

The Voices of the Many Outweigh the Voices of the Few

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Abstract

As data collection and analysis continues to increase in popularity, it holds a dominant role when making industry changes. Administrators use standardized test scores to influence future programs and improvements across the school district. However, this is only one element of the student experience. Educators in Michigan realized that no uniform method of measuring student wellbeing existed in the state. Seeking to evaluate a holistic view of the student, superintendents collaborated to create a survey focusing on student voice known as the MI Student Voice Perception Survey. A macro-analysis of the Spring 2023 results suggested that, on average, students struggled most in the domain of social-emotional learning and least with student engagement. Should district-wide changes be made based on these results in assumption that this is representative of the whole student population? To help answer that question, further micro-testing revealed that demographics played a significant role in domain scores, and student experiences changed depending on their racial/ethnic heritage and their gender identity. Thus, disaggregation of data is vital when making these decisions to ensure that all student voices are being heard.

Introduction

Michigan superintendents developed the MI Student Voice Perception Survey in 2019, pilot-testing it in 2021. In Spring 2022, the survey was launched by Kent Intermediate School District (Kent ISD), funded by the Michigan Health Endowment Fund. This survey collected data on three domains: social-emotional learning, student engagement, and belonging. It captured the voices of 12,069 students from 22 districts throughout the state of Michigan during its first year. In Spring 2023, the survey was enhanced to increase reliability and improve surveyor fatigue. Student voices increased to 33,366 responses from a total of 56 school districts throughout the state.

Analyzing the data as a whole gives incredible insight into the overall issues that students face across Michigan. In general, the survey revealed that students scored lowest in social-emotional learning and highest in student engagement. Naturally, districts may assume that resources should be delegated to increasing social-emotional learning first over the other two domains. If the average represents most students, then this would be a fair assumption.

However, to evaluate domains simply based on the average of all students can leave many details in the dark. In 2015, Todd Rose introduced the Jaggedness Principle – the idea that when measuring a trait among a large group of individuals, nearly half will be below average and half above average. Consequently, few will actually fall within the average.

Applying this principle to the MI Student Voice Perception Survey, it challenges the idea that, on average, all students who took the survey are struggling with social-emotional learning. A brief look at the data shows that students identifying as American Indian or Alaska Native had their lowest score in *both* social-emotional learning and belonging. Students who preferred to

self-describe their gender scored lowest in social-emotional learning, but also scored the lowest in all three domains compared to any other gender identity.

Focusing support solely on social-emotional learning because it had the lowest average score would be ignoring the needs of these particular students. Thus, challenging the notion that all student voices should be evaluated as one, responses will be broken down by racial/ethnic heritage and gender identity to assess how different groups of students are struggling, or excelling, and within what domains.

Domains

Social-Emotional Learning

As defined by The Collaborative for Academic, Social, and Emotional Learning (CASEL), social and emotional learning is the “process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions” (CASEL, 2023). The CASEL 5 focuses on cultivation of skills in self-awareness, self-management, social awareness, relationship skills, and responsible decision-making. The MI Student Voice Perception Survey focused their questions on these skills alongside a student’s sense of belonging.

Student Engagement

Based on Ellin Oliver Keene’s book, *Engaging Children: Igniting a Drive for Deeper Learning K-8* (2018), Kent ISD defines student engagement through four pillars: intellectual

urgency, emotional resonance, perspective bending, and sense of the aesthetic. Intellectual urgency is the idea that students who are engaged often feel as if they *have* to know more about the subject. When students experience emotional resonance, they are engaging in a subject through a strong emotion or emotional connection. Perspective bending is a student's insight into how other people's perspectives, such as their beliefs, knowledge, and emotions, can affect and influence their own ideas. Finally, a sense of the aesthetic is when a student feels engaged because they've found a moment or topic that was curiously meaningful; the idea that this thing was created just for them. Therefore, the MI Student Voice Perception Survey centers their student engagement questions around classroom climate, classroom rigor, growth mindset, student-teacher relationships, and a valuing of the subject matter.

Belonging

Belonging refers to a student's experience involving a sense of connectedness towards their school (Allen et al., 2017). This domain focuses its questions on cultural awareness, fairness, an inclusive environment, and policies and procedures in the school or district. A study conducted by Sánchez, Colón, & Esparza (2005) found that a student's sense of belonging significantly predicted their academic motivation, effort, and absenteeism (p. 619). Considered a hot topic amongst some communities, this domain becomes more vital to explore to ensure that students experience a sense of belonging in their school and feel kinship towards their community.

Methodology

Data from the MI Student Voice Perception survey was collected in order to evaluate domain scores and compare them when student voices are aggregated together, versus disaggregated based on racial/ethnic heritage and gender identity. Do these voices tell the same story?

The three domains, as iterated before, are social-emotional learning, student engagement, and belonging. Each domain consists of 12-13 questions that are answered using one of two 5-point Likert scales focusing on frequency or perception as shown in *Table 1*. A frequency scale measures the rate at which something occurs whereas a perception scale measures how a student feels about the subject. The 5-point scale is associated with a numerical value, 1-5, in order to find the average response to each question and domain. The higher the numerical value, the more positive the response.¹

Of the 56 school districts who participated in the survey, one district was removed from analysis due to special evaluation requirements. In total, 31,936 responses remained for the study. It should be noted that students were not required to answer any or all questions, including their demographics. Thus, *n* is not the same for all domains. Nevertheless, data was cleaned to ensure accurate reporting for each racial/ethnic heritage and gender identity, ensuring that all 31,936 students were represented.

The data was imported into IBM SPSS Statistics where students were classified by their racial/ethnic heritage and gender identity. If students identified as multiple racial/ethnic heritages, they were categorized as “Two or More.” Questions were grouped together by domain

¹ One question in social-emotional learning was reverse-coded to match a high rating corresponding to a positive response.

to evaluate average results for all students, students classified by racial/ethnic heritage, and students classified by gender identity. Descriptive statistics can be found in *Table 2* and *Table 3*.

A Kruskal-Wallis Test was conducted to investigate the relationship between the domains and (1) racial/ethnic heritage and (2) gender identity. This nonparametric test was chosen due to the assumption of normality not being met, as well as the dependent variable being ordinal.

Table 4 and *Table 5* contain the Kruskal-Wallis Test ranks. The test showed that there was a statistically significant difference between domain scores and the assorted racial/ethnic heritages as well as the various gender identities.

Racial/Ethnic Heritage

Social-emotional learning: $H(11) = 985.62, p = < .001$

Student engagement: $H(11) = 186.3, p = < .001$

Belonging: $H(11) = 453.75, p = < .001$

Gender Identity

Social-emotional learning: $H(5) = 523.1, p = < .001$

Student engagement: $H(5) = 248.13, p = < .001$

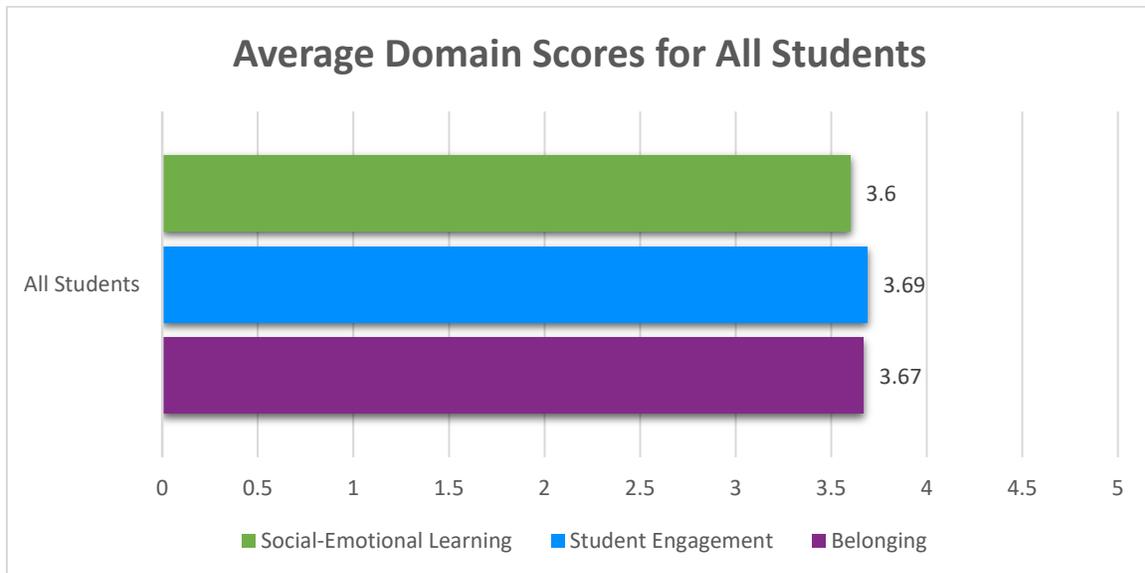
Belonging: $H(5) = 104.98, p = < .001$

To examine which groups exhibited the statistical significance, a Bonferroni-corrected Mann-Whitney U test was performed. *Table 6* and *Table 7* contain the outcomes.

Results

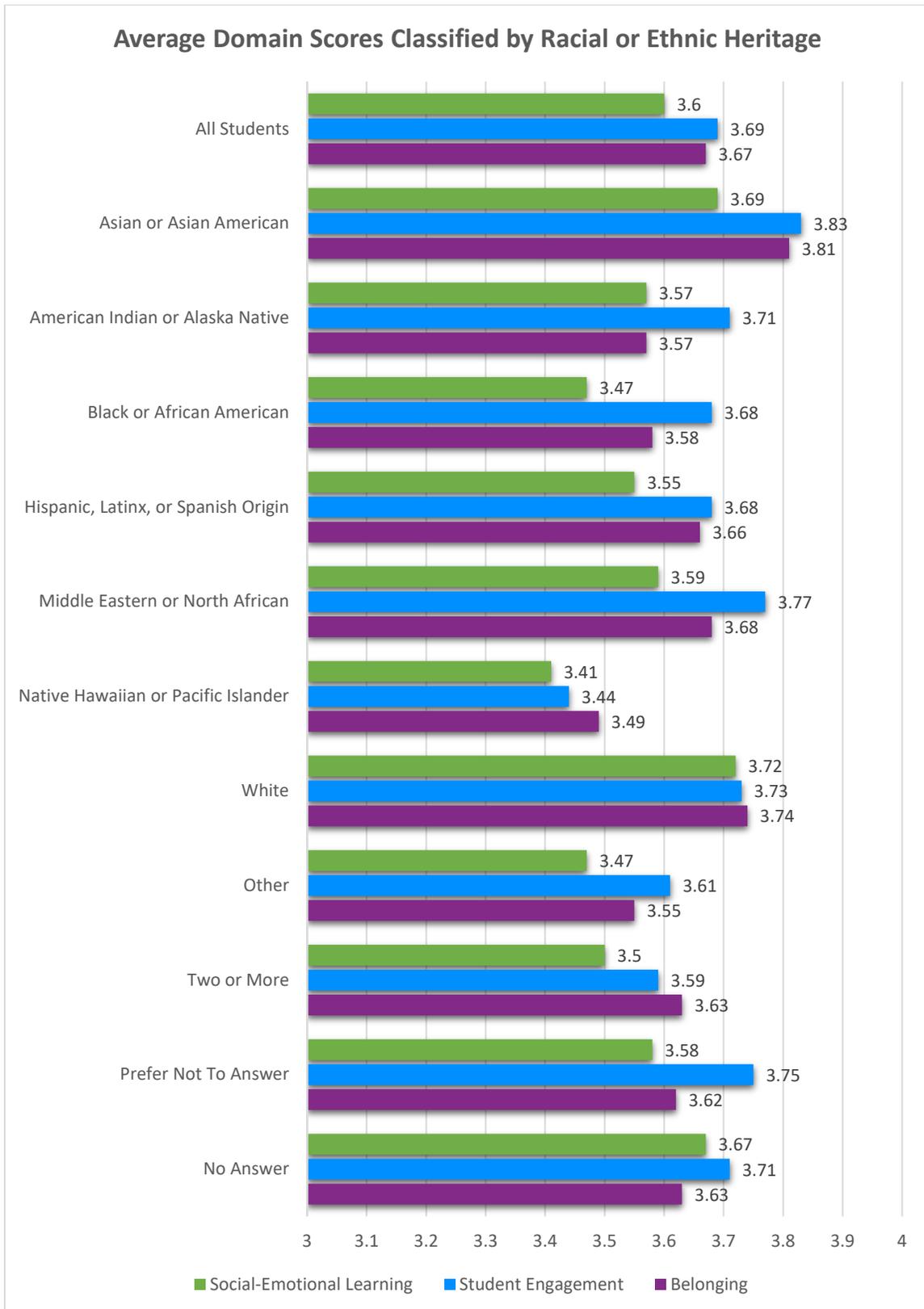
Figure 1 shows that when all student responses are averaged, social-emotional learning had the lowest score with 3.60, belonging was next with 3.67, and student engagement had the highest score with 3.69.

Figure 1: Average domain scores for all students combined



Assessing student voices by their racial/ethnic heritage paints a different picture. *Figure 2* shows the contrast in domain scores between groups. To assist with visualizing these differences, the horizontal axis was updated to show scores between 3-4. Students identifying as Native Hawaiian or Pacific Islander had the lowest average domain score for social-emotional learning with 3.41. The highest score in social-emotional learning was 3.72 for White students. Mirroring the previous domain, Native Hawaiian or Pacific Islander students also had the lowest student engagement score with an average of 3.44. Asian or Asian American students had the highest score in student engagement with 3.83. The final domain of belonging had the lowest score with 3.49 which also belonged to Native Hawaiian or Pacific Islander students. Asian or Asian American students also had the highest score in belonging with 3.81.

Figure 2: Average domain scores for students classified by racial/ethnic heritage



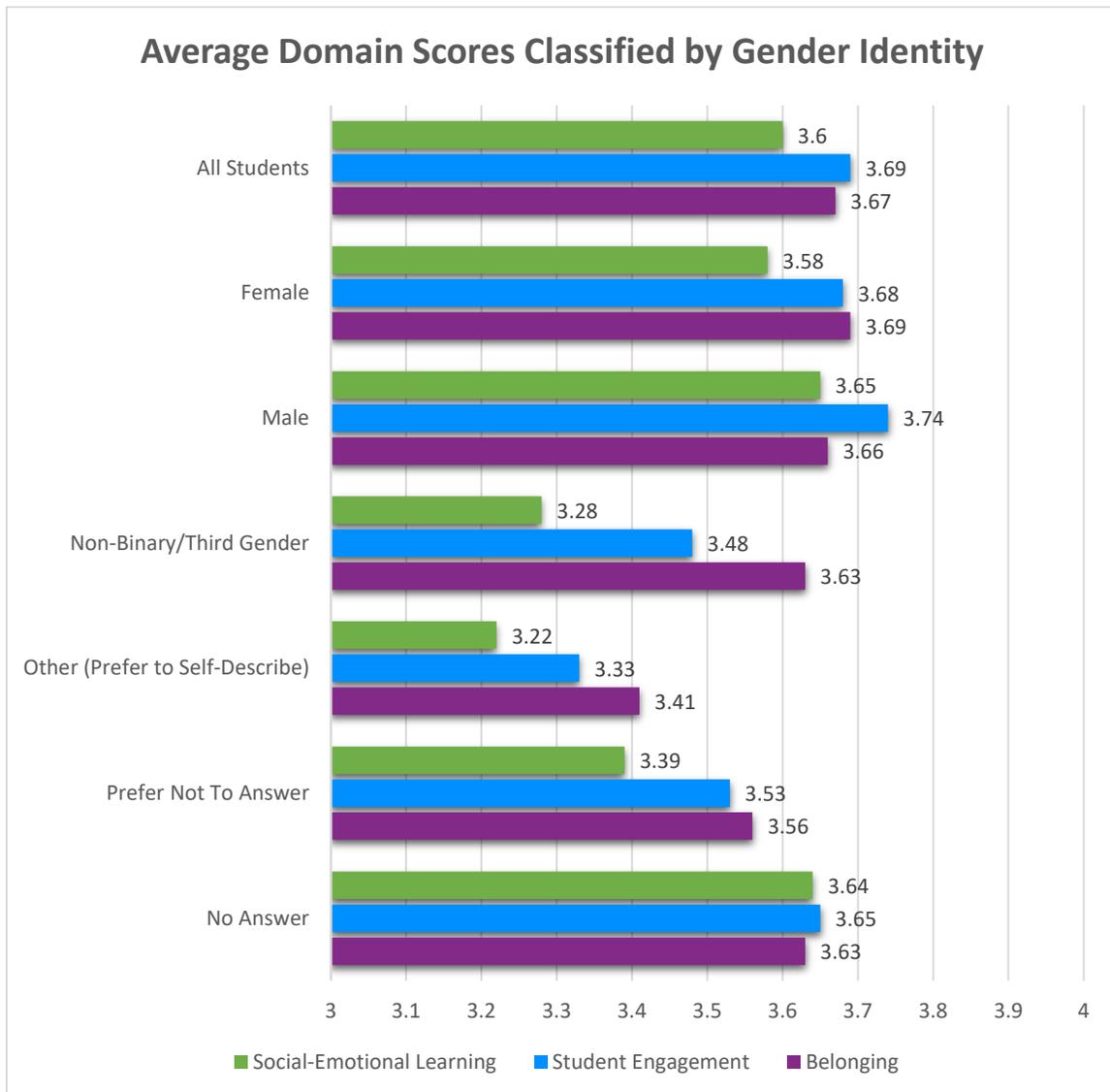
Reviewing *Table 6*, there were numerous groupings that had statistically significant differences between them. For example, White students were statistically significantly different in their belonging domain compared to students who identified as American Indian or Alaska Native ($z = -4.220, p = <.0001$), Asian or Asian American ($z = -3.708, p = .0002$), Black or African American ($z = -18.257, p = <.0001$), Hispanic, Latinx, or Spanish Origin ($z = -7.364, p = <.0001$), Other ($z = -6.774, p = <.0001$), Two or More ($z = -10.164, p = <.0001$), and Prefer Not to Answer ($z = -7.845, p = <.0001$). White students ranked highest in this domain compared to all other racial/ethnic heritages except for Asian or Asian American students.

When evaluating scores by gender identity, *Figure 3* also demonstrates the differences between students compared to the average picture. Students who preferred to self-describe their gender identity had the lowest score in social-emotional learning with 3.22, while Males had the highest average score with 3.65. This outcome is mimicked in student engagement with self-describing students having the lowest score with 3.33 and Males having the highest average with 3.74. Females had the highest average score in belonging with 3.69 while students who preferred to self-describe remained at the lowest with 3.41.

Revisiting *Table 7*, there were several groupings that also had statistically significant differences between them. For example, students who identified as Other (Prefer to Self-Describe) were statistically significantly different in all three domains compared to Females (SEL: $z = -10.029, p = <.001$; SE: $z = -7.756, p = <.001$; BEL: $z = -8.006, p = <.001$), Males (SEL: $z = -12.374, p = <.001$; SE: $z = -9.462, p = <.001$; BEL: $z = -7.501, p = <.001$), No Answer (SEL: $z = -10.245, p = <.001$; SE: $z = -6.036, p = <.001$; BEL: $z = -5.519, p = <.001$), and Prefer Not to Answer (SEL: $z = -4.090, p = <.001$; SE: $z = -3.970, p = <.001$; BEL: $z = -4.010, p = <.001$), and statistically significantly different in their belonging domain compared to Non-

Binary/Third Gender ($z = -4.648, p = <.001$). Self-describing students ranked lowest in all domains.

Figure 3: Average domain scores for students classified by gender identity



Conclusion

Evaluating the voices of the many leaves us with an overall picture that students are struggling most in social-emotional learning, followed by belonging, and then student engagement. Yet, when we listen to the voices of the few, we find that they are undergoing a significantly different experience. Methodology supported that there was a statistical significance between domain scores and demographics. This indicates that these classifications are important when assessing survey scores.

If the average of all student voices is used to make institutional changes, many student voices will be lost. While some racial/ethnic heritages and gender identities excelled in certain domains, others struggled. Understanding how the student experience changes based on their demographics can allow for more informed decisions when improving education systems.

It is worth noting that while evaluating scores based on demographics such as racial/ethnic heritage and gender identity has provided exceptional perspective, these groupings are not the only ones that could be measured in the MI Student Voice Perception Survey. Future research could classify students by grade level or even community level (urban, suburban, rural). Each of the three domains consist of subdomains that could be analyzed as well.

The MI Student Voice Perception Survey provides districts with several reports based on their data. Districts receive both a domain-level report and a question-level report, giving them both a big-picture perspective as well as an in-depth view. Data is aggregated by way of grade level, gender identity, and racial/ethnic heritage. These reports provide districts an overall view as well as a comprehensive prospective of the student experience depending on their demographics. The methodology in this study supports that both are essential to evaluate.

According to Eric Toshalis and Michael Nakkula (2012), experts in the field of student engagement, “Fostering student voice – empowering youth to express their opinions and influence their educational experiences so that they feel they have a stake in the outcomes is one of the most powerful tools schools have to increase learning.” Utilizing the MI Student Voice Perception Survey and ensuring that both macro and micro analyses are conducted and reviewed, will allow districts to observe a more holistic view of the student experience and make improvements rooted in student voices. It is imperative that as these types of tools are used, we do not let the voices of the many outweigh the voices of the few.

Tables

Table 1: 5-Point Likert Scales

Frequency				
(1) Almost Never	(2) Rarely	(3) Sometimes	(4) Often	(5) Almost Always
Perception				
(1) Not At All	(2) Slightly	(3) Somewhat	(4) Quite	(5) Extremely

Table 2: Descriptive Statistics by Gender Identity

SEL SE BEL * Gender				
Gender		SEL	SE	BEL
Female	Mean	3.58	3.68	3.69
	N	14277	14305	13814
	Std. Deviation	.610	.701	.578
Male	Mean	3.65	3.74	3.66
	N	14430	14445	14005
	Std. Deviation	.598	.704	.588
Non-Binary/Third Gender	Mean	3.28	3.48	3.63
	N	364	364	365
	Std. Deviation	.541	.652	.584
No Answer	Mean	3.64	3.65	3.63
	N	919	895	900
	Std. Deviation	.616	.725	.615
Other	Mean	3.22	3.33	3.41
	N	372	377	379
	Std. Deviation	.669	.851	.687
Prefer Not To Answer	Mean	3.39	3.53	3.56
	N	1401	1402	1354
	Std. Deviation	.649	.784	.641
Total	Mean	3.60	3.69	3.67
	N	31763	31788	30817
	Std. Deviation	.612	.712	.589

Table 3: Descriptive Statistics Based on Racial/Ethnic Heritage

SEL SE BEL * Race				
Race		SEL	SE	BEL
American Indian or Alaska Native	Mean	3.57	3.72	3.57
	N	303	303	293
	Std. Deviation	.661	.833	.661
Asian or Asian American	Mean	3.69	3.82	3.81
	N	1100	1100	1084
	Std. Deviation	.535	.634	.509
Black or African American	Mean	3.47	3.68	3.57
	N	7056	7041	6698
	Std. Deviation	.587	.699	.612
Hispanic, Latinx, or Spanish Origin	Mean	3.55	3.68	3.66
	N	3954	3963	3892
	Std. Deviation	.582	.694	.585
Middle Eastern or North African	Mean	3.59	3.76	3.69
	N	346	345	316
	Std. Deviation	.569	.661	.574
No Answer	Mean	3.67	3.72	3.63
	N	505	481	485
	Std. Deviation	.650	.769	.698
Native Hawaiian or Pacific Islander	Mean	3.39	3.43	3.47
	N	51	51	50
	Std. Deviation	.686	.815	.736
Other	Mean	3.47	3.60	3.55
	N	719	719	690
	Std. Deviation	.695	.842	.704
Prefer Not To Answer	Mean	3.58	3.75	3.62
	N	1931	1931	1887
	Std. Deviation	.655	.746	.614
Two or More	Mean	3.50	3.59	3.63
	N	3900	3900	3794
	Std. Deviation	.628	.723	.595
White	Mean	3.72	3.73	3.74
	N	11898	11954	11628
	Std. Deviation	.598	.704	.550
Total	Mean	3.60	3.69	3.67
	N	31763	31788	30817
	Std. Deviation	.612	.712	.589

Table 4: Kruskal-Wallis Test Ranks Based on Racial/Ethnic Heritage

Ranks

	Race	N	Mean Rank
SEL	American Indian or Alaska Native	303	15442.93
	Asian or Asian American	1100	17145.87
	Black or African American	7056	13929.34
	Hispanic, Latinx, or Spanish Origin	3954	15086.96
	Middle Eastern or North African	346	15713.97
	No Answer	505	17105.97
	Native Hawaiian or Pacific Islander	51	13512.46
	Other	719	14282.00
	Prefer Not To Answer	1931	15796.73
	Two or More	3900	14469.80
	White	11898	17735.08
	Total	31763	
SE	American Indian or Alaska Native	303	16538.56
	Asian or Asian American	1100	17452.67
	Black or African American	7041	15644.01
	Hispanic, Latinx, or Spanish Origin	3963	15579.60
	Middle Eastern or North African	345	16641.99
	No Answer	481	16279.14
	Native Hawaiian or Pacific Islander	51	13002.72
	Other	719	15159.01
	Prefer Not To Answer	1931	16762.52
	Two or More	3900	14517.98
	White	11954	16315.13
	Total	31788	
BEL	American Indian or Alaska Native	293	14211.35
	Asian or Asian American	1084	17537.35
	Black or African American	6698	14001.34
	Hispanic, Latinx, or Spanish Origin	3892	15285.29
	Middle Eastern or North African	316	15615.19
	No Answer	485	15133.35
	Native Hawaiian or Pacific Islander	50	13353.90
	Other	690	14083.03
	Prefer Not To Answer	1887	14744.71
	Two or More	3794	14814.67
	White	11628	16488.15
	Total	30817	

Table 5: Kruskal-Wallis Test Ranks Based on Gender Identity

Ranks

	Gender	N	Mean Rank
SEL	Female	14277	15531.96
	Male	14430	16735.23
	Non-Binary/Third Gender	364	10947.59
	No Answer	919	16526.99
	Other	372	10735.96
	Prefer Not To Answer	1401	12886.32
	Total	31763	
SE	Female	14305	15631.10
	Male	14445	16543.13
	Non-Binary/Third Gender	364	12994.92
	No Answer	895	15310.18
	Other	377	11961.13
	Prefer Not To Answer	1402	14082.64
	Total	31788	
BEL	Female	13814	15669.33
	Male	14005	15423.76
	Non-Binary/Third Gender	365	14860.86
	No Answer	900	14902.50
	Other	379	11955.96
	Prefer Not To Answer	1354	14051.32
	Total	30817	

Table 6: Bonferroni-corrected Mann-Whitney U Test Results (Racial/Ethnic Heritage)

Mann-Whitney U Test (Racial/Ethnic Heritage)	SEL	SE	BEL
American Indian or Alaska Native - Asian or Asian American	.0041	.2419	>.0001
American Indian or Alaska Native - Black or African American	.0087	.1088	.8078
American Indian or Alaska Native - Hispanic, Latinx, or Spanish Origin	.6029	.0909	.0429
American Indian or Alaska Native - Middle Eastern or North African	.6680	.9644	.0521
American Indian or Alaska Native - No Answer	.0144	.7239	.1768

American Indian or Alaska Native - Native Hawaiian or Pacific Islander	.1883	.0207	.5126
American Indian or Alaska Native - Other	.0711	.0477	.8522
American Indian or Alaska Native - Prefer Not to Answer	.5733	.8104	.3229
American Indian or Alaska Native - Two or More	.0922	.0007	.2311
American Indian or Alaska Native - White	>.0001	.5944	>.0001
Asian or Asian American - Black or African American	>.0001	>.0001	>.0001
Asian or Asian American - Hispanic, Latinx, or Spanish Origin	>.0001	>.0001	>.0001
Asian or Asian American - Middle Eastern or North African	.0077	.1594	.0008
Asian or Asian American - No Answer	.9202	.0279	>.0001
Asian or Asian American - Native Hawaiian or Pacific Islander	.0061	.0006	.0013
Asian or Asian American - Other	>.0001	>.0001	>.0001
Asian or Asian American - Prefer Not to Answer	.0002	.0841	>.0001
Asian or Asian American - Two or More	>.0001	>.0001	>.0001
Asian or Asian American - White	.0114	.0001	.0002
Black or African American - Hispanic, Latinx, or Spanish Origin	>.0001	.7315	>.0001
Black or African American - Middle Eastern or North African	.0002	.0465	.0018
Black or African American - No Answer	>.0001	.1499	.0131
Black or African American - Native Hawaiian or Pacific Islander	.6832	.0380	.5940
Black or African American - Other	.5100	.1512	.9684
Black or African American - Prefer Not to Answer	>.0001	>.0001	.0018
Black or African American - Two or More	.0067	>.0001	>.0001
Black or African American - White	>.0001	>.0001	>.0001
Hispanic, Latinx, or Spanish Origin - Middle Eastern or North African	.2059	.0370	.5265
Hispanic, Latinx, or Spanish Origin - No Answer	>.0001	.1218	.6859
Hispanic, Latinx, or Spanish Origin - Native Hawaiian or Pacific Islander	.2069	.0411	.1268
Hispanic, Latinx, or Spanish Origin - Other	.0173	.2124	.0009
Hispanic, Latinx, or Spanish Origin - Prefer Not to Answer	.0085	>.0001	.0283
Hispanic, Latinx, or Spanish Origin - Two or More	.0013	>.0001	.0202
Hispanic, Latinx, or Spanish Origin - White	>.0001	>.0001	>.0001
Middle Eastern or North African - No Answer	.0232	.6370	.4482
Middle Eastern or North African - Native Hawaiian or Pacific Islander	.0997	.0083	.0946
Middle Eastern or North African - Other	.0135	.0172	.0119
Middle Eastern or North African - Prefer Not to Answer	.9074	.7561	.1108
Middle Eastern or North African - Two or More	.0116	>.0001	.1254

Middle Eastern or North African - White	>.0001	.5124	.0884
No Answer - Native Hawaiian or Pacific Islander	.0096	.0209	.1786
No Answer - Other	>.0001	.0431	.0591
No Answer - Prefer Not to Answer	.0056	.3334	.4455
No Answer - Two or More	>.0001	.0001	.5245
No Answer - White	.1305	.9675	.0019
Native Hawaiian or Pacific Islander - Other	.5673	.1396	.5907
Native Hawaiian or Pacific Islander - Prefer Not to Answer	.0841	.0054	.2795
Native Hawaiian or Pacific Islander - Two or More	.4406	.2183	.2472
Native Hawaiian or Pacific Islander - White	.0013	.0105	.0131
Other - Prefer Not to Answer	.0002	.0002	.0856
Other - Two or More	.5199	.1671	.0372
Other - White	>.0001	.0016	>.0001
Prefer Not to Answer - Two or More	>.0001	>.0001	.7312
Prefer Not to Answer - White	>.0001	.0378	>.0001
Two or More - White	>.0001	>.0001	>.0001
<i>*Bonferroni adjustment: $\alpha = .05/55 = .0009$</i>			

Table 7: Bonferroni-corrected Mann-Whitney U Test Results (Gender Identity)

Mann-Whitney U Test (Gender Identity)	SEL	SE	BEL
Female - Male	<.001	<.001	.021
Female - Non-Binary/Third Gender	<.001	<.001	.090
Female - No Answer	.001	.307	.012
Female - Other	<.001	<.001	<.001
Female - Prefer Not to Answer	<.001	<.001	<.001
Male - Non-Binary/Third Gender	<.001	<.001	.217
Male - No Answer	.494	<.001	.087
Male - Other	<.001	<.001	<.001
Male - Prefer not to Answer	<.001	<.001	<.001
Non-Binary/Third Gender - No Answer	<.001	<.001	.992
Non-Binary/Third Gender - Other	.291	.028	<.001
Non-Binary/Third Gender - Prefer Not to Answer	.002	.108	.104
No Answer - Other	<.001	<.001	<.001
No Answer - Prefer Not to Answer	<.001	.001	.022
Other - Prefer Not to Answer	<.001	<.001	<.001
<i>*Bonferroni adjustment: $\alpha = .05/15 = .003$</i>			

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