age from infancy and pre-school years. These inherent differences are crucial to be considered when training NNES ELL teachers, since they suggested the creation of different learning environments for each subtype of K-5 ELL students.

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Appendix #1

Figure #1: Dynamic of NNES ELL teachers' digital native citizenship in an ESL context

