USING INTERACTIVE WHITEBOARDS TO SUPPORT ENGLISH LANGUAGE LEARNER CONTENT VOCABULARY ACQUISITION IN THE SOCIAL STUDIES CLASSROOM

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Introduction

This paper provides a literature review of vocabulary instruction for the English Language Learner (ELL) in the Social Studies classroom and the effect of interactive whiteboards on student achievement. Student comprehension of text is directly linked to understanding of vocabulary. In the Social Studies classroom, it is necessary for students to have mastery of content vocabulary to comprehend a text. Traditionally, textbooks have been the means by which students learn in a Social Studies classroom. Relying on a textbook to broaden students’ understanding of concepts is difficult as students lack the tools needed to comprehend and apply information from a text (Alexander-Shea, 2011).

Many studies have been completed on the effectiveness of directly teaching vocabulary for ELL students in the Social Studies content to support comprehension, as well as studies on how interactive whiteboards can increase reading proficiency. While it proved difficult to find any research in specific support of using interactive whiteboards with ELL in the Social Studies content, quantitative and qualitative data support including content vocabulary as part of instruction for ELLs and the data also suggests interactive whiteboards are an effective way to support vocabulary instruction.

Vocabulary Acquisition in the Social Studies Classroom

The importance of purposeful vocabulary instruction and ways in which to implement this instruction in the Social Studies classroom has been well documented. Teaching content vocabulary in the Social Studies classroom is distinct from other disciplines as vocabulary is often conceptual and requires students to make connections between ideas. As Alexender-Shea (2011) describes:
“As we become more literate, the better we understand our world; just as when we better understand our world, the more literate we become. Social studies is distinctive as it is more closely tied to this learning cycle than any other field because the impact of culture, society, and the communication of ideas in various contexts is the very foundation of the discipline.” (p.95)

Making connections among words and understanding concepts provides a particular challenge for ELLs. Egbert and Simich-Dudgeon (2001) support the notion that Social Studies content vocabulary is abstract and has multiple meanings depending on cultural understanding of the words. In addition, the researchers acknowledged that ELLs have difficulties expressing English language words in the different tenses, especially past tense.

The research suggests that vocabulary instruction needs to be purposeful and implemented with fidelity. Many strategies have been documented, but two particular methods have been described for Social Studies content vocabulary. Alexander-Shea (2011) lists four stages for vocabulary acquisition in the Social Studies classroom: (1) Activating Prior Knowledge (2) Considering Relationship Between Concepts (3) Compare and Contrast Familiar Concepts and (4) Student Generation of Meaning. Instructional strategies such as semantic mapping, venn diagrams, list/group/label, and concept mapping support Alexander-Shea’s recommendation for teaching vocabulary in the Social Studies classroom. It is also important that students have repetition and ample time to engage with the words. For a student to be able to know a word well enough to understand and use it, they need a minimum of exposure to that word 10 times (Short, 2002).

Harmon and Staton (1999) recommend the following guidelines for implementing vocabulary instruction: (a) selecting conceptually important words, (b) determine level of
understanding needed for comprehension, and (c) create instructional activities based on research. Instructional activities for direct instruction should focus on classifying/categorizing words and illustrating examples and non-examples. Effective instruction also requires making connections among word meanings, engaging in “meaningful” tasks, and having repeated exposure to vocabulary.

There have also been studies on vocabulary instruction specifically for ELLs. Vaughn, Martinez, Linan-Thompson, Reutebuch, Carlson, and Francis (2009) suggest 4 instructional practices for vocabulary instruction for the English Language Learner in the Social Studies classroom: (1) Research based vocabulary and concept instruction, (2) use of media to build comprehension and concept knowledge, (3) graphic organizers, and (4) structured peer-pairings. Egbert and Simich-Dudgeon (2001) suggest fostering Social Studies vocabulary for the ELL through encouraging verbal interaction among peers, providing background information, and written explanation of concepts, along with sufficient time to do so. Teacher modeling of comprehension strategies, skim, scanning, and predicting, also supports vocabulary acquisition for ELLs.

Some research has been done to suggest using technology to support Social Studies content vocabulary. The use of video in vocabulary instruction provides a meaningful context, access to the curriculum, background information on unfamiliar topics, and generate discussion (Vaughn et al, 2009). This would be especially effective for ELLs to activate prior knowledge and make connections. Technology also supports the verbal interaction and discussion necessary for ELL learners to learn content vocabulary (Egbert & Simich-Dudgeon, 2001). In addition, Egbert and Simich-Dudgeon (2001) suggest listening stations for students to listen to recorded class discussions and
lessons. As students use these stations, they should be using pictures, visual organizers, and drawings to support their understanding of content vocabulary.

**Effect of Whiteboard Use on Student Achievement**

Previous studies on the use of interactive whiteboards suggest the technology can improve student achievement in vocabulary acquisition and reading proficiency, when the boards are used effectively. When whiteboards are used for student centered instruction and students can interact with the technology, gains in both student achievement and interest have been observed.

Marzano and Haystead (2010) found that evidence of increased student achievement in classrooms where a Promethean board, which is a brand of interactive whiteboard, was used. Marzano and Haystean investigated the effect of Promethean boards on student achievement over a two year period, 2008-2010. While this study was funded in part by Promethean, it should still be considered that the researchers found a 16% gain in student achievement within the first year of Promethean boards being used in classrooms. Eighty-five teachers were examined the first year (Marzano, 2009), and Forty-six the second year, (Marzano & Haystead, 2010). Pre- and Post-tests were used as indicators of growth (Marzano & Haystead, 2010). The continuation study identified a 35 point gain in percentile (Marzano & Haystead, 2010). Such a large gain in the second year may be a reflection of improving teacher competency with the technology.

Swan, Schenker, & Kratcoski (2008) conducted a study on the effectiveness of interactive whiteboards to support reading proficiency in a small city district in Northern Ohio where a large percentage of students were achieving below grade level based on achievements on the Ohio Achievement Test (OAT). The study was completed among
11 elementary, 3 middle, and 1 alternative school(s). One third of the student population is minority, with 21% being African American, and 8% are considered below the poverty line. In comparing student performance on the reading/English language portion of the OAT, students with an interactive whiteboard in their room scored slightly higher than those who did not in Grades 4, 5, 6, & 8. There was not a significant impact seen in Grades 3 & 7.

In the Swan et al study, there was a distinction made between how teachers used the white board and student performance. The more often a teacher used the white board, the higher the achievement of students. Teachers who saw the most gain in test scores reported using their whiteboards for instruction an average of 4.6 times a week, compared to those who did not and only used the whiteboard 2.9 times per week. In addition, the ways in which teachers used the white board had an effect on performance. Teachers of higher achieving students used whiteboards to support visualization of concepts with concept mapping, brainstorming, and interactive editing. Teachers of lower achieving students used the whiteboard for simple display, graphic organizers, connecting to the internet for multiple reasons, and videoconferencing. In summary, teachers who used the whiteboards for student centered activities scored higher on the OAT then those who used the whiteboards for teacher centered instruction.

Lin, Hsiao, Tseng, and Chan (2014) conducted a study of the effect of classroom computers and an interactive whiteboard in raising English language skills of eighth grade students when working collaboratively. Students, considered basic in English proficiency, were administered pre- and post-tests after each vocabulary exercise, as
well as a final post-test at the end of the unit. It was found that with the combination of classroom computers equipped with drill and practice software, along with an interactive whiteboard, students retained 80% of new vocabulary immediately following an exercise, and 70% at the end of the unit. The researchers note, “Touching-and-moving words on the screen and typing in words involved strategies of using the words and retrieving lexical information learned before” (p. 168).

Manny-Ikan, Dagan, Berger-Tikochinski, and Zorman conducted a study of white board use in grade 7-12 classrooms (2011). Through the use of questionnaires to all stakeholders, focus groups, and observations, it was concluded that student attitude when using an interactive whiteboard was positive and students believed they had a better understanding of content. However, students also reported that 58% of them believed their academic achievement across multiple disciplines would remain the same when using whiteboards and 8% responded it would improve.

One project did focus specifically on the use of whiteboards with ELL students and increasing reading proficiency. Lopez (2010) studied the implementation of interactive whiteboards in seven elementary school classrooms, four being fifth grade classrooms. ELL students in a classroom with an interactive whiteboard exhibited 100% proficiency on the fifth grade Texas Assessment of Knowledge and Skills reading portion. This was 28.6% more than the average of ELL in traditional classroom settings.

**Summary**

Current literature suggests students need purposeful vocabulary instruction in the Social Studies classroom to improve student proficiency in reading comprehension. ELLs especially need this instruction as they are continuing to master the English language and make cultural connections. Technology can be implemented to support
vocabulary acquisition. Interactive whiteboards have been proven to raise student achievement in regards to reading proficiency and attitudes towards learning. The Lin et al (2014) and Lopez (2010) studies provide evidence that vocabulary instruction is successful when students directly interact with whiteboard technology. The Lopez study presents data that interactive whiteboards support the learning of ELLs.

Conclusion

While the research has proven effective vocabulary instruction in a Social Studies classroom leads to improved reading proficiency, more information on vocabulary instruction and the ELL in the Social Studies content needs to be done to prove which instructional strategies are the most effective. In addition, the effect of implementing a technology intervention for ELLs in the Social Studies content, specifically an interactive whiteboard, requires further research.

References


