USING SOCIAL AND EMOTIONAL LEARNING TO FOSTER ACADEMIC ACHIEVEMENT IN SECONDARY MATHEMATICS


Abstract
Teaching social-emotional skills to secondary students has been linked to higher student achievement, more positive student motivation and more socially acceptable classroom behaviors (Elias & Arnold, 2006; Weissburg et al., 2003; Kress et al., 2004). Much of the current literature on social-emotional learning (SEL) focuses on research. This piece provides educators with a plan for teaching key social and emotional skills in secondary mathematics classrooms using three key "entry points": (1) the redefining of "lesson planning," (2) the establishment of an SEL-conducive climate, and (3) the inclusion of student reflection and self-assessment.

Full Text
ABSTRACT
Teaching social-emotional skills to secondary students has been linked to higher student achievement, more positive student motivation and more socially acceptable classroom behaviors (Elias & Arnold, 2006; Weissburg et al., 2003; Kress et al., 2004). Much of the current literature on social-emotional learning (SEL) focuses on research. This piece provides educators with a plan for teaching key social and emotional skills in secondary mathematics classrooms using three key "entry points": (1) the redefining of "lesson planning," (2) the establishment of an SEL-conducive climate, and (3) the inclusion of student reflection and self-assessment.

The publication of A Nation at Risk in 1983 led to calls for reform of the American education system and a review of all aspects of public education. Now, more than 25 years later, there is still considerable discussion about the lasting impact and effectiveness of these efforts (Hayes, 2004; Borek, 2008; Guthrie & Springer, 2004). Educators, policy makers, and parents alike continue to ask the still-pertinent questions: "How do we best educate a diverse population of learners?" "How do we close the achievement gap?" and "How do we raise test scores?"

Advances in pedagogy and consideration of factors such as teacher quality, parental expectations, pre-kindergarten programs, grade retention have led to educational innovations, but teachers and policymakers have increasingly turned to social and emotional factors as important variables for student academic advancement (Weissberg, Resnik, Payton, & O Brien, 2003; Norris, 2003; Kress, Norris, Schoenholz, Elias, & Seigle, 2004). Much of the information currently available about social-emotional learning (SEL) is a discussion of theory, so this piece provides educators with an action plan of how to apply this theory to practice. It provides a model that shows how SEL can be infused into the existing pedagogy and incorporated into the routine of a secondary mathematics classroom.

In a curriculum that is already brimming with content requirements, the social-emotional components of mathematics education should not be an "add-on." Rather than adding another burden for teachers, SEL, can be intentionally infused into a math teacher's existing framework. This piece explores social-emotional learning in the secondary mathematics classroom by way of three key "entry points": the redefining of "lesson planning," the establishment of an SEL-conducive climate, and the inclusion of student reflection and self-assessment.

REDEFINING LESSON PLANNING
Teaching students to be socially and emotionally competent does not and will not happen without the highly intentional inclusion of affective concepts and skills into everyday learning experiences (Optiz, 2008; Elias & Arnold, 2006). Just as students often do not necessarily enter math class with highly developed mathematical skills, they do not necessarily enter math class with high levels of social-emotional skills.
skills, they also do not necessarily enter math class with meaningful and flexible understandings of affective concepts. According to Cartledge and Milburn (1995) social emotional skills and concepts must be taught in three parts. They must be (1) taught explicitly (2) performed frequently with feedback on the performance and (3) generalized and transferred to other real-world situations.

Consistent with Bruner's (1966) work on concept attainment, the teaching of affective concepts should involve structured inquiry. Students should actively clarify concepts by assessing prior understandings, confronting misconceptions and drawing conclusions. Jones, Jones & Vermette (2009) provide a lesson plan by which secondary teachers can teach the concept of "respect" in the mathematics classroom. The lesson allows students to consider exemplars of respect during a typical middle school student's day. After a series of structured discussions in cooperative learning groups, learners are able to create generalizations about what respect "looks like," "sounds like" and "feels like" in the classroom, thus internalizing the concept and cementing respect as a classroom norm. As with content based concepts, the teacher cannot do the learning for the students - so it is only through thoughtful analysis and discussion of affective concepts that they can be meaningfully assimilated (Piaget & Inhelder, 1969; Piaget 1973).

After the explicit teaching of SEL skills and concepts, developing affective concepts must be practiced regularly with opportunities for feedback (Cartledge & Milburn, 1995). One vehicle which has tremendous potential for practicing both mathematical content and affective skills simultaneously is cooperative learning. By the very structure of cooperative learning (positive interdependence, face-to-face promotive interaction, and group accountability) interpersonal and intrapersonal skills can be rehearsed, and feedback can be exchanged between the students and teacher (Vermette, 1998; Johnson, Johnson & Smith, 1991; Davidson, 1990). The term "dual objective" was coined by Vermette & Kline (2007) to describe this cooperative learning based model. Every lesson has the dual goals of teaching content and teaching affective skills. Every lesson also has two assessments of student performance. Both the process of completing a learning task and a product are necessary for demonstrating understanding.

ESTABLISHING AN SEL CONDUCTIVE CLIMATE

Decades of studies examining into the effect of classroom climate have indicated that a students' academic achievement is strongly correlated with their feeling of connectedness in their classroom community, their learning environment (Uline & Tschannen-Moran, 2008; Haynes, Emmons, & Ben-Avie, 1997; Brand, Feiner, Seitsinger, Burns & Bolton, 2008). Supportive classrooms are generally better managed classrooms where students get along better with each other and with adults. They complete more assignments, focus longer, and achieve better grades (Blum, McNeely & Rinehart, 2002).

In a positive, supportive classroom where students frequently strengthen their personal and social abilities, practicing such skills and reaping their benefits are intimately intertwined. For example, in an SEL conducive classroom, students are more likely to work with diverse individuals (as in the cooperative learning based classroom described above), thereby improving their interpersonal skills and communication skills as well as their knowledge of academic content.

Edutopia "master" mathematics teacher Chris Optiz compares the infusing of social and emotional skills with academic content to learning a new hobby. At first, he states, practicing SEL skills will be uncomfortable for educators as well as for students who are accustomed to the traditional content-only model of secondary instruction (Optiz, 2008). In the traditional system where educators are not used to teaching (and students will not be used to performing) non-content based skills (such as active listening and conflict resolution) awkward moments are inevitable. With much repetition and varied success experiences, however, SEL skills, assessment, and practice will become a natural and necessary part of the classroom community. With this foundation in place, Optiz (2008) asserts that the benefits of establishing a cohesive community of learners will be reaped throughout the entire school year.

ALLOWING TIME FOR REFLECTION

One final entry point for infusing SEL into the secondary mathematics classroom is through the use of formal and informal reflection. Dewey (1933) suggests that reflective thinking is an active, persistent and careful process by which learners make meaning from experience (affective or cognitive). He states that through reflection, learners can control the outcome of achievement by meaningfully assessing what they currently understand (and can do) and what they need to be able to understand and do (Dewey, 1933). Although the teacher will likely need to provide a structure to facilitate this goal-setting, it is through the process of self-reflection that students account for discrepancies in their understanding and take responsibility for developing an action plan.
From an SEL perspective, self-awareness and goal setting stand to significantly impact student motivation and academic achievement. Decatur, Fitzsimmons, McGee, & Miller (2008) found that students who kept reflective journals and participated in regular self-assessment were more successful in developing self-regulative behavior, than their peers who were not taught how to reflect. Decatur et al. (2008) confirmed the underlying notion that it is ultimately the student who owns positive or negative behaviors, and thus it is the student (with a framework and structure provided by the teacher) who must develop a plan for social or personal improvement.

In addition to the direct affective benefits, Durlak & Weissburg (2007) found that students who set (and implemented) affective goals had better achievement in overall academic performance than their peers. They found a 12 percentile point gain on standardized tests for those students who set non-academic goals as compared to the general population of learners (Durlak & Weissburg, 2007).

CONCLUSION

By infusing key SEL elements into the environment of mathematics classrooms via redefining the notion of "lesson planning," establishing an SEL conducive climate and including student reflection and self-assessment, social-emotional learning can potentially have a positive impact on student attitudes (e.g. motivation and commitment), their behaviors (e.g. participation and work completion) and their academic performance (e.g. subject mastery and increased test scores) (Elias & Arnold, 2006; Weissburg et al., 2003; Kress et al., 2004) . Despite troubling assertions from members of the education reform community that mathematics education is "showing troubling signs of weakness and deterioration" (Weiss, 2004), there is much promise that social-emotional learning is becoming recognized as an important variable to lasting positive educational change.

REFERENCES


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