

# GENERAL EDUCATION ASSESSMENT REPORT (2021-2022)

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## Introduction

General education competencies are measurable skills students need for successful employment, transfer to a four-year institution, and lifelong learning. The following report documents the assessments conducted in the 2021-2022 academic year in accordance with the Curriculum Education internal document "General Education Assessment Plan Fall 2021", which details the purpose and rationale for Core Competency Assessment at the college.

## Background: General Education Core Competencies

Until Fall 2021, Wake Technical Community College focused on three core competencies:

- 1) **Critical Thinking:** The ability to reason and solve problems, draw conclusions, or generate new ideas or artifacts using appropriate knowledge and skills.
- 2) **Quantitative Literacy:** The habit of mind in which an individual identifies, understands and engages in mathematical reasoning to make well-founded analytical decisions.
- 3) **Written Communication:** The ability to produce college-level content that conveys purpose and meaning at the mastery level.

Based on feedback from program advisory committees, Wake Tech's general education competencies were consolidated from three into two:

- 1) **Effective Communication:** The ability to produce college-level content that conveys purpose and meaning at the mastery level.
- 2) **Problem Solving:** The ability to reason and solve problems, draw conclusions, or generate new ideas or artifacts using appropriate knowledge and skills.

The rationale provided for changing Written Communication to Effective Communication was that the new phrasing allows for programs to choose oral or written communication as appropriate for the program. Similarly, changes were made to combine Quantitative Literacy and Critical Thinking into the umbrella category of Problem Solving, as employers had commented on advisory committee surveys about their need for problem solving. The combination into "Problem Solving" fit with the language requested by advisory committees and provided more flexibility to the programs (Bakken, J. personal communication, July 11, 2022).

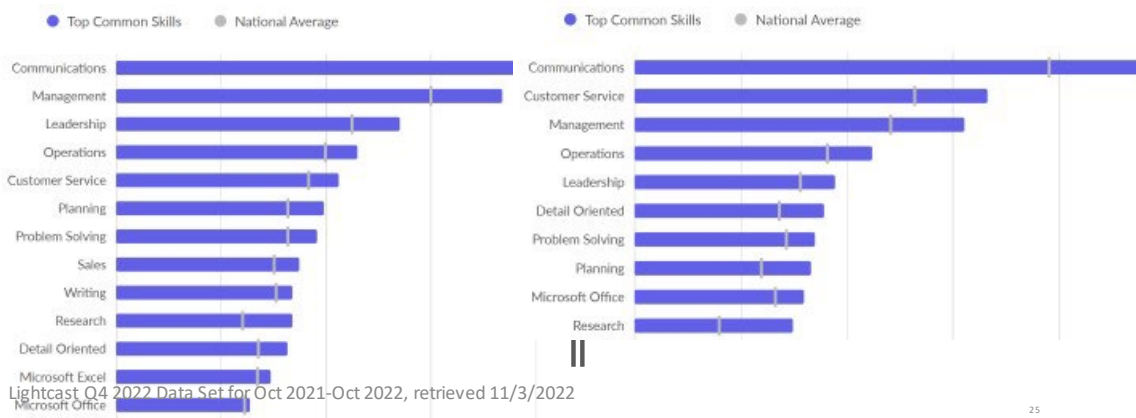
The needs expressed by employers are consistent with labor market data from Wake County and surrounding regions. "Communications" is the top common skill listed among all postings for jobs requiring either an Associates or Bachelor's degree, and "Problem Solving" is among the top ten for both degrees.



## Top common skills among job postings in Wake and Surrounding Counties

Bachelors

Associates



### Direct Assessment

Since Fall of 2018, the direct assessment process of Wake Tech’s General Education Core Competencies has included assessment at the course level, with each program identifying courses where every student is assessed in each outcome. Courses for which a program has mapped general education competencies must assess the extent to which proficiency targets were met. The standard proficiency target for most courses is for at least 70% of students to answer single questions correctly or to score at least a 70 on the full assessment (final exam, essay, project, etc.).

### Indirect Assessment

In addition to the direct assessment of student learning, indirect assessments of student learning have included:

- WTCC Graduate Survey:** Continuously open survey listed as a requirement for Wake Tech students to take when they apply to graduate, asks students to indicate whether they believed their level of proficiency with the college’s competencies “Strongly Improved”, “Moderately Improved”, or “Did Not Improve” as a result of their Wake Tech education. Between August 25, 2021 and July 14, 2022, a total of 1,267 students responded to the Graduate Survey. Since the graduate survey was not updated to reflect the two new competencies, results below include Written Communication under Effective Communication and Critical Thinking and Quantitative Literacy under Problem Solving.
- Advisory Committee Satisfaction Survey:** Survey of external program advisors that asks for perspectives on the extent to which Wake Tech’s degree students achieve the college’s core competencies. Note: due to the



college’s reorganization of advisory committees, this survey was not administered for the 2021-2022 academic year and is not included as an assessment measure for this report.

- **Community College Survey of Student Engagement (CCSSE):** A national survey used to assess student engagement and educational practices in community colleges. Wake Tech has administered this survey to its students every three years, using it to benchmark current student perceptions of their core competencies against other community colleges across the nation.
- **Community College Faculty Survey of Student Engagement (CCFSSE):** A national survey eliciting information from faculty about their perceptions regarding students' educational experiences, their teaching practices, and the ways they spend their professional time—both in and out of the classroom.
- **UNC Academic Performance of First Year WTCC Transfer Students:** Dashboards reported by the UNC System General Administration, analyzed to compare the performance of Wake Tech transfer students in UNC English, Math, Social Sciences, and Natural Science courses with those of UNC Non-Transfer Juniors and UNC-UNC Transfers. These comparisons are used as indirect indicators of post-graduate attainment of the competencies aligned with those courses.

*UNC Courses and WTCC Core Competencies*

UNC Courses	WTCC Core Competency
English Courses	Effective Communication
Math Courses	Problem Solving
Social Science Courses	Problem Solving
Natural Science Courses	Problem Solving

## Assessment Results by Core Competency

### Effective Communication (formerly Written Communication)

#### Direct Measures: Gen Ed Outcomes Assessed in Courses

Of the nine General Education courses that assessed for Effective Communication in Fall 2021, eight achieved an overall proficiency of at least 70% average for all measures, including:

<b>COURSE</b>	<b>TOTAL ENROLLED SEATS IN FALL 2021<sup>1</sup></b>	<b>TOTAL AVERAGE PROFICIENCY RATE<sup>2</sup></b>
ART-114	247	70.4%
COM-110	412	84.0%
COM-120	1319	84.0%
COM-231	704	86.0%
EGR-150	247	82.0%
ENG-110	152	86.0%
ENG-112	1361	71.0%
ENG-114	246	79.0%

ENG-111 missed the proficiency target by four percentage points:

<b>COURSE</b>	<b>TOTAL ENROLLED SEATS IN FALL 2021</b>	<b>TOTAL AVERAGE PROFICIENCY RATE</b>
ENG-111	3618	66.0%

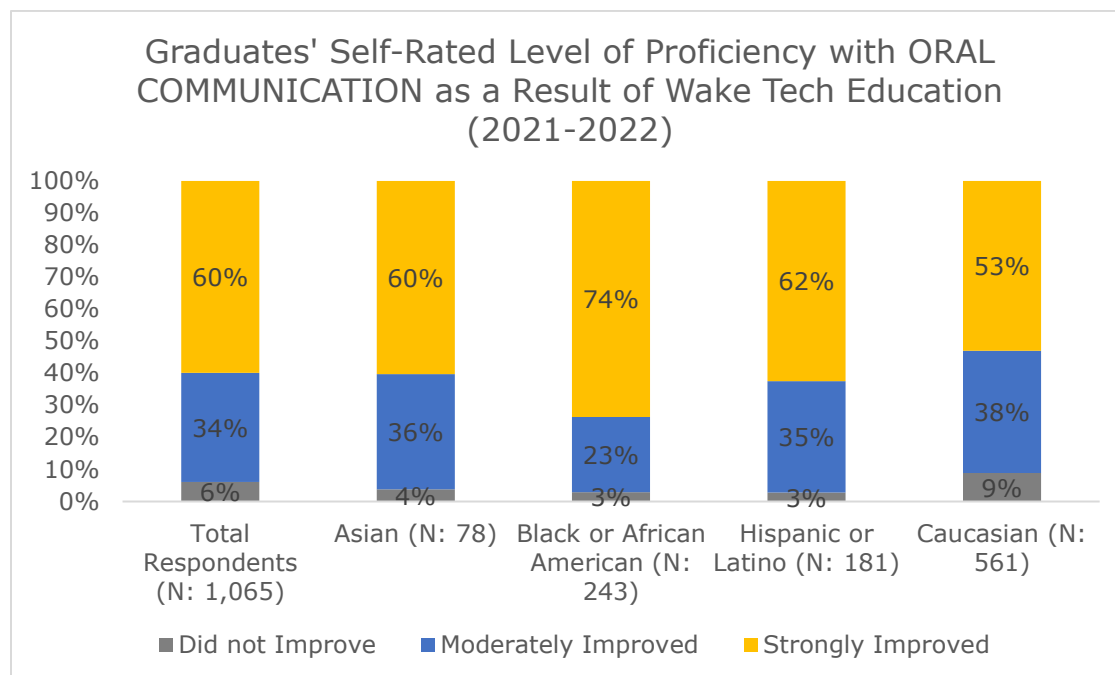
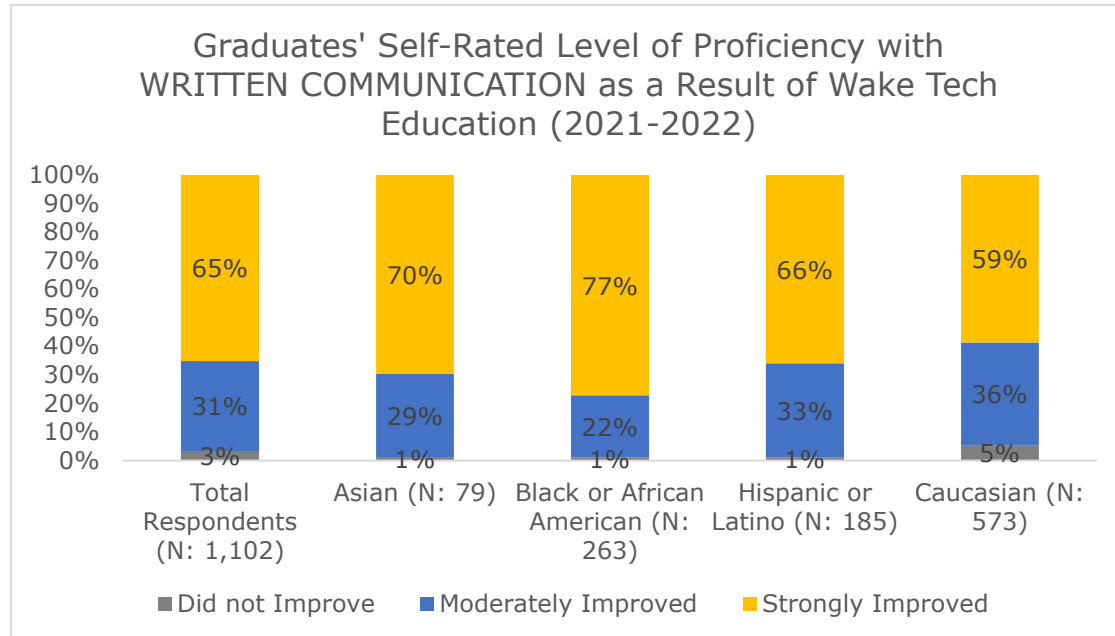
<sup>1</sup> Total enrolled seats do not equate to the total number of students assessed for the course, which varied by measure and whether/how sampling was conducted.

<sup>2</sup> The standard proficiency target for most courses is for at least 70% of students to answer single questions correctly or to score at least a 70 on the full assessment (final exam, essay, project, etc.). When outcomes had multiple measures, the average proficiency level was taken among all targets for that particular outcome. When multiple outcomes measured the same core competency, the average was taken for all measures for all outcomes.



## Indirect Measures: Graduate Survey

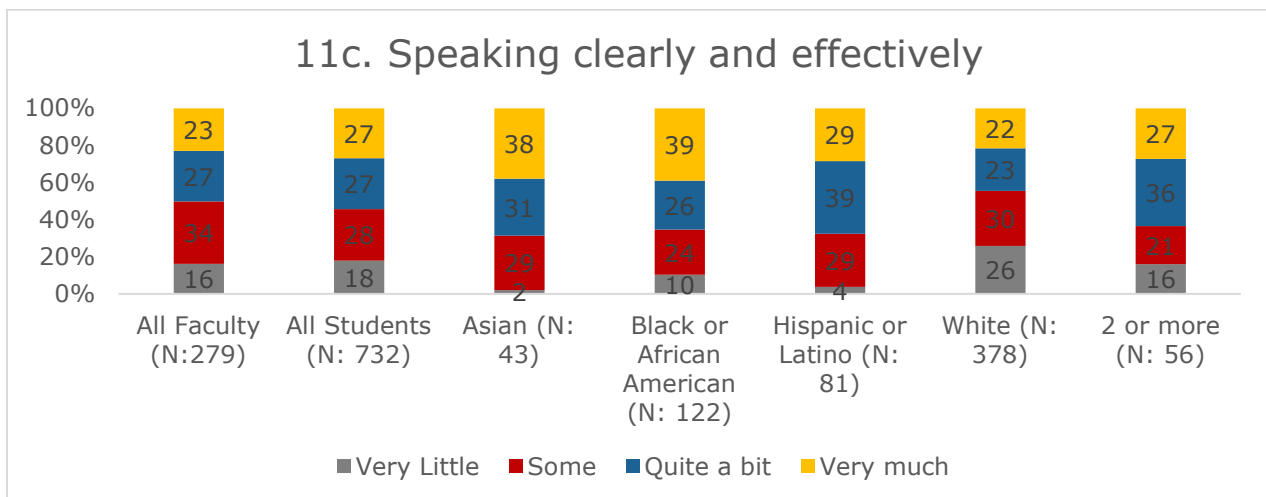
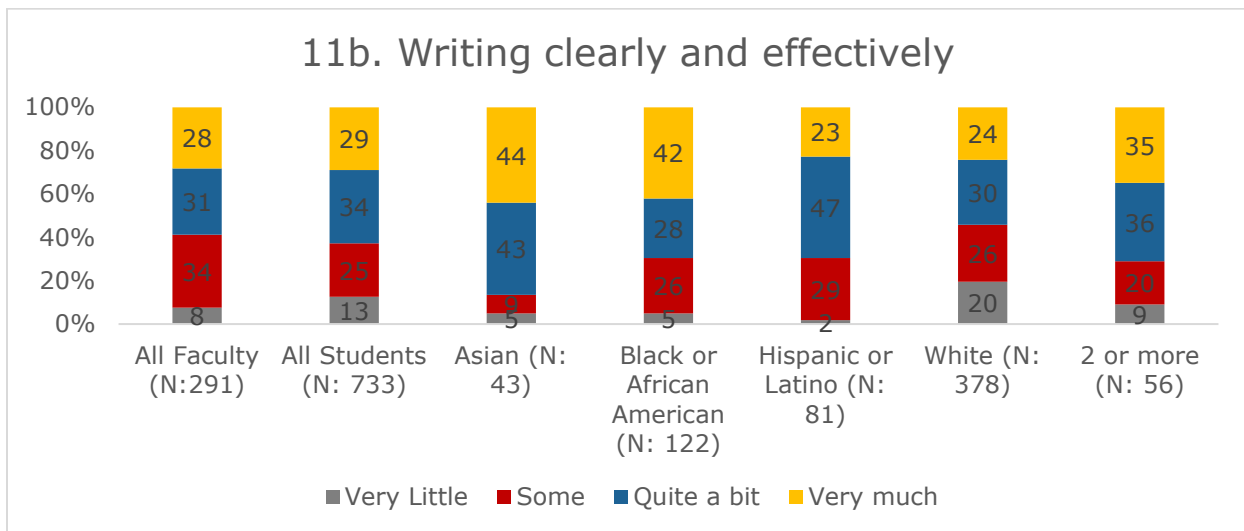
Among graduates who completed Wake Tech’s Graduate survey, a majority of students indicated that their level of proficiency improved either strongly or moderately in their Written and Oral Communication as a result of their Wake Technical Community College education. Among demographic groups, a higher proportion of Black or African American students (74% to 70%) reported their proficiency in these core competencies strongly improved and a lower proportion of Caucasian students (53% to 59%) reported their proficiency strongly improved.



## Indirect Measures: CCSSE/CCFSSE Results (Spring 2022)

Students answered the following question for different competencies on Item 11 of the CCSSE and CCFSSE surveys in Spring 2022: How much has your experience at this college contributed to your knowledge, skills, and personal development in the following areas?

As shown, by the graphs, a majority of students in each subgroup reported that their experience at Wake Tech contributed “quite a bit” or “very much” to their knowledge, skills and personal development in writing clearly and effectively and speaking clearly and effectively. More than other subgroups, Hispanic/Latino students (29%) reported that Wake Tech contributed only “some” to writing clearly and effectively, and White/Caucasian students more than other subgroups reported “very little” contribution of WTCC to their writing or speaking clearly and effectively.



## UNC English Course Performance of First Year WTCC Transfer Students.

Wake Tech students who transferred to a UNC System college consistently perform at a higher level in English courses, as measured by First-Year GPA, than non-transfer students at the same class level. The latest comparison data available from Fall 2020 shows Wake Tech transfer students' average GPA in English courses at 3.21 compared to non-transfer students' GPA at 2.94.

*GPA of WTCC Transfer Students in English Courses During First Year at UNC Institution*

Entering Term	Transfer Students	Transfer Student Courses	Transfer GPA	Non-Transfer Students	Non-Transfer Student Courses	Non-Transfer GPA
Fall 2011	83	133	3.41	7,092	13,573	3.06
Fall 2012	84	135	3.26	7,299	13,595	3.12
Fall 2013	119	187	3.33	7,306	12,818	3.12
Fall 2014	105	141	3.45	7,069	12,018	3.18
Fall 2015	134	191	3.23	7,187	11,962	3.01
Fall 2016	141	203	3.23	7,341	11,744	3.06
Fall 2017	177	242	3.34	7,292	11,239	3.11
Fall 2018	164	246	3.19	7,534	11,524	3.15
Fall 2019	180	271	3.19	7,535	11,561	3.09
Fall 2020	198	272	3.21	7,855	11,903	2.94

*UNC System Transfer Dashboard data retrieved on 11/5/2022. Filter for "Degree Attained Before Transferring" = All*

## Summary of Effective Communication Core Competency Assessments

With the exception of writing competencies assessed in English 111, all other direct and indirect assessment results indicate that overall, a majority of students are gaining proficiency in Effective Communication for successful employment, transfer to a four-year institution, and lifelong learning. Wake Tech students transferring to a UNC System College in Fall 2020 performed better in English courses taken within their first year of transferring as compared to native juniors starting in the UNC System.

To improve student proficiency in the writing component of Effective Communication, especially for students who are directly entering employment after Wake Tech, English 111 faculty may want to analyze their core competency assessments to determine the specific areas of writing deficiency and the associated supports or curriculum re-designs needed to address those deficiencies. Given differences among demographic groups taking the CCSSE, and 29% of Hispanic/Latino students reporting that Wake Tech was helping them write effectively only "some" (a larger proportion than other groups), English faculty may want to disaggregate the learning outcomes data among demographic groups taking English 111 to understand the specific deficiencies among specific demographic groups and to customize the ways they serve these students. For example, Hispanic/Latino students may need different supports to reach core competency mastery than White/Caucasian male students, which may require



partnering with other academic and support personal across the college to provide these supports.

### Problem Solving (formerly Critical Thinking and Quantitative Literacy)

#### Direct Measures: Gen Ed Outcomes Assessed in Courses

Of the 22 courses that assessed for Problem Solving in Fall 2021, 10 achieved an overall proficiency of at least 70% average for all measures:

Ten courses in the areas of Student Success, Business, Humanities, Mathematics, and Social Sciences met the proficiency targets:

<b>COURSE</b>	<b>TOTAL ENROLLED SEATS IN FALL 2021<sup>3</sup></b>	<b>TOTAL AVERAGE PROFICIENCY RATE<sup>4</sup></b>
ECO-151	287	83.0%
ECO-251	988	73.6%
ECO-252	474	89.8%
HIS-131	560	85.0%
HUM-115	790	76.3%
MAT-110	335	83.3%
MAT-272	152	70.9%
POL-120	402	82.8%
PSY-118	388	80.0%
SOC-210	1408	76.9%

Twelve courses in the areas of Mathematics, Natural Science and Psychology did not meet the proficiency targets:

<b>COURSE</b>	<b>TOTAL ENROLLED SEATS IN FALL 2021</b>	<b>TOTAL AVERAGE PROFICIENCY RATE</b>
ACA-122	1784	MEASURE DEEMED UNRELIABLE
BIO-161	162	31.7%
BIO-168	678	32.2%
CHM-130	118	64.2%
MAT-121	138	47.2%
MAT-143	437	52.3%
MAT-152	689	56.9%

<sup>3</sup> Total enrolled seats do not equate to the total number of students assessed for the course, which varied by measure and whether/how sampling was conducted.

<sup>4</sup> The standard proficiency target for most courses is for at least 70% of students to answer single questions correctly or to score at least a 70 on the full assessment (final exam, essay, project, etc.). When outcomes had multiple measures, the average proficiency level was taken among all targets for that particular outcome. When multiple outcomes measured the same core competency, the average was taken for all measures for all outcomes.

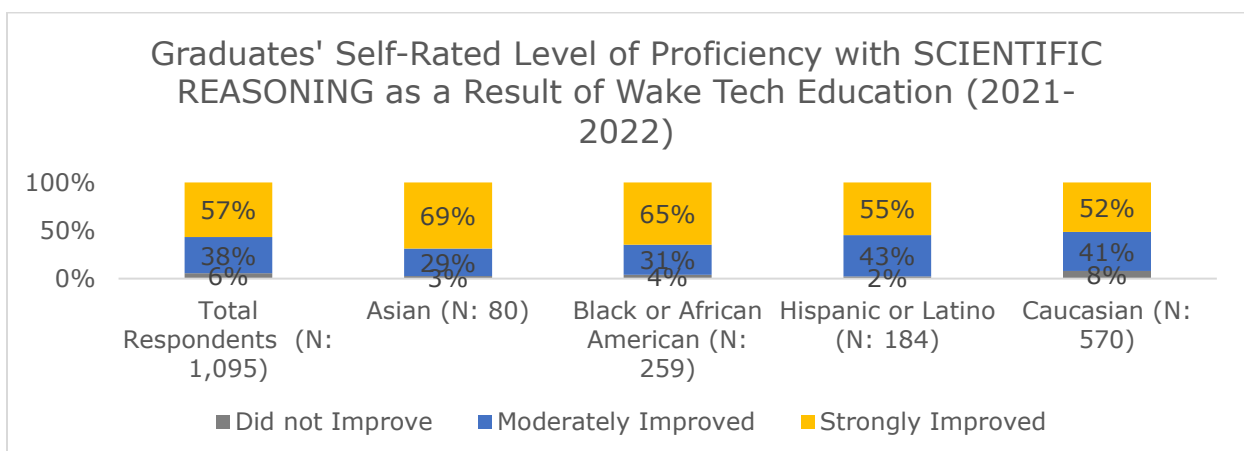
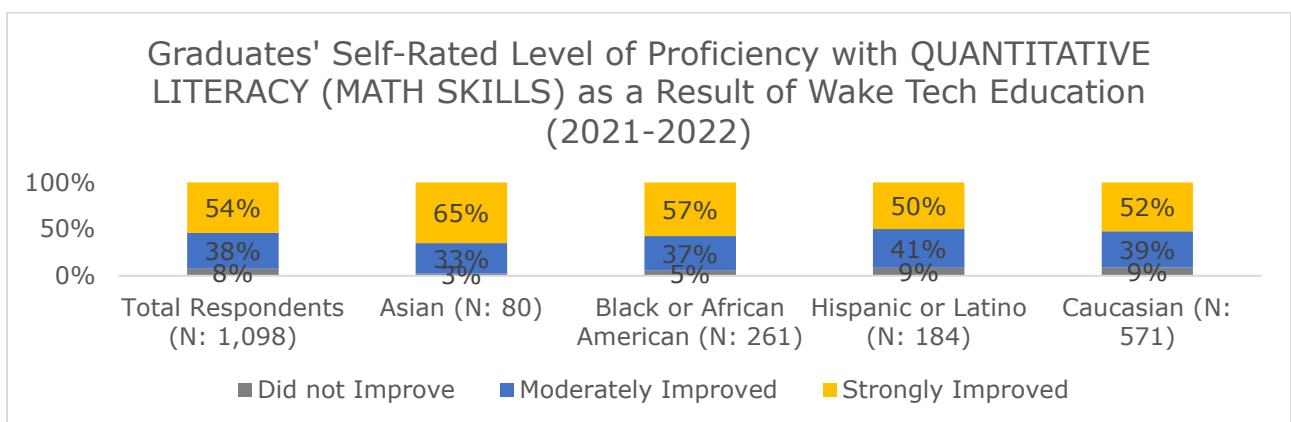
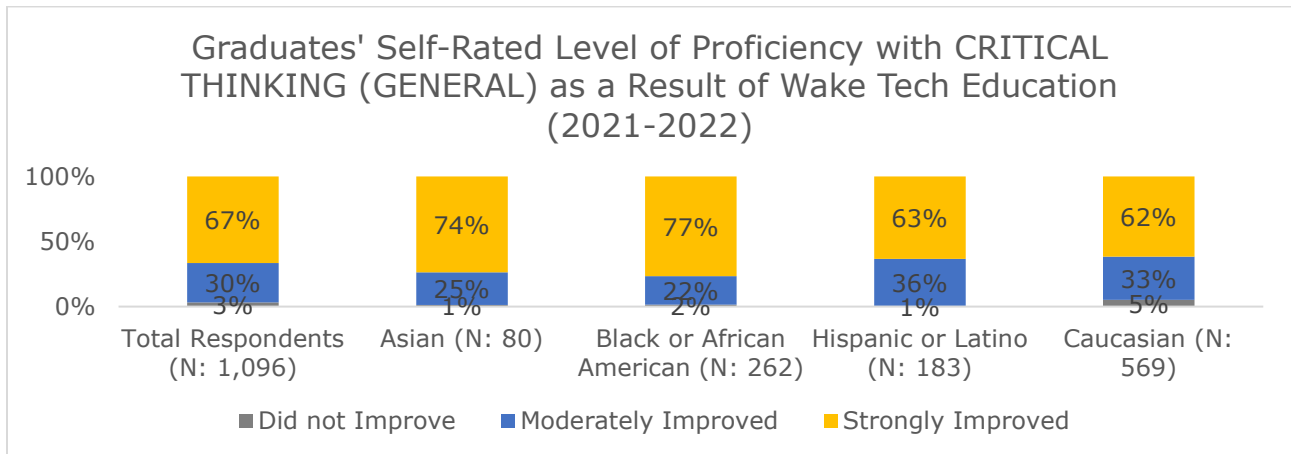


MAT-171	1391	68.4%
MAT-172	418	45.6%
MAT-263	157	55.1%
MAT-271	388	63.1%
PSY-150	2321	68.8%



## Indirect Measures: WTCC Graduate Survey

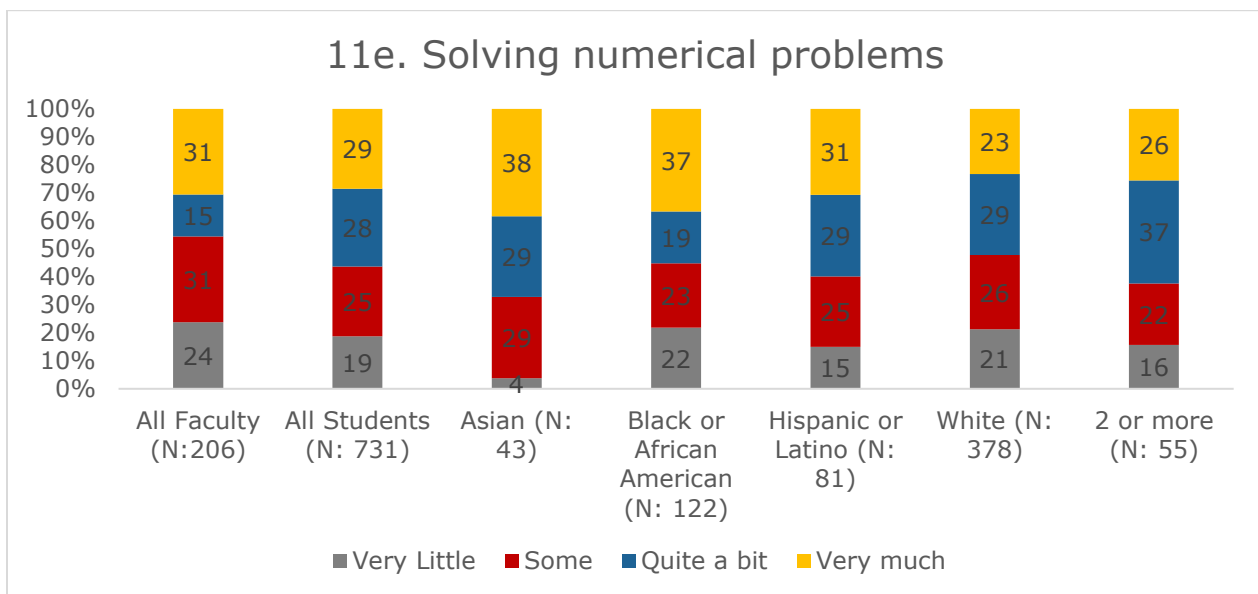
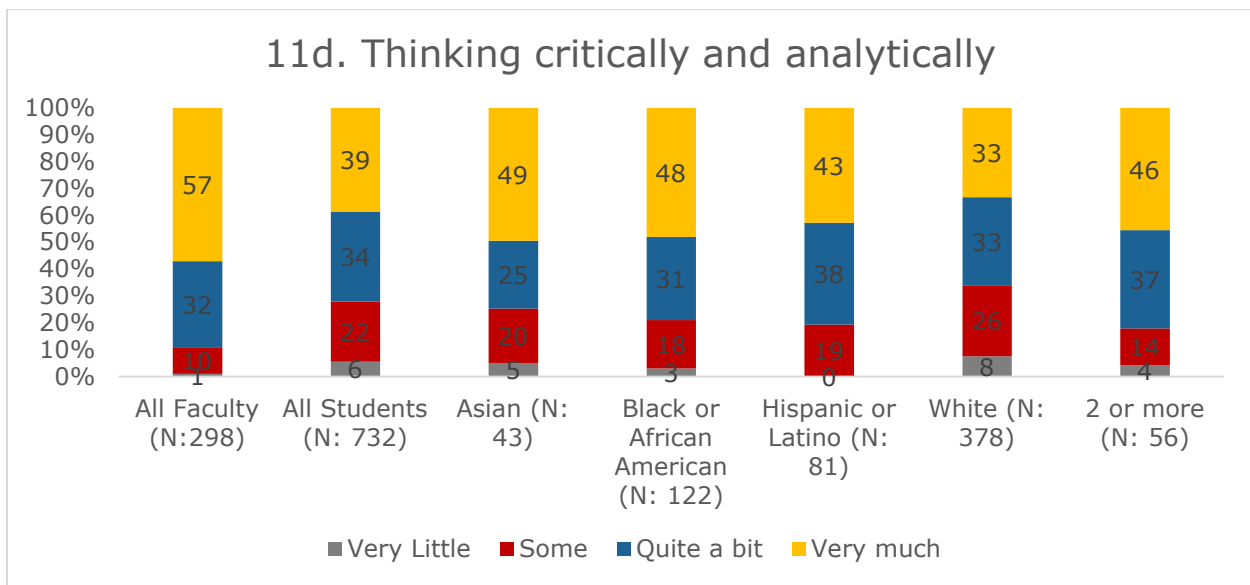
While a majority of students in each subgroup reported that their level of proficiency in Critical Thinking, Quantitative Literacy and Scientific Literacy improved strongly or moderately while at Wake Tech, more reported their proficiency with Quantitative and Scientific Literacy improved moderately as opposed to strongly and as compared to Critical Thinking. Hispanic/Latino and White/Caucasian students reported the lowest rates of Quantitative and Scientific Literacy proficiency improving strongly.



## Indirect Measures: CCSSE/ CCFSSSE Survey

A majority of students in each subgroup reported that their experiences at Wake Tech contributed to their knowledge, skills, and personal development in thinking critically and analytically “very much” or “quite a bit”. However, less than half of each student subgroup reported “very much” whereas 57% of faculty perceived Wake Tech contributing to their critical thinking and analytical skills “very much”.

Fewer respondents reported that Wake Tech contributed to their ability to solve numerical problems “very much” or “quite a bit”. Higher proportions of Black/African American students (22%), White/Caucasian students (21%) and Faculty (24%) reported that Wake Tech contributed to their ability to solve numerical problems “very little”.



## UNC Math and Science Course Performance of First Year WTCC Transfer Students.

During Fall 2020, Wake Tech students transferring to the UNC System had a higher GPA in Mathematics, Natural Science and Social Science courses than their peers who started as freshman at a UNC college.

### *GPA of WTCC Transfer Students in Mathematics Courses During First Year at UNC*

Entering Term	Transfer Students	Transfer Student Courses	Transfer GPA	Non-Transfer Students	Non-Transfer Student Courses	Non-Transfer GPA
Fall 2011	104	142	2.79	6,501	9,970	2.57
Fall 2012	145	225	2.86	6,557	9,925	2.57
Fall 2013	159	236	2.62	6,453	9,957	2.58
Fall 2014	173	254	2.83	6,471	10,331	2.62
Fall 2015	191	277	2.43	6,761	10,776	2.47
Fall 2016	230	357	2.63	6,921	11,146	2.53
Fall 2017	270	412	2.59	6,970	11,606	2.51
Fall 2018	306	501	2.52	7,194	11,916	2.60
Fall 2019	291	474	2.55	8,053	13,411	2.52
Fall 2020	301	461	2.43	8,858	14,546	2.34

### *GPA of WTCC Transfer Students in Natural Science Courses During First Year at UNC*

Entering Term	Transfer Students	Transfer Student Courses	Transfer GPA	Non-Transfer Students	Non-Transfer Student Courses	Non-Transfer GPA
Fall 2011	97	321	2.81	10,324	41,907	2.75
Fall 2012	115	463	2.78	10,443	43,058	2.76
Fall 2013	138	522	2.82	10,328	43,777	2.77
Fall 2014	146	588	2.86	10,475	45,707	2.80
Fall 2015	142	548	2.40	10,577	43,274	2.65
Fall 2016	192	744	2.71	10,610	42,397	2.71
Fall 2017	214	704	2.66	10,741	44,559	2.74
Fall 2018	245	856	2.71	11,286	46,334	2.76
Fall 2019	222	763	2.61	12,089	50,624	2.75
Fall 2020	235	891	2.79	12,756	54,377	2.72

### *GPA of WTCC Transfer Students in Social Science Courses During First Year at UNC*

Entering Term	Transfer Students	Transfer Student Courses	Transfer GPA	Non-Transfer Students	Non-Transfer Student Courses	Non-Transfer GPA
Fall 2011	151	516	3.13	14,837	52,030	2.99
Fall 2012	148	473	3.16	14,766	52,549	3.00
Fall 2013	206	681	3.11	14,592	50,429	3.04
Fall 2014	180	605	3.11	14,606	49,748	3.06
Fall 2015	222	688	2.98	14,976	47,215	2.92
Fall 2016	238	766	3.05	15,129	47,858	2.96
Fall 2017	290	967	3.06	15,106	47,654	3.00
Fall 2018	297	936	2.95	15,694	49,744	3.00
Fall 2019	328	1,042	2.94	15,949	50,440	2.96
Fall 2020	338	1,109	3.12	16,807	53,854	2.91



## Summary of Problem Solving Core Competency Assessments

Direct assessments indicate that students in less than half of the assessed courses gained the proficiency they need in Problem Solving for successful employment, transfer to a four-year institution, and lifelong learning. Proficiency was gained in Student Success, Business, some Mathematics, Humanities and some Social Sciences courses but was below target in other Mathematics courses, Natural Science and Psychology courses. While Wake Tech students transferring to a UNC System College in Fall 2020 performed better in Mathematics, Natural Science and Social Science courses taken within their first year of transferring as compared to native juniors starting in the UNC System, little is known about the extent to which students are gaining Problem Solving skills when directly entering a job after Wake Tech. And while a majority of students reported that Wake Tech contributed to gaining proficiency in Critical Thinking Skills and Scientific Literacy, fewer felt that Wake Tech contributed substantially to their proficiency in Quantitative Literacy or Solving Numerical Problems, particularly among Black/African American and White/Caucasian students.

Taken together, the direct and indirect assessments indicate that faculty across the college need to find ways to raise the extent to which students are gaining proficiency in the Quantitative Literacy/Mathematical components of their curriculums in order to bolster the extent to which students are able to be proficient in Problem Solving, especially among students who do not plan to transfer but want to enter the workforce after they graduate from Wake Tech.

## Conclusions and Recommendations

This report provides evidence that students are gaining proficiency in most areas of Effective Communication at Wake Tech for their future jobs and transfer. Students planning to enter jobs directly after Wake Tech rather than transferring to a university may need more support to gain proficiency in the written components of this core competency, especially Hispanic/Latino students.

This report also provides evidence that students in less than half of the general education courses assessed met the targets for proficiency in Problem solving. Improving the extent to which students are gaining Quantitative Literacy or Solving Numerical Problems across their curriculums, more so than Critical thinking, may be needed to raise the proficiency in Problem Solving, especially among students who do not plan to transfer but want to enter the workforce after they graduate from Wake Tech, and especially among Black/African American and White Students.

Combined with other course performance and trend data (See Reach and Rally dashboards and Data Guide), and given that high-demand, living-wage jobs (typically STEM jobs) in Wake County require higher levels of Quantitative literacy than other jobs, Wake Tech faculty will want to come together to find ways to



improve this component of Problem Solving across their curriculums in order to advance Wake Tech's Mission to: *provide equitable access to education that transforms lives through economic mobility and personal fulfillment.*

