Diversifying Teaching Methods for a Diverse Population of Students

Along with the rapid increase of ELL students seen in American schools over the past few decades, there has also been a rapid increase in the achievement gap between these students and their English-speaking counterparts. This issue has plagued American schools for years and is something that new teachers coming into the field for the first time are going to have to face. In his article, “Bridging the Language Barrier in Mathematics,” Matthew S. Winsor looks at the ways in which ELL students most effectively learn both a new language and the unfamiliar language of math. He then tries to structure his classroom to meet the needs of these students in an attempt to narrow this achievement gap. His teaching approach emphasizes group collaboration, writing as a means of communicating thoughts most effectively, and embedding learning within a real-life context. All of these strategies, Winsor finds, are the ways in which students learn a new language (including the language of mathematics) with the greatest efficiency (373). These teaching methods are characteristic of the constructivist teaching approach, even though Winsor never directly references their correlation. Winsor’s findings illustrate how a constructivist teaching approach is more effective than a traditional approach in teaching mathematics to ELL students.

In a constructivist classroom, students are encouraged to develop a personal connection to what they are learning and there is an emphasis on real-life application of concepts learned in class. Students are encouraged to think about why they are being taught the concepts presented to them and how what they are learning is relevant to their lives. There is an emphasis on group interaction as a means of developing deeper understanding of concepts presented in class, and there is also a greater emphasis on the thought process that goes into solving a problem and its justification as opposed to the solution itself. All of these methods differ from a traditional
approach to teaching that tends to emphasize routine practice and repetition of skills as the means of obtaining knowledge.

Winsor’s classroom resembles a constructivist classroom with its emphasis on group collaboration and real-life application as the most effective way to teach ELL students mathematics. In the article, Winsor highlights four main activities that he found to be most helpful in engaging ELL learners with the material. These four activities were word squares, group discussion, journals, and projects, and all four were part of his teaching method named “MSL” (Mathematics as a Second Language) (373). For the word square activity, students were given an index card and asked to fold it so that there were four quadrants. In one quadrant, a math term was written in the student’s native language. In the adjacent quadrant, the same math term was written in English. In the third quadrant, the student had to write a definition of the concept in his or her native language, and in the fourth quadrant, the student had to draw a visual representation of the term (374). This activity was designed to help ELL students connect concepts that they knew in their native language with the associated concepts they were learning in their new English language. The ELL students greatly benefitted from this activity because they were able to see, on one piece of paper, how a concept they knew in their native language related to one they were learning in their new language.

The second aspect of Winsor’s teaching practice that seemed most beneficial to ELL students was his emphasis on group collaboration. For problems associated with each mathematical concept, Winsor organized his students into groups that were diversified according to language proficiency (374). These students worked on problems together using mathematical communication and were also required to justify their answers after reaching the correct solution. Winsor suggests that this was an essential step in developing the necessary communication skills
for ELL students but that group collaboration also helped native English-speaking students further their understanding of mathematical concepts (374). Thus, this practice helps improve upon the mathematical and communication skills of all learners and should be an integral part of classroom structure.

The last two activities that led to ELL students developing a further understanding of both English and mathematics were journals and projects. The purpose of the journals was to have students reflect upon what they were learning in class and how it connected to their personal lives (375). Students were told they could write in either their native language or English but were required to write all mathematical terms in English. This, like the word squares, helped ELL students forge connections between concepts they knew in their native language and associated concepts in English. The projects were meant to show students how classroom work could be applied to solve real-life problems (376). These projects benefitted all students by allowing them to see the importance of what they were learning in class as well as its application outside of the classroom.

Although Winsor never directly refers to his classroom as having a constructivist approach to learning, the methods employed in his classroom do bear a striking resemblance to the methods employed by constructivist teachers. With his emphasis on group collaboration, effective mathematical communication through speech and writing, and extending classroom learning to real-life situations, Winsor saw several improvements in his ELL students throughout the course of the school year. The biggest area of improvement was in mathematical communication. He claims that the mathematical communication that took place in his classroom went from being teacher-initiated at the beginning of the school year to student-initiated towards the end (376). In addition, he writes, “The type and quality of mathematical
communication also seemed to change. Instead of asking what the answer was for a particular problem, students would ask for solution methods as well as offer their own methods for examination” (376). This type of critical thinking exudes a higher level of mathematical understanding and appreciation, and this should be the goal of all teachers.

Trying to find effective methods for teaching ELL students has been the subject of much heated debate. Winsor’s article helps push teachers towards finding an answer to this debate by showing them an example of an environment that is conducive to learning for ELL students. In that sense, his research helps move the field of education forward by encouraging teachers to reevaluate their teaching methods, especially if part of their population is learning English as a second language. Through his efforts and the efforts of teachers across the country, classroom structures can continue to improve to better meet the needs of a diverse population of learners and more effective instruction will, in turn, narrow the achievement gap.

Works Cited