

Social and Emotional Skills Predict Postsecondary Enrollment

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Background

Social and emotional (SE) skills are known to be linked to many important life outcomes, some of which fall in the academic domain. For example, meta-analytic analyses show that conscientiousness (a trait related to self-management, perseverance, and being organized and planful) accounts for 28% of the explained variance in academic performance even when controlling for cognitive ability (Mammadov, 2021). Data also reveal that SE skills are related to performance on standardized college entrance exams (Anguiano-Carrasco et al., 2022). In a recent study with long-term tracking of high school students, those who came from schools with a strong emphasis on SE skill development were more likely to enroll in college within two years of high school graduation (Jackson et al., 2022). There is, however, little research on SE skills predicting college enrollment. The current study contributes to this literature by evaluating the extent to which SE skills measured in high school predict college enrollment. Specifically, we examined the extent to which SE skills, as measured by the Mosaic Readiness Index (MRI), have incremental validity in predicting postsecondary enrollment above socioeconomic status (SES), high school grade point average (HS GPA), and ACT[®] Composite scores.

Summary of Key Findings

- The MRI was a significant predictor of college enrollment even when controlling for parent income, high school GPA, and ACT scores.
- MRI scores were positively related to enrollment. This is apparent from Figure 1, which shows the percentage of individuals at each MRI quartile who enrolled versus who did not enroll.
- Statistical modeling revealed that an MRI score increase of one standard deviation was associated with a 19% increase in the odds of enrolling.

Method

Complete data were available for 1,572 individuals tracked by the National Student Clearinghouse (NSC). The measures and variables used in analyses were as follows:

- While in high school during the 2018–2019 school year, students took the Mosaic[™] by ACT[®] Social Emotional Learning Assessment (ACT, 2021). The assessment measures the five SE skills listed and described below. Included in the Mosaic SEL Assessment reporting is the MRI, a weighted average of a subset of items from each of these scales that estimates the likelihood of students' academic readiness, which we define as a combination of ACT scores, high school grades, and rigor of high school coursework. This level of academic readiness is associated with other academic outcomes like first-year college GPA and likelihood of obtaining a college degree (for a detailed description of the development of the MRI, see Allen et al., in press).

- *Sustaining Effort* describes the extent to which a student's actions demonstrate persistence, goal striving, reliability, dependability, and attention to detail.
- *Getting Along with Others* describes the extent to which a student's actions demonstrate collaboration, empathy, helpfulness, trust, and trustworthiness.
- *Maintaining Composure* describes the extent to which a student's actions demonstrate stress management, emotional regulation, a positive response to setbacks, and poise.
- *Keeping an Open Mind* describes the extent to which a student's actions demonstrate creativity, inquisitiveness, flexibility, open-mindedness, and embracing diversity.
- *Social Connection* describes the extent to which a student's actions demonstrate assertiveness, influence, optimism, and enthusiasm.
- These high school students also took the ACT, and we analyzed their Composite scores (the average of the English, math, reading, and science scores, each on a 1–36 scale).
- At the time of ACT registration, students provided their demographic information and HS GPA on a 4.0 scale. We used parent income as an indicator of SES. Individuals from households with higher SES are more likely to obtain a bachelor's degree or higher (National Center for Education Statistics, 2015). Students reported their parents' combined gross income on a nine-point scale ranging from less than \$24,000 to more than \$150,000.
- We obtained NSC data, which allowed us to determine whether the students enrolled in a postsecondary institution in the year following their high school graduation. This was a binary variable (not enrolled vs. enrolled). In this sample, 70.7% enrolled.

Analyses and Results

We first examined mean-level differences between enrolled and not enrolled individuals on parent income, HS GPA, ACT Composite scores, and MRI scores. The two groups differed significantly on all variables. That is, enrolled students had significantly higher parent income, HS GPA, ACT Composite scores, and MRI scores (Table 1). The mean differences expressed as standardized effect sizes ranged from .50 to .63 standard deviations.

Table 1. Mean-Level Differences Between Individuals Enrolled and Not Enrolled

| Variable | Enrolled <i>M</i> (<i>SD</i>) | Not Enrolled <i>M</i> (<i>SD</i>) | <i>t</i> | <i>d</i> |
|---------------------|------------------------------------|--|----------|----------|
| Parent income | 5.56 (2.61) | 4.26 (2.56) | 9.02* | .50 |
| HS GPA | 3.53 (.50) | 3.15 (.72) | 11.86* | .61 |
| ACT Composite score | 22.60 (5.10) | 19.36 (5.23) | 11.41* | .63 |
| MRI score | .29 (1.13) | -.32 (1.28) | 9.34* | .51 |

Note. * = $p < .01$, $df = 1,570$. On the parent income scale, values of 4, 5, and 6, respectively, indicate salaries of about \$50,000 to \$60,000, about \$60,000 to \$80,000, and about \$80,000 to \$100,000, respectively.

Next, we fit a hierarchical logistic regression model to the data, which allowed us to determine whether the variables were significant predictors of postsecondary enrollment. In step 1, postsecondary enrollment was regressed on parent income, and the model was statistically significant (Table 2). In step 2, HS GPA and ACT Composite scores were entered into the model as predictors. The addition of these two variables significantly improved the fit of the

model, according to the change in χ^2 . That is, the addition of HS GPA and ACT scores increased the ability to accurately identify students as enrolled vs. not enrolled. Finally, the MRI was entered in step 3. Again, the model fit significantly improved with the addition of this variable. Nearly three-quarters (74.6%) of the sample was correctly identified as being enrolled or not based on estimated probabilities. For each instance, if the estimated probability exceeded .50, the case was classified as enrolled. Although this was not a large increase from the 70.7% who enrolled, the model was statistically significant, and all variables' estimated coefficients were statistically significant (Table 3). The MRI standardized odds ratio (OR) was 1.19; with a one-unit increase on the MRI, the likelihood of enrolling in college increases 19%.

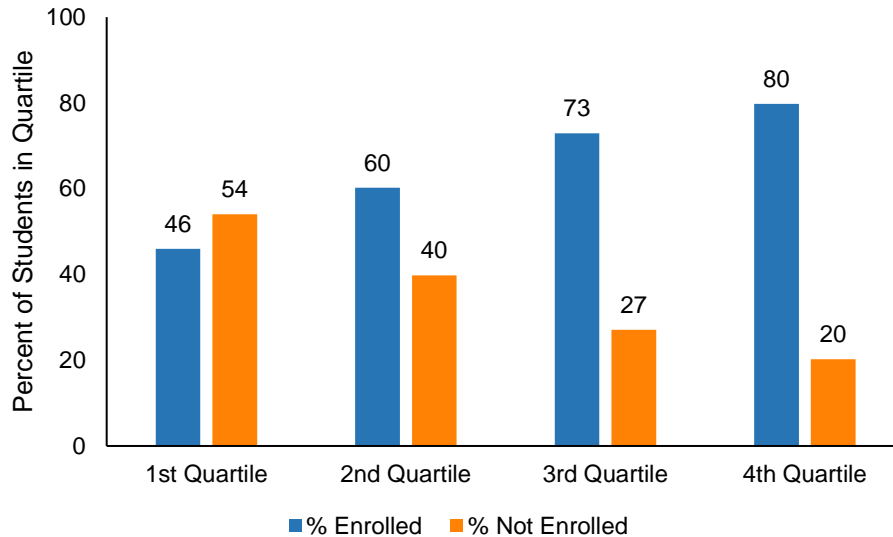
Table 2. Model Fit Statistics

| Predictor Variable(s) | Step | | | Model | | |
|-----------------------|----------------|-------------|----------|----------|----|----------|
| | $\Delta\chi^2$ | Δdf | <i>p</i> | χ^2 | df | <i>p</i> |
| Parent income | — | — | — | 78.63 | 1 | < .01 |
| HS GPA | 99.52 | 2 | < .01 | 178.15 | 3 | < .01 |
| ACT Composite score | 5.41 | 1 | .02 | 183.56 | 4 | < .01 |

Table 3. Final Model Statistics

| Predictor Variable | Wald | df | <i>p</i> | OR | Standardized OR |
|---------------------|-------|----|----------|------|-----------------|
| Parent income | 19.53 | 1 | < .01 | 1.11 | 1.33 |
| HS GPA | 16.63 | 1 | < .01 | 1.66 | 1.40 |
| ACT Composite score | 12.93 | 1 | < .01 | 1.06 | 1.37 |
| MRI score | 5.41 | 1 | .02 | 1.14 | 1.19 |

Students were classified as scoring in the first (bottom 25%), second (second 25%), third (third 25%), or fourth (top 25%) quartile on the MRI. Figure 1 shows the percentage of individuals at each quartile of the MRI who enrolled versus who did not enroll. The figure clearly demonstrates that the likelihood of enrollment increased as MRI scores increased.

Figure 1. Student Enrollment Status by Mosaic Readiness Index Quartile

Conclusion

Higher levels of educational attainment are linked to higher employment rates and higher earnings (Institute of Education Sciences, 2022). Therefore, it is critical to consider all factors that influence students' educational paths, particularly those that are malleable. SE skills, by definition, "can be developed through formal and informal learning experiences" (Organisation for Economic Co-operation and Development, 2015, p. 34). SEL programming has been shown to effectively develop SE skills and has many positive short-and long-term outcomes (Mahoney et al., 2018).

Consistent with prior research, in this sample, students who reported higher household income and higher HS GPA and who scored higher on the ACT and MRI were more likely to enroll. Importantly, the findings from the current study demonstrate that SE skills predict future higher education enrollment. The MRI, our single SE skill indicator, was a significant predictor of enrollment even after controlling for parent income, HS GPA, and ACT scores, all of which are known to be associated with educational attainment (and was confirmed here). Our model only considered the incremental direct effect of SE skills on college enrollment. Given that SE skills also influence HS GPA and ACT scores (e.g., Steedle, 2020), the total effect of SE skills on college enrollment is likely much larger.

Assessing SE skills during high school (and even earlier) helps predict college readiness, and subsequent curricula can enable students to develop skills needed to achieve in high school, reach college, and then achieve in college and beyond.

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