Social and Emotional Skills of 15-Year-Old Students in the Houston Independent School District

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In the fall of 2019, 3,117 15-year-old students in the Houston Independent School District (HISD) participated in the Study on Social and Emotional Skills (SSES), part of an international effort led by the Organization for Economic Co-operation and Development (OECD), with Houston serving as the only U.S. site. **This report provides a snapshot of social and emotional skills of the 15-year-old students surveyed and sheds light on the student populations in need of support at district and campus level.**

Social and emotional (SE) skills refer to the process by which children acquire and effectively apply the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions (OECD, 2015). SE skills can lead to improved outcomes in education, employment, health, and well-being (Kankaraš and Suarez-Alvarez 2019). HISD **students in the 15-year-old cohort varied with respect to their levels of SE skills, having reported higher levels of Tolerance, Curiosity, Creativity, Empathy, Cooperation, and Self-Efficacy than other skills. Substantial variation existed across different groups of students.**

Key Findings[1]

The highest reported student skills were in Tolerance, Curiosity, Creativity, Empathy, Cooperation, and Self-Efficacy.

- Students reported lower levels of Stress Resistance and Trust than other skills.

Variation existed across subgroups.

- Students who were in grade 10 and grade 11 reported higher levels on most subdomains and indices than students who were in grade 9. The vast majority of students in the older cohort were in grade 10.
- Hispanic students reported lower skill levels than other race/ethnicity groups on most subdomains and indices with a few exceptions.
- Students classified as economically disadvantaged, current English learner (EL) students, at-risk students and students classified as in need of special education services generally reported lower levels of subdomains and indices than their counterparts (students who were not classified as these statuses). However, some exceptions were found in Stress Resistance and Optimism.

[1] In this report, an SE skill primarily refers to one of subdomain skills of the five dimensions/domains or any one of the compound skill indices (i.e., Achievement Motivation and Self-Efficacy) under the Big Five taxonomy.

Background

Mounting evidence shows SE skills can lead to improved academic achievement, employment, health, and well-being (see Kankaraš and Suarez-Alvarez 2019). In the fall of 2019, more than 6,400 HISD students participated in the SSES study, an international survey studying the SE skills of 10- and 15-year-old students, led by the Organization for Economic Cooperation and Development (OECD). Their parents, selected teachers, and school principals were also surveyed.[2] This report provides a snapshot of 15-year-old students' social and emotional skills in HISD, and differences in these skills across race/ethnicity, economic disadvantage status, and other student groups at district and campus level.

The "Big Five" Framework

The Big Five framework is a widely used construct in the field of SE learning that emphasizes five general skill domains: Collaboration (agreeableness), Engaging with Others (extraversion), Emotion Regulation (emotional stability), Open-Mindedness (openness to experience), and Task Performance (conscientiousness). Within each domain, different facets or subdomain skills can be identified as seen in Figure 1 (described in the variable section below), which provides a more accurate and concrete description of the personality of each individual. Two additional indices, Achievement Motivation and Self-Efficacy, are composite constructs related to multiple subdomains of the Big Five. For the purposes of all analyses in this series, the authors will be focusing on the 15 subdomains and two additional indices because they provided a more specific understanding of students' SE skills, rather than the broader Big Five domains.

Figure 1. The "Big Five" Domains Framework with Subdomains and Indices

Source: OECD

[2] The SSES study included a parent survey. However, the low parental response rate (10.6 percent of parents of 15-year-old student respondents participated) has led the OECD to recommend not using parental data.

Introduction

The different facets of personality are recognized as key competencies important for a range of life outcomes and general well-being of individuals and societies as a whole. The SSES student self-report survey was designed to align with the Big Five framework and collected information from 10- and 15-year-old students on 15 different facets of their personality, as well as on their achievement motivation and self-efficacy (Figure 1). This level of detail provides a comprehensive snapshot of the SE well-being of students and is important for identifying the traits that are most related to important life outcomes, so that policies can be designed to boost specific skills and provide targeted support to those needing them. (OECD, 2019). (See Appendices I and II for more details about the Big Five framework and definitions for each domain and subdomain.)

Research Questions

To provide a snapshot of the SE skills of the 15-year-old students surveyed and shed light on the student populations most in need of SE skill support at the district and campus level, this brief addresses two research questions:

(1) What are the average social and emotional skills of 15-year-old HISD students?

(2) Do students' SE skills vary by student demographic, socioeconomic, and academic characteristics (such as grade level, gender, race/ethnicity, economic disadvantage status, special education status, at-risk status, and English learner status)?

Data and Sample

Two data sources were used for this brief. The primary data source was the survey responses of 15-year-olds on the survey of SE skills. The secondary data source was the 2019-20 Public Education Information Management System (PEIMS).

The study employed a two-stage stratified sample design. First, eligible schools were randomly sampled. Second, eligible 15-year-old students were randomly selected from the sampled campuses. From the 45 schools sampled for the older cohort, 3,685 students were selected to participate in the survey. After exclusions (requests made by campus coordinators, students or parents), 3,117 students participated in the survey, for a participation rate of 84.6 percent (see Appendix I for more details about sampling). Table 1 summarizes the profile of surveyed 15-year-old students.

Table 1. 15-Year-Old Student Respondents Profile

Student Group	N	Percent
Overall	3071[1]	100
Grade[2]		
Grade 8	5	0.16
Grade 9	579	18.85
Grade 10	2228	72.55
Grade 11	241	7.85
Grade 12	18	0.59
Gender		
Male	1457	47.44
Female	1614	52.56
Race/Ethnicity		
Asian/PI	117	3.81
Black	781	25.43
Hispanic	1984	64.60
White	189	6.15
Economic Disadvantaged Status		
No	627	20.42
Yes	2444	79.58
English Learner (EL) Status		
Not Current EL	2525	82.22
Current EL	546	17.78
At-Risk Status		
No	1071	34.87
Yes	2000	65.13
Special Education Status		
No	2934	95.54
Yes	137	4.46

[1]Analytical samples were finalized based on the following exclusions. Students were excluded if (1) the demographic information was not captured in Public Education Information Management System (PEIMS) 2019-20 data; (2) survey responses were invalid or missing; or (3) identified as American Indian or multiracial.
[2]As shown above, the majority of 15-year-old students in this study were in grade 10.

Variables

Fifteen subdomain skills and two additional indices from the student survey were included in the analysis (Kankaraš and Suarez-Alvarez 2019).

- The subdomain skills of Collaboration (concern for the well-being of others) included:
  - Cooperation (living in harmony with others)
  - Empathy (perspective taking and empathetic concern for others well-being)
  - Trust (assuming that others generally have good intentions)
- The subdomain skills of Engaging with Others (enjoying and excelling in the company of others) included:

- Assertiveness (enjoying leadership, dominance, and assertive behaviors)
- Energy (sustaining vigorous activity throughout the day)
- Sociability (preference for social interactions)

- The subdomain skills of **Emotion Regulation** (having a calm and positive emotionality) included:
  - Emotion Control (keeps their emotions and temper under control)
  - Optimism (positive expectations for self and life)
  - Stress Resistance (effectiveness in modulating anxiety and response to stress)
- The subdomain skills of **Open-Mindedness** (exploring the world of things and ideas) included:
  - Creativity (generating novel ideas or products)
  - Curiosity (interest in ideas and love of learning and intellectual exploration)
  - Tolerance (is open to different points of view, values diversity)
- The subdomain skills of **Task Performance** (getting things done as required and on time) included:
  - Persistence (persevere in tasks and activities, hard to distract)
  - Responsibility (following through with promises to others)
  - Self-Control (ability to control impulses, delay gratification, and maintain concentration)
- Two additional indices:
  - Self-Efficacy (strength of individuals' beliefs in their ability to execute tasks and achieve goals)
  - Motivation (setting high standards for oneself and working hard to meet them)

Student background data, including demographic, socioeconomic and academic characteristics from PEIMS were also included.

- Academic characteristics: grade, EL status, and special education status; demographic characteristics: gender and race/ethnicity; socioeconomic characteristics: economically-disadvantaged status and at-risk status[3]

Analytical strategies

To understand the overall status of SE skills of 15-year-old students at the district level, the first part of this analysis examined the overall district average scores across skills for this group of students. The second part provides visual presentations of the skill distribution by student groups (i.e., grade level, gender, race/ethnicity, economic disadvantaged status, EL status, at-risk status, and special education status at the district level). Due to the complex survey design, Wald tests were utilized to determine whether differences between subgroups were statistically significant. Individual campus-level figures are also available in a separate appendix.

[3] Note: economically-disadvantaged status, EL status, special education status, and at-risk status are referred as classifying characteristics in this brief.

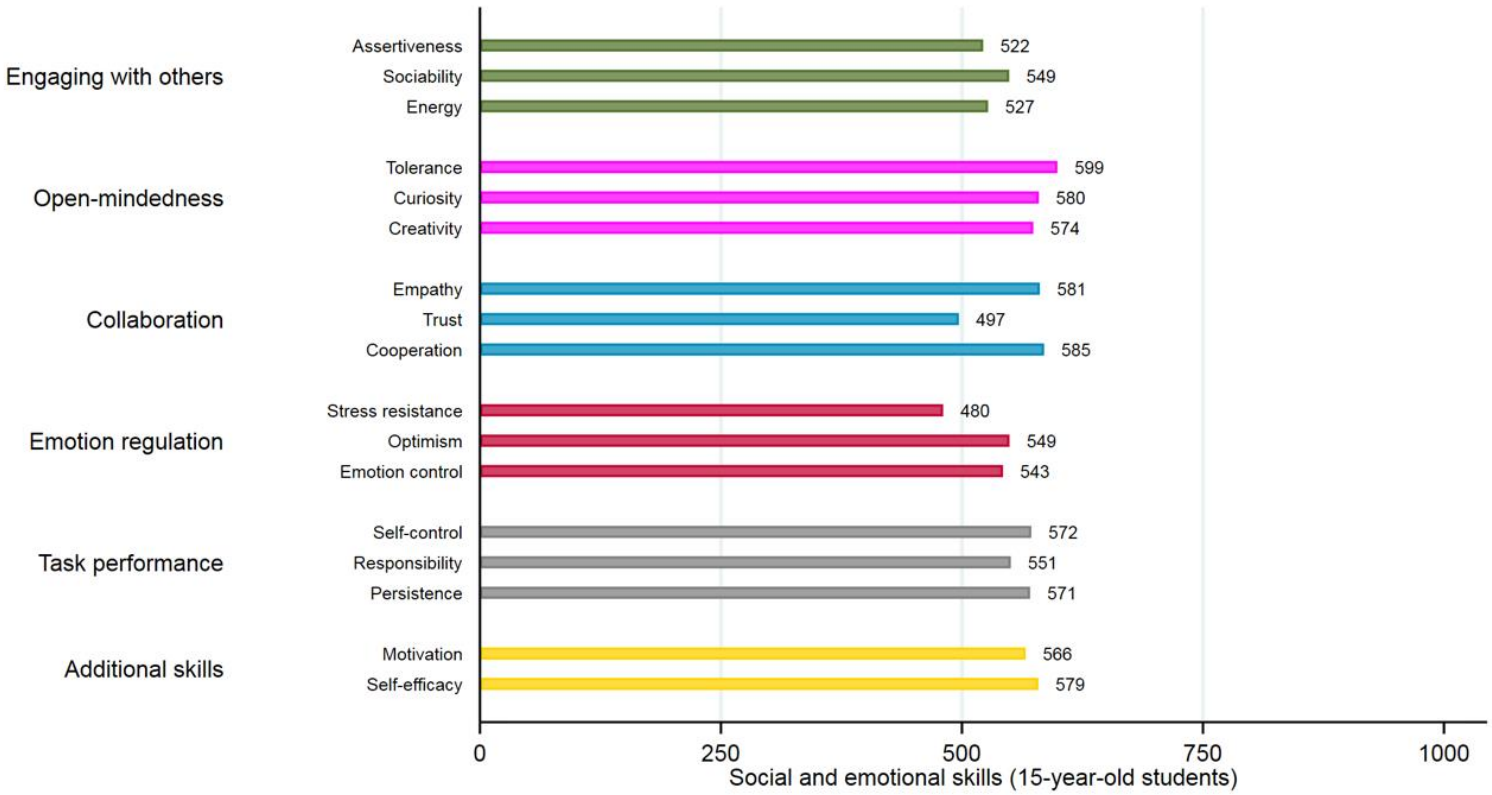
Key Findings

1 The highest reported student skills were in Tolerance, Curiosity, Creativity, Empathy, Cooperation, and Self-Efficacy.

Figure 2 presents the overall district average scores across skills for the 15-year-old students. Variation existed in student-reported skills across the subdomains included in this analysis. In HISD, the subdomains and indices where students exhibited the highest skill levels were Tolerance, Curiosity, Creativity, Self-Control, Responsibility, Persistence, and Self-Efficacy. The subdomains where students exhibited the lowest skill levels were Trust and Stress Resistance.

Though some subdomain skills reflected similar levels within their broader domain, as shown by the colored bars grouping at similar scores (notably those included in the domains of Open-Mindedness – pink and Task Performance – grey), larger differences existed within some other domains (Collaboration – blue and Emotion Regulation – red). Because of the variation within domains, the subsequent and future analyses in this series will focus on scores of subdomains and indices.

Figure 2. District social and emotional subdomain skill averages [1,2]



[1]Average skill scores were calculated based on weighted analytical samples (N = 3,074). Scale scores were estimated after deleting problematic items and standardized to a reporting metric where the scale averages of 500 and the standard deviation of 100 for equally weighted data from all study sites meeting sample participation requirement. Higher value of the score would indicate higher skill level (see Appendix I for more details about deriving scale scores).

[2] Note that domains such as Emotion Regulation and Collaboration demonstrated large within-domain variations. The skills within these domains might be quite distinct. Further analyses will focus on sub-domains to help get a fuller picture on how students are doing.

2 Variation existed between subgroups.

This section examines how SE skills are distributed across groups of students according to students' grade level, gender, race/ethnicity, economically-disadvantaged status, EL status, at-risk status and special education program enrollment status.

Variation by **Grade Level**[4]

As noted above, the SSES is an age-based study. Surveyed 15-year-old students came from a variety of grade levels (grade 8 to grade 12). Survey respondents in grade 10 were considered "on grade level", students in grades 8 and 9 were considered below grade for their age, and students in grades 11 and 12 were considered above grade for their age. As shown in Figure 3, large variations were found between grade 8, grade 12, and other grade levels. Generally, students who were on grade or above grade for their age reported higher levels on subdomains and indices than students who were below grade, except for Energy and Stress Resistance. Differences by grade level were not significant in Optimism.

Variation by **Gender**

Figure 4 shows variation by gender across SE subdomains and indices. For the cohort of students included in this study, male respondents reported significantly higher levels of Assertiveness, Sociability, Energy, Trust, Stress Resistance, Optimism, and Emotion Control than female respondents. However, female students reported higher levels of Tolerance, Curiosity, Empathy, Cooperation, Responsibility, and Motivation than male students.

Variation by **Race/Ethnicity**

Significant differences were also detected across race/ethnicity groups[5]. As shown in Figure 5, Asian/Pacific Islander students reported higher levels on many subdomain skills and indices, such as Sociability, Tolerance, Curiosity, Empathy, Trust, Cooperation, Emotion Control, Self-Control, Responsibility, Persistence, and Motivation than other race/ethnicity groups. Hispanic students reported lower levels of social and emotional skills than other race/ethnicity groups on most dimensions, but reported higher levels of Optimism. Black students reported significantly higher levels of Assertiveness, Stress Resistance, Optimism, Responsibility, and Self-Efficacy than other race/ethnicity groups. White students reported significantly higher levels of Curiosity, Creativity, and Empathy than other race/ethnicity groups.

Variation by **Economic Disadvantage**

Figure 6 shows the variation between students classified as economically disadvantaged and students not classified as economically disadvantaged. Students who were not classified as economically disadvantaged reported significantly higher levels on most SE subdomains and indices than students who were classified. However, students classified as economically disadvantaged reported significantly higher levels of Energy and Stress Resistance than students not classified as economically disadvantaged.

[4] This study is intended to be representative of 15-year-old students and conclusions drawn about specific grade levels may not be representative of students in that grade. Caution is needed to interpret the scores of grade 8 and grade 12 students due to small sample sizes for these two grade levels.

[5] Because the sample sizes of American Indian and multiracial students were very small, only findings for Black, Hispanic, white, and Asian/Pacific Islander are discussed.

Key Findings

Variation by **Current English Learner (EL) Status**

As shown in Figure 7, students not currently classified as EL reported significantly higher levels of Empathy, Trust, Cooperation, Assertiveness, Sociability, Creativity and Self-Efficacy than current EL students. While current EL students reported significantly higher levels of Stress Resistance, Optimism, Self-Control, Energy and Curiosity than student not currently classified as EL. There were no significant differences between the two groups in Tolerance, Trust, Emotion Control, Persistence, and Motivation.

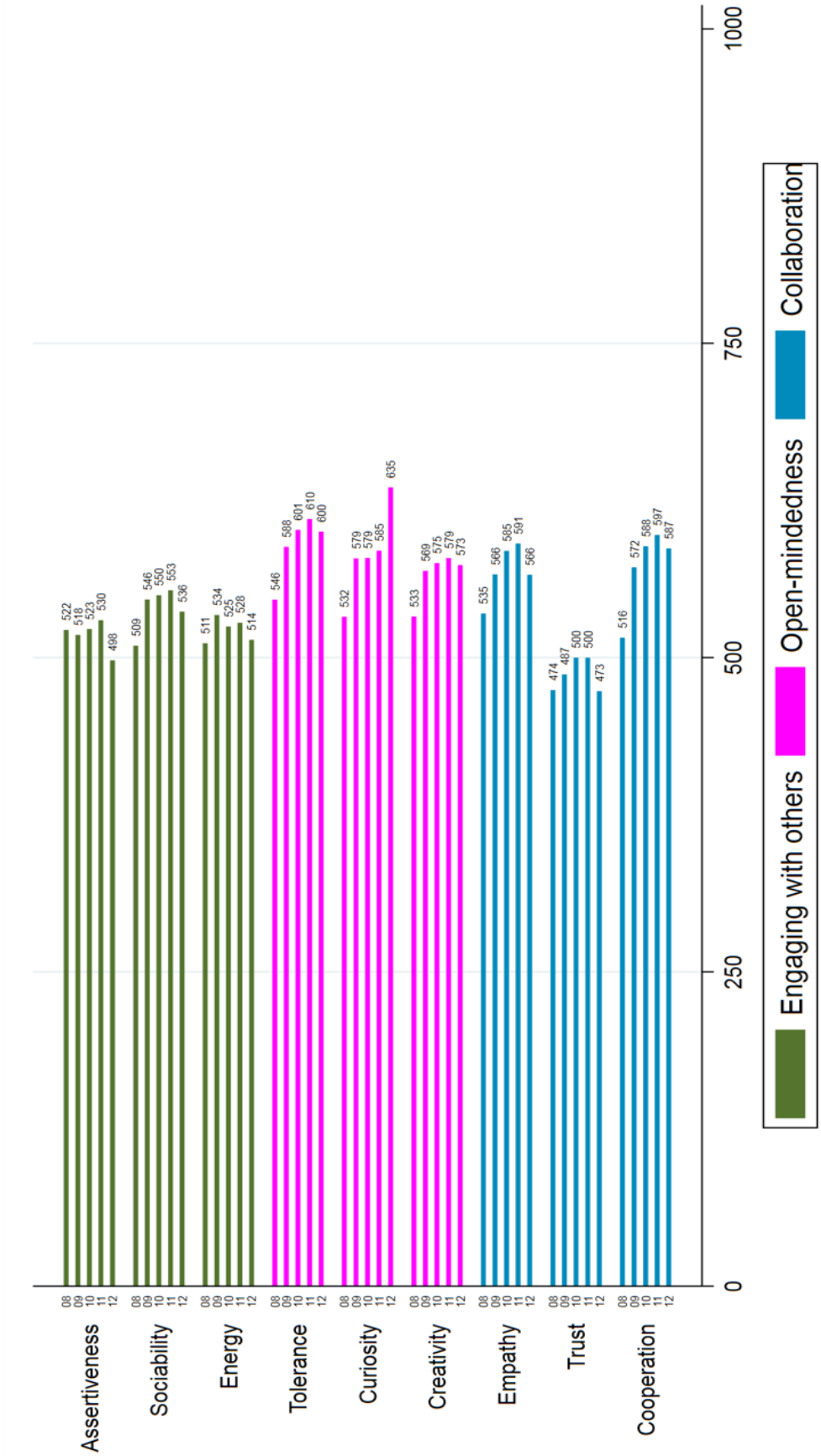
Variation by **At-Risk Status**

Students who did not identify as at-risk reported higher levels of Assertiveness, Sociability, Energy, Tolerance, Curiosity, Creativity, Empathy, Trust, Cooperation, Self-Control, Responsibility, and Persistence skills than at-risk students, as shown in Figure 8. Not-at-risk students also reported significantly higher levels of Emotion Control, Motivation, and Self-Efficacy. However, at-risk students reported significantly higher levels of Stress Resistance, Optimism, and Energy.

Variation by **Special Education Status**

Students who were not classified as in need of special education services or programs generally reported higher levels of SE subdomains and indices than students who were classified, as shown in Figure 9. Students who were classified as special education status, however, reported significantly higher levels of Stress Resistance than those who were not classified. There were no significant variations between the two groups in Trust and Optimism.

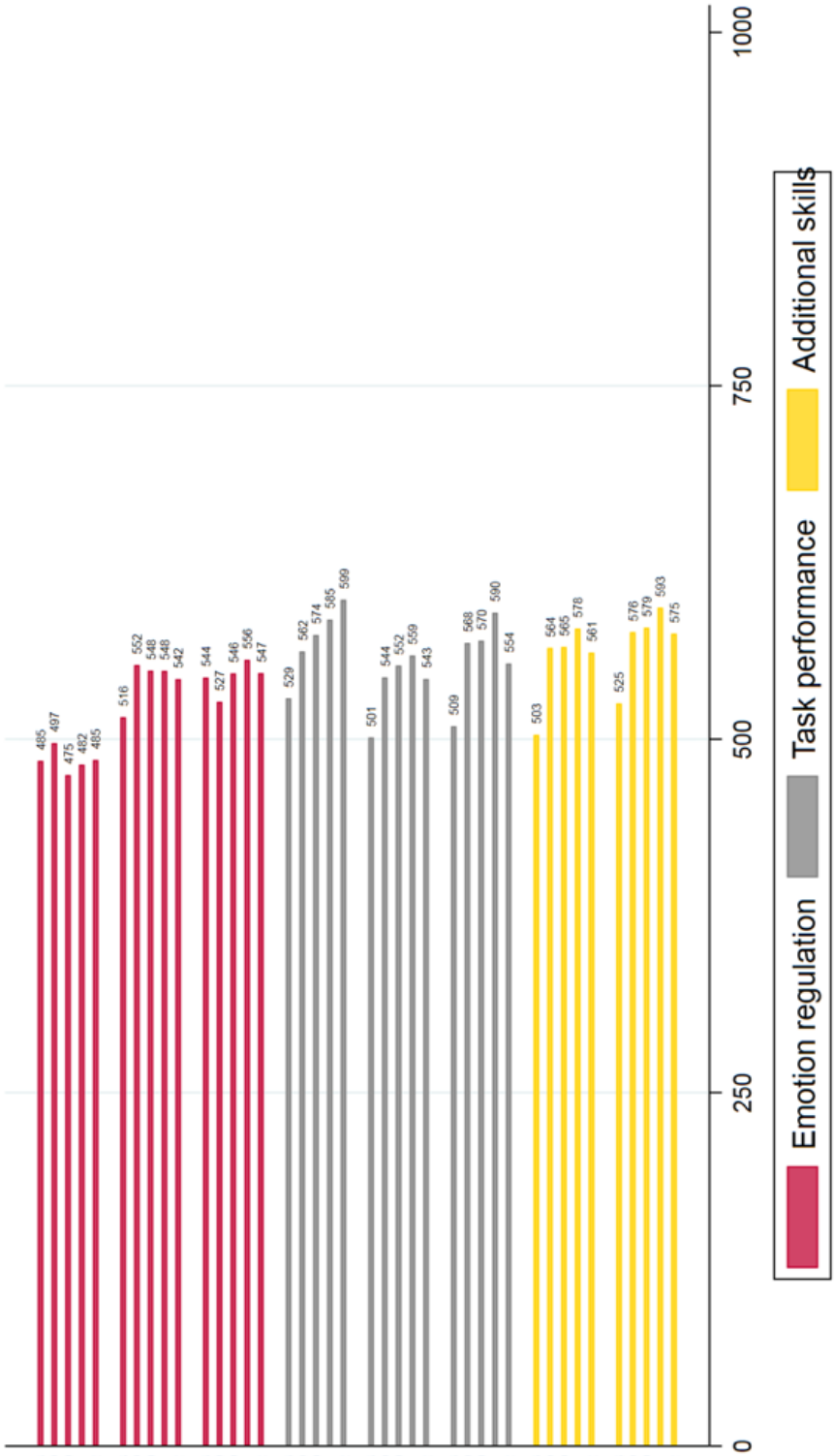
Figure 3. Subdomain Skills and Indices by Grade Level



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

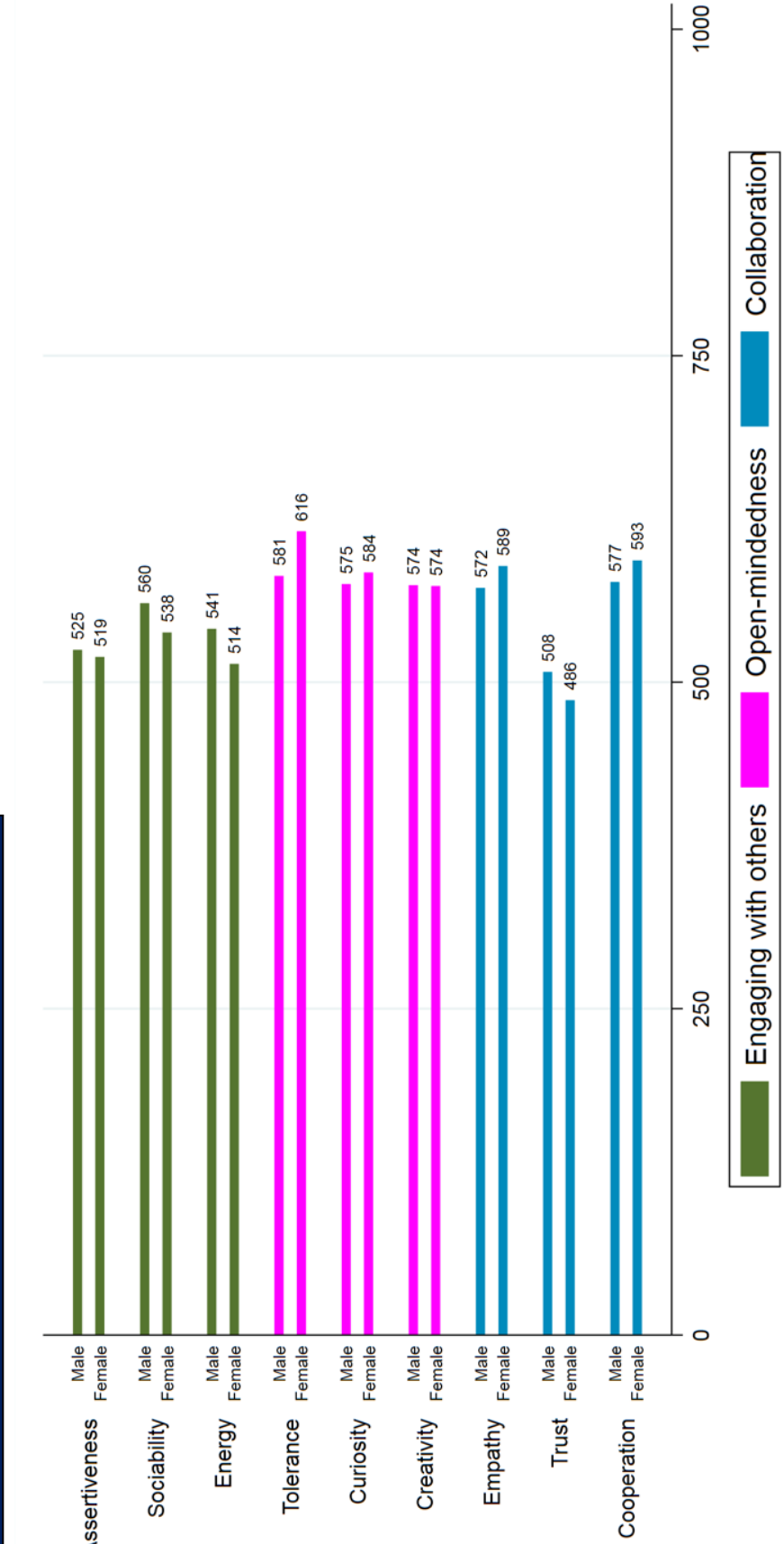
Figure 3. Subdomain Skills and Indices by Grade Level (cont.)



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

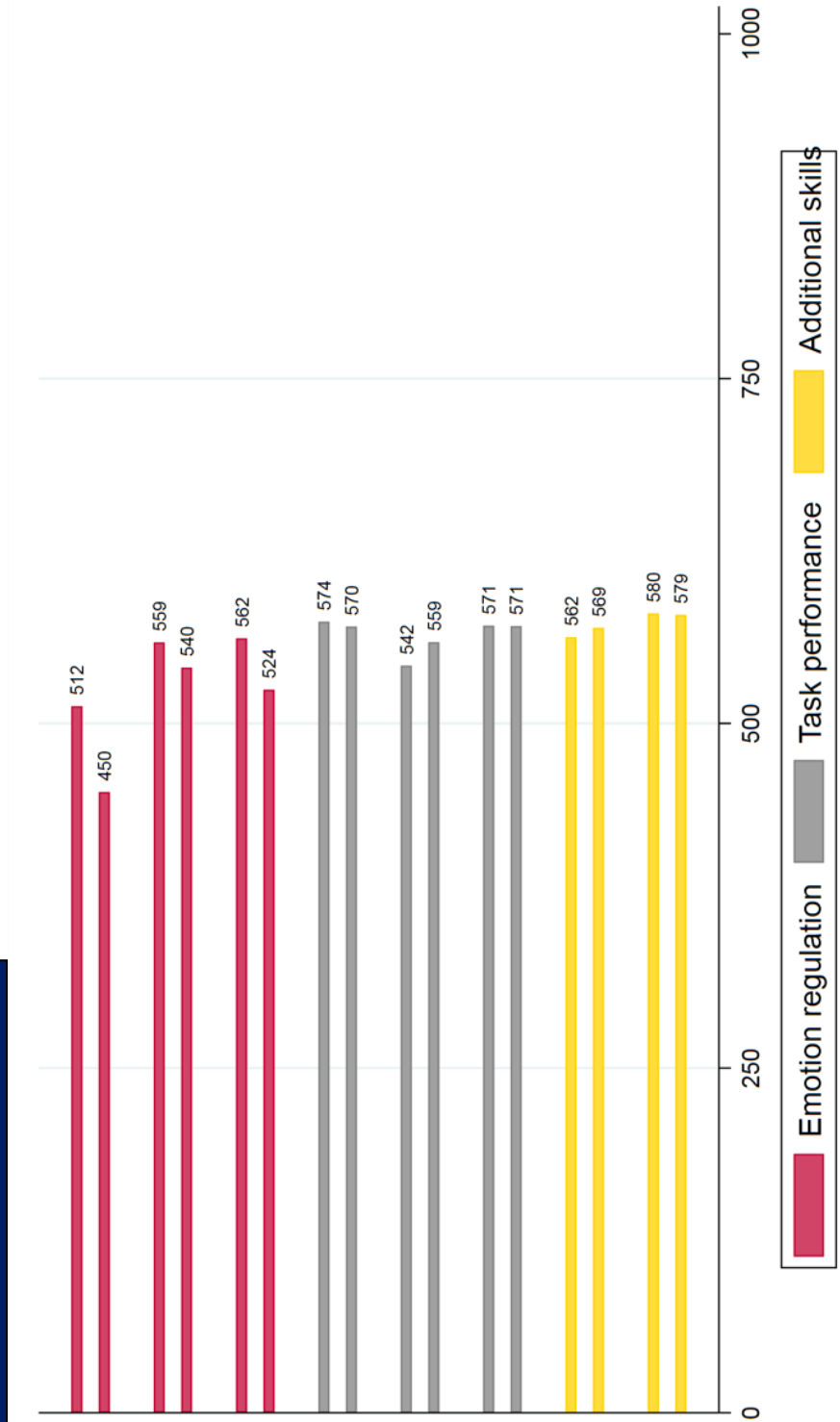
Figure 4. Subdomain Skills and Indices by Gender



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

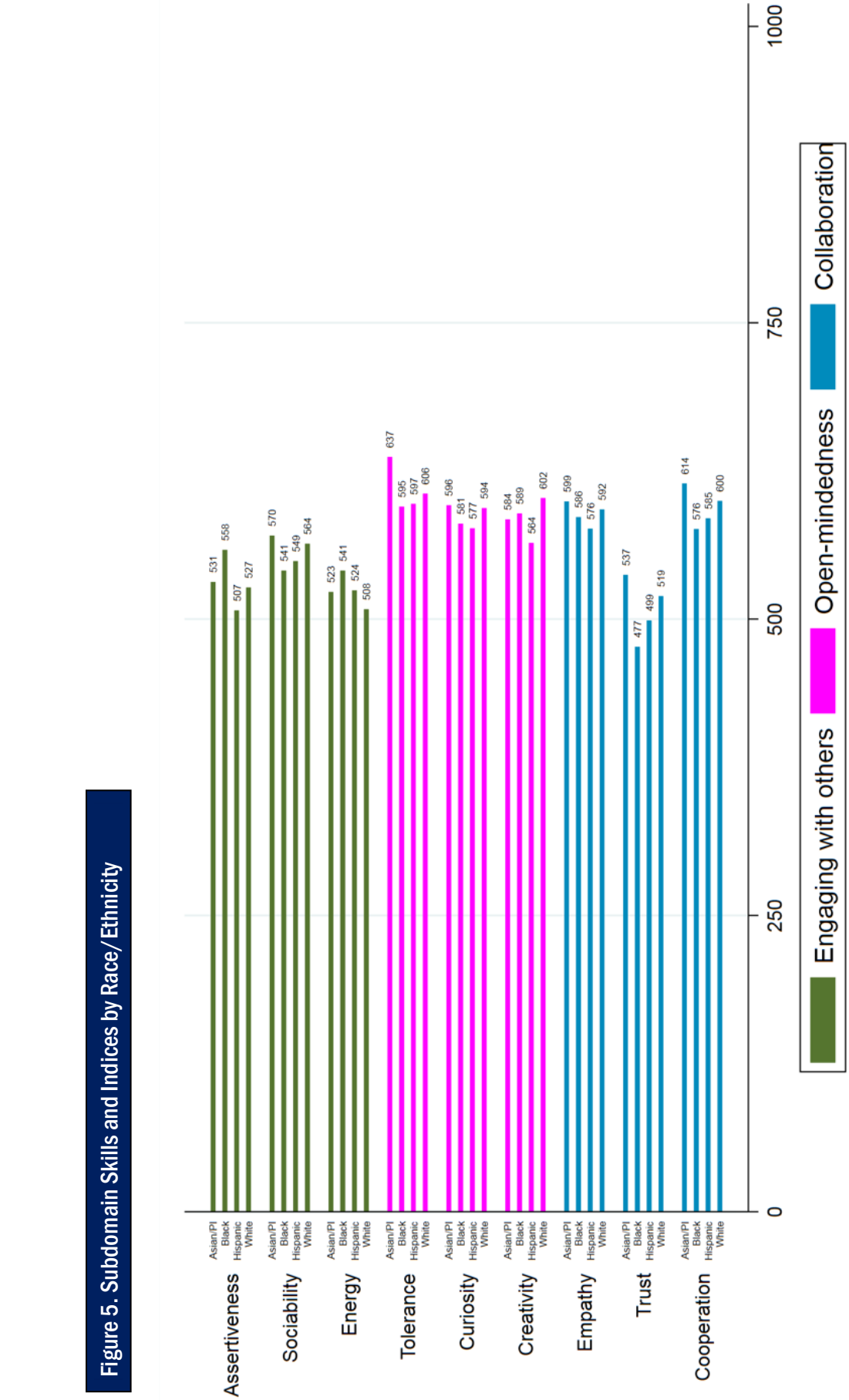
Figure 4. Subdomain Skills and Indices by Gender (cont.)



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

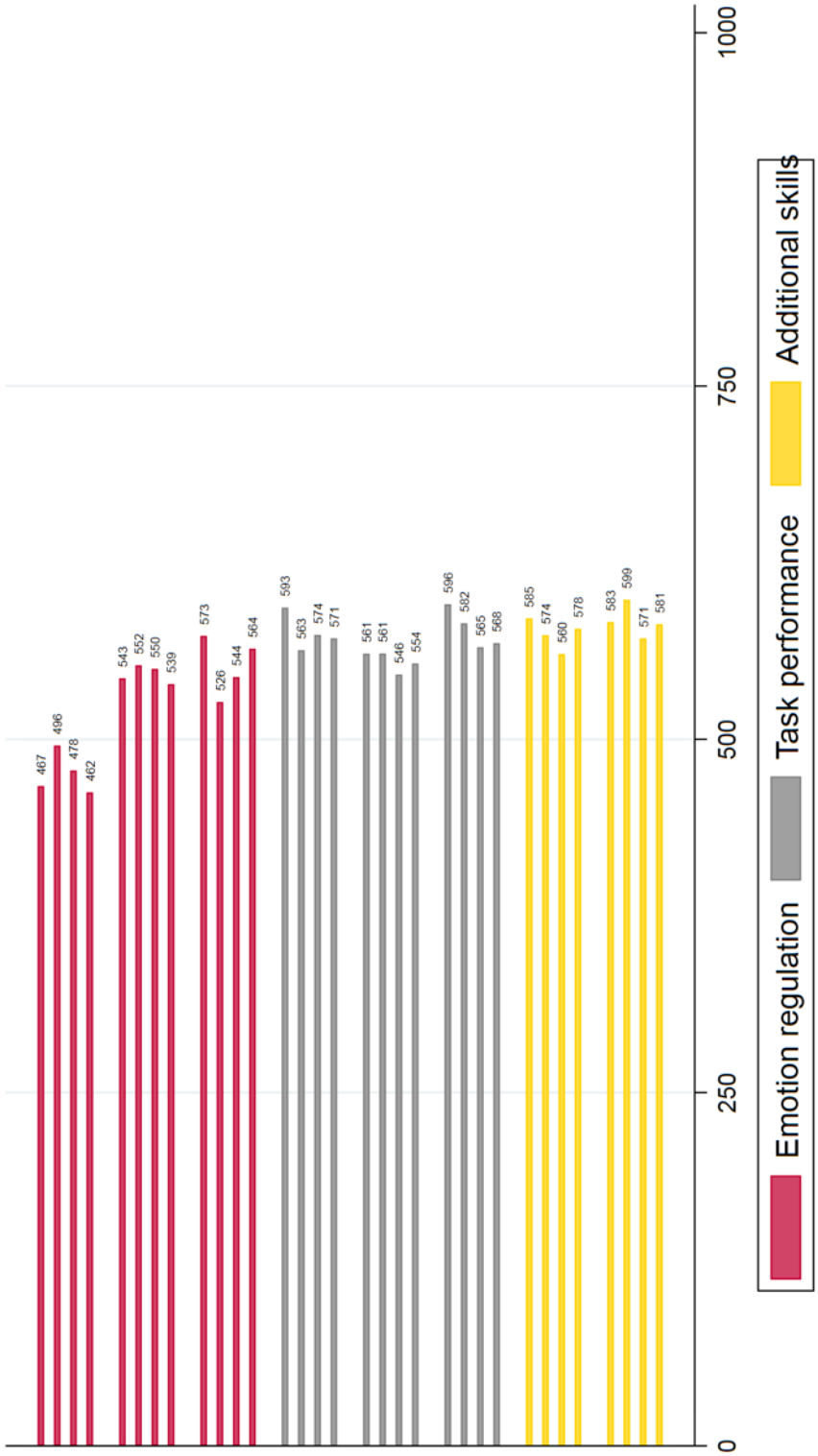
Figure 5. Subdomain Skills and Indices by Race/Ethnicity



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

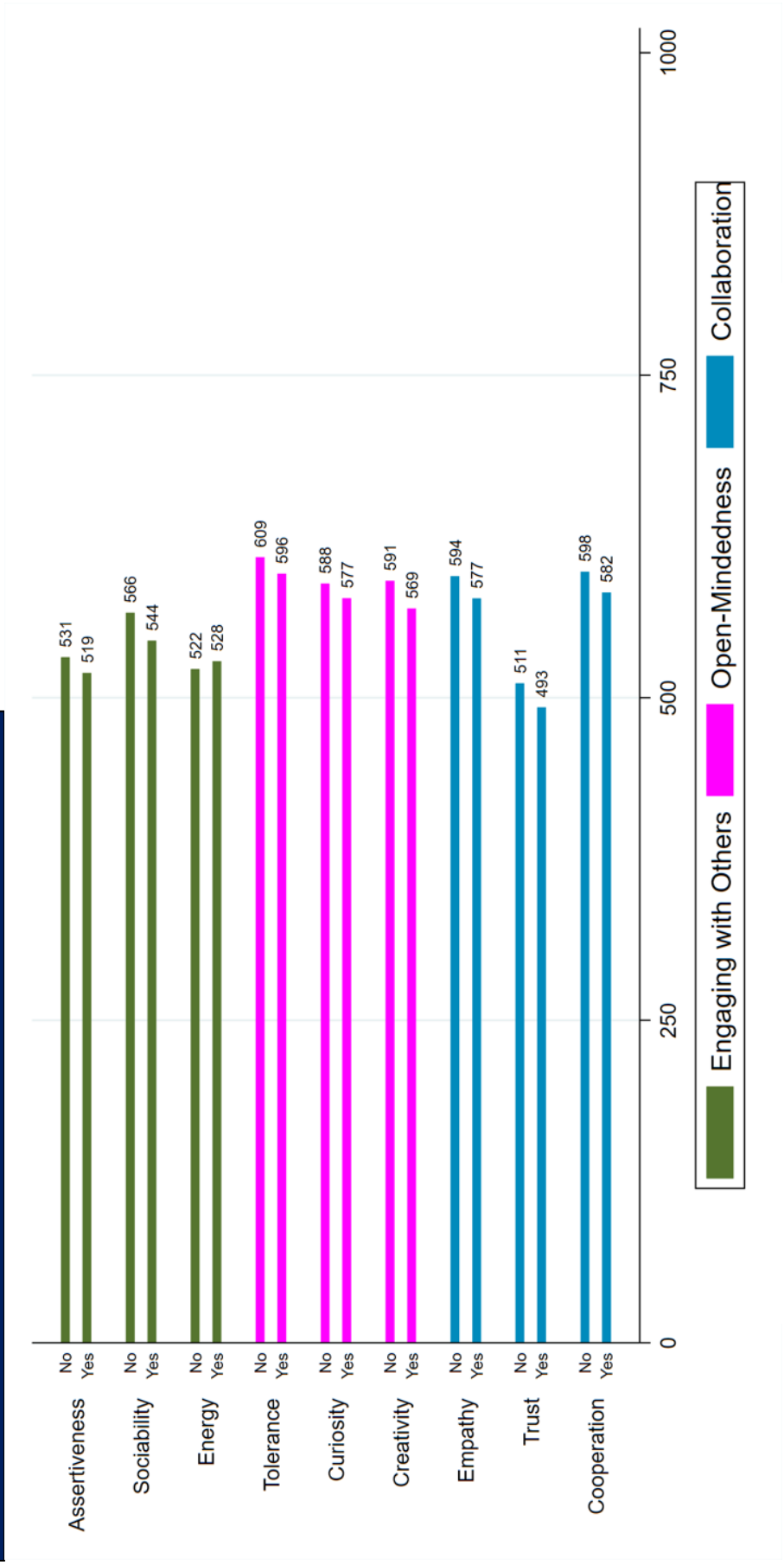
Figure 5. Subdomain Skills and Indices by Race/Ethnicity (cont.)



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

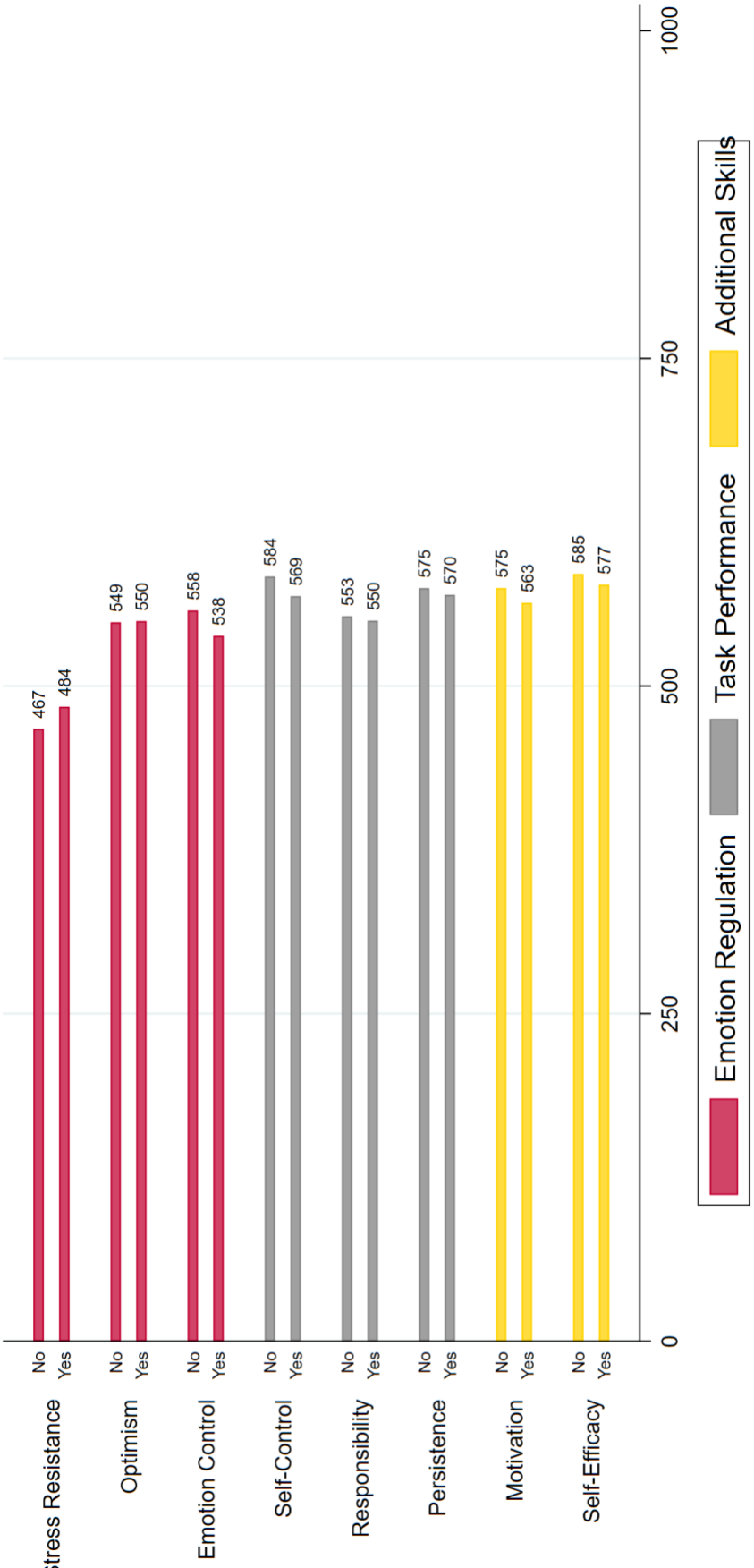
Figure 6. Subdomain Skills and Indices by Economic Disadvantaged Status



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

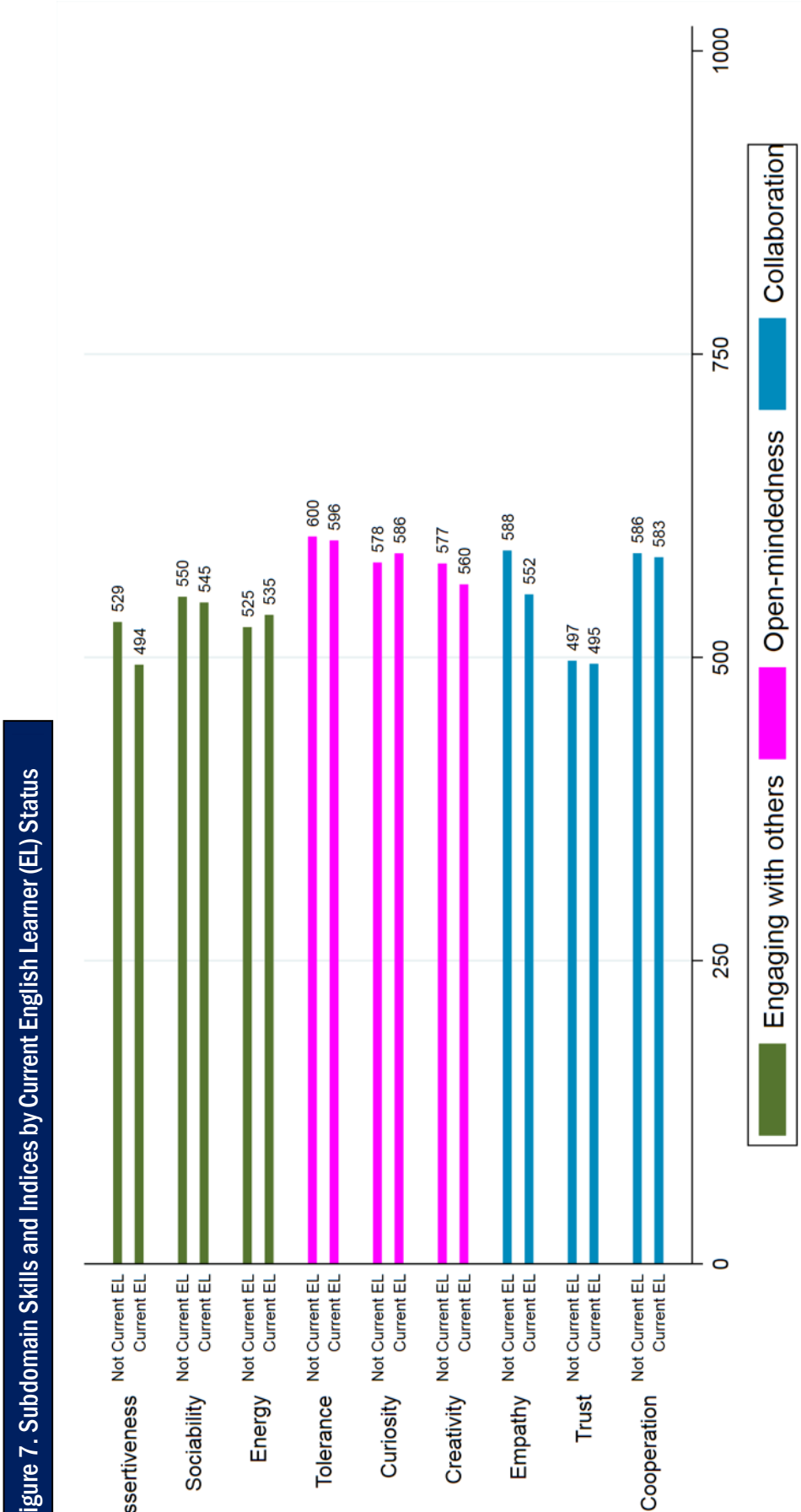
Figure 6. Subdomain Skills and Indices by Economic Disadvantaged Status (cont.)



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

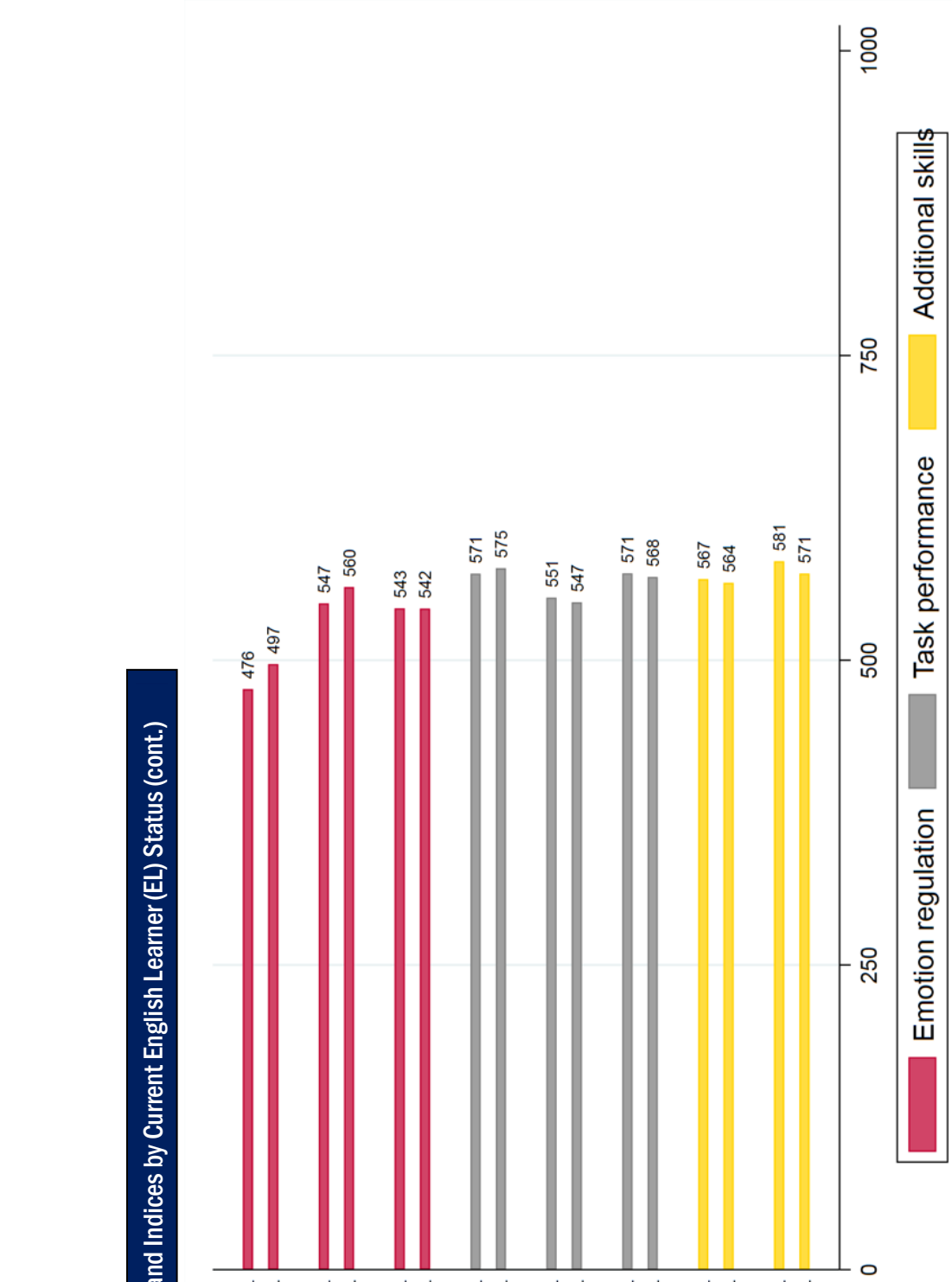
Figure 7. Subdomain Skills and Indices by Current English Learner (EL) Status



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

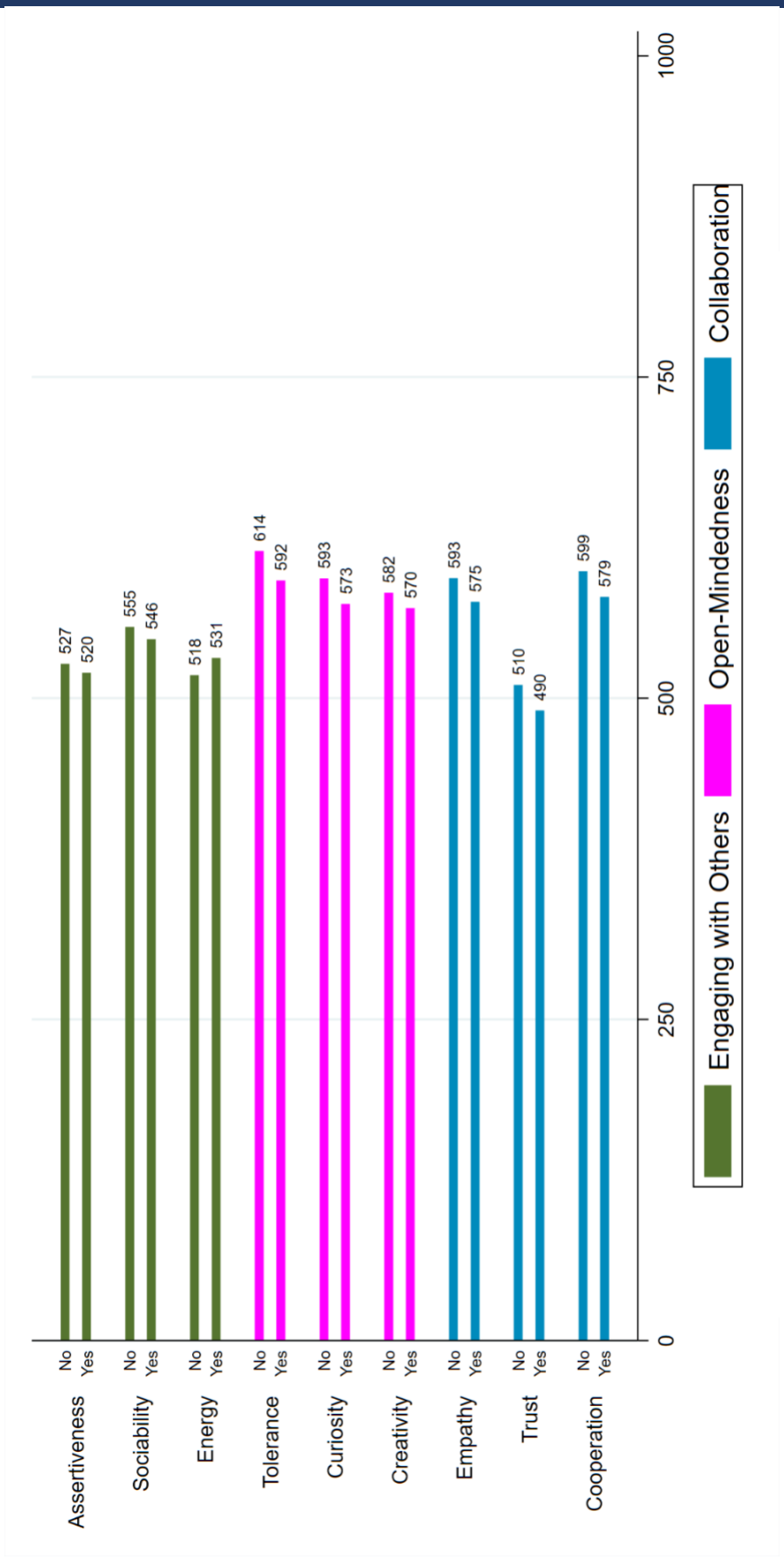
Figure 7. Subdomain Skills and Indices by Current English Learner (EL) Status (cont.)



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

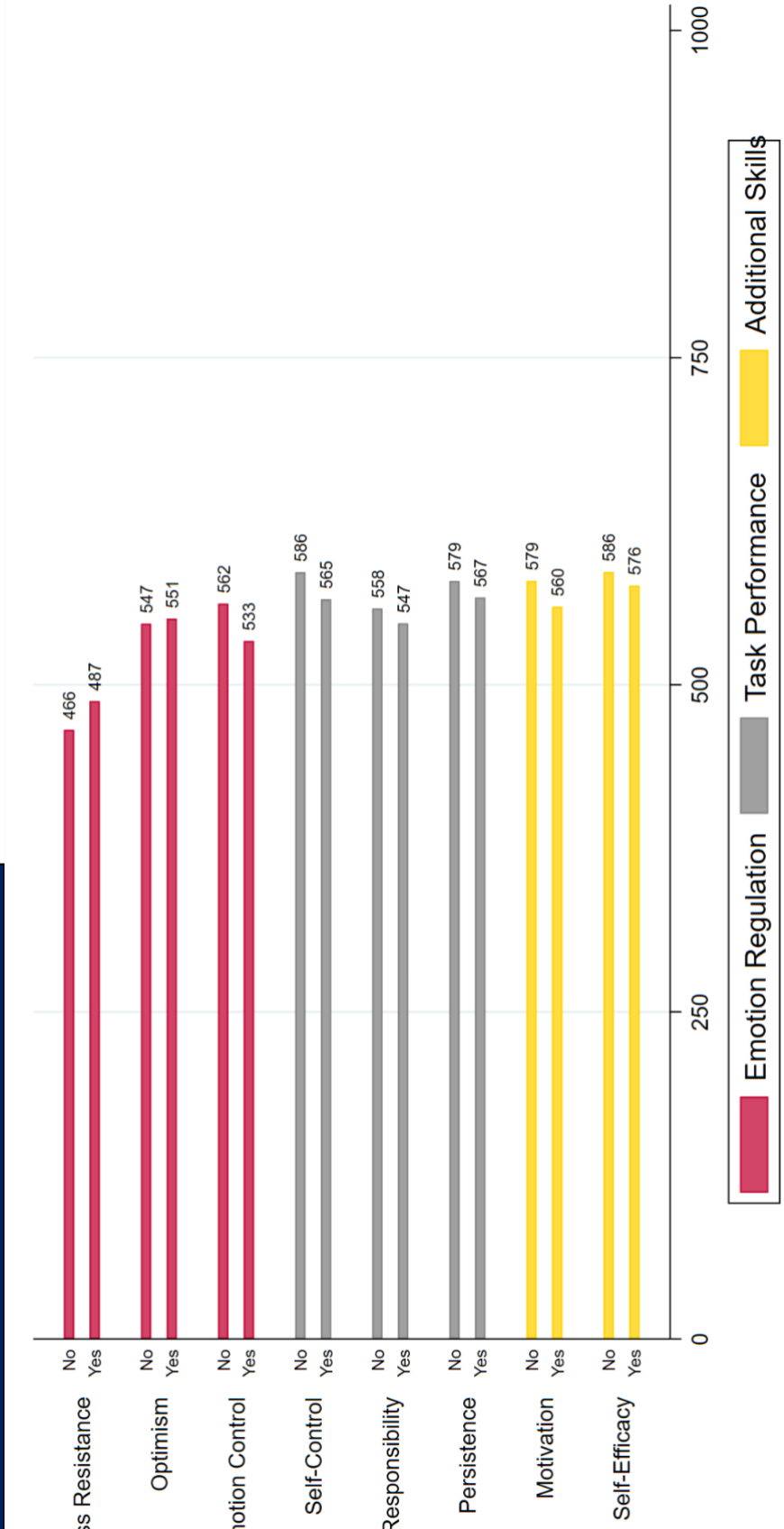
Figure 8. Subdomain Skills and Indices by At-Risk Status



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

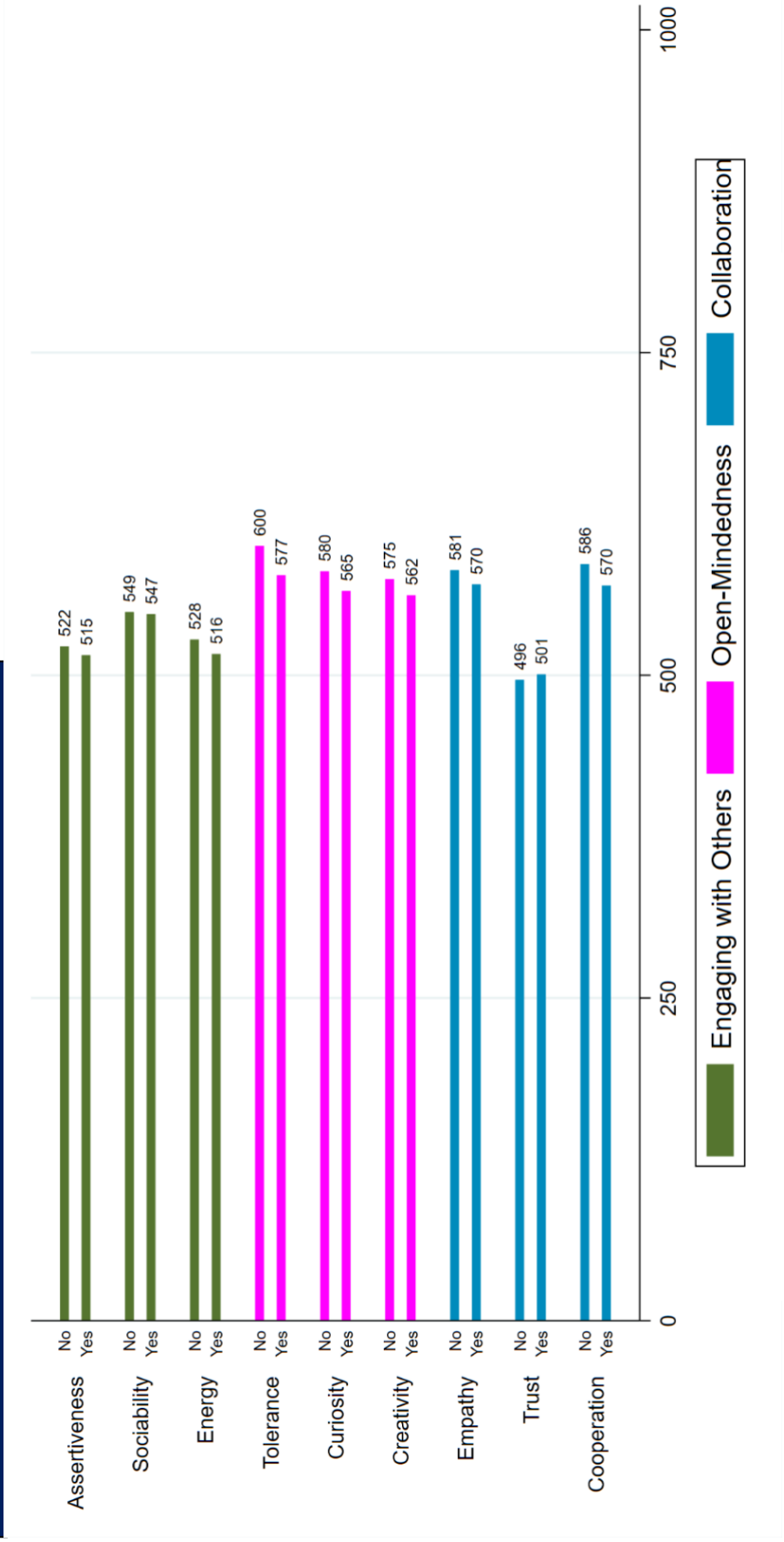
Figure 8. Subdomain Skills and Indices by At-Risk Status (cont.)



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

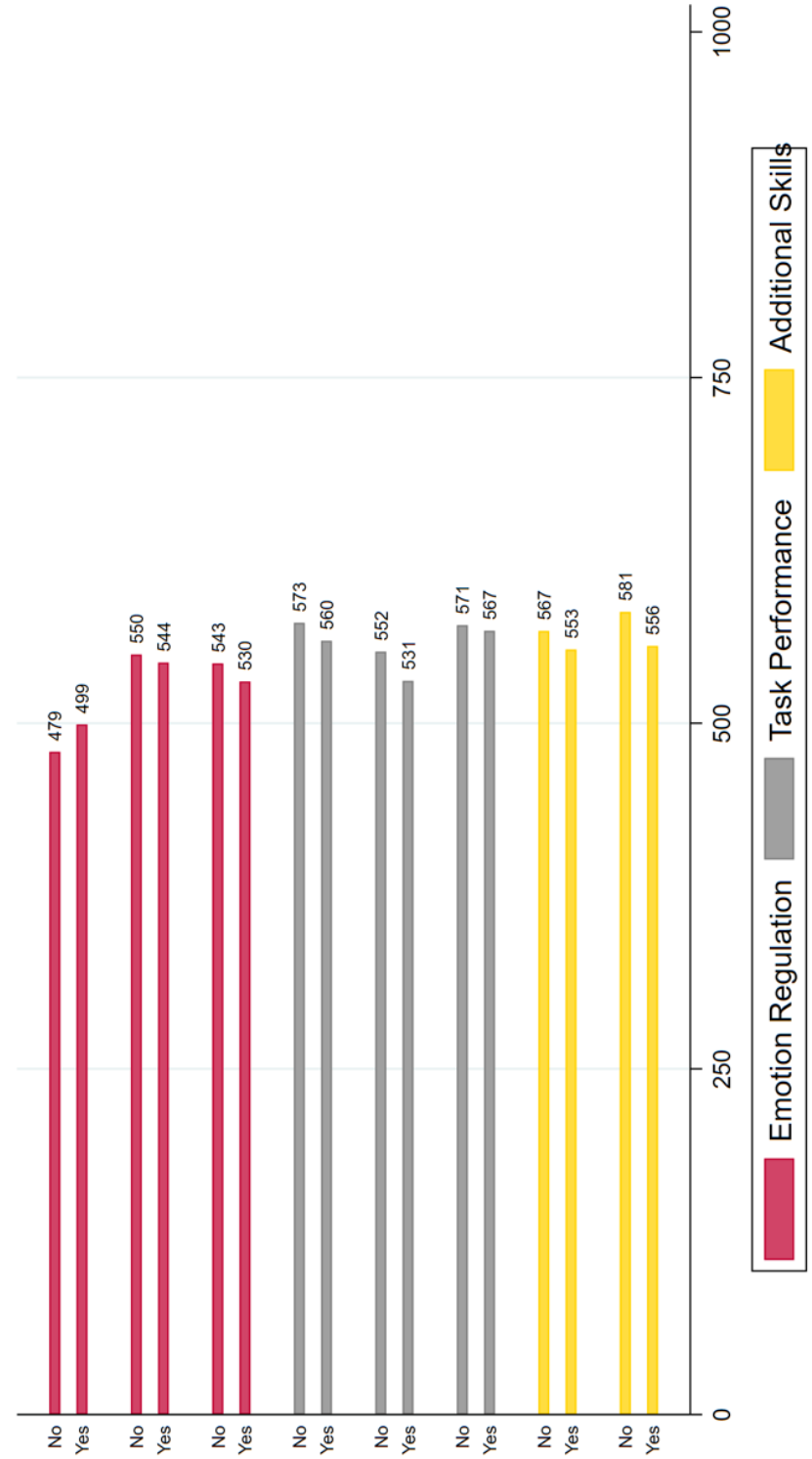
Figure 9. Subdomain Skills and Indices by Current Special Education Status



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

Figure 9. Subdomain Skills and Indices by Current Special Education Status (cont.)



Note: Significant differences between groups were discussed in text. For more detailed results please contact authors.

Source: OECD SSES Houston data.

Conclusion

The purpose of this report is to provide information on the SE skills of the 15-year-old HISD students and shed light on student populations in need of SE skill support. Compared to other subdomains and indices, students reported higher levels of Tolerance, Curiosity, Creativity, Self-Control, Responsibility, Persistence, and Self-Efficacy, while they reported lower levels of Trust and Stress Resistance. Because of the variations within the Big Five domains, interpreting the scores of Big Five subdomains and indices allowed a more concrete understanding of students' SE skill levels.

Student SE skills varied across subgroups. Students who were in grades 10 and 11 generally reported higher levels on most subdomains and indices than students who were in grade 9, except for Energy and Stress Resistance. With regards to race/ethnicity differences, Hispanic students generally reported lower than other race/ethnicity groups. Students who were classified as economically disadvantaged, current English learners (EL), at-risk students and students who were classified as in need of special education generally reported lower on most subdomains and indices than their counterparts, with some exceptions. Students who were classified as qualifying statuses or in need of services reported higher levels of Stress Resistance or Optimism than students who were not.

Recommendations

Campus Level

- **Each campus should consider creating an inventory of current practices and capacity around supporting student social and emotional skills and development, particularly around trusting others and stress resistance.** In addition to helping all staff members on a campus understand what resources are available, including counselors or other support staff, it provides an opportunity for the district's Social and Emotional Learning Department to understand the range of supports available at campuses and which campuses may benefit from additional support.

District Level

- **Consider creating a list of all supports available through the Department of Social and Emotional Learning.** A list of resources that aligns with the Big Five subdomains and indices can help each campus identify the resources that are available based on the specific needs of their students as provided in supplemental campus reports.
- **Provide strategies for students for dealing with stress and developing trust.** As reported levels of Stress Resistance and Trust in fall 2019 were among the lowest of all subdomains and indices, we recommend highlighting or enhancing existing opportunities for supporting students in these areas.
- **Ensure district-wide SE learning (SEL) standards and goals are clearly articulated and understood by all stakeholders.** Much like academic standards, SE skill development begins in pre-K and continues through high school graduation, so districtwide implementation of SE learning would facilitate continuity and growth across a student's HISD career (Kendziora and Yoder 2016). The Collaborative for Academic, Social, and Emotional Learning (CASEL) has partnered with Austin ISD to offer aligned efforts through vertical teams across elementary, middle, and high schools, offering equity-centered SEL through weekly instruction and support strategies. Further, established SEL standards allow for district level planning to systematically support the

development of these skills (Zins and Elias 2007). Though in some places this is happening at the state level (such as Illinois), there are opportunities to also set goals at the district-level in HISD as has been done in Austin ISD and Anchorage, Alaska.

Future Studies

To better understand the context of SE skills of HISD students, future studies in this series will further investigate:

1. the relationship between SE skills and students' academic and behavioral outcomes
2. the relationship between the contextual factors at school, family, peer, and community levels and SE skills among students, and
3. teachers' reports of students' SE skills.

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I. Technical Standards

Big Five Framework

The Study on Social and Emotional Skill (SSES) drew on the Big Five Model as a framework for measuring SE skills, incorporating 15 specific social and emotional subdomain skills and grouped into 5 broad dimensions (or domains) – Task Performance (also known as conscientiousness), Emotional Regulation (also known as emotional stability), Collaboration (or agreeableness), Open-Mindedness (or opening to experiences) and Engaging with Others (extraversion). Within each domain, different facets could be identified, which provided a more accurate and fine-grained description of the personality of each individual. Big Five domains were in a way designed to capture independent aspects of personality. In addition, two indices were created based on items contained in these domains: Achievement Motivation and Self-Efficacy. The domains were widely recognized as key competencies important for a range of life outcomes and general well-being of individuals and societies as a whole. The combination of these domains, subdomains and indices provided the basis for a comprehensive snapshot of the social and emotional well-being of 10- and 15-years old students (OECD, 2019).

Sampling

The sampling process adopted a two-stage stratified design. The first-stage sampling units were individual schools that had 15-year-old students. Schools were sampled systematically from a school sampling frame, with probabilities that were proportional to a measure of size. The second-stage sampling units were 15-year-old students who attended to the schools selected in the first-stage of sampling. There were 45 schools and 3,685 students sampled with this sampling approach. A passive consent method was employed. After exclusions (requests made by campus coordinators, students or parents), 3,117 students from 45 schools participated in the survey, for a participation rate of 84.6 percent. For more details about sampling, please contact the authors.

Data Collection

In fall 2019, a random sample of students along with their teachers, parents, and school principals were surveyed. One parent and one teacher per student were asked to fill out a survey linked to the participating student, providing triangulated data related to SE skills. Student, parent and teacher surveys were designed with two parts. The main student survey directly measured SE skills while the student contextual survey asked questions pertaining to themselves, their home, their parents and guardians, their well-being, attitudes and aspirations, their relationships with parents and friends, their school life and their perceptions of SE skills. All parents of sampled students were invited to complete a set of questions related to the student, which provided an indirect measure of the student's SE skills. Parents were also asked about their home background, details about their child's preschool attendance, their relations with other groups of people, the well-being and skill profile of the parent and their perceptions of their child's SE skills. The teacher survey gauged teacher feedback on student SE skills, and also asked a series of questions relating to themselves, their school, their role as a teacher, and the individual classes and subjects for which they were responsible. Principals were asked questions pertaining to themselves as the principal of the school, the school itself, including access to facilities and resources, and the

teaching staff. The survey was administered in a secure online format (and was also available in a paper format for parents).

HISD asked principals from the sampled schools to nominate a staff contact person who was responsible for organizing the survey logistics at their school (e.g., securing a classroom or computer lab and bringing students to the survey administration). This staff person, the Campus Survey Coordinator (CSC), linked teachers to sampled students. The CSCs filled out a Student Teacher Linkage Form for their school indicating student-teacher links. Teachers filled out a general survey and also one survey per student that they were assigned by the CSC. HERC and HISD worked together to send out teacher and parent login information (e.g., username and password).

To help coordinate CSCs across the district during the study, HERC hired a District Survey Coordinator (DSC). The DSC helped the CSCs fill out the Student-Teacher Linkage Forms and followed up with each school in preparation for the survey administration.

Score Creation

By design, each subdomain has eight items of measurement. The range of an item is from one to five (a five-point Likert-type scale), capturing the extent to which the respondent agrees or disagrees with a certain skill statement. Each item was scored from zero to four for items with positively worded statements and reverse-scored for the negatively worded ones. Generalized partial credit models were estimated using scored data. All missing responses were treated as missing for calibration and scaling as there are no 'correct' or 'incorrect' answers for this type of rating-scale items that are designed to measure the degree of agreement or disagreement with statements.

Student scales were first calibrated separately by cohort and by study site[6], and the corresponding item and slope parameters were reviewed with regard to their equivalence between cohorts and across sites. Furthermore, the results were used to identify problematic items together with the results from the Confirmatory Factor Analysis (CFA) models in the adjudication of final item sets for measurement. Note that the CFA models were estimated using acquiescence response sets as control variables as part of multiple indicator multiple cause models, which for some items sets showed improved model fit and higher levels of measurement invariance. Acquiescence refers to tendencies among respondents to provide their agreement or disagreement to different positively and negatively worded statements irrespective of the content, wording and direction. A balanced scale in which positively and negatively worded items are paired within scales was used to control for acquiescence (OECD, 2021).

Table 2 summarizes the item deletions in student direct survey for the 15 original predefined scales with eight items per measured construct. Decisions on removing items were based on reviews of several aspects of scaling analysis outcomes as well as the content of items.

[6] Ten sites in ten countries participated in the study globally. Houston, specifically HISD was one of the study sites.

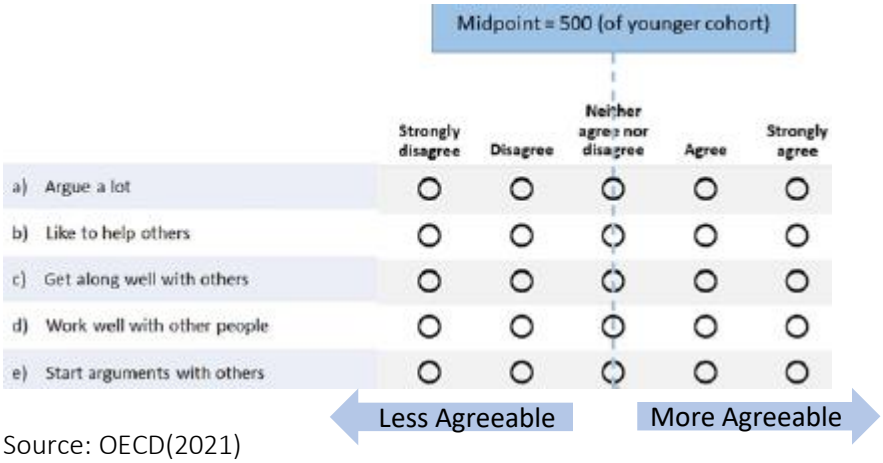
Table 2. Item deletion in direct student survey.

Scale	Number of items kept	Deleted item(s)	Scale	Number of items kept	Deleted item(s)
Assertiveness	7	ASS07	Persistence	7	PER06
Cooperation	7	COO05	Responsibility	6	RES02, RES07
Creativity	6	CRE03, CRE08	Self-efficacy	6	SEL05, SEL06
Curiosity	6	CUR01, CUR03	Sociability	6	SOC06, SOC08
Emotion regulation	7	EMO05	Stress resistance	6	STR06, STR08
Empathy	6	EMP05, EMP08	Tolerance	7	TOL08
Energy	7	ENE07	Trust	6	TRU03, TRU04
Optimism	7	OPT04			

Once the final item sets for each scale had been determined, the final item parameters (location and slope) were estimated for each scale using the combined SSES datasets with equally weighted site data. Weighted Likelihood Estimates (WLEs) were then estimated by anchoring both item location and slope parameters for all respondents, including those from sites that had not been included in the calibration. The weighted likelihood estimates, originally on a logit metric, were transformed (standardized) to a reporting metric where the scale averages of 500 for equally weighted data from sites meeting sample participation requirements reflected the results for students from the 15-year-old cohort who had chosen average mid-points across items in each scale. Similarly, the standard deviation for the combined dataset with equally weighted site data was set to 100 (OECD, 2021).

The standardization procedure was carried out in two steps. In a first step, a linear transformation was applied using the means and standard deviations for each scale among the students from the 15-year-old cohort. The means and standard deviations were computed using the calibration sample with so-called senate weights. In a second step, the average scores for respondents who had on average chosen mid-points across items in a scale were calculated and given as SS_m. Then, for each scale, SS_m was subtracted from 500 and the differences were subsequently added to the initial scale scores SS_n to obtain the final scale scores (OECD, 2012, pp. 21). Final scale scores used for the analyses of this brief were adjusted for acquiescence response sets because calculation of acquiescence response sets (ARS) has been suggested as way of modelling response tendencies for Likert-type items (OECD, 2021). Figure 10 illustrates the relationship between the value of 500 on the reporting scale and the midpoint of responses across an example item set. Table 3 provides descriptive statistics of derived raw scores of the skills.

Figure 10. Illustration of relationship between average midpoint of items and metric.



Source: OECD(2021)

Table 3. Descriptive statistics of subdomains' and indices' scale scores for Houston area respondents.

Subdomain Skill	Mean	Standard Deviation	Minimum	Maximum
Assertiveness	522	85	100	853
Sociability	549	85	178	935
Energy	527	84	118	912
Tolerance	599	93	338	945
Curiosity	580	83	259	870
Creativity	574	85	214	909
Empathy	581	81	237	925
Trust	497	79	173	873
Cooperation	585	84	224	884
Stress resistance	480	103	35	941
Optimism	549	93	148	915
Emotion regulation	543	100	9	1017
Self-control	572	92	144	913
Responsibility	551	80	257	917
Persistence	571	90	180	865
Motivation	566	81	213	900
Self-efficacy	579	91	144	1030

Subgroups Definition

Public Education Information Management System (PEIMS) 2019-20 data was merged with the SSES data to supplement the socio-demographic profile of the students, such as economic disadvantage status, special education status, at-risk status and current EL status. Among these subgroups, students currently enrolled as EL were classified as EL students, without taking consideration of their previous status. Among the 15-year-olds who participated, three students had no PEIMS information, so they were dropped from the subgroup analysis.

II. Description of Domains and Subdomains

The following tables detail the survey items that comprise the assessment of student SE skills in the SSES study. The definition for each sub-domain and further explanation, taken from the OECD Assessment Framework (Kankaraš and Suarez-Alvarez 2019), is presented.

Domain Engaging with others: enjoying and excelling in the company of others	
Sub-domain	**Definition**
Assertiveness	"Enjoying leadership, dominance and assertive behaviors" *This subdomain describes individuals who enjoy being a leader and giving direction.* (Kankaraš and Suarez-Alvarez 2019, p.38)
Sociability	"Preference for social interactions" *This subdomain describes individuals who are friendly, outgoing, and comfortable around others.* (Kankaraš and Suarez-Alvarez 2019, p.38)
Energy	"Sustaining vigorous activity throughout a day" *This subdomain describes individuals who are physically active, energetic, and enthusiastic.* (Kankaraš and Suarez-Alvarez 2019, p.38)

Domain Open-mindedness: exploring the world of things and ideas	
Sub-domain	**Definition**
Tolerance	"Is open to different points of view, values diversity" *This subdomain describes individuals who are interested in new experiences and cultures and appreciate opinions and ideas other than their own.* (Kankaraš and Suarez-Alvarez 2019, p.40)
Curiosity	"Interest in ideas and love of learning and intellectual exploration" *This subdomain describes individuals who have an inquisitive mindset and love learning and understanding new things.* (Kankaraš and Suarez-Alvarez 2019, p.40)
Creativity	"Generating novel ideas or products" *This subdomain describes individuals who are creative problem solvers and have a strong imagination and desire to create new things.* (Kankaraš and Suarez-Alvarez 2019, p.40)

Domain Collaboration: concern for the well-being of others	
Sub-domain	**Definition**
Empathy	"Perspective taking and empathetic concern for others well-being." *This subdomain describes individuals who are perceptive and caring towards others.* (Kankaraš and Suarez-Alvarez 2019, p.39)
Trust	"Assuming that others generally have good intentions." *This subdomain describes individuals who believe and trust others.* (Kankaraš and Suarez-Alvarez 2019, p.39)
Cooperation	"Living in harmony with others." *This subdomain describes individuals who are helpful, respectful, and easy to get along with.* (Kankaraš and Suarez-Alvarez 2019, p. 39)

Domain Emotion regulation: having a calm and positive emotionality	
Sub-domain	**Definition**
Stress resistance	"Effectiveness in modulating anxiety and response to stress" *This subdomain describes individuals who calmly solve problems and do not get worried or scared easily.* (Kankaraš and Suarez-Alvarez 2019, p.36)
Optimism	"Positive expectations for self and life" *This subdomain describes individuals who are generally happy and have positive expectations.* (Kankaraš and Suarez-Alvarez 2019, p.36)
Emotional control	"Keeps their emotions and temper under control" *This subdomain describes individuals who do not get easily upset and are able to control their anger and other emotions.* (Kankaraš and Suarez-Alvarez 2019, p.36)

Domain Task performance: getting things done, as required and on time	
Sub-domain	**Definition**
Self-control	"Ability to control impulses, delay gratification, and maintain concentration" *This domain describes individuals who do not rush into things and avoid mistakes by being thoughtful and careful.* (Kankaraš and Suarez-Alvarez 2019, p.34)
Responsibility	"Following through with promises to others" *This subdomain describes individuals who are reliable, punctual, and follow through on their commitments.* (Kankaraš and Suarez-Alvarez 2019, p.34)
Persistence	"Persevere in tasks and activities, hard to distract" *This subdomain describes individuals who keep working on tasks until they are finished despite any challenges or distractions they face.* (Kankaraš and Suarez-Alvarez 2019, p.34)

Compound Skills	
Index	Definition
Achievement motivation	"Setting high standards for oneself and working hard to meet them" *This compound skill describes individuals who have high expectations of themselves and work hard to meet those expectations.* (Kankaraš and Suarez-Alvarez 2019, p.34)
Self-efficacy	"Strength of individuals' beliefs in their ability to execute tasks and achieve goals" *This compound skill describes individuals who are confident in their abilities. Self-efficacy combines skills from conscientiousness, emotional stability, and extraversion categories.* (Kankaraš and Suarez-Alvarez 2019, p. 42)

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