ABSTRACT. The present study investigated the role of disciplinary climate in the classroom and student math self-efficacy on math achievement. The student part of the Program for International Student Assessment (PISA) 2003 survey containing 4,199 U.S. observations was employed in a weighted least squares nested multiple regression framework to predict math achievement from disciplinary climate and self-efficacy in addition to several control variables. The results showed that improvement in disciplinary climate was associated with a reduction in the achievement gap whereas improvement in self-efficacy was associated with an expansion in that gap. These effects varied across race and gender. A significant interaction effect was found between the disciplinary climate and self-efficacy. Educational implications are discussed.

KEY WORDS: achievement gap, classroom discipline, math achievement, self-efficacy

Classroom climate is a broad term intended to assess the perceptions that students have about different aspects of the school environment (Rowe, Kim, Baker, Kamphaus & Horne, 2010). Research studies show that student perceptions of classroom climate (e.g. disciplinary climate, teacher support etc.) have an effect on student motivation and academic achievement (McMahon, Wernsman & Rose, 2009; Ma & Williams, 2004). The aim of the present study was to examine whether disciplinary classroom climate has a differential effect on students’ self-efficacy and achievement across gender and ethnicity. Disciplinary climate was conceptualized as perceptions that students hold regarding the stability of classroom rules and how teachers address behavioral issues in the class.

Several studies have addressed the relationship between classroom climate and academic achievement (Hadre, Crowson, Debacker & White, 2007; Ma & Williams, 2004) and across race and socioeconomic status (Klinger, 2000; Lee & Bryk, 1989; Ma & Williams, 2004; Neblett, Phillip, Cogburn & Sellers, 2006; Shin, Lee & Kim, 2009). For example, Klinger (2000) used a hierarchical linear model (HLM) to examine the effect of different school characteristics (context and climate) and student characteristics (ethnic background, gender) on student achievement across mathematics, science, reading, and writing. The results of the analysis
showed that student perceptions of disciplinary climate had the largest effect on academic achievement in math, science, and writing. In fact, disciplinary climate effects on achievement surpassed the effect of the school socioeconomic status (SES) and individual-level student variables/characteristics. The researchers suspect that this was due to the relationships that can form between a teacher and students when the school’s disciplinary climate is positive which then leads to an environment that is more conducive for student academic success.

Furthermore, Ma & Williams (2004), using data from the National Education Longitudinal Study (24,599 eighth grade students from 1,052 middle schools), found that schools with a high SES tended to have fewer disciplinary climate issues, and lower-level grades tended to have more positive perceptions of disciplinary climate than higher-level grades. In terms of ethnicity, Asian, Hispanic, and Black students tended to have more positive perceptions of teacher–student relations than White or Native American students. Further, Asian, Black, and Native American students did not demand as much order in the classroom as White students. Finally, Asian and White students were more likely to speak to their teachers and counselors about discipline issues than Hispanic, Black, or Native American students. In terms of achievement, the results showed that concern about classroom disruptions and communicating to a school counselor or teacher about discipline had the strongest impact on student academic achievement.

Other studies have also revealed similar results. Neblett et al. (2006), using a sample of 548 African American adolescents, reported a significant negative effect of adverse classroom experiences on academic achievement. Lee & Bryk (1989) who used data from High School and Beyond \( (n = 10,187) \) found that when both Black and White students achieved at similar levels, there tended to be a more orderly school climate. Additionally, the researchers found that teachers who showed high levels of interest and commitment were more likely to encourage higher academic achievement. Schools with a more strict and orderly climate were also found to have minority students achieving higher than schools with less strict and orderly climate.

In terms of cross-cultural differences, Shin et al. (2009) examined how student- and school-level factors impacted math achievement across three different ethnic samples, Korean, Japanese, and American. Data were used from the Program for International Student Assessment (PISA) survey with 5,444 Korean, 4,707 Japanese, and 5,456 American students across 149, 144, and 574 schools, respectively. The results showed that no differences emerged in terms of the predictive ability of disciplinary