SmarterMeasure National Readiness Report

SPRING 2022 - SmarterMeasure Learning Readiness Indicator

This document presents the measures of central tendency from a national dataset of learners who took the SmarterMeasure Learning Readiness Indicator during 2021. Comparisons of readiness levels are made within several demographic categories. The report also provides a four-year comparison to determine the impact of the pandemic on learner readiness as well as a ten-year longitudinal comparison of demographic factors and mean scale scores.

INTRODUCTION

The SmarterMeasure Learning Readiness Indicator is a web-based assessment which measures a learner's readiness for succeeding in an online and/or technology-rich learning program based on cognitive and non-cognitive indicators of success. The Learning Readiness Indicator indicates the degree to which an individual student possesses attributes, skills, and knowledge that contribute to success in learning. At the time of this writing, over six million students from over 1,000 educational institutions have taken the assessment since its inception in 2002.

All components of SmarterMeasure are grounded in theoretical research and practice. The components of the SmarterMeasure Learning Readiness Indicator include:

- **Individual Attributes** – Motivation, procrastination, willingness to ask for help, etc.
- **Life Factors** – Availability of time, support from family and employers, finances, etc.
- **Learning Styles** – Based on the multiple intelligences model
- **Technical Competency** – Skills with using technology
- **Technical Knowledge** – Knowledge of technology terms
- **Reading Competency** – On-screen Reading Rate and Recall
- **Keyboarding Skill** – Speed and Accuracy
- **Math Readiness** – Computation, decimals, equations, factoring, fractions, whole numbers
- **Writing Readiness** – Apprehension, grammar, usage, syntax, structure

The purpose of the National Readiness Report is to provide summary data from thousands of students at hundreds of colleges regarding their reported levels of readiness for studying online or in a technology rich environment. This data can inform educational leaders as they design and provide instruction and support students who are studying at a distance. The information in this report is aggregate data taken from the students' scores on the SmarterMeasure Learning Readiness Indicator during the calendar year of 2021. Data from secondary school students and trial accounts was not included in this report.

EXECUTIVE SUMMARY OF FINDINGS

The typical respondent was a female, traditional-aged college student, who is Caucasian, has not taken any prior online courses, prefers a solitary learning style, is very confident in her school of choice, and is not a first-generation college student.

Half of the students (50%) had no prior online course experience. However, 16% of students had taken 5 or more prior online courses.

About 10% of students are not sure if they are enrolled in the right school. Prior studies have shown this factor to be a strong predictor of dropout/transfer. Schools could utilize this factor to closely support these learners to boost retention.

About one-in-three students is a first-generation college student which is a factor also closely correlated with retention.

The pandemic had measurable impacts on learner readiness. The year of the quarantine (AY 2019/2020) yielded the lowest mean score on half of the scales measured with the strongest impact on skill related variables. During that year, more persons took online courses for the first time than ever before.

Over the past four years, the mean scores on Life Factors, Individual Attributes, Math Readiness, and Writing Readiness have consistently declined. It is paramount that institutions measure this data for all students and provide appropriate strategies for intervention and support since students are struggling more in these areas than in the past.

Age impacts readiness. Statistically significant differences in means were found with those who were not traditional aged college students having significantly higher means for Individual Attributes, Life Factors, Reading, Technical Knowledge, and Technical Competency. No significant differences in means were found between age groupings for keyboarding, math readiness, writing readiness, and LMS competency.

Gender does not as strongly impact readiness. Females were found to have statistically significant higher means on the scales of Individual Attributes and Math Readiness while Males showed significantly higher means on Technical Knowledge. The differences in means were not significantly different between genders on all other scales.

No one ethnicity is dominant related to learner readiness. African Americans had the highest means for life factors. Caucasian students had the highest means for reading, keyboarding, and technical competency. Asian or Pacific Islanders had the highest mean for Technical Knowledge.

Prior online learning experience is the strongest correlate of readiness. For all seven scales for which a significant difference in means was found persons reporting having taken five or more prior online courses reported the highest means. Statistically significant differences in means were found for all scales except math readiness and writing readiness.

Students who are confident in their school choice are also typically the most prepared. Statistically significant differences in means were found on the scales of individual attributes, life factors, and technical knowledge this the highest mean on all three scales being reported by those who were Very Confident that they had enrolled in the right school for them.

Being a first-generation college student continues to be a challenge. Students who were not first-generation college students had statistically significant higher means on life factors, reading, keyboarding, and technical competency.

Compared to ten years ago, students are more diverse ethnically and by gender. They tend to be less social in their preferred learning style. While they do have a little more online learning experience, their levels of readiness have declined for individual attributes, life factors, reading recall, and technical knowledge.
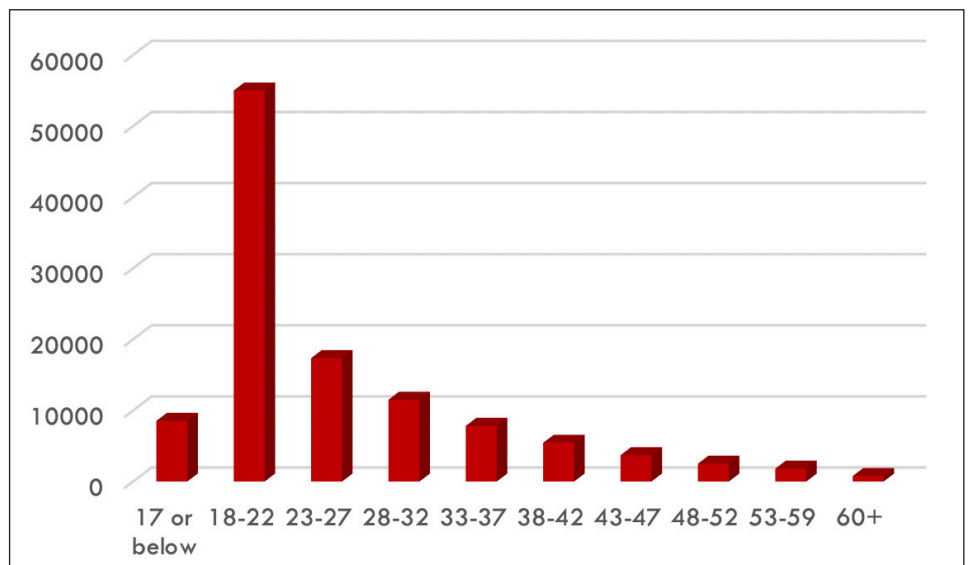
DISTRIBUTION OF DEMOGRAPHIC FACTORS

At the beginning of the SmarterMeasure Learning Readiness Indicator students are asked to report their status on multiple demographic factors. Note that schools may remove the demographic questions as well as students may opt-out of answering the demographic questions as they are not required. During the academic year of 2020/2021 a total of 467,857 students completed the assessment. The following demographic data was collected during the 2021 calendar year.

AGE RANGE

The most frequent age range was traditional aged college students between 18-22 which accounted for 48% of the students who took the assessment. While traditional aged college students were the predominant group, there was a good distribution of age across the other ranges with 7% of test takers being 17 or below who likely took the Secondary Education version of the assessment which is developmentally appropriate for learners in grades 9 to 12.

Age	N	%
17 or below	8531	7%
18-22	54990	48%
23-27	17357	15%
28-32	11502	10%
33-37	7837	7%
38-42	5449	5%
43-47	3707	3%
48-52	2512	2%
53-59	1816	2%
60+	770	1%

DISTRIBUTION OF DEMOGRAPHIC FACTORS

GENDER

62% of test takers were female. By default, SmarterMeasure asks students to report gender as male or female. If schools would like to state the answer choices differently, they may do so via a custom question.

Gender	N	%
Female	68177	62%
Male	41112	38%

M, 444, 16%

F, 2372, 84%

- F
- M
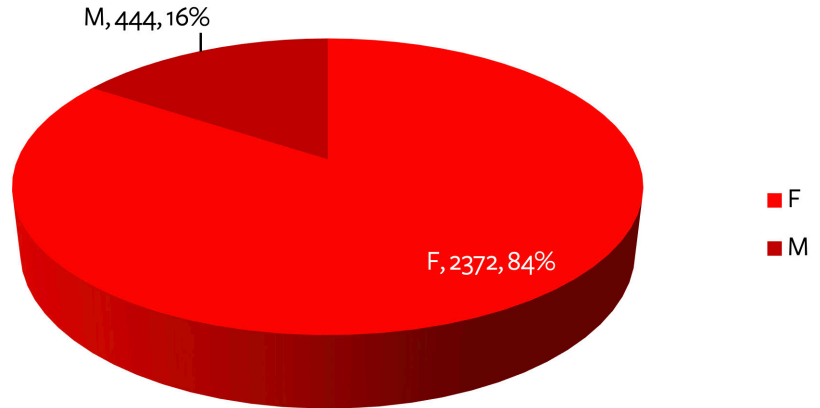
ETHNICITY

The three predominant ethnicities were Caucasian/White, Latino/Hispanic, and African American.

Ethnicity	N	%
African American	19047	18%
Alaskan Native	114	>1%
American Indian	1678	2%
Asian or Pacific Islander	5521	5%
Caucasian / White	46592	44%
Latino / Hispanic	22853	21%
Other race	1519	1%
Prefer not to respond	3669	3%
Two or more races	5940	65%

Two or more races
Prefer not to respond
Other Race
Latino / Hispanic
Caucasian/White
Asian or Pacific Islander
American Indian
Alaskan Native
African-American

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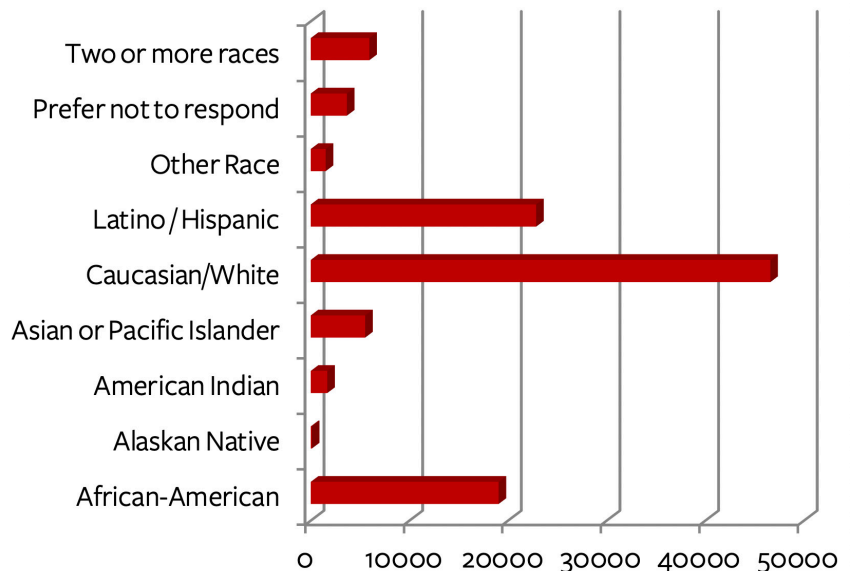
DISTRIBUTION OF DEMOGRAPHIC FACTORS

NUMBER OF PRIOR ONLINE COURSES

Students were asked to report how many prior online courses they had taken at the point at which they completed the SmarterMeasure Learning Readiness Indicator. Half of the students (50%) had no prior online course experience. However, 16% of students had taken 5 or more prior online courses.

Prior Online Courses	N	%
0	57447	50%
1	14621	13%
2	11352	10%
3	7685	7%
4	5305	45%
5	18971	16%
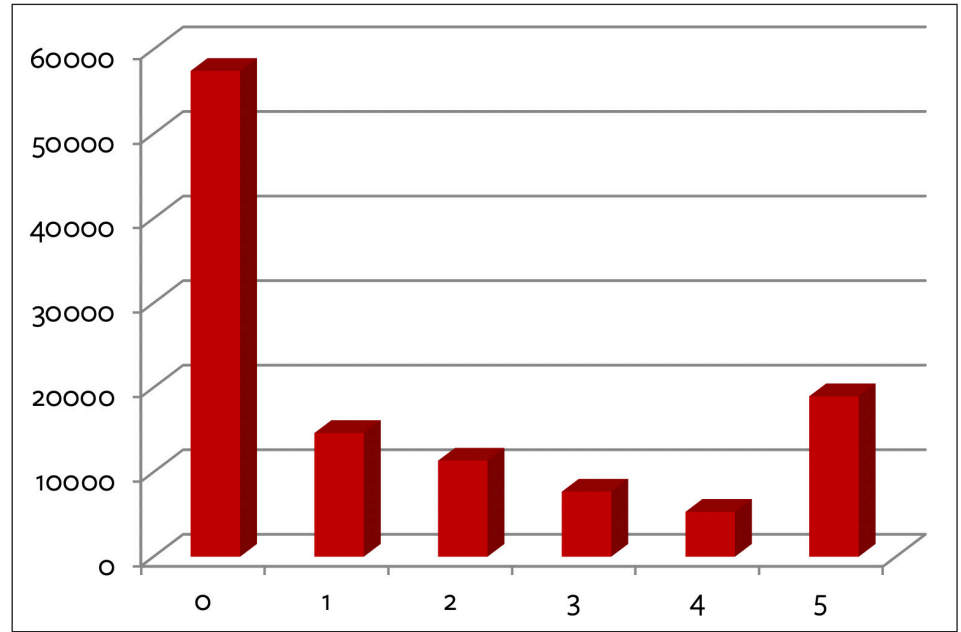
DISTRIBUTION OF DEMOGRAPHIC FACTORS

LEARNING STYLES

Learning Styles is a categorical variable. The chart below shows the distribution of preferred learning styles across this group of students. Note that many students have more than one learning style and not all schools administer the learning styles instrument.

Learning Style	N	%
Solitary	8380	21%
Social	7625	19%
Aural	6505	16%
Logical	5830	14%
Verbal	4410	11%
Physical	4095	10%
Visual	3850	9%
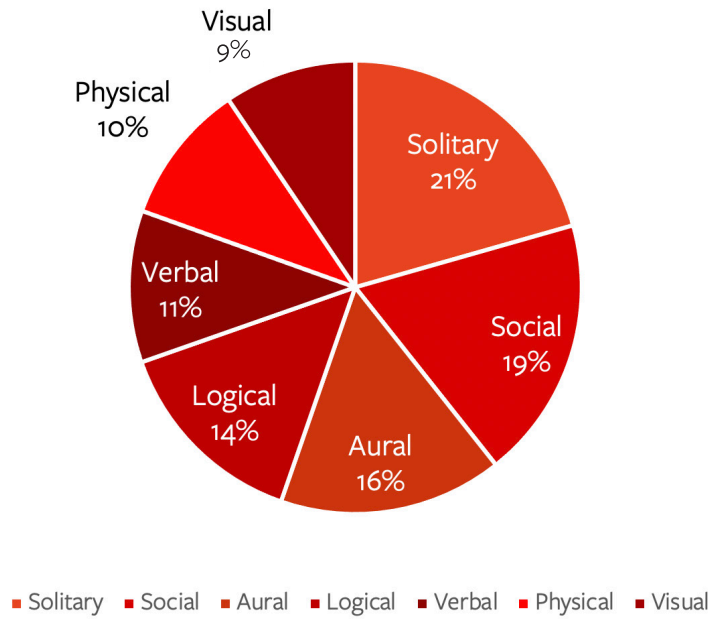
SCHOOL CHOICE

In an optional demographic question students are asked to report the degree to which they consider the school at which they are currently enrolled to be the right school for them. Prior correlational analyses have found a strong relationship between the degree to which a student believes they are enrolled in the right school for them and performance and retention metrics.

Choice	N	%
Very Confident	21249	48%
Confident	18201	41%
Not Sure	3390	8%
Probably Not	1387	3%
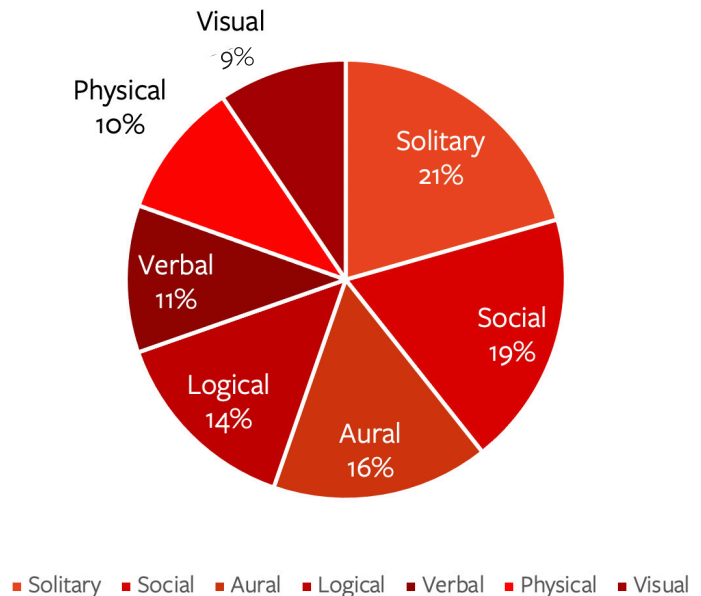
FIRST-GENERATION COLLEGE STUDENT

In another optional demographic question students are asked to report if they are a first-generation college student which is defined as a person for whom no one in their immediate family as enrolled in college. About one-in-three students classified themselves as a first-generation college student.

First Gen	N	%
Yes	18638	34%
No	35554	66%
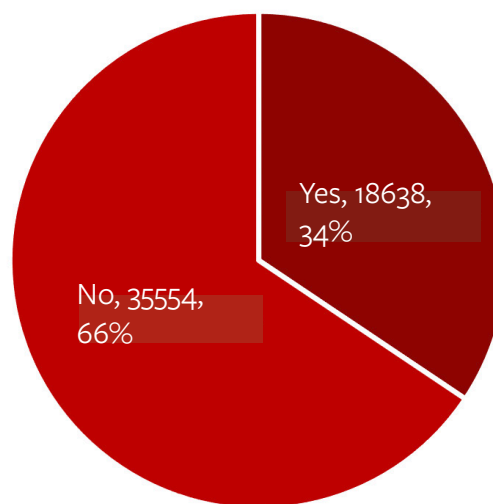
MEAN SCORES FOUR-YEAR TREND ANALYSIS

To determine the impact of the COVID-19 pandemic on the construct of learner readiness, the following analysis of trends regarding the mean scale scores was computed.

	Life Factors	Individual Attriutes	Reading Recall	Tech Knowledge	Tech Competency	LMS Competency	Math Readiness	Writing Readiness	Typing AWPM	Prior Online	N
AY17/18	79.03	78.62	71.58	72.01	90.54	NA	80.30	61.62	27.25	1.72	383038
AY18/19	79.14	78.50	72.45	71.02	90.59	88.53	79.80	78.42	26.89	1.71	403746
AY19/20	78.61	77.12	70.72	68.55	88.87	89.89	75.13	74.27	25.95	1.31	506294
AY20/21	77.28	76.02	72.58	73.35	90.03	77.21	75.10	70.71	26.64	2.17	467857

COMPUTATIONAL NOTES:

For ease of interpretation, scores in the first eight columns have been converted from raw scores to percentiles. For example, Math Readiness is computed on a 30-point scale, but for reporting in this document it was converted to a 100-point scale. Recognize that on the student report contained in SmarterMeasure raw scores, not percentile scores, are utilized.

Note that this data is from all students at all institution types. Individual institutions are encouraged to analyze the means from their own students which are provided in the SmarterMeasure administrative panel.

OBSERVATIONS:

Impact of the Pandemic on Skills: During the COVID-19 pandemic, many institutions closed their doors and moved much instruction online. This prompted many students for whom online learning was not their first choice to be constrained to learn by an online learning modality. This reduction in levels of learner readiness is demonstrated by the lowest mean on half of the scales we measure being experienced during the quarantine year of AY 2019/2020. The following scales revealed the lowest means during that year: Reading Recall, Technical Knowledge, Technical Competency, Keyboarding.

Impact of the Pandemic on Experience: It is also telling to note that during the quarantine year more students with no prior online learning experience studied online than ever before. One positive note is that after the quarantine year there are now a higher number of students who have experienced learning online.

MEAN SCORES FOUR-YEAR TREND ANALYSIS

Impact of the Pandemic on Assessment Volume: During the quarantine year of the pandemic (AY 2019/2020) more persons took the SmarterMeasure Learning Readiness Indicator than ever before. The diminished level of learner readiness reported by the assessment coupled with the inferior quality of emergency remote instruction when compared to traditional online learning is what prompted concern among many about the efficacy of academic continuity efforts during the pandemic.

Declining Non-Cognitive Attributes: Mean scores on the Life Factors and Individual Attributes scales have consistently declined over the past four years by about two percentage points. This is a substantial observation since these scales measure learner attributes, not skills. As such, these measurements are not delivery system dependent, meaning that they are equally important for students studying online, hybrid, or face-to-face. It is paramount that institutions measure this data for all students and provide appropriate strategies for intervention and support since students are struggling more in these areas than in the past.

Declining Cognitive Readiness: Generally speaking, mean scores for the Math Readiness and Writing Readiness scales have consistently declined over the past four years by 5 to 8 percentage points.

MEAN CHARTS

Technical Competency

LMS Competency

Math Readiness
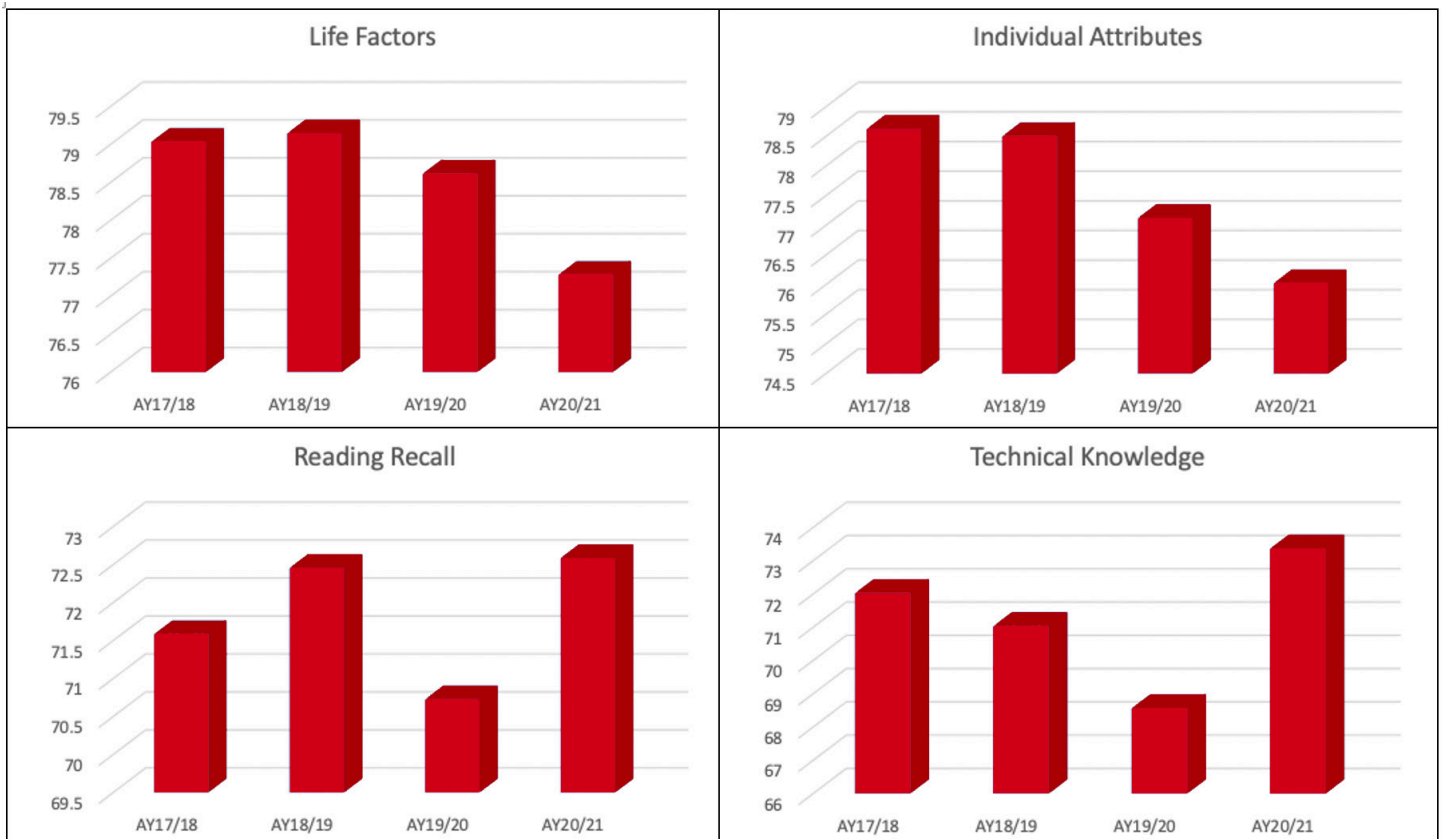
Writing Readiness

Four Year Mean Score Trend Analysis
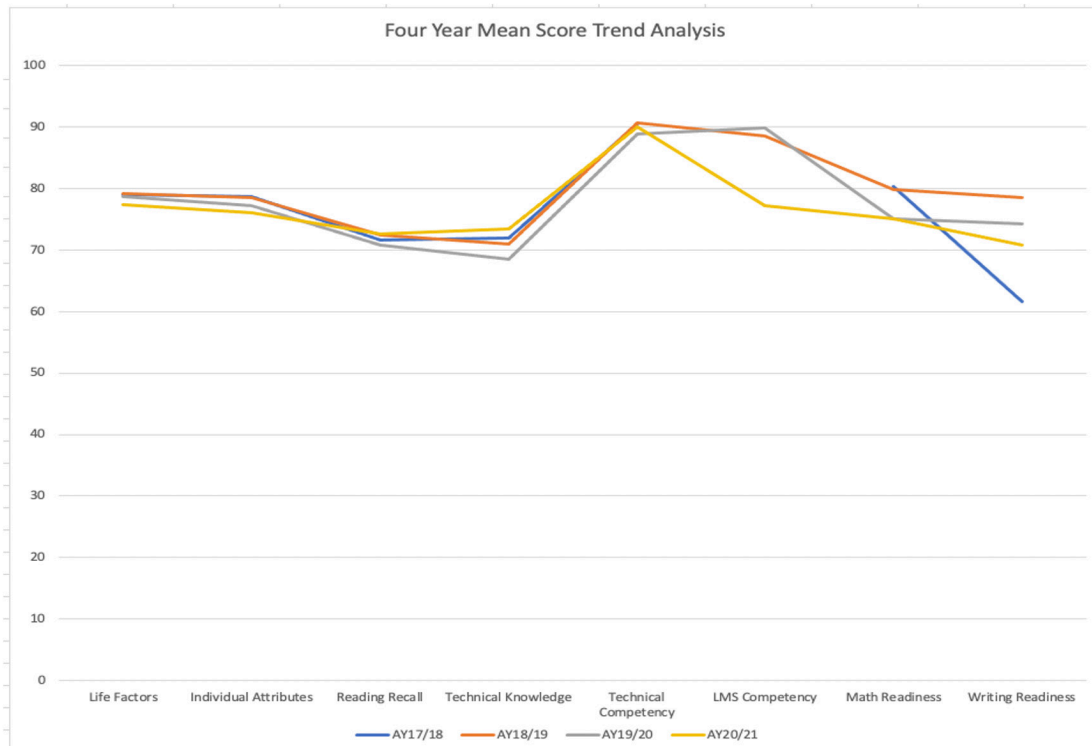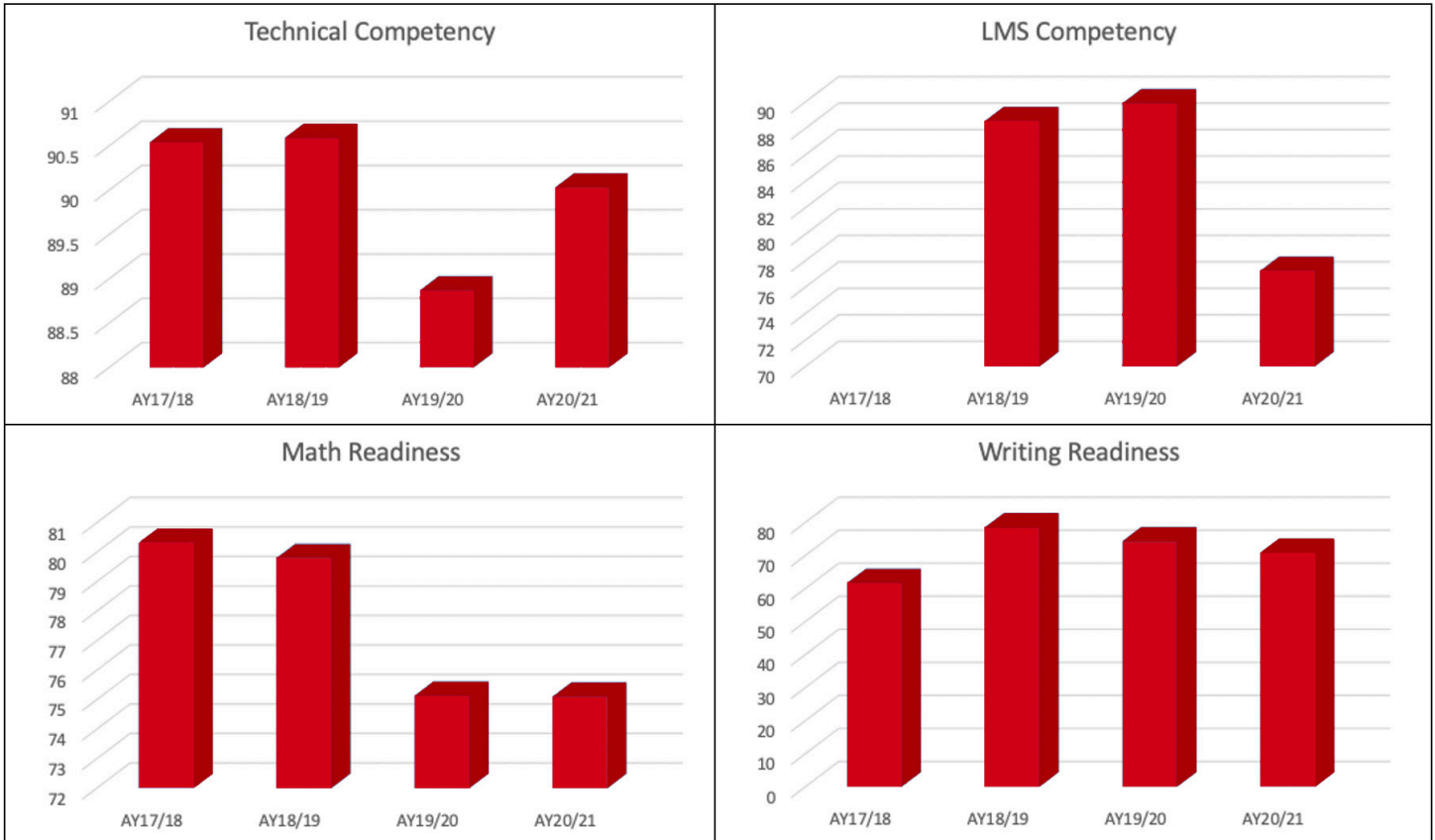
TEN YEAR TREND ANALYSIS

Because the SmarterMeasure Learning Readiness Indicator has been utilized for two decades, we are able to compare readiness data to that of prior years. The data below is a comparison of select data points from a decade ago. Compared to ten years ago, students are more diverse ethnically and by gender. They tend to be less social in their preferred learning style. While they do have a little more online learning experience, their levels of readiness have declined for individual attributes, life factors, reading recall, and technical knowledge.

	2011	2021
Female	72%	62%
Caucasian	62%	44%
No Prior Online Courses	55%	50%
Traditional Age Student	28%	48%
Social Learning Style	22%	19%
Individual Attributes Mean	78.09	76.80
Life Factors Mean	79.30	78.57
Reading Recall Mean	74.44	70.43
Technical Knowledge Mean	72.44	68.88

COMPARISON OF MEANS

To better understand the degree to which learner readiness is impacted by demographic variables, the following comparisons of means were computed. Because this data set is so large (N=467,857), any comparison of means such as an independent sample t-test or an ANOVA will yield a statistically significant difference due to the magnitude of the sample size. To control for this impractical significance, a random sample of 1% (N=4678) of the records which had completed the full assessment was selected for analysis in this section. Random cases were selected using the random sample tool in SPSS (Statistical Program for Social Sciences).

AGE

Means were compared between traditional aged college students (18 – 22) and students of all other ages. Statistically significant differences in means were found with those who were not traditional aged college students having significantly higher means for Individual Attributes, Life Factors, Reading, Technical Knowledge, and Technical Competency. No significant differences in means were found between age groupings for keyboarding, math readiness, writing readiness, and LMS competency.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Individual Attributes	Between Groups	21235.915	1	21235.915	364.766	.000
	Within Groups	217501.824	3736	58.218		
	Total	238737.739	3737			
Life Factors	Between Groups	9210.042	1	9210.042	108.089	.000
	Within Groups	334783.421	3929	85.208		
	Total	343993.464	3930			
Reading	Between Groups	3150.427	1	3150.427	7.374	.007
	Within Groups	1366292.57	3198	427.233		
	Total	1369443.00	3199			
Keyboarding	Between Groups	414.012	1	414.012	2.670	.102
	Within Groups	375053.312	2419	155.045		
	Total	375467.323	2420			
Technical Knowledge	Between Groups	23742.505	1	23742.505	151.925	.000
	Within Groups	546816.363	3499	156.278		
	Total	570558.869	3500			
Technical Competency	Between Groups	834.084	1	834.084	5.228	.022
	Within Groups	575147.801	3605	159.542		
	Total	575981.885	3606			
Math Readiness	Between Groups	23.143	1	23.143	.315	.592
	Within Groups	514.857	7	73.551		
	Total	538.000	8			
Writing Readiness	Between Groups	48.364	1	48.364	.193	.664
	Within Groups	6511.266	26	250.433		
	Total	6559.630	27			
LMS Competency	Between Groups	57.360	1	57.360	.031	.862
	Within Groups	163520.168	87	1879.542		
	Total	163577.528	88			

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Individual Attributes	Traditional Aged	1097	74.18	7.925	.239	73.71	74.65	47	97
	Not Traditional Aged	2641	79.41	7.504	.146	79.13	79.70	46	98
	Total	3738	77.88	7.993	.131	77.62	78.13	46	98
Life Factors	Traditional Aged	1180	76.90	9.261	.270	76.37	77.42	45	97
	Not Traditional Aged	2751	80.24	9.218	.176	79.89	80.58	27	100
	Total	3931	79.23	9.356	.149	78.94	79.53	27	100
Reading	Traditional Aged	968	69.35	20.862	.671	68.03	70.66	0	100
	Not Traditional Aged	2232	71.51	20.586	.436	70.65	72.36	0	100
	Total	3200	70.85	20.690	.366	70.14	71.57	0	100
Keyboarding	Traditional Aged	702	27.11	13.202	.498	26.13	28.09	0	168
	Not Traditional Aged	1719	26.20	12.132	.293	25.62	26.77	0	177
	Total	2421	26.46	12.456	.253	25.96	26.96	0	177
Technical Knowledge	Traditional Aged	1037	66.03	11.861	.368	65.31	66.75	19	97
	Not Traditional Aged	2464	71.73	12.761	.257	71.23	72.24	23	100
	Total	3501	70.04	12.768	.216	69.62	70.47	19	100
Technical Competency	Traditional Aged	1072	88.46	12.532	.383	87.71	89.22	20	100
	Not Traditional Aged	2535	89.52	12.672	.252	89.02	90.01	0	100
	Total	3607	89.20	12.638	.210	88.79	89.62	0	100
Math Readiness	Traditional Aged	2	18.00	11.314	8.000	−83.65	119.65	10	26
	Not Traditional Aged	7	21.86	8.030	3.035	14.43	29.28	8	30
	Total	9	21.00	8.201	2.734	14.70	27.30	8	30
Writing Readiness	Traditional Aged	8	58.32	13.067	4.620	47.40	69.25	41	77
	Not Traditional Aged	20	55.41	16.727	3.740	47.58	63.24	23	88
	Total	28	56.24	15.587	2.946	50.20	62.29	23	88
LMS Competency	Traditional Aged	21	265.71	35.436	7.733	249.58	281.84	170	300
	Not Traditional Aged	68	263.82	45.451	5.512	252.82	274.82	100	300
	Total	89	264.27	43.114	4.570	255.19	273.35	100	300
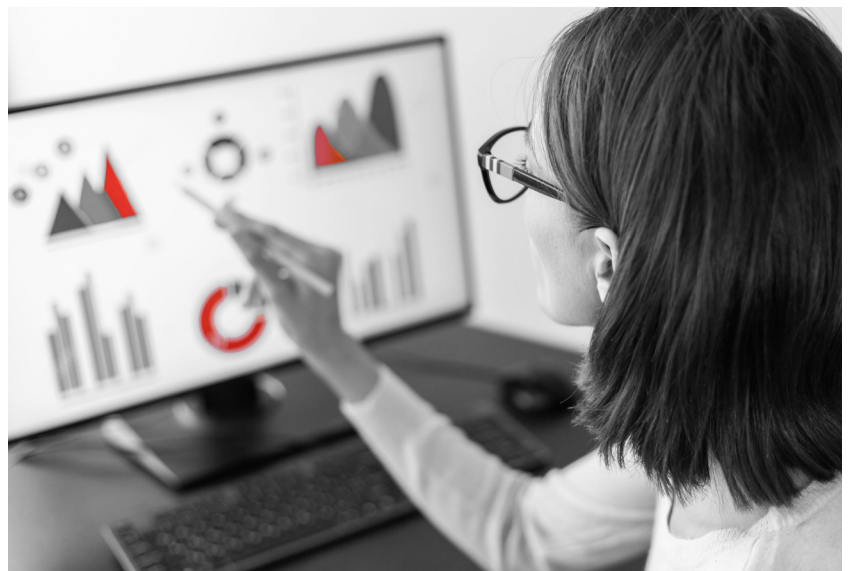
COMPARISON OF MEANS

GENDER

Means were compared between the genders of male and female across the scales measured by the assessment. Females were found to have statistically significant higher means on the scales of Individual Attributes and Math Readiness while Males showed significantly higher means on Technical Knowledge. The differences in means were not significantly different between genders on all other scales.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Individual Attributes	Between Groups	3146.752	1	3146.752	47.637	.000
	Within Groups	149288.240	2260	66.057		
	Total	152434.992	2261			
Life Factors	Between Groups	67.399	1	67.399	.795	.373
	Within Groups	198464.413	2342	84.741		
	Total	198531.812	2343			
Reading	Between Groups	133.049	1	133.049	.335	.563
	Within Groups	762184.797	1918	397.385		
	Total	762317.846	1919			
Keyboarding	Between Groups	394.644	1	394.644	2.514	.113
	Within Groups	243167.172	1549	156.983		
	Total	243561.816	1550			
Technical Knowledge	Between Groups	1497.869	1	1497.869	9.170	.002
	Within Groups	338926.465	2075	163.338		
	Total	340424.334	2076			
Technical Competency	Between Groups	88.392	1	88.392	.619	.432
	Within Groups	304458.923	2131	142.871		
	Total	304547.315	2132			
Math Readiness	Between Groups	356.629	1	356.629	22.069	.005
	Within Groups	80.800	5	16.160		
	Total	437.429	6			
Writing Readiness	Between Groups	465.168	1	465.168	2.000	.170
	Within Groups	5813.264	25	232.531		
	Total	6278.432	26			
LMS Competency	Between Groups	2205.000	1	2205.000	1.092	.303
	Within Groups	68670.000	34	2019.706		
	Total	70875.000	35			

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Individual Attributes	Female	1423	77.78	7.840	.208	77.38	78.19	52	97
	Male	839	75.34	8.593	.297	74.76	75.92	46	94
	Total	2262	76.88	8.211	.173	76.54	77.22	46	97
Life Factors	Female	1488	78.27	8.969	.233	77.81	78.73	27	97
	Male	856	77.92	9.603	.328	77.27	78.56	45	97
	Total	2344	78.14	9.205	.190	77.77	78.51	27	97
Reading	Female	1221	71.77	18.854	.540	70.71	72.83	0	100
	Male	699	71.23	21.694	.821	69.62	72.84	0	100
	Total	1920	71.57	19.931	.455	70.68	72.47	0	100
Keyboarding	Female	1005	26.61	11.320	.357	25.91	27.31	0	81
	Male	546	25.56	14.496	.620	24.34	26.78	0	168
	Total	1551	26.24	12.535	.318	25.62	26.87	0	168
Technical Knowledge	Female	1300	68.51	12.586	.349	67.82	69.19	19	100
	Male	777	70.26	13.100	.470	69.34	71.19	28	98
	Total	2077	69.17	12.806	.281	68.61	69.72	19	100
Technical Competency	Female	1338	89.74	10.914	.298	89.15	90.32	30	100
	Male	795	89.32	13.523	.480	88.38	90.26	20	100
	Total	2133	89.58	11.952	.259	89.07	90.09	20	100
Math Readiness	Female	5	24.80	4.438	1.985	19.29	30.31	17	28
	Male	2	9.00	1.414	1.000	-3.71	21.71	8	10
	Total	7	20.29	8.538	3.227	12.39	28.18	8	28
Writing Readiness	Female	24	54.17	15.821	3.230	47.49	60.85	23	88
	Male	3	67.37	5.290	3.054	54.23	80.51	63	73
	Total	27	55.63	15.540	2.991	49.49	61.78	23	88
LMS Competency	Female	30	267.67	44.928	8.203	250.89	284.44	100	300
	Male	6	246.67	45.019	18.379	199.42	293.91	170	300
	Total	36	264.17	45.000	7.500	248.94	279.39	100	300

ETHNICITY

To determine if levels of readiness varied between ethnicities, an analysis of variance was computed. Statistically significant differences in means were found on five of the scales. No one ethnicity was dominant. African Americans had the highest means for life factors. Caucasian students had the highest means for reading, keyboarding, and technical competency. Asian or Pacific Islanders had the highest mean for Technical Knowledge. For the purpose of this analysis, ethnicities or responses which consisted of less than 3% of the data set were combined into an "Other Ethnicities" category so that exemplary cases would not be overrepresented.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Life Factors	Between Groups	2048.209	5	409.642	4.813	.000
	Within Groups	84508.785	993	85.105		
	Total	86556.995	998			
Individual Attributes	Between Groups	407.527	5	81.505	1.276	.272
	Within Groups	61023.727	955	63.899		
	Total	61431.254	960			
Reading	Between Groups	20978.504	5	4195.701	11.193	.000
	Within Groups	307381.734	820	374.856		
	Total	328360.238	825			
Keyboarding	Between Groups	8109.809	5	1621.962	10.121	.000
	Within Groups	102721.286	641	160.252		
	Total	110831.094	646			
Technical Knowledge	Between Groups	3883.984	5	776.797	5.072	.000
	Within Groups	135080.080	882	153.152		
	Total	138964.064	887			
Technical Competency	Between Groups	5072.352	5	1014.470	6.169	.000
	Within Groups	148176.957	901	164.458		
	Total	153249.309	906			
Math Readiness	Between Groups	152.667	2	76.333	.	.
	Within Groups	.000	0	.		
	Total	152.667	2			
Writing Readiness	Between Groups	96.882	3	32.294	.106	.955
	Within Groups	3348.786	11	304.435		
	Total	3445.669	14			
LMS Competency	Between Groups	7826.667	4	1956.667	1.103	.407
	Within Groups	17733.333	10	1773.333		
	Total	25560.000	14			

SmarterMeasure™

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Life Factors	African American	175	78.19	9.714	.734	76.74	79.64	48	95
	Asian or Pacific Islander	64	75.52	10.604	1.326	72.87	78.17	55	95
	Caucasian	435	78.16	9.022	.433	77.31	79.01	38	98
	Indian	14	67.14	11.190	2.991	60.68	73.60	50	86
	Latino	195	77.47	8.345	.598	76.29	78.65	51	98
	Other Ethnicity	116	77.00	9.573	.889	75.24	78.76	54	100
	Total	999	77.57	9.313	.295	76.99	78.15	38	100
Individual Attributes	African American	167	76.70	8.373	.648	75.42	77.98	52	98
	Asian or Pacific Islander	59	76.81	8.159	1.062	74.68	78.93	59	95
	Caucasian	428	76.76	7.941	.384	76.01	77.52	31	97
	Indian	14	72.84	9.058	2.421	67.61	78.07	58	83
	Latino	190	75.93	7.375	.535	74.88	76.99	58	94
	Other Ethnicity	103	75.38	8.430	.831	73.73	77.02	56	95
	Total	961	76.39	7.999	.258	75.88	76.89	31	98
Reading	African American	142	62.49	21.641	1.816	58.90	66.08	10	100
	Asian or Pacific Islander	53	69.06	21.055	2.892	63.25	74.86	20	100
	Caucasian	362	76.08	18.534	.974	74.17	78.00	0	100
	Indian	7	61.43	19.518	7.377	43.38	79.48	40	90
	Latino	176	69.63	18.669	1.407	66.85	72.41	18	100
	Other Ethnicity	86	73.02	19.102	2.060	68.93	77.12	20	100
	Total	826	71.48	19.950	.694	70.12	72.84	0	100
Keyboarding	African American	114	18.68	8.913	.835	17.03	20.34	0	45
	Asian or Pacific Islander	38	26.66	13.338	2.164	22.27	31.04	0	64
	Caucasian	307	28.40	13.446	.767	26.89	29.91	0	75
	Indian	8	27.38	18.314	6.475	12.06	42.69	7	64
	Latino	114	25.04	11.745	1.100	22.86	27.22	0	91
	Other Ethnicity	66	27.29	14.625	1.800	23.69	30.88	0	68
	Total	647	25.87	13.098	.515	24.86	26.88	0	91
Technical Knowledge	African American	154	66.74	13.287	1.071	64.62	68.85	27	98
	Asian or Pacific Islander	53	73.59	11.980	1.646	70.29	76.90	41	94
	Caucasian	392	69.70	12.271	.620	68.48	70.91	28	97
	Indian	13	66.11	13.851	3.842	57.74	74.48	50	91
	Latino	181	66.07	12.201	.907	64.28	67.86	34	100
	Other Ethnicity	95	70.45	11.594	1.190	68.09	72.81	45	94
	Total	888	68.70	12.517	.420	67.88	69.53	27	100
Technical Competency	African American	160	83.90	16.480	1.303	81.33	86.48	10	100
	Asian or Pacific Islander	54	90.12	11.363	1.546	87.02	93.23	40	100
	Caucasian	403	90.24	11.019	.549	89.16	91.32	30	100
	Indian	13	89.23	6.405	1.776	85.36	93.10	80	100
	Latino	182	88.10	11.135	.825	86.47	89.72	50	100
	Other Ethnicity	95	86.62	16.759	1.719	83.21	90.03	20	100
	Total	907	88.29	13.006	.432	87.44	89.14	10	100
Math Readiness	African American	1	27.00	.	.	.	.	27	27
	Asian or Pacific Islander	0	.	.	.	.	.	.	.
	Caucasian	1	22.00	.	.	.	.	22	22
	Indian	1	10.00	.	.	.	.	10	10
	Latino	0	.	.	.	.	.	.	.
	Other Ethnicity	0	.	.	.	.	.	.	.
	Total	3	19.67	8.737	5.044	−2.04	41.37	10	27
Writing Readiness	African American	10	58.63	18.918	5.982	45.10	72.16	27	85
	Asian or Pacific Islander	1	56.70	.	.	.	.	57	57
	Caucasian	3	62.92	7.998	4.618	43.05	82.79	54	68
	Indian	0	.	.	.	.	.	.	.
	Latino	0	.	.	.	.	.	.	.
	Other Ethnicity	1	52.36	.	.	.	.	52	52
	Total	15	58.94	15.688	4.051	50.25	67.63	27	85
LMS Competency	African American	4	320.00	54.160	27.080	233.82	406.18	280	400
	Asian or Pacific Islander	2	285.00	7.071	5.000	221.47	348.53	280	290
	Caucasian	0	.	.	.	.	.	.	.
	Indian	1	270.00	.	.	.	.	270	270
	Latino	2	250.00	70.711	50.000	−385.31	885.31	200	300
	Other Ethnicity	6	278.33	27.869	11.377	249.09	307.58	230	300
	Total	15	286.00	42.728	11.032	262.34	309.66	200	400

COMPARISON OF MEANS

ONLINE LEARNING EXPERIENCE

To determine the degree to which experience matters with online learning, an Analysis of Variance (ANOVA) was computed to identify differences in means based on the number of prior online courses taken at the time the student completed SmarterMeasure. As one might imagine, statistically significant differences in means were found for all scales except math readiness and writing readiness. For all seven scales for which a significant difference in means was found persons reporting having taken five or more prior online courses reported the highest means.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Individual Attributes	Between Groups	4876.612	5	975.322	14.900	.000
	Within Groups	151863.538	2320	65.458		
	Total	156740.151	2325			
Life Factors	Between Groups	3498.319	5	699.664	8.302	.000
	Within Groups	211537.154	2510	84.278		
	Total	215035.473	2515			
Reading	Between Groups	14253.982	5	2850.796	7.241	.000
	Within Groups	780735.935	1983	393.715		
	Total	794989.917	1988			
Keyboarding	Between Groups	7033.294	5	1406.659	9.319	.000
	Within Groups	232916.838	1543	150.951		
	Total	239950.132	1548			
Technical Knowledge	Between Groups	38289.382	5	7657.876	53.277	.000
	Within Groups	319386.106	2222	143.738		
	Total	357675.488	2227			
Technical Competency	Between Groups	9772.047	5	1954.409	14.690	.000
	Within Groups	305461.465	2296	133.041		
	Total	315233.511	2301			
Math Readiness	Between Groups	207.875	3	69.292	1.160	.428
	Within Groups	239.000	4	59.750		
	Total	446.875	7			
Writing Readiness	Between Groups	2355.688	5	471.138	2.522	.061
	Within Groups	3922.744	21	186.797		
	Total	6278.432	26			
LMS Competency	Between Groups	21574.298	5	4314.860	2.990	.018
	Within Groups	88037.643	61	1443.240		
	Total	109611.940	66			

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bound	95% Confidence Interval for Mean Upper Bound	Minimum	Maximum
Individual Attributes	0	1127	75.71	8.314	.248	75.23	76.20	47	96
	1	326	75.48	7.864	.436	74.62	76.34	52	96
	2	221	77.17	7.810	.525	76.14	78.21	53	93
	3	157	78.23	7.572	.604	77.04	79.43	57	97
	4	137	77.68	7.441	.636	76.42	78.93	57	93
	5	358	79.47	8.206	.434	78.62	80.32	54	94
	Total	2326	76.68	8.211	.170	76.35	77.02	47	97
Life Factors	0	1203	77.13	9.239	.266	76.61	77.65	51	99
	1	346	77.56	9.265	.498	76.58	78.54	45	96
	2	241	79.21	8.677	.559	78.11	80.31	54	96
	3	169	78.62	9.910	.762	77.12	80.13	27	96
	4	153	78.95	9.006	.728	77.51	80.39	50	95
	5	404	80.22	8.971	.446	79.34	81.10	45	97
	Total	2516	78.10	9.247	.184	77.73	78.46	27	99
Reading	0	979	69.22	20.716	.662	67.92	70.52	0	100
	1	269	71.41	18.803	1.146	69.15	73.66	10	100
	2	181	73.93	17.786	1.322	71.32	76.54	10	100
	3	133	73.92	19.384	1.681	70.59	77.24	0	100
	4	121	74.76	21.044	1.913	70.97	78.54	0	100
	5	306	75.95	18.695	1.069	73.85	78.05	0	100
	Total	1989	71.63	19.997	.448	70.75	72.51	0	100
Keyboarding	0	692	24.48	12.085	.459	23.58	25.38	0	110
	1	223	27.68	15.884	1.064	25.59	29.78	0	168
	2	164	26.51	10.433	.815	24.90	28.11	0	67
	3	116	27.61	10.338	.960	25.71	29.51	0	55
	4	100	27.62	11.273	1.127	25.38	29.86	9	79
	5	254	30.28	11.485	.721	28.86	31.70	8	78
	Total	1549	26.54	12.450	.316	25.92	27.17	0	168
Technical Knowledge	0	1047	65.76	12.740	.394	64.99	66.53	19	98
	1	312	69.32	11.543	.653	68.04	70.61	36	96
	2	213	71.85	11.955	.819	70.24	73.47	36	98
	3	156	74.00	11.692	.936	72.15	75.85	44	98
	4	139	71.47	10.418	.884	69.72	73.22	39	94
	5	361	76.71	10.762	.566	75.60	77.82	45	100
	Total	2228	69.55	12.673	.268	69.02	70.07	19	100
Technical Competency	0	1083	88.09	12.593	.383	87.34	88.84	20	100
	1	324	90.23	12.169	.676	88.90	91.56	20	100
	2	220	91.98	9.835	.663	90.68	93.29	50	100
	3	162	91.04	11.194	.880	89.30	92.77	30	100
	4	144	89.75	12.471	1.039	87.69	91.80	30	100
	5	369	93.59	7.812	.407	92.79	94.39	70	100
	Total	2302	89.95	11.705	.244	89.47	90.43	20	100
Math Readiness	0	1	10.00	.	.	.	.	10	10
	1	2	27.00	1.414	1.000	14.29	39.71	26	28
	2	1	17.00	.	.	.	.	17	17
	3	0	.	.	.	.	.	.	.
	4	0	.	.	.	.	.	.	.
	5	4	19.50	8.888	4.444	5.36	33.64	8	27
	Total	8	19.88	7.990	2.825	13.20	26.55	8	28
Writing Readiness	0	15	50.31	11.593	2.993	43.89	56.73	24	73
	1	2	48.69	36.791	26.015	-281.87	379.24	23	75
	2	3	79.15	8.147	4.704	58.91	99.39	72	88
	3	1	50.69	.	.	.	.	51	51
	4	1	64.37	.	.	.	.	64	64
	5	5	59.50	11.777	5.267	44.88	74.12	39	67
	Total	27	55.63	15.540	2.991	49.49	61.78	23	88
LMS Competency	0	19	242.11	48.828	11.202	218.57	265.64	100	300
	1	13	259.23	45.910	12.733	231.49	286.97	170	300
	2	12	279.17	20.652	5.962	266.04	292.29	240	300
	3	6	268.33	36.560	14.926	229.97	306.70	200	300
	4	6	290.00	24.495	10.000	264.29	315.71	240	300
	5	11	286.36	23.355	7.042	270.67	302.05	230	300
	Total	67	265.97	40.753	4.979	256.03	275.91	100	300

SmarterMeasure™

SCHOOL CHOICE

To determine the degree to which a student considering their current school to be the right school for them impacts their level of learning readiness and Analysis of Variance was computed. Statistically significant differences in means were found on the scales of individual attributes, life factors, and technical knowledge this the highest mean on all three scales being reported by those who were Very Confident that they had enrolled in the right school for them.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Individual Attributes	Between Groups	9857.001	3	3285.667	51.317	.000
	Within Groups	63322.309	989	64.027		
	Total	73179.310	992			
Life Factors	Between Groups	9180.995	3	3060.332	36.977	.000
	Within Groups	83425.032	1008	82.763		
	Total	92606.028	1011			
Reading	Between Groups	520.108	3	173.369	.399	.754
	Within Groups	363548.144	837	434.347		
	Total	364068.252	840			
Keyboarding	Between Groups	470.209	3	156.736	1.358	.255
	Within Groups	46751.615	405	115.436		
	Total	47221.824	408			
Technical Knowledge	Between Groups	3282.492	3	1094.164	6.574	.000
	Within Groups	155793.312	936	166.446		
	Total	159075.803	939			
Technical Competency	Between Groups	110.196	3	36.732	.245	.865
	Within Groups	144419.877	965	149.658		
	Total	144530.073	968			
LMS Competency	Between Groups	2697.649	2	1348.824	.752	.478
	Within Groups	69959.494	39	1793.833		
	Total	72657.143	41			

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Individual Attributes	Probably Not	29	73.10	7.715	1.433	70.17	76.04	55	86
	Not Sure	64	69.91	8.702	1.088	67.73	72.08	52	91
	Confident	410	73.43	7.890	.390	72.67	74.20	53	93
	Very Confident	490	79.04	8.016	.362	78.33	79.75	52	96
	Total	993	75.96	8.589	.273	75.43	76.50	52	96
Life Factors	Probably Not	29	77.38	9.741	1.809	73.67	81.08	55	93
	Not Sure	66	68.94	8.899	1.095	66.75	71.13	45	96
	Confident	419	74.80	8.746	.427	73.96	75.64	49	96
	Very Confident	498	79.42	9.371	.420	78.59	80.24	27	97
	Total	1012	76.76	9.571	.301	76.17	77.36	27	97
Reading	Probably Not	22	72.73	20.513	4.373	63.63	81.82	20	100
	Not Sure	52	67.12	21.175	2.936	61.22	73.01	10	100
	Confident	359	68.16	20.659	1.090	66.02	70.31	0	100
	Very Confident	408	68.48	20.975	1.038	66.44	70.52	0	100
	Total	841	68.37	20.819	.718	66.96	69.78	0	100
Keyboarding	Probably Not	13	28.85	11.711	3.248	21.77	35.92	11	58
	Not Sure	22	26.59	10.684	2.278	21.85	31.33	11	51
	Confident	166	24.67	11.063	.859	22.97	26.36	0	60
	Very Confident	208	23.72	10.429	.723	22.30	25.15	0	57
	Total	409	24.42	10.758	.532	23.38	25.47	0	60
Technical Knowledge	Probably Not	28	62.50	10.443	1.974	58.45	66.55	42	84
	Not Sure	59	67.07	14.950	1.946	63.17	70.97	28	95
	Confident	394	67.02	13.141	.662	65.71	68.32	30	98
	Very Confident	459	70.18	12.539	.585	69.03	71.33	36	100
	Total	940	68.43	13.016	.425	67.59	69.26	28	100
Technical Competency	Probably Not	29	88.08	11.630	2.160	83.66	92.51	67	100
	Not Sure	59	89.64	14.138	1.841	85.96	93.33	30	100
	Confident	407	88.86	12.449	.617	87.65	90.07	20	100
	Very Confident	474	89.40	11.823	.543	88.33	90.46	30	100
	Total	969	89.15	12.219	.393	88.38	89.92	20	100
LMS Competency	Probably Not	0	.	.	.	.	.	.	.
	Not Sure	6	271.67	31.885	13.017	238.21	305.13	220	300
	Confident	19	258.42	51.990	11.927	233.36	283.48	100	300
	Very Confident	17	275.29	31.843	7.723	258.92	291.67	200	300
	Total	42	267.14	42.097	6.496	254.02	280.26	100	300

COMPARISON OF MEANS

FIRST GENERATION

To determine the degree to which whether a student was a first-generation college student impacted their level of readiness an analysis of variance was computed. Students who were not first-generation college students had statistically significant higher means on life factors, reading, keyboarding, and technical competency.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Individual Attributes	Between Groups	218.136	1	218.136	2.953	.086
	Within Groups	88128.896	1193	73.872		
	Total	88347.032	1194			
Life Factors	Between Groups	1014.540	1	1014.540	11.380	.001
	Within Groups	108404.528	1216	89.148		
	Total	109419.068	1217			
Reading	Between Groups	3218.323	1	3218.323	7.522	.006
	Within Groups	438536.108	1025	427.840		
	Total	441754.430	1026			
Keyboarding	Between Groups	950.994	1	950.994	6.790	.009
	Within Groups	77730.037	555	140.054		
	Total	78681.031	556			
Technical Knowledge	Between Groups	520.860	1	520.860	3.048	.081
	Within Groups	184206.982	1078	170.878		
	Total	184727.842	1079			
Technical Competency	Between Groups	740.618	1	740.618	4.884	.027
	Within Groups	168624.246	1112	151.641		
	Total	169364.864	1113			
LMS Competency	Between Groups	2119.225	1	2119.225	1.008	.320
	Within Groups	117723.879	56	2102.212		
	Total	119843.103	57			

Descriptives

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Individual Attributes	No	783	76.02	8.608	.308	75.42	76.62	50	96
	Yes	412	76.92	8.570	.422	76.09	77.75	52	95
	Total	1195	76.33	8.602	.249	75.84	76.82	50	96
Life Factors	No	797	78.02	9.210	.326	77.38	78.66	27	96
	Yes	421	76.10	9.867	.481	75.15	77.05	45	97
	Total	1218	77.36	9.482	.272	76.82	77.89	27	97
Reading	No	679	72.53	20.360	.781	71.00	74.07	0	100
	Yes	348	68.79	21.304	1.142	66.55	71.04	0	100
	Total	1027	71.27	20.750	.647	70.00	72.54	0	100
Keyboarding	No	369	27.28	12.635	.658	25.99	28.58	0	81
	Yes	188	24.52	10.074	.735	23.07	25.97	0	57
	Total	557	26.35	11.896	.504	25.36	27.34	0	81
Technical Knowledge	No	711	69.37	12.771	.479	68.43	70.31	30	100
	Yes	369	67.90	13.634	.710	66.51	69.30	19	100
	Total	1080	68.87	13.084	.398	68.08	69.65	19	100
Technical Competency	No	731	89.98	12.521	.463	89.07	90.89	20	100
	Yes	383	88.27	11.909	.609	87.07	89.46	40	100
	Total	1114	89.39	12.336	.370	88.67	90.12	20	100
LMS Competency	No	33	259.39	47.298	8.234	242.62	276.17	100	300
	Yes	25	271.60	43.844	8.769	253.50	289.70	150	300
	Total	58	264.66	45.853	6.021	252.60	276.71	100	300

2021 SUBSCALE MEASURES OF CENTRAL TENDENCY

LIFE FACTORS

	Place	Reason	Resources	Skills	Time
Mean	16.36	17.75	14.88	14.22	14.13
Median	17	19	15	14	14
Mode	18	20	16	14	15
Std. Dev.	2.132	2.569	3.425	2.53	3.019
Variance	4.545	6.6	11.734	6.4	9.113
Range	18	16	17	16	18
Minimum	2	4	3	4	2
Maximum	20	20	20	20	20

INDIVIDUAL ATTRIBUTES

	Academic Attributes	Help Seeking	Locus of Control	Persistence	Procrastination
Mean	13.4	11.49	10.82	11.67	11.65
Median	14	12	11	12	12
Mode	14	13	11	12	12
Std. Dev.	1.978	1.796	1.999	1.691	2.539
Variance	3.914	3.224	3.994	2.86	6.449
Range	13	12	13	13	13
Minimum	3	4	3	3	3
Maximum	16	16	16	16	16

TECHNOLOGY SKILLS

	Computer Competency	Internet Competency	Computer Specification	Technology in Your Life	Technology Usage	Technology Vocabulary
Mean	43.37	46.58	11.42	11.89	12.46	8.2
Median	40	50	12	12	12	9
Mode	50	50	13	12	13	10
Std. Dev.	7.709	6.573	1.941	3.886	3.431	1.805
Variance	59.431	43.2	3.768	15.099	11.773	3.258
Range	50	50	12	20	21	10
Minimum	0	0	1	0	0	0
Maximum	50	50	13	20	21	10

MATH READINESS

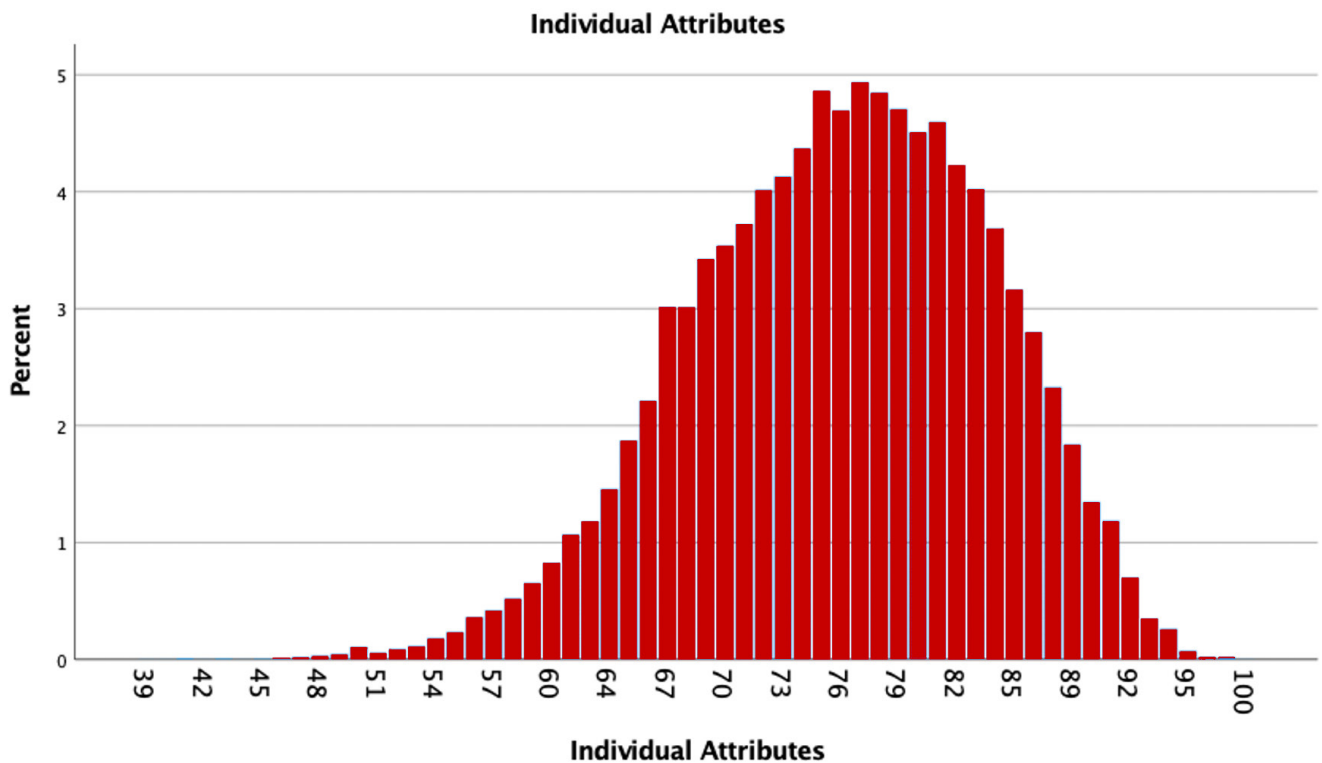|	Computation	Decimals	Equations	Factoring	Fractions	Whole Numbers
Mean	7.55	4.31	1.61	2.37	3.37	3.63
Median	8	4	2	3	4	4
Mode	10	4	2	3	5	4
Std. Dev.	2.32	0.989	0.635	0.856	1.579	0.626
Variance	5.382	0.977	0.403	0.733	2.492	0.392
Range	9	5	2	3	5	4
Minimum	1	1	0	0	0	0
Maximum	10	6	2	3	5	4

WRITING READINESS

	Apprehension	Grammar-Usage Syntax	Structure
Mean	27.2	22.25	7.12
Median	27	24.03	8
Mode	28	24	4
Std. Dev.	5.979	6.987	4.803
Variance	35.743	48.823	23.073
Range	33	40	20
Minimum	7	0	0
Maximum	40	40	20

Life Factors

Individual Attributes

Reading

Keyboarding

Technical Knowledge

Technical Comptency