

Relationships among Student Social-Emotional Competence, Academic Performance, and
Attendance

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THESIS

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SUMMARY

Previous research connects social-emotional competence (SEC) with a variety of positive academic and school outcomes. However, there is a lack of research evidence about whether SEC provides similar benefits to students of different racial/ethnic backgrounds. This study examines if the relationships among SEC, academic achievement, and school absences are moderated by a student's race/ethnicity (White vs. Latino). Participants were 2,618 fifth and eleventh grade students in a large urban school district; half identified as White and half identified as Latino. Student SEC scores, school absences, GPA, and standardized math and reading tests scores, as well as race/ethnicity, were analyzed. Supporting previous work, students with higher self-management and self-awareness had higher GPA, higher scores on standardized math and reading tests, and fewer absences. However, some differential effects were found: the relationships between self-awareness and school absences and between responsible decision-making and reading test scores were moderated by race/ethnicity, in that only Latino students' self-management related to fewer absences and only White students' responsible decision-making related to higher reading scores.

This study provides views about the complexity and importance of considering race/ethnicity and cultural factors when examining relationships between SEC and various academic indicators. Only intrapersonal competencies were associated with differences by race/ethnicity. More should be explored in terms of the intrapersonal vs. interpersonal framing of SEC, particularly in relation to race/ethnicity, which may have implications for broader outcomes in education. Future studies should also examine intragroup differences, include longitudinal data, and begin unpacking the mechanisms of self-management.

I. INTRODUCTION

Extensive research on social-emotional competence (SEC) shows that it is critical for success in school and life (Denham, 2006; Domitrovich, Durlak, Staley, & Weissberg, 2017; Oberle, Schonert-Reichl, Hertzman, & Zumbo, 2014). SEC can be developed, promoted, and fostered through social and emotional learning. Social and emotional learning (SEL) is the process through which children and adults acquire and apply the skills, knowledge, and attitudes necessary to understand and manage emotions, enhance personal development, develop and maintain positive relationships, and make responsible decisions (Weissberg, Durlak, Domitrovich, & Gullotta, 2015). Over the past decade, SEL programming has become increasingly implemented in schools and has emerged as a main goal for practitioners, with good reason (Bridgeland, Bruce, & Hariharan, 2013; Oberle, Domitrovich, Meyers, & Weissberg, 2016). Several studies have shown the link between student SEC and academic success and achievement, which in turn is an important indicator of better life outcomes (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011; Jones, Greenberg, & Crowley, 2015; Moffitt et al., 2011; Sklad, Diekstra, De Ritter, Ben, & Gravesteyn, 2012).

Although SEC has been found to be an important predictor of behavior and achievement, more needs to be learned about its (potentially differential) impact on ethnically different groups of students. One assumption underlying SEC is that metrics relate to positive outcomes for everyone in the same way: it is considered universal; however, this contradicts theories that some SEC constructs may not be as culturally relevant for some groups of students (Castro-Olivo, 2010; Hecht & Shin, 2015). Does SEC relate to similar benefits for students of different ethnic backgrounds? To answer this question, the current study examined if the relationships between

social-emotional competencies and certain academic outcomes and attendance are moderated by race/ethnicity in a sample of White and Latino students.

A. Social-Emotional Competence

Social-emotional competence (SEC) refers to a set of related constructs and includes the skills, knowledge, and attitudes necessary to understand and manage emotions, develop and maintain positive relationships, and make responsible decisions and includes analytical, communication, and collaborative skills (Weissberg et al., 2015). Most often, SEC is organized into interrelated sets of cognitive, affective, and behavioral competencies, such as the five core competencies: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Durlak et al., 2011; Sklad et al., 2012).

These constructs can be organized into intrapersonal and interpersonal competencies. The intrapersonal domain involves the capacity to manage one's behavior and emotions, to set and achieve one's goals, positive self-evaluation and awareness, and self-regulation while the interpersonal domain involves social competencies that are used both to express information to others and to interpret others' messages (both verbal and nonverbal) and respond appropriately (Pellegrino & Hilton, 2012). In this study, SEC is operationalized as a framework of eight constructs building from the five core competencies. The eight constructs include the interpersonal competencies of social awareness and relationship skills, as well as responsible decision-making. However, the intrapersonal competencies are broken down in the following ways: self-awareness was divided into self-awareness of emotions and self-concept, and self-management was divided into management of emotions, goals, and schoolwork. Although this framework does not exist in previous literature, it comes from a recently developed and validated

self-report measure of SEC (Davidson et al., in press). The primary way SEC is measured is through self-report, especially for older children (Durlak et al., 2011; McKown, 2015).

SEC is critical to providing the foundation for positive outcomes within the school context and healthy development through life (Domitrovich et al., 2017; Durlak et al., 2011; Sklad et al., 2012). Intrapersonal competencies are those needed to effectively function as an individual while interpersonal competencies are needed to successfully interact with others (Domitrovich et al., 2017). These competencies facilitate effective communication and interactions with peers and teachers (Oberle et al., 2016); and as socially and emotionally competent students collaborate, negotiate, and cooperate, they become better integrated into the school and can better focus on school tasks (Elias & Haynes, 2008). Interpersonal skills enable students to navigate social settings and have positive interactions with adults, which are essential for school success (Jones et al., 2015). For example, social competence and prosocial skills are related to high school graduation and college completion. Additionally, emotions can either facilitate or inhibit children's school success (Izard et al., 2001).

Youth, particularly youth from diverse backgrounds, are faced with many challenges that can impede success and positive development. SEC is considered an important foundation to overcome these obstacles because it provides students with effective strategies, tools, and assets needed to make healthy and responsible decisions in their lives that will lead them to success (Domitrovich et al., 2017; Durlak et al., 2011; Moffitt et al., 2011; Oberle et al., 2016). The consensus is that SEC is essential for learning and success in school and life (Weissberg et al., 2015).

B. Academic Performance

Academic success, and understanding factors that predict it, is a central priority for educators, parents, and policymakers, as academic success is linked to overall positive development and success later in life (Oberle et al., 2014). Grades, grade point average (GPA), and scores on standardized achievement tests are often used to measure academic success, so this study will examine GPA and scores on the Smarter Balanced Assessment Consortium (SBAC), a standardized math and reading achievement test.

Research shows that social competence is one of the foundations of school readiness and that early mastery of social and emotional skills predicts later academic achievement (Denham, 2006; Oades-Sese, Esquivel, Kaliski, & Maniatis, 2011). For example, children identified as socially competent (i.e., had relationship skills and social awareness) had significantly better academic outcomes two years later, receiving higher scores on standardized mathematics and reading tests, while students who lacked SEC were at greater risk for academic difficulties (Oades-Sese et al., 2011). In another study, Elias and Haynes (2008) found that cooperation (i.e. relationship skills) at time one significantly related to time one and time two academic performance (reading and math grades).

Previous research has shown that intrapersonal competencies related to self-awareness and self-management are positively associated with academic achievement indices. For example, students with high self-discipline, or self-management, outperform their peers on several academic-performance variables, earning higher GPAs and standardized achievement test scores (Duckworth & Seligman, 2005). Elias and Haynes (2008) also found self-control (management) at time one to be significantly related to time one and time two academic performance (reading and math grades). Locus of control, or self-efficacy, SEC constructs under the umbrella of self-awareness and self-management, positively relate to overall levels of academic achievement; and

self-esteem is strongly related to student GPA (Strassburger, Rosen, Miller, & Chavez, 1990). Self-efficacy and self-regulated learning are positively related to mathematics performance in middle school as well (Cleary & Kitsantas, 2017). Izard and colleagues (2001) also found that the ability to recognize and label emotions and emotional expressions correlated with academic achievement and social adjustment. These researchers also found that emotion knowledge showed long-term effects on academic competence.

Oberle and colleagues (2014) found additional evidence for the importance of SEC in predicting academic achievement in reading and math as measured by standardized test scores. Teacher reports of student frustration tolerance, assertive social skills, task orientation, and peer interaction significantly predicted math achievement. Both teacher- and self-report of these SEC constructs predicted reading achievement, whereas lack of SEC related to lower overall academic achievement. Oberle and colleagues (2014) inferred that because self-management and self-regulation are involved in the regulation of behavior in addition to emotion, these competencies are important for forming positive social relationships and interactions in the classroom and fostering the use of effective learning strategies, which in turn can be considered critical for academic achievement.

C. Attendance

Regular daily school attendance is a critical component of the educational process and essential to students' academic success and personal growth (Ginsburg, Jordan, & Chang, 2014). Because habits of punctuality, self-discipline, and responsibility are an integral part of meeting state and district standards, many schools are using absenteeism as a key indicator of student success (Rafa, 2017). Attendance is important to examine because fragmented attendance in the classroom further reduces students' exposure to instruction, which can inflate academic

disengagement, causing students to fall farther behind academically (Elias & Haynes, 2008).

Lack of motivation and engagement may further exacerbate disruptive behaviors, which leads to suspensions, creating a negative, reinforcing loop (McBride, Chung, & Robertson, 2016).

In addition to driving positive academic outcomes, SEC is also associated with positive behavioral outcomes such as higher attendance (McBride et al., 2016; Sklad et al., 2012). Elias and Haynes (2008) found that cooperation and self-control at time one significantly related to time one attendance. Another study found that students with high self-discipline/self-management had fewer school absences (Duckworth & Seligman, 2005).

D: Race/Ethnicity

Hecht and Shin (2015) noted that the field lacks clarity on whether SECs are universal. Indeed, many researchers have acknowledged that definitions of and developmental pathways for SEC may vary across race, ethnicity, immigrant status, language, and culture (Castro-Olivo, 2010; Hecht & Shin, 2015; Reyes & Elias, 2011). Additionally, there is considerable cultural variation in the expression and relative importance of SEC, as culture dictates valued outcomes and identifies ways to accomplish them (Hecht & Shin, 2015). For example, Eurocentric or Western culture, the view from which SEL is often measured, tends to place emphasis on the individual, and could in turn place more importance on intrapersonal competencies, while Latino cultures are more collectivistic, placing emphasis on the family or community and likely finding interpersonal competencies more important (Hecht & Shin, 2015).

Because of different cultural norms and rules, intrapersonal and interpersonal competencies may not be as relevant or may be interpreted differently, leading to differences in how people express emotions, deal with conflict, and interact with others. Individualistic conceptualizations of SEC may lead researchers to focus on individual behaviors or outcomes

and miss important social development structures that may produce these behaviors (Hecht & Shin, 2015). Researchers agree that attending to differential effects of SEC in diverse groups of students is needed and important (Garner et al., 2014; Rowe & Trickett, 2017). This study takes a step to examine if SEC is associated with similar benefits for different ethnic or cultural groups.

This study examines if the previously noted relationships among SEC, academic achievement, and attendance hold for both White and Latino students. Half of the current sample were students who identify as Latino. Latinos are defined as individuals of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race (OMG, 1997) and are currently the largest minority group in the United States (Musu-Gillette et al., 2016). The intersection of race/ethnicity and socioeconomic status must also be considered. Historically, disproportionately high numbers of Latino children experience several sociocultural challenges, such as living in poverty and facing racism and discrimination at individual and institutional levels, and are exposed to associated stressors, which place them at-risk for poor academic achievement (Garner et al., 2014; Oades-Sese et al., 2011; Winsler et al., 2014).

Because Latino students disproportionately experience sociocultural challenges and because SEC has shown to be critical to success in school and life, some experts suggest that social-emotional skills may be critical in ameliorating consequences of impoverishment and helping students cope with adversities (Castro-Olivo, 2014; Reyes & Elias, 2011). Some researchers indicate that interpersonal aspects of SEC connect to cultural values emphasized by Latino youth, including community, respect, and cooperation (Reyes & Elias, 2011). This would suggest a positive association between SEC and school outcomes for these students (Elias & Haynes, 2008). However, few researchers have examined ethnic differences in how SEC may be

associated with improved outcomes, particularly for students who face adversity (Barnes et al., 2016; Reyes & Elias, 2011; Rowe & Trickett, 2017).

Most studies do not test for or report effects by race/ethnicity (Rowe & Trickett, 2017). However, one study by Strassburger and colleagues (1990) identified differences by racial/ethnic group, finding a significant interaction between locus of control and ethnicity in predicting academic achievement. Although there were no differences in mean locus of control scores, White students with higher locus of control had higher GPA, but Latino students had the same GPA regardless of their locus of control score, suggesting that this type of intrapersonal competence is more associated with higher GPA for White students.

E. Development

Development is an essential factor in children's SEC: as students develop, they gain more complex knowledge about the self (Denham, Wyatt, Bassett, Echeverria, & Knox, 2009). For example, young children may have difficulty explaining what they are feeling, while older children are better able to understand the nuances of complex emotional states. As students grow older and learn who they are and how their identity may be tied to social context, they also learn more about the rules and expectations that govern their behaviors in different contexts so they are better able to relate and communicate with others.

These developmental changes are reflected in state social-emotional learning standards. Lower grade level indicators reflect abilities to engage in simple tasks whereas higher grade level indicators reflect more difficult tasks. For example, for social awareness, students in grades 3 to 5 are expected to be able to identify causes of an other's emotional reaction, while students in grades 11 and 12 are expected to express empathy and understand an other's emotions as their

own. The eleventh-grade students in this study were expected to perform at higher levels of SEC than the fifth-grade students.

F. Research Questions

The research outlined above provides emerging evidence that SEC is a multidimensional construct critical to success in school and life. Taking these findings a step further, is SEC associated with the same benefits on academic performance and attendance for all children? In our increasingly diverse and pluralistic society, it is important to understand the relevance and function of SEC to different ethnic groups. It is of value for the field to examine how components of SEC connect to academic performance and attendance, and if this relationship looks the same across groups. The current study explored whether the relationship between SEC and the specified outcomes is similar for students of different backgrounds and answers the call of several researchers for additional research to pay greater attention to the influence of cultural factors on students' social behaviors and academic achievement (Domitrovich et al., 2017; Elias & Haynes, 2008).

The proposed study addressed two sets of related hypotheses. Based on the literature, higher SEC scores were expected to be related to better attendance and higher GPA, SBAC Math scores, and SBAC Reading scores. Second, the relationship between SEC and each outcome may be moderated by race/ethnicity (White vs. Latino). Two competing hypotheses were examined: the relationships between SEC and the academic variables and attendance will not be the same, with a stronger association for White students (Strassburger et al., 1990), or the relationships between SEC and the outcome variables will be the same for White and Latino students. Additionally, eleventh grade students are expected to have higher SEC scores.

II. METHODS

A. Participants

Participants were fifth and eleventh graders (Fifth = 1480 or 56.53% and Eleventh = 1138 or 43.47%) in a large school district in the southwestern United States that serves around 64,000 children in 104 schools. In the school district, between 38 and 40% of students are Latino. Data were collected during the 2015-2016 school year starting in March of 2016 through a survey administered to students. Roughly half (49.08%) of the current sample were female. All students identified as either White (60.54%) or Latino (39.46%), and just under half of students met eligibility criteria for free or reduced lunch (40.57%). Students with limited English language proficiency were excluded from this set of analyses (see Appendix A).

The construct of race/ethnicity followed federal guidelines that allow individuals to self-identify their ethnicity and race from seven different categories: American Indian or Alaska Native, Asian, Black or African American, Latino, Pacific Islander, Caucasian (White), and Multiracial (U.S. Department of Education, 2008), with most students falling into White or Latino categories. For the purpose of this study, I will refer to students as White or Latino. Qualification for free/reduced lunch status was dichotomous (not eligible versus eligible) and used as a blunt proxy for socio-economic status (SES). SES likely overlaps with race/ethnicity. Indeed, only 22.52% of White students qualified for free/reduced lunch while 68.25% of Latino students qualified.

B. Procedures

The school district administers a Student Climate and Safety Survey annually to grades 5-9 and 11, and each spring students are randomly assigned to take either the Climate or Safety Survey when they log on in their school computer lab. The 40-item SEC measure was located at

the beginning of the Climate Survey. Students completed the Student Climate Survey between March and June 2016 via computer at their school site. All schools were provided a brief proctoring script (see Appendix B) to read before each administration to ensure that consistent directions were utilized across administrations. Because data using this 40-item scale was collected in 2016, it is important to note that the data represent a cross-sectional rather than longitudinal sample. (For more detailed information, see Appendix A.) The use of these data was approved by the Institutional Review Board (IRB) at the University of Illinois at Chicago (No. 2013-0856; see Appendix I).

C. Measures

The variables examined were gathered from a self-report measure of social-emotional competence, grade point average, standardized academic performance indicators in reading and math, and school attendance data.

Social-Emotional Competence: The Social and Emotional Competence Assessment (SECA – 40-item) is a self-report measure of student social and emotional competency consisting of 40 items and was developed by a researcher-practitioner partnership between the Collaborative for Academic, Social, and Emotional Learning (CASEL) and Washoe County School District (WCSD), supported by a grant from the Institute of Education Sciences (IES). The primary focus of the partnership grant was to develop a public-access version of an assessment of student self-report ratings of SEC to help address some of the gaps in the existing social and emotional measurement field. Previous confirmatory factor analysis (CFA) and invariance testing by age, gender, and grade by measurement developers showed an eight-factor structure and invariance across demographics (Davidson et al., in press).

This 40-item measure can be used to measure students' competencies in eight specific SEC domains; individual items are listed in Appendix C. The response option structure is a 4-point "Difficulty" scale with 1, Very difficult; 2, Difficult; 3, Easy; 4, Very easy. Students were asked to indicate how easy or difficult items are for them. The eight domains were: Self-Awareness/Emotions, Self-Awareness/Self-Concept, Self-Management/Emotions, Self-Management/Goals, Self-Management/Schoolwork, Social Awareness, Relationship Skills, and Responsible Decision-Making. Self-Awareness of Emotions ($\alpha = .68$) had 6 items (e.g., "Knowing the emotions I feel"), and Self-Awareness/Self-Concept ($\alpha = .57$) scale had 4 items (e.g., "Knowing what my strengths are"). Self-Management/Emotions ($\alpha = .69$) contained 4 items (e.g., "Getting through something even when I feel frustrated"), and Self-Management/Goals ($\alpha = .73$) had 4 items (e.g., "Setting goals for myself"). Self-Management/Schoolwork ($\alpha = .80$) contained 6 items, such as, "Being prepared for tests." Social Awareness ($\alpha = .60$) consisted of 5 items, such as, "Learning from people with different opinions than me," while Relationship Skills ($\alpha = .68$) was made up of 6 items, such as, "Respecting a classmate's opinions during a disagreement." Finally, Responsible Decision-Making ($\alpha = .68$) contained 5 items, for example, "Thinking about what might happen before making a decision." For further details about measure development, see Appendix A.

Academic Performance: To examine academic outcomes, current school year grade-point average (GPA) and 2016 Smarter Balanced Assessment Consortium (SBAC) Reading and Math achievement test scores were included. GPAs range from .5 (very low average consisting of below average and failing grades) to 4.0 (every letter grade was an 'A' which indicates high achievement in each course) (Strassburger et al., 1990). Smarter Balanced assessments are criterion referenced, computer-based tests based on the Common Core State Standards (CCSS)

for English language arts/literacy (ELA) and mathematics and measure student achievement and growth in English and math in grades 3–12 (Smarter Balanced Assessment Consortium, n.d.). A student achievement scale score is the student’s overall numerical score, which falls on a continuous scale, from approximately 2000 to 3000, that increases across grade levels. For more information on how to interpret scale scores, see Appendix D.

Attendance: Total number of days absent during the 2015-2016 school year were included. A student is absent if not in class when the session/class period begins, and chronic absenteeism occurs when a student is absent or has missed instruction for any reason for more than four days or class periods in the same class during a school quarter and who continues to be absent during subsequent quarters (WCSD, 2015).

D. Statistical Analyses

All analyses were conducted in R statistical software version 3.4.0, specifically the *lavaan* package (Rosseel, 2012), which was used for testing measurement invariance, and the *lme4* package (Bates, Maechler, Bolker, & Walker, 2015), which was used for fitting and analyzing hierarchical linear models. Additionally, *p*-values were calculated using the Kenward-Roger approximation in the *lmerTest* package (Westfall, Kenny, & Judd, 2014). Given the wealth of data, a restricted exploratory technique. The study used previously collected data on which a prior confirmatory factor analysis (CFA) showed eight factors. These eight subscales were confirmed, and a measurement invariance test was conducted.

Measurement Equivalency/Invariance Testing: In preparation for analyses, measurement invariance testing by race/ethnicity was conducted to ensure that comparisons between White and Latino students would not be a result of differences due to the measure. Invariance testing by age, gender, and grade were conducted by measure developers (Davidson

et al., in press). Fit for each model (unconstrained base model, constrained factor loadings model, and constrained intercepts model) was tested using three common fit statistics: Chi-square fit statistic, root-mean-square error of approximation (RMSEA), and comparative fit index (CFI). In instances in which the results of the test of measurement invariance were split across indices, the change in CFI served as the determining index, as it is the most robust with large samples (Cheung & Rensvold, 2009).

Residualization: The eight subscales of the measure were examined to understand how much they correlated with each other, to identify whether multicollinearity was present, and to ensure that analyses could be conducted. Correlations between subscale constructs ranged from .40 to .61, increasing the likelihood that the predictors would not be unique. In order to aid in interpretability, the subscales were residualized from each other in order to allow conclusions about independent contributions of each SEC subscale to be made.

MANOVA: Given the wealth of data, a restricted exploratory technique was used to limit the number of nonreplicable results. A multivariate analysis of variance (MANOVA) was conducted to reduce the number of SEC subscales that were included in the regression models. Because this paper focuses on race/ethnicity, only subscales that were significantly related to race/ethnicity were kept in the regression models.

Statistical Models: A multilevel design was used to account for variance between schools (students as level 1 variables and schools as level 2 variables). Hierarchical linear modeling (HLM) was used for each dependent variable (i.e., absences, GPA, SBAC Math, and SBAC Reading). A forward-fitting method was used to first test for main effects of each of the four subscales, race/ethnicity (dummy coded, 0 = White), and grade (when applicable), while controlling for SES (effects coded, -.5 = eligible for free/reduced lunch). Next, the interactions

were tested in which each of the four subscales was interacted with race/ethnicity. Models were then backward-fit to remove interactions that did not improve the model fit. The best-fit model (Final Model) was reported and tested against the main-effects model (deviance testing).

Practical Effect Size Calculations: Because the fields of community psychology, education, and social-emotional learning strive for practical impact, practical effect sizes were also calculated for each result. Using model outputs, effect sizes were calculated so that for each increase of one standard deviation in an SEC construct subscale, a certain amount of change could be expected in each outcome; percentage increase or decrease was also noted. The increase in the SEC construct refers to the effect of the latent construct/component of the subscale construct, not to the items on the test due to the residualization process.

III. RESULTS

Preliminary analyses provide a foundation for continuing to the regression models. Overall, results of measurement invariance indicated the measure was valid for the analyses, and the MANOVA provided four subscales on which to focus in the regressions. Following, the results of regression models on the dependent variables attendance, GPA, SBAC math scores, and SBAC reading scores were examined.

A. Preliminary Analyses

Measurement Invariance by Groups: Three model fits were examined: the unconstrained baseline model, $\chi^2(4984) = 14807.81, p < .001$, CFI = .84, RMSEA = .05; the constrained factor loadings model, $\chi^2(5224) = 15149.05, p < .001$, CFI = .84, RMSEA = .05; and the constrained intercepts model, $\chi^2(5176) = 15235.80, p < .001$, CFI = .84, RMSEA = .05. The constrained factor loadings model ($p = .004$) and the constrained intercepts model ($p < .001$) both had significantly higher Chi-squares than the baseline model, as expected, indicating variance. RMSEA difference thresholds were not met, indicating invariance, and CFI difference thresholds were not met indicating invariance. Due to these results, it is appropriate to determine measurement invariance by race/ethnicity and continuing with the planned analyses. See Appendix F for detailed information on this decision.

MANOVA: The purpose of running a MANOVA on the SEC subscales was to reduce the total number of tests. In other words, the MANOVA was used to control for the number of exploratory analyses enacted on each dependent variable. The MANOVA result was significant for race/ethnicity, Pillai's Trace = .02, $F(8, 2572) = 7.38, p < .001$, indicating a difference in the SEC subscales between White and Latino students. The results of the MANOVA indicate that out of the eight subscales, four showed differences by race/ethnicity: Self-Awareness/Self-

Concept, Self-Management/Emotion, Self-Management/School-work, and Responsible Decision-Making (see Table G1 in Appendix G). Therefore, these subscales were the only ones included in the regression models, and Self-Awareness/Emotions, Self-Management/Goals, Social Awareness, and Relationship Skills were excluded from the following analyses.

To note, the subscales associated with race/ethnicity and which were used for the final analyses are intrapersonal competencies. Means ranged from 2.55 to 3.02, which indicates a student has slightly above average SEC. White students outperformed their Latino peers on three of these four SEC subscales: Latino students scored significantly higher on Self-Management/Emotions. Additionally, the four final subscales were differentially associated with grade (see Table H1, Appendix H), so grade was included in the models as a covariate when cross-grade comparisons could be made. As expected, eleventh graders scored higher on SEC than fifth graders, with the exception of Self-Management/Schoolwork.

B. Attendance

The main-effects model examined the four SEC constructs, race/ethnicity, SES, and grade. The interaction of race/ethnicity with Self-Awareness was added to the main effects for the Final Model, which had a significantly better fit than the main-effects model, ($\chi^2(1) = 4.81, p = .03$). Students with higher self-management/schoolwork ($b = -.17, p < .001$) had fewer absences than students with lower self-management. Practically, this translates into the following: controlling for the other subscales, for every increase by one standard deviation in self-management/schoolwork, students miss 1.10 less days of school. This equates to a 15% decrease in absences. Students with higher self-management of emotions had fewer absences as well ($b = -.07, p = .05$), missing .50 less days of school, or 7%. Additionally, Latino students had less absences than their White counterparts ($b = -.12, p < .001$).

As seen in Figure 1, the interaction between Self-Awareness/Self-Concept and race/ethnicity was significant. Latino students that were more self-aware (self-concept) had fewer absences ($b = -.19, p = .03$), but the opposite effect was seen in White students ($b = .11, p = .05$). For Latino students, for a one standard deviation increase in Self-Awareness/Self-Concept, students miss 1.17 less days of school. This equates to an 17% increase in the number of days students attended school. However, for White students, a similar increase would equate to an additional .89 more days (or an 12% increase) of school missed.

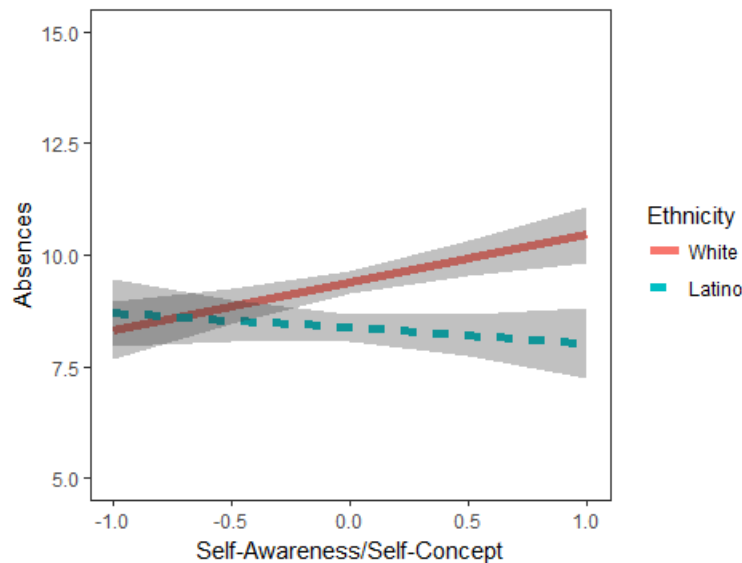


Figure 1. Self-Awareness/Self-Concept and race/ethnicity as predictors of absences. Ribbons represent ± 1 standard error of the mean.

C. GPA

The main effects model (including the SEC subscales, race/ethnicity, and SES) was the best fit; analyses for interactions were not significant. As seen in Figure 2, students who had higher Self-Management/Schoolwork had higher GPA ($b = .46, p < .001$). Practically, this indicates that for a standard deviation increase in self-management (schoolwork), students had an increase of .46 points in GPA, which equates to half a letter grade. This translates to a 16%

increase in student GPA. Hispanic students ($b = -.24, p < .001$) and students eligible for free/reduced lunch ($b = -.27, p < .001$) had lower GPAs.

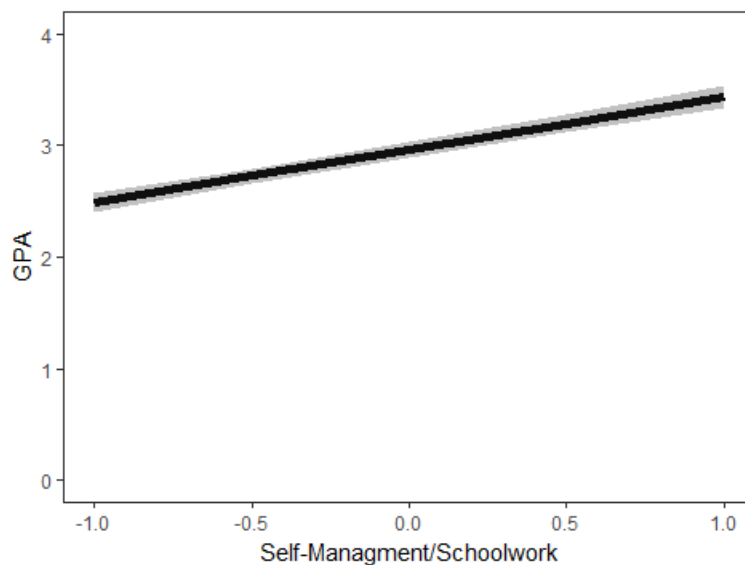


Figure 2. Self-Management/Schoolwork as a predictor of GPA. Ribbons represent ± 1 standard error of the mean.

D. SBAC Math

The main effects model (including the SEC subscales, race/ethnicity, and SES) was the best fit; analyses for interactions were not significant. As seen in Figure 3, students who had higher self-awareness/self-concept had higher SBAC Math achievement scale scores ($b = 34.01, p < .001$). For a one standard deviation increase in self-awareness (self-concept), students score 34.01 points higher on the SBAC math achievement test, a 1.35% increase in scale score. Similarly, as seen in Figure 4, students who had higher self-management/schoolwork had higher SBAC Math achievement scale scores ($b = 30.67, p < .001$). For a one standard deviation increase in self-management (schoolwork), students scored 30.67 points higher on SBAC Math, a 1.22% increase. Students eligible for free/reduced lunch had lower SBAC Math scores ($b = -37.06, p < .001$).

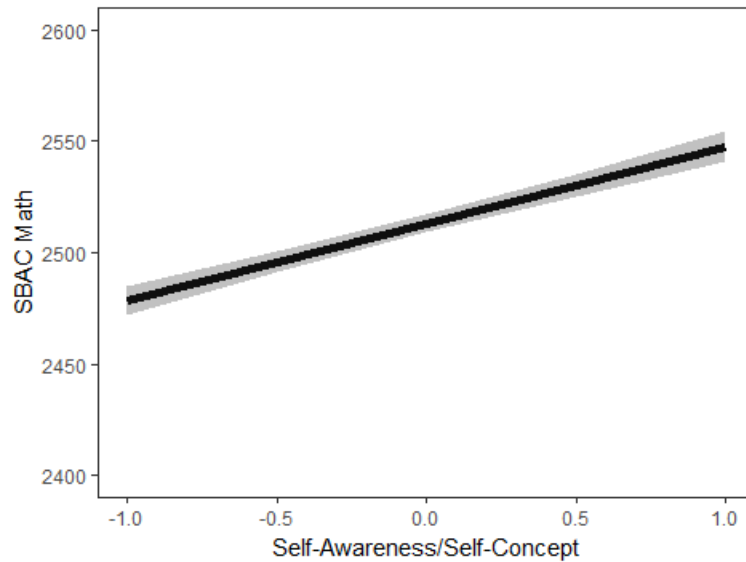


Figure 3. Relationship between Self-Awareness/Self-Concept and SBAC math scores. Ribbons represent ± 1 standard error of the mean. A score of 2528 – 2578 indicates meeting standards.

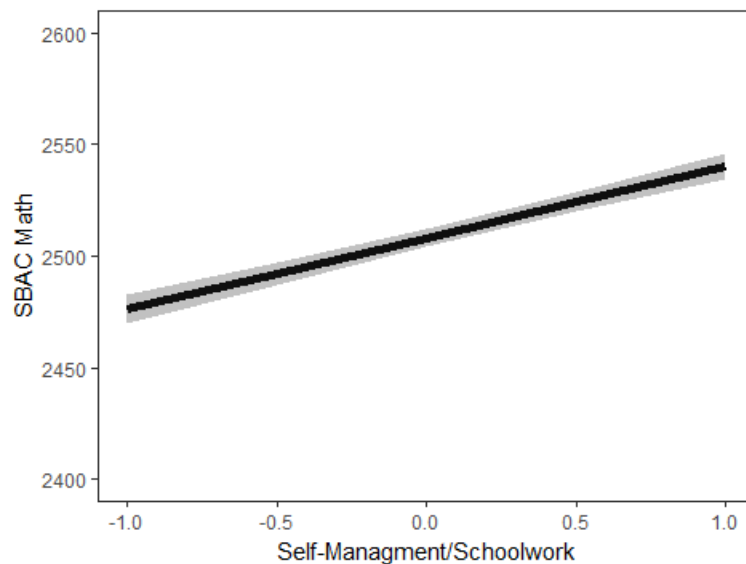


Figure 4. Relationship between Self-Management/Schoolwork and SBAC math scores. Ribbons represent ± 1 standard error of the mean. A score of 2538-2578 indicates meeting standards.

E. SBAC Reading

The Final Model added the interaction of race/ethnicity and Responsible Decision-Making to the main-effects model (the SEC subscales, race/ethnicity, and SES). The Final Model

had a significantly better fit, $\chi^2(1) = 5.44, p = .02$. Students who showed higher self-awareness/self-concept ($b = 28.79, p < .001$), self-management/schoolwork ($b = 34.96, p < .001$), or responsible decision-making ($b = 22.32, p < .001$)¹, had higher SBAC reading scale scores. Those with higher self-management of emotions, however, had lower SBAC reading scores, ($b = -11.39, p = .01$). Practically, this translates into the following: for a one standard deviation increase in self-awareness (self-concept), students score 28.87 points higher on SBAC Reading, a 1.15% increase in scale score. For an increase in self-management (schoolwork), students score 34.56 points higher on SBAC Reading, a 1.37% increase. However, for a similar increase in self-management (emotions), students score 11.35 points lower on SBAC Reading, or a .45% decrease. Further, students eligible for free/reduced lunch had lower scores, ($b = -40.02, p < .001$).

Additionally, as seen in Figure 5, the interaction between Responsible Decision-Making and race/ethnicity was significant. White students high in responsible decision-making scored higher on SBAC Reading, but the opposite effect was seen for Latino students ($b = -22.86, p = .02$)². For a one standard deviation increase in responsible decision-making, White students scored 13.35 points higher on SBAC Reading, a .53% increase; however, a similar increase for Latino students translated to scoring 26.65 points lower on the SBAC Reading test (or a 1.06 % decrease).³

¹ Beta refers to White students' scores on SBAC Reading.

² Beta refers to Latino students' scores on SBAC Reading.

³ All analyses were re-run including gender as a control: patterns remained the same.

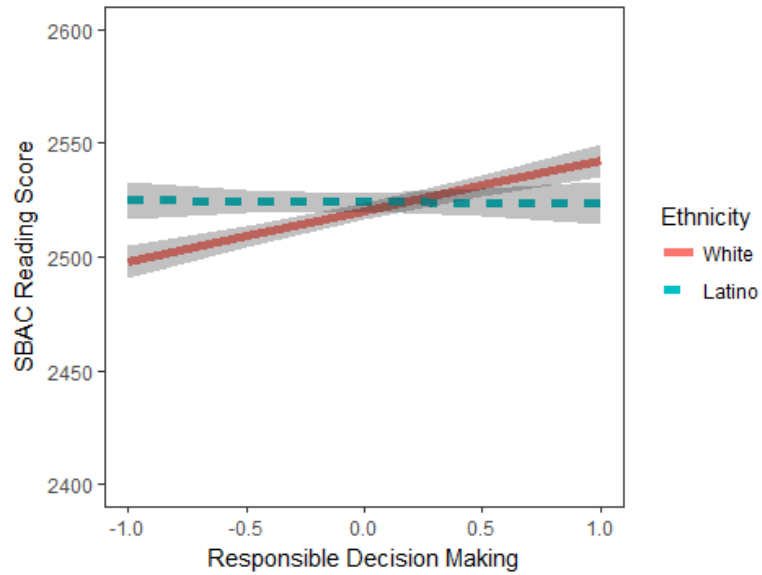


Figure 5. Responsible Decision-Making and race/ethnicity as predictors of SBAC reading scores. Ribbons represent ± 1 standard error of the mean. A score of 2502 – 2581 indicates meetings standards.

IV. DISCUSSION

While some findings support and expand upon previous work, others contradict and generate new questions. Overall, intrapersonal social and emotional competencies were related to positive outcomes for students. Most notably, self-management (schoolwork) related to a .46 increase in GPA (half a letter grade or a 16% increase), which supports previous work; and this was true for both Latino and White students. Self-management was a significant indicator of positive outcomes across the board. Self-management, particularly related to schoolwork, was significantly related to higher GPA, higher scores on SBAC math and reading achievement tests, and lower absences. Because items in the subscale are directly related to positive academic behaviors such as “being prepared for tests,” it is reasonable that students who rate themselves higher on self-management of schoolwork would have higher GPA and SBAC scores. This may support domain-specific theories of SEL.

However, some differential associations were found. Supporting the hypothesis that SEC does not relate to similar benefits to both ethnic groups and is associated with benefits only for White students, responsible decision-making was related to higher scores on the SBAC reading achievement test for White students but not for their Latino counterparts. This finding may be due to differences in language proficiency: although students with ELL status were removed from the data, clearer levels of language proficiency not captured in the current data may explain the interaction and would be useful to examine in future studies. A more likely explanation is that more Latino students had lower SES than White students. Indeed, in this sample Latino students were disproportionately eligible for free/reduced lunch, and studies have shown that students with lower SES have lower achievement scores overall. Indeed, students with low SES had lower GPA and lower scores on the SBAC math and reading test.

Alternately, self-awareness (self-concept) was related to higher attendance for Latino students, but not for Whites, which contradicts the hypothesis that SEC privileges White students, yet does show that benefits were not the same across ethnic groups. Perhaps an emphasis or prioritization of academics for Latinos includes being present at school; parents know attendance is of increasing concern in how it may affect college outcomes. Further, education or language proficiency may play a role: attendance is the core behavior parents can ensure in their children if parents are not able to help with school work in other ways due to language or lack of education. However, more demographic information on families in the district would be necessary to make such claims.

Most of the SEC subscales that were associated with race/ethnicity (self-awareness/self-concept, self-management/schoolwork, and self-management/emotions) are considered intrapersonal competencies, while the subscales not associated with race/ethnicity (self-awareness/emotions, self-management/goals, social awareness, and relationship skills) included all the interpersonal competencies. Interpersonal competencies may be equally important for both groups of students; or given the emphasis in Latino culture on cooperation, interdependence, and community (Reyes & Elias, 2011), these competencies may be more relevant to Latino students than intrapersonal competencies. Following, perhaps intrapersonal competencies are slightly more important for White students in relation to academics because of the emphasis on the internal and individual person in American/Eurocentric cultures, while these competencies are more important for Latino students in relation to attendance, because of cultural emphasis on community and being present for others.

Surprisingly, not all SEC constructs were significantly related to the outcomes identified in the study, and one – self-management/emotions – was even negatively related to scores on the

SBAC reading test. Latino students scored higher than their White counterparts on self-management/emotions. Items on this subscale included, “working on things even when I don’t like them,” or “getting through something even when I feel frustrated,” and in communal cultures, one may need to be able to manage one’s own feelings to help the family or community. In this study, students with low SES scored lower on the reading test, and Latino students were disproportionately in this group, which may explain why SBAC reading was negatively related to this subscale. Parsing out effects relating to race/ethnicity and SES is an important consideration for future studies.

Limitations and Future Directions

Limitations of the current study reflect a need for more information. The tool used to measure SEC was a self-report measure, so social desirability and other biases associated with self-report must be taken into consideration when reviewing results. Future studies should include additional measures to self-report, such as teacher reporting or direct assessment data. Using a dichotomous variable for race/ethnicity does not capture the complexity of students’ intersectional identities or intragroup differences. Indeed, “Latino” refers to people of Mexican, Cuban, Puerto Rican, or South or Central American culture or origin, each of which may have different cultures and customs. More information on students with multiple racial/ethnic identities, in addition to English language learner status, immigration status, and degree of acculturation, would be beneficial to examine to understand group differences in how SEC functions. Future work should also include gender as well as its potential interaction with racial/ethnic identity.

As this study analyzed cross-sectional data, no causal claims can be made. However, this paper does create experimental questions. Future experimentation on what was learned from this

correlational data would be able to illuminate the causal effects of SEC in relation to academic outcomes and attendance. Additionally, since self-management was significant for all dependent variables, this may be an important place to start unpacking mechanisms of change. Finally, more should be explored in terms of the interpersonal vs. intrapersonal framing of SEC, particularly in relation to race/ethnicity, which may have implications for broader outcomes in education.

Conclusion

This study provides some views about the complexity and importance of considering racial/ethnic and cultural factors in relation to social-emotional competence. Greater attention to these factors moving forward would be beneficial for both researchers and practitioners. Future work should include a critical analysis of the function and structure of these competencies cross-culturally and examine the influence of student identities on SEC. These initial steps could provide the field with valuable information to potentially improve SEL programming and practice.

Table 1

Results of Mixed Regression Analyses: Relationships among SEC Constructs, Academic Achievement, and Attendance

Variable	<u>Absences</u>		<u>GPA</u>		<u>SBAC Math</u>		<u>SBAC Reading</u>	
	Main-effect Model	Final Model	Main-effect Model	Inter-action	Main-effect Model	Inter-action	Main-effect Model	Final Model
Intercept	2.06***	2.05***	3.01***	-	2510.41***	-	2515.57***	2515.60***
Self-Awareness/Self-Concept	.03	.11*	.11	-	34.01***	-	28.87***	28.79***
Self-Management/Emotions	-.07	-.07*	-.007	-	-5.12	-	-11.35**	-11.39**
Self-Management/Schoolwork	-.16***	-.17***	.46***	-	30.67***	-	34.56***	34.96***
Responsible Decision-Making	-.06	-.06	.07	-	5.82	-	13.35**	22.32***
Race/Ethnicity	-.12**	-.12**	-.24***	-	-1.19	-	5.15	4.02
Free/Reduced Lunch (SES) ⁺	.05	.05	-.27***	-	-37.06***	-	-40.01***	-40.02***
Grade	-.04	-.04						
Self-Awareness/Self-Concept x Ethnicity ⁺⁺		-.19*						
Responsible Decision-Making x Ethnicity								-22.86*
Deviance Score (-2 log likelihood)	6207.6	6202.8	2961.0	2959.1	16353	16349	16281	16276
$\Delta\chi^2$		4.81*		1.91		3.94		5.44*

Notes: * $p < .05$, ** $p < .01$, *** $p < .001$

⁺ Free/reduced lunch (SES) was effects coded -.5, +.5 for not eligible and eligible, respectively.

⁺⁺ Interactions with race/ethnicity used White students as the reference group.

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APPENDIX

Appendix A. SEC Measure Development and Administration

The 40 items were selected from a 138-item bank of social and emotional competency items. The full 138 bank of social emotional competency items was developed through a 3-year, iterative process. This process included mapping of items against developmental guides to ensure age-appropriateness, Rasch modeling techniques to determine how well items assessed student across a range of social-emotional competencies, and focus group testing with 100+ students in elementary, middle, and high school to improve item readability and comprehension, promote better survey engagement, and develop items that assessed high levels of social-emotional competencies. The 40-item version was selected “on the Rasch difficulty ratings, with preference for items that would cover the full range of student ability.”

For this study, demographic information (race/ethnicity, grade level, gender, free/reduced lunch status) was prepopulated into the dataset based on student identification numbers assigned to the climate survey from the district database. Student identifiers were used to connect various student data to allow for the study of the relationships among SEC, academic performance, and attendance. Once this information was collected and connected, individual identifiers were removed from the dataset to ensure that students’ responses could not be traced back to them. Demographic information examined in the analyses include race/ethnicity and grade. Because this study is focused on the comparisons of White and Latino students, those students who did not identify as Latino or White were dropped from analyses. Additionally, English Language Learner (ELL) status was confounded with race and age. There were many more ELLs in grade 5 ($n = 336$) than in grade 11 ($n = 68$). Due to this insufficient/imbalanced number of ELLs in the dataset, ELLs were removed.

Appendix B. Proctoring Script

2016 WCSD Student Climate and Safety Survey Administration Protocol

I. Purpose

The purpose of the 6th Annual School Climate and Safety Survey is to collect information from students about the school environment. A positive school climate is important in ensuring that every student reaches his or her potential. School staff and parents will also be invited to complete a corresponding climate survey during the same time period.

II. Survey Administration for 2016

- Can be completed at any time during the day between **April 4th until June 9th**
- The survey requires 30 minutes or less (typically less than 15).
- Only taken by students in grades 5, 6, 7, 8, 9 and 11.
- Parents can return passive consent forms to the school if they do not want their child to participate (allow 7-10 day review).
- Initial results will be available to schools in August to help with school improvement planning.
- There is a new video on the School Climate website with survey directions students can watch. We encourage you to play it before each survey administration to ensure consistency: <https://youtu.be/mQGWIQj87DM>.

III. Staffing Needs

With the assistance of the school counselor, the site administrator and teachers should coordinate a schedule to administer the survey to students. The way staff communicate to students about this survey is **INCREDIBLY IMPORTANT** and has a major impact on how honestly students respond to the questions and the quality of the data your school receives back from students. Please try to encourage students to take the survey seriously and let them know that their opinions are valued and confidential.

IV. Materials

- **Student roster with student IDs** (the school is responsible for distributing current rosters)
- **Computers, iPads, or laptops with internet access**

If your school needs iPads or proctors to help administer the survey, please contact ldavidson@washoeschools.net. Below is the link to the student climate and safety survey. Clicking on the link will bring you to a login page which will ask for an access code. The access code is their Student ID number. Half of the students will take the climate survey, and half will take the safety survey. This is determined by the last digit of the student id number (EVEN = Climate; ODD = Safety). Only the student ID numbers assigned to each particular survey will allow access. Each ID will allow one response to the survey. If a student's ID does not work, **please call Laura Davidson at 348-3850 or 408-506-6549 (cell) and she will give you an alternate student ID number to use.**

Student Survey Link: <https://surveys.panoramaed.com/washoe/>

V. Administration Protocol

- **Step 1:** Sit students individually at computer stations or space evenly. Please exclude students for whom consent was denied (i.e. the passive consent form was returned signed by a parent or guardian). **Play video of directions or read script below.**
- **Step 2:** Direct students to the survey link above. You can also preload the link onto each computer in advance. They can also access the link by going to the WCSD Student Climate Survey website.
- **Step 3:** Read bolded survey directions below to all students.
- **Step 4:** Provide students with their ID number to type into access code box. They will be automatically directed to either the Safety Survey or the Climate Survey based on the last digit of their student ID number.
- **Step 5:** If students ask questions about specific survey questions, help clarify the questions for the students, but do not provide answers. Please try to ensure a non-disruptive atmosphere until all students have completed the survey.

Script to Read to Students:

Good morning (afternoon). My name is (name) and I am helping to collect information about what you think of your school and your school's safety. Today I would like you to complete a questionnaire on the computer. This survey is YOUR opportunity to provide feedback about this school. We use the information at this school to help make sure students feel safe, cared for, and interested in their education.

No one at school or at home will see your answers. Taking part in this project is up to you. Your choice about taking part will not affect your grades in school or your ability to participate in any school activities. You can skip any questions or to decide you do not want to participate at any point in the survey process.

We are going to complete the first screen together. Does anyone have any questions before we begin?

If you have a question while you are taking the survey, please raise your hand and someone will help you. Please sit quietly in your seat when finished until I excuse you. You may begin by entering your student ID number where it asks for your access code. If you do not know your ID number, I will come by and give it to you. Make sure your correct school name comes up after you type in your ID number.

Appendix C. 40-item Social and Emotional Competency Measure

40-item SEC measure

Item

Self-Awareness: Emotion

- Knowing when my feelings are making it hard for me to focus. *
- Knowing the emotions I feel. *
- Knowing ways to make myself feel better when I'm sad.
- Noticing what my body does when I am nervous.
- Knowing when my mood affects how I treat others.
- Knowing ways I calm myself down. *

Self-Awareness: Self-Concept

- Knowing what my strengths are. *
- Knowing how to get better at things that are hard for me to do at school.
- Knowing when I am wrong about something.
- Knowing when I can't control something.

Self-Management: Emotion

- Getting through something even when I feel frustrated. *
- Being patient even when I am really excited. *
- Staying calm when I feel stressed.
- Working on things even when I don't like them.

Self-Management: Goals

- Finishing tasks even if they are hard for me. *
- Setting goals for myself. *
- Reaching goals that I set for myself.
- Thinking through the steps it will take to reach my goal.

Self-Management: Schoolwork

- Doing my schoolwork even when I do not feel like it. *
- Being prepared for tests. *
- Working on assignments even when they are hard.
- Planning ahead so I can turn a project in on time.
- Finishing my schoolwork without reminders.
- Staying focused in class even when there are distractions.

Social Awareness

- Learning from people with different opinions than me. *
- Knowing what people may be feeling by the look on their face. *
- Knowing when someone needs help. *
- Knowing how to get help when I'm having trouble with a classmate.
- Knowing how my actions impact my classmates.

Relationship Skills

- Respecting a classmate's opinions during a disagreement. *
- Getting along with my classmates. *
- Sharing what I am feeling with others.
- Talking to an adult when I have problems at school.
- Being welcoming to someone I don't usually eat lunch with.
- Getting along with my teachers.

Responsible Decision-Making

- Thinking about what might happen before making a decision. *
- Knowing what is right or wrong. *
- Thinking of different ways to solve a problem.
- Saying "no" to a friend who wants to break the rules.
- Helping to make my school a better place.

Note: * denotes anchor items; range for each item was 1, "very difficult" to 4, "very easy."

Appendix D. Smarter Balanced Assessment Consortium: Scoring

Based on their scale scores, students fall into one of four categories of performance called achievement levels. Achievement levels are defined by Achievement Level Descriptors, which specify what knowledge and skills students display at each level. Level 1 indicates that the student has not met the achievement standard and needs substantial improvement to demonstrate the knowledge and skills needed for likely success in future coursework. Level 2 indicates the student has nearly met the achievement standard and may require further development to demonstrate the knowledge and skills needed for likely success in future coursework. Level 3 indicates that the student has met the achievement standard and demonstrates progress toward mastery of the knowledge and skills needed for likely success in future coursework. Level 4 indicates the student has exceeded the achievement standard and demonstrates advanced progress toward mastery of the knowledge and skills needed for likely success in future coursework. Students performing at Levels 3 and 4 are considered to be on track to demonstrating the knowledge and skills necessary for college and career readiness.

The tables below show the range of scale scores for each achievement level for mathematics and English language arts/literacy for students in grades 3-11:

Mathematics				
Grade	Level 4	Level 3	Level 2	Level 1
3	>2500	2436–2500	2381–2435	<2381
4	>2548	2485–2548	2411–2484	<2411
5	>2578	2528–2578	2455–2527	<2455
6	>2609	2552–2609	2473–2551	<2473
7	>2634	2567–2634	2484–2566	<2484
8	>2652	2586–2652	2504–2585	<2504
11	>2717	2628–2717	2543–2627	<2543

English Language Arts/Literacy				
Grade	Level 4	Level 3	Level 2	Level 1
3	>2489	2432–2489	2367–2431	<2367
4	>2532	2473–2532	2416–2472	<2416
5	>2581	2502–2581	2442–2501	<2442
6	>2617	2531–2617	2457–2530	<2457
7	>2648	2552–2648	2479–2551	<2479
8	>2667	2567–2667	2487–2566	<2487
11	>2681	2583–2681	2493–2582	<2493

To view percentile tables for overall English language arts (ELA) and mathematics scale scores, please visit: <http://www.smarterbalanced.org/assessments/development/percentiles/>.

Appendix E. Detailed Methods

Measurement Equivalency/Invariance Testing

In preparation for analyses, measurement invariance testing by race was also conducted to ensure that comparisons between White and Latino students would not be a result of differences due to the measure. Fit for each model was tested using three common fit statistics: Chi-square fit statistic, root-mean-square error of approximation (RMSEA), and comparative fit index (CFI). Smaller Chi-square (ideally $p < .05$) and RMSEA values (ideally below .08) indicate stronger model fit, while larger CFI values (ideally above .90) indicate stronger model fit (Kline, 2005). To examine measurement invariance by race/ethnicity, three types of measurement invariance were tested: a baseline unconstrained model, a loadings model (constrained factor loadings to be equal between groups), and an intercepts model (constrained intercepts to be equal between groups). The constrained factor loadings model was tested against the unconstrained base-fit model. Then the constrained intercepts model was tested against the unconstrained base-fit model.

To evaluate the different models, fit difference test thresholds were used; if the difference surpassed the following thresholds, the measure was considered variant: Chi-square $p < .05$; CFI $> .01$; RMSEA $> .01$ (Cheung & Rensvold, 2009). However, Chi-square is vulnerable to sample size. In instances in which the results of the test of measurement invariance were split across indices, the change in CFI served as the determining index, as it is the most robust with large samples (Cheung & Rensvold, 2009).

MANOVA

Given the wealth of data, a restricted exploratory technique was used to limit the number of false results. A multivariate analysis of variance (MANOVA) was conducted to reduce the

number of SEC subscales that were included in the regression models. Because this paper focuses on race/ethnicity, only subscales that were associated with race/ethnicity were kept in the regression models. This decision was made to protect against data-mining and Type I error. The MANOVA was conducted with residualized subscales to increase the likelihood that we would learn about the unique contributions of each predictor.

Variable Transformations

One dependent variable, absences, required transformation. Figure 1 below shows that there were too many (Latino) outliers that could lead to biased conclusions. It would be inappropriate to remove these students from the data, but not inappropriate to transform the data. Absences data were log-transformed and used in the analyses. No other variables required transformation.

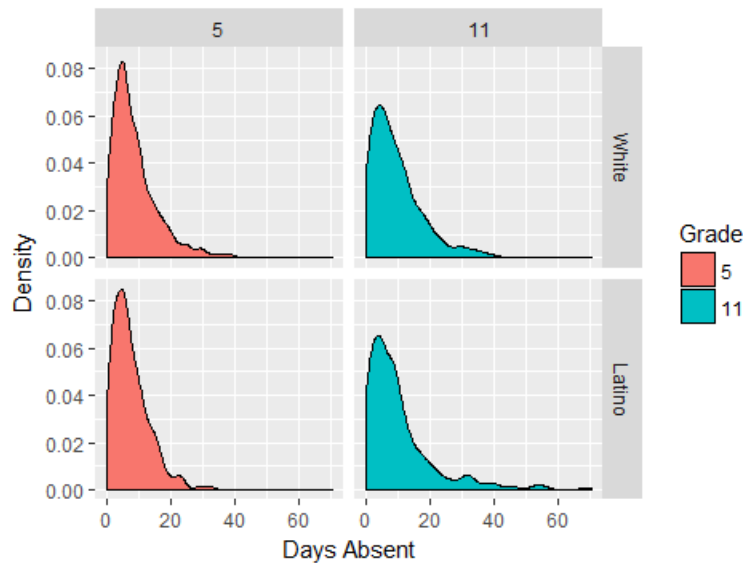


Figure E1. Days absent by grade and race/ethnicity.

Appendix F. Measurement Invariance Testing Results

Three model fits were examined: the unconstrained baseline model, $\text{Chi-sq}(4984) = 14807.81$, $p < .001$, $\text{CFI} = .84$, $\text{RMSEA} = .05$; the constrained factor loadings model, $\text{Chi-sq}(5224) = 15149.05$, $p < .001$, $\text{CFI} = .84$, $\text{RMSEA} = .05$; and the constrained intercepts model, $\text{Chi-sq}(5176) = 15235.80$, $p < .001$, $\text{CFI} = .84$, $\text{RMSEA} = .05$. Chi-squares for baseline, factor loading, and intercept models were significant, indicating that the test is variant by groups, but because this metric is vulnerable to sample size, other metrics – CFI and RMSEA – that are less impacted by sample size were also examined and reported; CFI is most robust for large samples (Cheung & Rensvold, 2009). The constrained factor loadings model and the constrained intercepts model both had higher Chi-squares than the baseline model, as expected. The CFI for each fit was not above the .90 threshold, although it is close at .84 (a CFI above .90 indicates invariance). The RMSEA for each fit was below .08 for each fit, which indicates measurement invariance between groups.

There was a significant difference in Chi-square when testing between the unconstrained base and constrained factor loadings model ($p = .004$). This means that the Chi-square of the constrained factor loadings model was significantly higher than that of the unconstrained model, indicating that the factor loadings between races/ethnicities were not invariant. The difference between unconstrained base model and constrained loadings model in RMSEA was .001, which was less than the threshold of .01, indicating that the measure is invariant by the grouping of race/ethnicity. Chi-square indicated variance, and RMSEA indicated invariance, so the CFI was examined. The difference in CFI between the two models was .002, which is less than the threshold of .01, indicating that the measure is invariant by the grouping of race/ethnicity.

There was also a significant difference between the unconstrained base and constrained intercept model ($p < .001$). This means that the Chi-square of the constrained intercepts model was significantly higher than that of the unconstrained model, indicating that the intercepts between races were not invariant. The difference in RMSEA between the base and intercept models was 0, which was less than the threshold of .01, indicating that the measure is invariant by the grouping of race/ethnicity. The difference in CFI between the unconstrained base model and the constrained intercepts model was .004, which is less than the threshold of .01, indicating that the measure is invariant by the grouping of race/ethnicity. This metric is also the most robust to sample size. Due to these results, it is appropriate to determine measurement invariance by race/ethnicity and continuing with the planned analyses.

Appendix G.

Table G1

Method to Reduce SEC Subscales: Residualized Student SEC Scores by Race/Ethnicity

Dependent Variable	<i>df</i>	<i>F</i>	Race/Ethnicity	Corrected Means ⁺	<i>p</i> value
Self-Awareness/Emotions	1	.28	White	2.95	.60
			Latino	2.95	
Self-Awareness/Self-Concept	1	11.86	White	2.95	< .001*
			Latino	2.83	
Self-Management/Emotions	1	30.88	White	2.50	< .001*
			Latino	2.65	
Self-Management/Goals	1	1.78	White	2.82	.18
			Latino	2.73	
Self-Management/Schoolwork	1	4.59	White	2.73	.03*
			Latino	2.62	
Social Awareness	1	2.55	White	2.98	.11
			Latino	2.99	
Relationship Skills	1	.19	White	2.89	.66
			Latino	2.87	
Responsible Decision-Making	1	8.55	White	3.03	.003*
			Latino	2.92	

Notes: An * represents statistical significance. ⁺The corrected means were created by taking the raw means and removing the residualized means (which correct for other subscales of SEC; i.e., the residualized data were re-centered based on the raw mean to increase interpretability).

Appendix H.

The MANOVA result was significant for grade, Pillai's Trace = .12, $F(8, 2572) = 44.80$, $p < .001$, indicating a difference in the SEC subscales between fifth and eleventh grade students. Six of the eight subscales were associated with differences by grade level; Self-Awareness/Emotions and Social Awareness were not significant. As expected, eleventh graders scored higher on SEC than fifth graders, with the exception of Self-Management/Schoolwork.

Table H1

Residualized Student SEC Scores by Grade

Dependent Variable	<i>df</i>	<i>F</i>	Grade	Corrected Means ⁺	<i>p</i> value
Self-Awareness/Emotions	1	1.58	5	2.90	.21
			11	3.02	
Self-Awareness/Self-Concept	1	25.46	5	2.81	< .001*
			11	3.01	
Self-Management/Emotions	1	14.59	5	2.50	< .001*
			11	2.63	
Self-Management/Goals	1	8.58	5	2.74	.003*
			11	2.84	
Self-Management/Schoolwork	1	259.73	5	2.90	<.001*
			11	2.41	
Social Awareness	1	.97	5	2.94	.33
			11	3.04	
Relationship Skills	1	10.10	5	2.90	.001*
			11	2.86	
Responsible Decision-Making	1	33.64	5	2.90	<.001*
			11	3.09	

Notes: An * represents statistical significance. ⁺The corrected means were created by taking the raw means and removing the residualized means (which correct for other subscales of SEC; i.e., the residualized data were re-centered based on the raw mean to increase interpretability).

Appendix I. IRB Approval
UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Exemption Determination
Amendment to Research Protocol – Exempt Review
UIC Amendment #2

March 2, 2017

Roger Weissberg, PhD
Psychology
1007 W Harrison St
M/C 285
Chicago, IL 60612
Phone: (312) 355-0640 / Fax: (312) 355-0480

RE: Research Protocol # 2013-0856
“Creating a Monitoring System for School Districts to Promote Academic, Social, and Emotional Learning”

UIC Sponsor: This research is not funded at UIC.
CASEL Sponsor: Institute for Educational Sciences: CASEL is the grant award recipient and there is no sub-contract to UIC.
Grant Number: R30H130012
UIC PAF #: Not applicable (see above).
Grant Title: Creating a Monitoring System for School Districts to promote Academic, Social, and Emotional Learning: A Researcher-Practitioner Partnership

Dear Dr. Weissberg:

The OPRS staff/members of Institutional Review Board (IRB) #7 have reviewed and approved this amendment to your research, and have determined that your research protocol continues to meet the criteria for exemption as defined in the U. S. Department of Health and Human Services Regulations for the Protection of Human Subjects [(45 CFR 46.101(b))].

Amendment:

Summary: UIC Amendment #2: Adding Teresa Borowski to key research personnel list.

Please note the following information about your approved amendment:

UIC Exemption Period: **March 2, 2017 – March 2, 2020**
Performance Sites: 1) UIC

Subject Population: 2) CASEL
De-identified data initially collected for educational purposes by the Warshoe County School District from August 1, 2011 through June 30, 2013

Amendment Approval Date: March 2, 2017

The specific exemption category under 45 CFR 46.101(b) is:

(4) Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Please note the Review History of this submission:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
02/09/2017	Amendment	Exempt	02/21/2017	Modifications Required
03/01/2017	Response to Modifications	Exempt	03/02/2017	Approved

You are reminded that investigators whose research involving human subjects is determined to be exempt from the federal regulations for the protection of human subjects still have responsibilities for the ethical conduct of the research under state law and UIC policy. Please be aware of the following UIC policies and responsibilities for investigators:

1. Amendments You are responsible for reporting any amendments to your research protocol that may affect the determination of the exemption and may result in your research no longer being eligible for the exemption that has been granted.
2. Record Keeping You are responsible for maintaining a copy all research related records in a secure location in the event future verification is necessary, at a minimum these documents include: the research protocol, the claim of exemption application, all questionnaires, survey instruments, interview questions and/or data collection instruments associated with this research protocol, recruiting or advertising materials, any consent forms or information sheets given to subjects, or any other pertinent documents.
3. Final Report When you have completed work on your research protocol, you should submit a final report to the Office for Protection of Research Subjects (OPRS).

Please be sure to use your research protocol number (2013-0856) on any documents or correspondence with the IRB concerning your research protocol.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS office at (312) 996-1711 or me at (312) 355-2908.

Sincerely,
Charles W. Hoehne, B.S., C.I.P.
Assistant Director, IRB #7
Office for the Protection of Research Subjects

cc: Michael E. Ragozzino, Psychology, M/C 28

VITA
Teresa G. Borowski

Community and Prevention Research
Department of Psychology
University of Illinois at Chicago
1007 W Harrison St., #1080
Chicago, IL 60607

Phone: 815-262-0425
Email: treesab91@gmail.com
Email: borowsk1@uic.edu

Research Interests

Promotion of social and emotional competencies through the arts (dance, drama, music, spoken word, visual arts, etc.); community-based prevention and intervention; social and emotional learning (SEL) through the life span; influences of culture and context / cultural relevance of programs; social justice; youth voice.

Education

- 2016 – Doctoral Student, Community and Prevention Research, Department of Psychology, University of Illinois at Chicago
Minor: Statistics, Methods, and Measurement
Expected graduation: 2020
- 2009 – 2012 Bachelor of Science in Psychology, LENS Diversity Certificate, University of Illinois at Urbana-Champaign, College of Liberal Arts and Sciences
GPA: 4.0/4.0, *summa cum laude*

Research Experience

- 2016 – Graduate Research Assistant, Community and Prevention Research, Department of Psychology, University of Illinois at Chicago, Chicago, IL. Supervisor: Dr. Roger Weissberg.
Projects: Work Group to Establish Practical Social-Emotional Competence Assessments of Preschool to High School Students; SEL and Equity, Diversity, and Social Justice (see below).
Activities and Responsibilities: PSCH 424: Social and Emotional Learning: Research, Practice, and Policy, Teaching Assistant; Community and Prevention Research Program TA; Social and Emotional Learning Research Group website (administrator); writing and editing various documents; collaborating with leading researchers and expert practitioners on various projects.
- 2015 – 2016 Research Specialist, Collaborative for Academic, Social, and Emotional Learning (CASEL) and University of Illinois at Chicago, Chicago, IL. Supervisor: Dr. Roger Weissberg.
Activities: Collaborating States Initiative; Work Group to Establish Practical Social-Emotional Competence Assessments of Preschool to High School Students; PSCH 424: Social and Emotional Learning: Research, Practice, and Policy, Teaching Assistant; Social and Emotional Learning Research Group website (administrator); writing and editing various documents; collaborating with leading researchers and expert practitioners on various projects; conducting

literature reviews; providing support to other CASEL projects such as the Collaborating Districts Initiative, Program and Districts Guides, and CASEL's Strategic Plan.

- 2011 – 2012 Research Assistant, University of Illinois at Urbana-Champaign. Negotiating Pathways to Adulthood: Social Change and Indigenous Culture in Five Circumpolar Communities (National Science Foundation). Supervisor: Dr. Michael J. Kral.
Activities: Transcription and coding of qualitative interviews; conducting literature reviews; writing and proofing manuscripts; study design; and completing Institutional Review Board paperwork.
- 2012 Experimenter and Observer (Research), Infant Cognition Lab, University of Illinois at Urbana-Champaign. Supervisor: Dr. Renee Baillargeon.
Activities: Observed looking times of infants, performed experiments and acted in skits presented to infants, conducted and ran experiments on infants, maintained integrity of studies and sets, maintained cleanliness of lab and proper storage of experiment sets, recorded data, and filled out and compiled paperwork and data gathered from experiments.
- 2012 Experimenter and Research Assistant, Beckman Institute, University of Illinois at Urbana-Champaign, Fit Kids: "An Investigation of Relational Memory and Physical Fitness in Preadolescent Children." Supervisor: Dr. Neal Cohen. Investigator Directing Research: Dr. Charles Hillman.
Activities: Conducted nutritional interviews with parents and intelligence and aptitude tests for pre-adolescent children, performed data entry and analysis, attended meetings/discussions, and explained study and debriefed participants. Performed skits/experiments, trained other assistants, interacted with toddlers and their parents, explained study protocol to parents, filled out and filed paperwork/consent forms, observed looking times, ran studies, and ran lab software/computer equipment.
- 2010 Research Assistant, University of Illinois at Urbana-Champaign. Self-Talk and Inner Monologues. Supervisor: Amy Warriner.
Activities: Coding of collected data.

Action Research and Clinical Experience

- 2017 - Action Research Practicum, Chicago Arts Partnerships in Education (CAPE), Chicago, IL. Supervisor: Dr. Katherine Zinsser. Community Contact: Joseph Spilberg.
Description: Integrated action and research in real-world settings by incorporating community and prevention theory and practice in developing and evaluating change efforts at CAPE and partnering Chicago Public Schools.
Activities: Partnering with a community organization; gaining entry and trust in a new community; demonstrating openness to learn and serve; collaboratively finding directions for work; class and school observations; needs assessment;

qualitative study design; conducting focus group and individual interviews with high school students; translating data and dissemination of scientific findings to the community.

- 2016 - SEL and Equity, Diversity, and Social Justice.
Description: National group of researchers co-chaired by Dr. Robert Jagers and Dr. Roger Weissberg.
Activities: Collaboration with an Equity Work Group of practitioners consisting of Equity Leads and Social and Emotional Learning Leads in school districts across the nation; organizing planning calls and informative webinars.
- 2015 – Work Group to Establish Practical Social-Emotional Competence Assessments of Preschool to High School Students.
Description: National group of leading researchers and expert practitioners organized by CASEL that focuses on how educators assess social and emotional competence of preschool to high school students.
Activities and Responsibilities:
Editor, Measuring SEL Blog and Collaborator Network for Social-Emotional Competence Assessments: scheduling, editing, and disseminating a weekly blog on social-emotional competence assessment with internationally renowned guest authors to a network of 1300+ researchers, policymakers, and practitioners. (Previously, creation and dissemination of a monthly newsletter to the network).
Project Management, Frameworks subgroup: Alignment of existing social-emotional frameworks. Review of 30+ frameworks, creation of conceptual model to organize thinking around alignment and distinctions of various frameworks, planning calls and group webinars; strategic thinking to reach goals and deliverable milestones in proposals to funders.
Project Management, Collaboration subgroup: Collaboration, coordination, and communication with the field. Building the collaborator network, expanding awareness of social-emotional assessment efforts in the field.
- 2015 – 2016 Collaborating States Initiative.
Activities: Project management, organizing collaborative calls and informative webinars, reviewing state proposals, coordination of expert researchers; identifying and reviewing social and emotional learning (SEL) state standards; outreach to state departments, contributed to decision-making on call for proposal finalists.
- 2013 – 2015 Pediatrix Medical Group at Northwestern Memorial Hospital, Hearing Screening Site Coordinator, Chicago, IL.
- 2011 – 2012 Crisis Line volunteer at Community Elements, Champaign, IL

Honors and Awards

- 2012 University Honors (Bronze Tablet)

- Highest award granted to undergraduates for academic excellence; to those with a cumulative grade-point average of 3.5 or better and who rank in the top 3 percent of the graduating class in their college.
- 2011 Phi Beta Kappa
 Membership is based on exceptional academic achievement in the liberal arts and sciences. Juniors represent the top 1% of their class and seniors represent the top 7% of their graduating class and have also met stringent curriculum requirements. (Received membership as a junior.)
- 2011 Dad's Association Library Award
 Awarded to the top 3 students in each college and those with a cumulative grade point average of 4.0.
- 2011 Nettie and Jesse Gorov Scholarship, Community Foundation of Northern Illinois
- 2011 Polish National Alliance District 13 Scholarship
- 2010, 2011 Polish National Alliance Scholarship
- 2009 – 2012 James Scholar Honors, University of Illinois at Urbana-Champaign
- 2009 – 2012 Dean's List, University of Illinois at Urbana-Champaign

Publications

- Stack, S., Kral, M. J., & Borowski, T. (2014). Exposure to suicide movies and suicide attempts: A research note. *Sociological Focus*, 47(1), 61-70.
- Borowski, T. G. (2017). Multilevel modeling. In A. Demos & C. Salas (Eds.), *A language, not a letter: Learning statistics in R*. Retrieved from <http://ademos.people.uic.edu/Chapter16.html>.

Ongoing Research and Papers in Preparation

- Borowski, T. G. (2017). Relationships between social-emotional competence, academic performance, and attendance: Examining differences by race/ethnicity. *Master's Thesis in preparation*.

Accepted Abstracts

- Allaham, M. M., Borowski, T., Morelli, S., & McKown, C. (2018). *Social-emotional competence in children correlates with centrality and embeddedness in classrooms*. CompleNet'18. (2018, April). *Community psychology: A discussion about graduate school and career opportunities*. Midwestern Psychological Association.

Conference Presentations

- Borowski, T. G. (2017, March). *National collaboration: Assessment work group*. Cross-Program Conference at the University of Illinois at Chicago.
- Borowski, T. G. (2012, May). *Culturally responsive interventions for marginalized youth: Chair and introductory comments*. Panel at the International Congress of Qualitative Inquiry at the University of Illinois at Urbana-Champaign.
- Borowski, T. G. (2012, May). *Global ethnography: Chair and introductory comments*. Panel at the International Congress of Qualitative Inquiry at the University of Illinois at Urbana-Champaign.

Borowski, T. G. (2012, May). *Insider views of research methods: Chair and introductory comments*. Panel at the International Congress of Qualitative Inquiry at the University of Illinois at Urbana-Champaign.

Guest Lectures

- Borowski, T. G. (2018, February). *Relationships among student social-emotional learning, academic performance, and attendance: Examining differences by race/ethnicity*. Seminar in Community and Prevention Research. University of Illinois at Chicago.
- Borowski, T. G., & Taylor, J. J. (2017, November). *SEL Assessment*. Social and Emotional Learning: Theory, Research, and Practice. University of Illinois at Chicago.
- Borowski, T. G., & Taylor, J. J. (2016, November). *SEL Assessment*. Social and Emotional Learning: Theory, Research, and Practice. University of Illinois at Chicago.
- Borowski, T. G. (2016, August). *Past research experience and future directions*. Seminar in Community and Prevention Research. University of Illinois at Chicago.
- Borowski, T. G., & Taylor, J. J. (2015, November). *SEL Assessment*. Social and Emotional Learning: Theory, Research, and Practice. University of Illinois at Chicago.

Teaching Experience

- 2015 – 2017 Teaching Assistant, University of Illinois at Chicago, PSCH 424: Social and Emotional Learning: Research, Practice, and Policy. Supervisor: Dr. Roger P. Weissberg.
- 2013 – 2016 Self-employed private lessons instructor.
- 2013 – 2014 Instructor for Big City Swing, group lessons.
- 2010 – 2012 Instructor for Illini Swing Society, group and private lessons.
- 2010 Teacher's Assistant for Illini Swing Society.

Professional Memberships

American Educational Research Association
Phi Beta Kappa Society

Graduate Student Organizations / Service

- 2017 - Integrative Psychology Graduate Consortium, Cross-Program Conference Committee, Treasurer.
Activities: Planning the annual Cross-Program-Conference; fostering collaboration across programs in the department; providing guidance and support to undergraduate students.
- 2017 - Students in Science Policy
- 2016 - Diversity Advancement Committee – Student Advisory Board (DAC-SAB)

Advanced Training in Statistics, Methods, and Measurement

Research Design and Analysis: Experimental design, advanced analysis of variance (ANOVA) and statistical analyses for experimental and quasi-experimental designs, interpretation and writing results in APA style, SPSS.

Multivariate Analysis: The statistical analysis of functional relationships among two or more variables; multivariate regression, canonical correlation, discriminant analysis,

multivariate analysis of variance, principal components, factor analysis, logistic regression, cluster analysis.

Seminar in Methods and Measurement: R Statistical Programming

Mixed Models: Taking a practical and applied approach to mixed models, including hierarchal/multi-level models (nested designs), regressions with repeated measures (crossed designs), and dealing with time (longitudinal and growth curve models).

Skills

Language: Conversational Polish, Basic Spanish

Microsoft Office

R (statistical programming)

SPSS (statistical software)

Atlas Ti (qualitative analysis software)

References Available Upon Request