Young English language learners making thinking and language visible

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Abstract

This paper aims to provide teachers with a resource to assist them in understanding the inner workings of young English Language Learners (ELLs) and how they externalize their thoughts in either their first or second language. This article not only analyzes how teachers can help children acquire a second language without sacrificing their first language and motivation, but also focuses on language processing in bilingual children through providing an understanding of both the interplay between language and cognition and the role of the environment. Results from an action research project implementing Harvard Project Zero's Visible Thinking ideas serve as evidence to discuss the benefits of creating a culture of thinking in the classroom to promote additive bilingualism in young children.

Keywords: Cultures of thinking, bilingualism, additive bilingualism, subtractive bilingualism, dual language, language and cognition, visible thinking, scaffolding, action research

Resumen

Este artículo pretende proveer al maestro recursos que le asistan a entender el trabajo intelectual del niño pequeño que aprende inglés como segunda lengua y cómo este exteriorice su pensamiento utilizando ya sea su primera lengua o su segunda lengua. En la medida que se incrementa el número de niños que vienen de familias donde se habla otra lengua que no sea el inglés es un llamado para considerar el papel crítico que juegan los maestros en implementar prácticas adecuadas en el salón de clase. Este artículo analiza cómo los maestros pueden ayudar a los niños a adquirir un segundo idioma sin sacrificar el primer idioma y la motivación. El artículo enfoca su atención en los procesos de lenguaje de los niños a través de la interacción entre lenguaje y cognición y el rol que juega el ambiente. Resultados de una investigación de acción que implementaba ideas del proyecto Pensamiento Visible del Proyecto Cero en la Universidad de Harvard sirve de evidencia para discutir los beneficios de crear una cultura de pensamiento en el salón para promover un modelo aditivo en niños pequeños bilingües.

Palabras claves: Culturas de pensamiento, bilingüe, bilingüismo aditivo, bilingüismo substractivo, doble idiomas, lenguaje y cognición, pensamiento visible, andamiaje, investigación de acción

The growing number of children coming from families who speak languages other than English is a call to take seriously the role that early childhood teachers play in applying best practices in their classrooms when working with English Language Learners (ELLs). This paper presents results of a study that looked at the language development of young ELLs as they engaged in "Thinking Routines. It suggests that these routines are a powerful resource to assist teachers in understanding the inner workings of the minds of young ELLs by looking at how they externalize their thoughts in either their first (L1) or second language (L2). It also examines how teachers adopt a subtractive or additive model of bilingualism as children are engaged in thinking routines. The process of acquiring a second language through the school curriculum is very different from foreign language learning taught as a subject in school (Collier, 1995). The major concern to foreign language researcher has been the role played by attitudinal/motivational factors in Foreign Language learners (Obeidat, 2005).

The organization of the paper is as follows: A theoretical framework supported by research introduces concepts such as language and thought; additive and subtractive use of language; thinking routines; creating cognitive awareness; and the development of language and literacy. Then a description of the project design is followed by a delineation of the research methods, including a description of the data collection and analysis procedures. The findings are next further described, followed by the researcher's conclusions.

Theoretical Framework
Language and Thought

Language and cognition work together. Young children externalize their thoughts through speaking, writing, drawing, constructing, and dramatizing. For Ritchhart and Perkins (2008), the development of thinking is a social endeavor, and fostering thinking requires making thinking visible. Since learning is a consequence of thinking, making thinking visible provides teachers with the venue to explore the inner workings of the minds of children. By making children's thinking visible, teachers can also see how their students reflect their teaching.

Research (Shonkoff & Phillips, 2000, Tabors & Snow, 2003; Roskos & Neuman, 2003) suggests that the early years are critical for language

development, which leads to literacy development, and that these years are the foundation for an individual's success in life. When adults feed the young child's mind, language develops naturally. Despite the fact that humans are born with the capacity and inclination to think, skillful thinking must be cultivated (Costa, 2008). The thinking routines applied on a daily basis in any cognitive activity teach children to activate their thinking to solve problems and become creative thinkers.

The nature of the thinking routines supports Vygotsky's (1978) thesis that higher forms of mental activities are derived from social and cultural contexts, because these mental processes are adaptive in the sense that the environment plays a critical role in determining whether the bilingual situation will be additive or subtractive. Social mediation provides children with meaningful and appropriate language experiences. In other words, when teachers not only respect the child's language of expression, but also expand on it and make it visible, the child acquires new knowledge and begins to think about his thinking.

Thinking Routines

The Visible Thinking approach (Project Zero, 2007) provides teachers with tools to involve children in thinking activities through the use of thinking routines that are short, easy-to-learn, mini-strategies that extend and deepen students' thinking and become part of the structure of everyday classroom life. Few of these routines are used in the study findings. Tishman (2005) definition of Visible Thinking as any kind of observable representation that documents and supports the development of an individual's or group's ongoing thoughts, questions, reasons, and reflections. For her, student's thinking visible requires an organizing structure such as the thinking routines. The thinking routines, the product of years of research related to children's thinking and learning, were developed by Harvard Project Zero researchers (Ritchart, et.al, 2006, Perkins, 2003, PZ, 2007) in classroom contexts and revised several times to ensure workability. The thinking routines are compatible with NAEYC's position statements of providing children with meaningful experiences in an orderly routine that provides overall structure in which learning takes place. Within a predictable context, children develop cognitive awareness as they revisit documentation. When thinking is part of the routine, children become

alert to situations that call for thinking, and they build positive attitudes toward thinking and learning as a result. The thinking routines nurture children's early experiences and expand them. As the name suggests, thinking routines become part of the classroom routine. In preschool settings, when adults observe a child learning something new, the main focus goes to what the child does not know. However, when adults pay attention to what the child knows, they can predict what the child is thinking and create what Vygotsky (1978) defined as the Zone of Proximal Development (ZPD), which is the distance between the actual developmental level, as determined by independent problem solving, and the level of potential development, as determined through problem solving under adult guidance or in collaboration with more capable peers. As teachers document children's work, the children have opportunities to revisit their thinking and see their own growth. For Ritchhart and Perkins (2008), the thinking routines are a type of jump-start thinking that reveal the child's thinking and dispositions. As its term suggests, thinking routines are thought provoking activities, usually in the form of inquiry such as See/Think/Wonder (What do you see? What do you think? What do you wonder?) that become part of the classroom routine. The routines guide learner's thought processes.

These routines are successful in promoting the development of students' thinking and a culture of thinking in the young child (Salmon, 2008) because each routine:

- Is goal oriented in that it targets specific types of thinking;
- Gets used over and over again in the classroom;
- Consists of only a few steps;
- Is easy to learn and teach;
- Is easy to support when students are engaged in the routine;
- Can be used across a variety of contexts;
- Can be used by the group or by the individual

Research (President and Fellows of Harvard College, 2006) has found that using routines with ELLs promotes natural language use in the students' first and second language and helps them build vocabulary and practice language skills in different modalities. Tabors and Snow (2003) suggested that educators need to find out much more about the language and literacy backgrounds of

the bilingual children with whom they are working. The thinking routines offer educators the opportunity to learn from the students' background and prior knowledge. Knowing what a child knows and in what language is necessary for teachers to make optimal interventions. The thinking routines enhance children's thinking and language development. Research (Katz & Chard, 2000, Nelson, et. al, 2003, Nelson, 1996) has recognized the importance of purposeful activities involving routines as a way to evoke scripts or a memory of an event to engage young minds to strengthen their intellectual dispositions. Cognitive psychologist, Catherine Nelson (1986a, 1996, 2003), has shown that routines promote language development because they allow children to make connections and predict the appropriate use of language in context. Thus, the thinking routines naturally engage children in cognitive activities that are reflected in receptive and expressive use of language.

Creating Cognitive Awareness

The Visible Thinking approach is a developmentally-appropriate venue to create cognitive and language awareness in the child and the teacher. Teachers make children's thinking visible and promote a culture of thinking in the classroom through videos, pictures, artifacts such as drawings, and block constructions, among others, and by recording their conversations (Ritchart, 2002; Salmon, 2008). When teachers establish a culture of thinking through the daily use of thinking routines and documentation, they are able to identify and establish ZPDs.

Stories That Make Thinking Visible

 In early childhood settings, it is common to see children narrating stories when they are in the block, dramatic and art areas. Most of the time, children connect their personal experiences with the stories they create. Children's drawings are characterized by a story behind them. Gallas (1994) saw narrative as a complex of signs and texts that make children's thinking visible. The more teachers help children become conscious of their stories by having them retell their story and by responding to their stories, the more the children will internalize their own thinking. As the child and the teacher reflect on a story, it is possible to address questions or wonder about the child's theories. For Gallas, children's narratives, if uncovered and honored in the context of the classroom, can become powerful thinking and learning vehicles for moving children from silent expression to speech.

This paper, unlike approaches that mostly focus on the sequential instruction of skills towards reading and writing, offers evidence that the more teachers engage children in thinking, the more children will look for ways to externalize their thoughts, suggesting that thinking activities promote language and, consequently, literacy. Other research (Cummins, 2007; Fitts, 2006) has suggested that teachers who apply thinking routines as a cognitive intervention strategy can help young ELLs enhance their language and literacy preparedness by developing their cognitive skills in both their native language and English.

Additive and Subtractive use of language

Subtractive bilingualism occurs when the mother tongue is a low status minority language that is rapidly replaced by a high status majority (and second) language (Lambert, 1981). By way of contrast, Lambert (1981) also proposed an additive bilingualism model that characterizes those who are at home and well-rooted in their own language and culture, but who are interested in mastering a second language.

While searching for an appropriate setting to explore young children's language processing for the action research project described later, the researcher found that by the age of four, most of the children who live in a bilingual setting had adopted a subtractive model of bilingualism in spite of the fact that 95% of these children come from Spanish-speaking families. This initial finding helped the researcher refine her research questions as listed in the project design.

Project Design

This paper connects language and cognition theories through a collaborative action research project. The purpose of action research is for practitioners to investigate an area of interest in order to improve their practices (Hendricks, 2006). This study used the qualitative method to investigate the young child's mind and use of language to provide data for the practitioners to reflect on and improve their approaches to teaching young ELLs, using Harvard Project Zero (PZ) Visible Thinking ideas (Project Zero, 2008).

This action research project occurred in two early childhood bilingual settings in Miami, Florida, with the purpose of exploring the inner workings of

the ELL in bilingual environments where most of the participating children are exposed to Spanish in their homes and community environments and mostly English in the school.

The participating teachers received preparation to implement the PZ Visible Thinking approach (Project Zero, 2008; Ritchhart & Perkins, 2008) in the classroom.

The research hypothesis was that "Young English Language Learners will enhance their language and literacy preparedness by developing their cognitive skills in their language of preference, either their native language and/or English."

The research questions explored in this paper are:

- How do thinking routines reveal the connection between language and cognition?

- How do young ELLs use their L1 or L2 during thinking processes?

- How do young ELLs express their thoughts?

- How do teachers scaffold children's thinking and writing and in what language?

- How do young children adopt either an additive or subtractive model of bilingualism?

Research Methods

Participants

Three bilingual teachers, three bilingual co-teachers and sixty three- to six-year-old children participated in the project. Ninety percent of the children come from Spanish speaking families.

Setting

The setting was two Reggio-inspired centers serving children 18 months to 6-years-old in Miami, Florida, a state characterized by a 65.8 % Hispanic Latino population (Census, 2000). In these two schools, 90% of the children come from Spanish-speaking families. Although the two schools are bilingual settings, the predominant language of instruction is English. The focus of Florida's English

for Speakers of Other Languages (ESOL) educators is to ensure that ELLs, regardless of their heritage language, are provided with instructional services that ensure they have the same access to academic content in language arts, academic content, and curricular offerings as the academic content available to native English-speaking students

Data Collection and Analysis Procedures

In this qualitative study, the researcher videotaped the children on a weekly basis, collected the teachers' documentation and met with the teachers to discuss the data twice a month for a period of six months.

During the data collection process, the researcher indexed and categorized the data and began an ongoing data analyses process. During the analysis of the different categories, the researcher was able to identify clear patterns in children's reactions to the use of thinking routines and to the teachers' cognitive and language scaffolding, as follows:

- Thinking routines activated children's prior knowledge and helped them expand concepts

- Children used L1 in activities that demanded deep thinking as a result of using thinking routines

- Children used L2 during play activities

- A subtractive bilingual model was evident in large group activities

- An additive bilingual model was evident when children were engaged in cognitive activities that demanded more thinking

- Within an additive bilingual model, children seemed confident when they shared their stories in a large group

During study group sessions, the researcher used the involved teachers; other study group members served as peer debriefers, which allowed the researcher to triangulate the data and be more objective. Patton and Patton (2002) define an investigator triangulation as the use of several evaluators to strengthen the study. In this case, the researcher collected field notes, videos, teachers' reflections, and parents' reports.

Findings

Upon reviewing the data, the researcher identified the following patterns in the classroom:

- It was common to observe the teachers speaking in English to the children during the large group activities.

- The teachers' used the children's knowledge in Spanish to reinforce concepts in English while large group activities.

- By the age of four, the children already prefer to speak English, despite the fact that 90% of them come from Spanish-speaking families. Their parents also reported that the children preferred to speak English rather than Spanish at home, yet the instruction in both settings was in English.

- When the children were involved in activities that required thinking, the teachers used the additive bilingualism model. When the children used their first language to externalize their thoughts, the teachers transcribed their thoughts in Spanish in their individual artifact.

- During sharing time, despite the fact that the children's stories were dictated and written in Spanish, they used English to share those stories with the class.

The following segments illustrate some of these findings and reveal that the children received confusing and inconsistent instruction when their program is called bilingual but replaces the mother language with English. In spite of this, with the implementation of the thinking routines in the classroom, the children were able to express themselves naturally using English and Spanish. The data show that when the children were engaged in thinking routines during large group activities, they preferred to use English. However, it was evident that when the thinking routines pushed them to think, they externalized their thoughts in Spanish. The thinking routines tap into the processes of thinking and communication. The young ELLs who have information in their minds find different ways to make their thinking visible. The following example illustrates how the use of the *See/Think/Wonder* routine - a *routine for exploring works of art and other interesting things* - combined with the *What makes you say that?* routine - a routine for interpretation with justification - helped a child expand

his vocabulary. The teacher asked the child to observe an art work, and then followed with this dialogue:

Teacher: What do you see?

Child: I see agua saliendo para arriba.

Teacher: Huh, so you see water coming up.

Child: Yes, and it goes up and up.

Teacher: What do you see that makes you say that?

Child: The water de la fuente.

Teacher: That's a water fountain, where do you think the water comes from?

Child: From the water fountain.

When teachers respect the child's capacity to use more than one language for communication, she is pushing the child's thinking and contributes to building positive attitudes and motivation to maintain the heritage language as a means of expression. For English instruction, the use of thinking routines created rich zones of proximal development that helped the teachers scaffold the English language. Children's communication patterns allow teachers to identify the children's actual level of understanding about the world and what they can do with the help of others (Vygotsky, 1978). The water fountain example shows how the thinking routines support and scaffold specific thinking moves or actions.

Although the previous picture of practice showed a teacher scaffolding the child's second language, it was also evident that when the children were interacting among themselves, usually during follow-up activities that implemented thinking routines, they used their first language to express their thoughts among themselves. During small group discussions, the children communicated in Spanish. However, during the language experience in which children dictated their stories to the teacher, they used code-switching strategies to share with the teacher. At this point, when the teacher transcribed the children's stories, she transcribed those stories using the exact words in English and Spanish. The following episode is an example of this. After reading *Oh the Thinks you can Think* (Dr. Seuss, 1975), the teacher asked the three-

and four-year-old children to draw their thoughts about the story using *the I used to think… Now I think…* routine. Here is a conversation of two four-year old children while drawing.

> Child 1: Uno, dos, tres, cuatro pies (one, two, three, four feet)
>
> Child 2: What?
>
> Child 1: Cuatro pies, cuatro pies el tiene… el elefante. El elefante tiene cuatro pies, verdad? (Four feet, it has four feet… the elephant. The elephant has four feet, right?)
>
> Child 1: Colita de elefante!! (Elephant's tail)
>
> Child 2: Este tiene barriga grande. Es grande como se comió toda la comida otra vez. (This one has big tummy. It is big because it ate all his food again).

This episode suggests that bilingual children's thinking switches from one language to another. What was curious about this was that when the children were asked to share their stories with the other children, they preferred to use English despite the language that they used to create the story and dictated to the teacher. The thinking routines are an invitation for ELLs to externalize their thinking, showing that bilingualism is associated with higher levels of cognitive function in both languages.

In the previous episode, the children were talking about math and science concepts. The Dr. Seuss book motivated the children to rethink their theories about animals, and the thinking routine helped them to elaborate concepts. Additionally, giving children opportunities to express themselves in their native language builds their self-confidence and openness of mind and is intellectually enriching (Lambert, 1981). The teacher's ability to use other routines while reading the book embarked the children on rich conversations that were clearly reflected when they were drawing what the story meant to them.

A large body of research (Tabors, 1997; August, et. al. 2002; Cummins, 2007) indicates that native language development is an asset for English language development. Children are most likely to develop a second language naturally and faster when they have the opportunity to use their first language (L1), because listening, talking, reading and writing engage and feed their thinking.

Either by drawing, dramatizing, or writing, young children naturally externalize their ideas using stories. Gallas (1994) found that children's thinking occurs in narrative form. The following episode illustrates how children use stories to make their thinking visible.

After reading a book or exploring an art work, one of the teachers used the *circle of viewpoints* routine (Project Zero, 2008) for exploring different perspectives adapted to young children. This routine consists of the following steps:

1. I am thinking of ... The Thinks you can Think (Dr. Seuss book)... From the point of view of ... the viewpoint you've chosen
2. I think ... describe the story from your viewpoint.
    While observing a classmate, one called the teacher's attention, saying:
    El esta dibujando stories.
    El esta dibujando stories, see?
    El esta dibujando stories.

Children are empowered by seeing their classmates' thinking made visible in the form of a drawing that represents a story, especially when they have the opportunity to share their stories.

The research discovered that when they shared stories that required intellectual activity in small groups, the children preferred to use Spanish to communicate their thoughts. However, when they shared the same story with the teacher, who usually wrote down the children's dictations, the children used English to express themselves. It was also evident that when they got stuck with English, they code-switched to Spanish to get the message through. In this case, the teacher wrote down their words in Spanish, unlike the occasions when they shared their thoughts with the whole group, when the teacher scaffolded their Spanish words into English.

Conclusions

For more than a century, researchers have been exploring not only how children with more than one language mentally organize their language (Malakoff and Kenji, 1991), but also what the repercussions of bilingualism are on cognitive and language development (Cummins, 1991). No matter which comes first,

language and thought are interdependent. The natural, spontaneous, and uncomplicated approach to bilingualism is supported by the students' interest in expressing in both languages (Cummins 2007).

When teachers recorded the children's thinking through analyzing drawings and conversations, the children were able to become conscious of their thinking, while the teachers gained an appreciation of the children's thinking processes, which then enabled them to scaffold the children's thinking and language. When the children shared their thoughts in large group activities, the teachers usually used the children's ideas expressed in Spanish and translated them into English, which shows that the thinking sets a framework from which teachers can scaffold children's L2. The subtractive bilingual model was evident during large group activities in which children shared their thoughts.

During play activities involving a small group of children, the children spoke English. However, during small group activities that required thinking processes provoked by the thinking routines, the children preferred to use Spanish to exchange their thoughts, yet when they shared those stories with the teacher, they spoke in English and code-switched when they got stuck with an idea. In this case, the teacher transcribed their thoughts using their Spanish words, giving value to the children's L1. Interestingly, the children used English when they shared stories with the large group that they initially had spoken in Spanish and dictated to the teacher using code-switching techniques.

This research shows that when the child's first language is perceived as a low- status minority language, it is rapidly replaced by a high-status majority (and second) language. The use of thinking routines creates ZDP to scaffold L1 and L2. In these bilingual settings, the subtractive bilingual model was evident.

The implementation of thinking routines pushed children's thinking when usually externalized in the form of a drawing and retold in Spanish. The use of thinking routines allowed the researcher to appreciate how thinking activities can be promoted by using the child's L1, which can easily be transferred to L2. When an additive model of bilingualism is present, such as those occasions when the teachers preserve the children's message in their first language, children can then build positive attitudes and motivation to maintain their heritage language and culture, because the teachers have respected their capacity to use more than one language for communication, which can easily be transferred to L2.

The challenge for early childhood educators, then, is to help transform instances of subtractive bilingualism into additive ones and to define their identity with regard to identifying what makes them a bilingual school, or to consider a dual-language program that has a balance between English and Spanish instruction.

Children's early literacy skills build on their cognitive and linguistic capabilities. Research (August, et. al. 2002; Tabors & Snow, 2003; & Neuman, 2003) has indicated that literacy is more related to how children think than to their ability to recognize words and phonemes. Learning to read involves a series of cognitive strategies and skills that go far beyond isolated skills. The use of thinking routines enhances children's language and literacy as children have the opportunity to activate their thinking and to externalize their thoughts, using L1 for deep thinking and L2 to share with the class.

Although the focus of this paper was on ELL, the ideas presented in this effort can also be applied to foreign language learners because the thinking routines engage children in cognitive activities using the target language. As Collier (1995) said, the level of relationship between students' own cultural background and the background projected by the target culture often influences their attitudes toward the target language. The thinking routines motivate children to make connections between their cultural linguistic background and target culture.

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