Jaafar, R., Cuellar, D., & Rogers-Coopers (2024). Making equity count: An initiative for equitable general education assessment. *Intersection: A journal at the intersection of assessment and learning, 5*(2), 4-28.

Making Equity Count: An Initiative for Equitable General Education Assessment

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We have no conflicts of interest to disclose.

Intersection: A Journal at the Intersection of Assessment and Learning

Volume 5 Issue 2

Abstract: LaGuardia Community College in Queens, New York is known for its leadership in assessment practices aimed at improving teaching and learning. Its practices to improve student outcomes include remedial math and composition pathways reforms and establishing signature general education core competencies and communication abilities. Combined together, such practices have helped double the graduation rate over a decade. Until recently, however, assessment data had not been disaggregated for different student demographics. In this article, we describe how we transformed our traditional means of analyzing outcomes data toward one that utilized an equity-driven index for two cohorts of students across major racial and ethnic populations. We examined the data for representational equity and equitable performance. In a key finding, we discovered our ongoing assessment practices do not reflect our student population on both counts, especially as a designated Hispanic Serving Institution. Further, we found other under- and over-representation of racial populations in our general education assessment samples. We conclude by suggesting further areas of inquiry with equity-based assessment and note ongoing challenges to systematizing this approach.

Keywords: *general education assessment, equity, representational equity, equitable assessment, equitable outcomes*

Introduction

In the recent past, less national attention was paid to institutions' ranking based on inequality in educational outcomes and to institutions that promoted social mobility for marginalized populations. Yet, over the past two decades, there has been increasing attention to scholarship accounting for the relationship between student success and practitioner knowledge (Bensimon, 2007). With the economic mobility ranking for higher education institutions becoming more visible, the importance of equity and access in assessing the quality of higher education has become newly charged (Chingos & Blagg, 2015; Bill & Melinda Gates Foundation Staff, 2021). Despite recent strides, stories of an institution's success in reducing educational inequalities often do not include evidence of equity when assessing student learning. For example, an Equity Working Group was formed within the American Association of Colleges and Universities (AAC&U) to recommend strategies that improve student success for all (Witham et al., 2015). By deepening an institution's understanding of students'

outcomes, practitioners can design better approaches to meet the needs of their students. In the wake of this report, attention turned to the importance of building equity-minded practices.

These practices include attention to outcomes assessment. Singer-Freeman and Robinson (2020) discuss the challenges that higher education institutions encounter in relation to student learning assessment. They emphasize the necessity to go beyond conventional methods of assessment and identify various grand challenges. These challenges comprise the need to develop assessments that are fair, inclusive, and accessible to all students. There's also a need to incorporate technology in assessment practices and to ensure that assessments align with learning goals. Through surveys, they found consensus on utilizing assessment results to promote equity. Bensimon (2012) introduced 'equity scorecards' that could help practitioners make sense of quantitative data on educational outcomes. The scorecards disaggregate data by race and ethnicity to check for equity gaps across groups represented in the student population. Through a series of questions, practitioners can then examine data and arrive at new understandings of student learning. The process uncovers inequities that may have gone unnoticed (Griffin, 2013). This is particularly interesting at minority-serving institutions like ours, a Hispanic Serving Institution (HSI) where students hail from 145 countries and speak 77 languages (Lerer et al., 2022).

This conversation is necessary now more than ever. As with other strategic issues, to address this challenge, assessment practitioners must rely on evidence to guide their problem-solving. Higher education institutions have become increasingly diverse over the past three decades. Yet, there remains a significant gap in college enrollment for dependent 18-to-24-year-olds in the highest and lowest income quartiles. In 2018, this gap stood at 24%, compared to 43% in 1990 (The Pell Institute, 2020). In 2018, around 75% of 18-to 24-year-olds from families in the highest income quartile enrolled in postsecondary education, while only 51% of those in the lowest quartile did so. For community colleges, the reality of that gap often hits home. In 2021, 99% of all students (dependent and independent) received financial aid, compared to 60% in 2017 (Lerer et al., 2022). At LaGuardia, approximately 45% of dependent students come from families with incomes less than $25,000, and 55% come from families with incomes higher than $25,000.

Equity gaps can also occur among different student populations: in this study, we refer to these gaps through the concepts of representational equity and equitable outcomes. Identifying such gaps within general education assessment speaks to an ethical imperative beyond mere institutional student success metrics. For one, if we don't assess inequity in outcomes, we may compound issues with both learning and retention. In this respect, gaps in assessment of equity may directly or indirectly burden graduation rates, threatening the completion agenda advanced by the U.S. Department of Education and major funding foundations alike (McPhail, 2011). Montenegro and Jankowski (2020) detail the relationship between equity and assessment in addressing such attainment gaps; they call for efforts to examine how assessment can perpetuate inequities and how institutions can mobilize data and institutional context to quantify those gaps and act on the evidence. Montenegro and Jankowski recommend focusing on data disaggregation, exploration, and action, a process where faculty play a significant role as 'assessors.' It is essential to develop individual awareness to decrease bias in the assessment process and to avoid 'blind proceduralism' while evaluating student outcomes; assessors

must acknowledge their positionality, power, and identity as an influence on their biases (McArthur, 2015, p. 970). McNair et al. (2020) emphasize communicating data to advance equity goals. They argue that to be 'equity-minded,' we must critically examine disaggregated data and make sense of it (pp. 29-30).

Equity Index

Bensimon et al. (2003) introduced an equity index as a measure of proportionality based on the population of each student group under analysis. It is expressed as a ratio of two shares or percentages according to the following formula:

$$\text{Target Group's Equity Index for the educational outcome of interest} = \frac{\frac{\text{Total students in target group with educational outcome}}{\text{Total students with the educational outcome}}}{\frac{\text{Total students in target group in the reference population}}{\text{Total students in the reference population}}}$$

The Equity Index numerator reflects the proportion or share of students from the target group (such as Hispanic students) among all students who achieved a specific academic outcome. The denominator serves as a reference measure for equity as parity. Depending on the purpose of the analysis, various reference populations can be used as the denominator. The choice of the denominator is based on whether the Equity Index calculation is motivated by institutional outcomes improvement or institutional process improvement.

This Equity Index informs the Academic Equity Index, a useful tool for descriptively analyzing disaggregated data. It is based on the concept of representational equity as parity (Bensimon et al., 2003). The concept of representational equity as parity is based on the idea that the demographics of a particular institution should reflect, or be proportional to, the demographics of the surrounding community. This concept can be applied to different contexts within an institution. For instance, if a certain demographic group makes up a specific percentage of the student body at an institution, that same group should also be represented by a proportional percentage in a given program at the institution. This would be parity in representation. The same concept could also be applied to student success outcomes.

To provide a hypothetical example, consider Institution X, where 40% of the students are Hispanic. Parity in representation in STEM would entail having 40% of students in STEM be Hispanic. Parity in student outcomes would mean that 40% of students graduating from STEM majors are Hispanic. This approach helps us understand whether different student groups have equal opportunities to succeed.

The index helps determine whether an educational outcome of interest is at equity (with a value of 1.0), below equity (with a value less than 1.0), or above equity (with a value greater than 1.0). Scores below or above 1.0 indicate an equity gap for the target group's educational outcome, which signifies under-representation or over-representation from the reference population. For practical purposes, Equity Index scores close to 1.0 (between 0.9 and 1.1) are considered at equity, even if they're not exactly 1.0 (Bensimon et al., 2003).

The Equity Index is a standardized score that is specific to an outcome, year, and target group, allowing institutional leaders to make comparisons across groups with respect to the reference population. It can also be used as a baseline to assess improvement in performance standards. Using the hypothetical example from earlier to illustrate this index, suppose that at Institution X, 40% of students are Hispanic. If we focus on outcomes parity, an Equity Index of 1 would mean that 40% of graduating students from STEM majors are Hispanic. An Equity Index of less than 1 (underrepresentation) would indicate that the proportion of Hispanic students graduating from STEM majors is lower than expected based on the overall proportion of Hispanic students. For example, if only 30% of graduating students from STEM majors are Hispanic, the Equity Index for Hispanic students would be less than 1. Conversely, an Equity Index of more than 1 (overrepresentation) would mean that the proportion of Hispanic students graduating from STEM majors is higher than expected based on the overall proportion of Hispanic students at the institution. For instance, if 50% of graduating students from STEM majors are Hispanic, the Equity Index would be more than 1.

On our own initiative, a team of faculty at LaGuardia Community College decided to pilot an equity-based assessment of our general education core competencies. Our inquiry is derived from equity theory, which suggests that equitable assessment methods yield more precise and representative results (Henning et al., 2022a). In turn, we adapted the aforementioned 'Equity Index' (Bensimon et al., 2003) to pilot our inquiry by turning to one key dimension of equity: racial and ethnic representation and performance-based outcomes in our general education student samples scored for annual benchmark readings. By utilizing an Equity Index to measure representational equity and equitable outcomes for select racial and ethnic populations, our hypothesis assumed that we could achieve a deeper understanding of which groups in our community were fairly represented through outcomes assessment, and, in addition, which student groups might be subject to equity-based learning gaps.

In this study, we adopted an Equity Index to re-assess student outcomes in general education at LaGuardia in relation to our three core competencies: Global Learning, Integrative Learning, and Inquiry and Problem Solving. As a Hispanic Serving Institution (HSI), we attempted to answer two main questions through our Equity Index: 1) how does our current general education assessment process align with equity-minded practices in higher education? And 2) in what ways do our general education assessment outcomes reflect our status as an HSI? While the first question was simpler to answer – our practices do not yet reflect emerging trends in equity-minded practices – the second one gave us clear information about where we stand and how we can improve, particularly through the lens of representational equity and equitable outcomes.

In what follows, we describe the current practices of general education assessment at our institution, and then examine those practices anew in terms of the racial and ethnic composition at LaGuardia. We present how we piloted equity-minded analytics to explore pathways for improving aspects of student academic success. We launched a series of inquiry questions to help make a case for necessary changes to the assessment process to be more equitable, in line with the practices called upon by equity-minded practitioners (Henning et al., 2022a; 2022b). We will detail how we measured our progress, including how we analyzed equity gaps in our general education scoring samples and for equity-based learning through our three core competencies. Our goal here is to continue raising awareness about

equity in outcomes assessment, but also to narrate how our outcomes assessment culture, one recently lauded with commendation by our regional accreditor, remains subject to continuous revision. We emphasize this essential step to starting a conversation about 'equity-minded' practices by examining and interrogating the general education outcomes assessment data at our institution. It is our hope that higher education institutions, including our own, might benefit from systematizing this process into routine practices of assessment in the future, including the use of Equity Indexes. Equity-based assessment can inform steps to meaningfully enhance mission and goals around equity and inclusion but also open the way for deeper innovations in outcomes assessment more broadly.

General Education Assessment at LaGuardia

Our institution has a relatively deep history of creating, assessing, and innovating in general education assessment (Boehman et al., 2021; Lehman & Rogers-Cooper, 2021). We began to assess general education learning outcomes using Digication ePortfolio in 2008. During and after our self-study for reaccreditation in 2012, conversations among faculty, staff, and students led to a redesign of our core competencies. We designated three new core competencies – Global Learning, Integrative Learning, and Inquiry and Problem Solving . Committees of faculty and staff reviewed the AAC&U's value rubrics, and modified definitions and rubric dimensions in dialogue with the Degree Qualifications Profile. Our Center for Teaching and Learning led a multi-year series of professional development seminars and mini-grants that encouraged and supported faculty to embed the competencies and abilities into early (0-12 credits), middle (13-44), and late (45+) stages of the students' credit sequence. This process culminated in a series of relevant commendations by our regional accreditor, the Middle States Commission in Higher Education, in 2022 (Adams, 2022).

LaGuardia conducts its general education assessment across all majors as outlined on program curriculum maps. This comprehensive approach ensures that every major is held to the same standards of learning and outcomes. The college undertakes annual benchmark readings for assessment that measures and compares learning over time. LaGuardia's general education framework is structured around three primary core competencies: Global Learning, which promotes understanding of global challenges from diverse viewpoints, emphasizing issues like diversity, democracy, and ethical action; Integrative Learning, which emphasizes the connection and application of ideas to new situations; and Inquiry and Problem Solving, which encourages students to use interdisciplinary knowledge to address challenges and draw conclusions. To demonstrate these competencies, students utilize one of three Communication Abilities: Written, which focuses on vocabulary and organized expression; Oral, emphasizing clear speech to varied audiences; and Digital, which involves creating effective digital presentations combining various media forms.

During the decade or so between our recent self-studies, the college's innovations in assessment emphasized Digital Communication, enlarging our data collection, and embedding liberal arts learning dimensions into our competencies. The Digital Communication ability cemented our learning design with new kinds of communication skills and methods. By designing higher-order skills related to thinking with and across diverse subjects and learners, we created new kinds of content-based assignments and community conversations for our diverse student population. This decision privileged the knowledge and experiences of our mostly working-class, low-income, and immigrant student

population. By bringing our students' knowledge and identities into richer focus through liberal arts-driven competencies across our program majors, we initiated one kind of equity-based approach through curriculum redesign and learning outcomes. This choice bespoke values that our current efforts continue to expand upon.

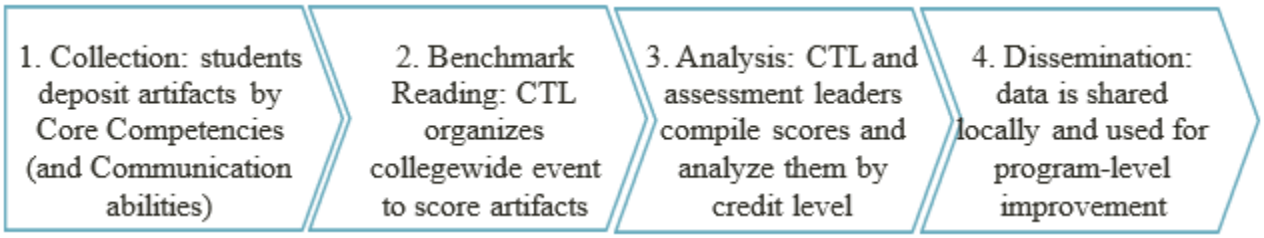
Our attention to equity-focused outcomes comes after years of successful data collection about student learning. By collecting thousands of artifacts of authentic student work each year for our annual benchmark reading scoring sessions, we have reported with conviction about student learning taking place over time (for example, students and faculty deposited 15,517 artifacts in 2018-19, of which we scored 5,343). We have utilized outcomes data to prioritize particular competencies and abilities for professional development opportunities, and we also share that data with faculty leading periodic program reviews. Thus far, these methods have raised the floor of learning each year for thousands of students, as demonstrated in our assessment data. While our benchmark readings have captured student learning over time, going forward we believe the College should spotlight inequities that emerge from these assessments, too. Doing so would equip the directors of assessment with insights for more comprehensive conversations with program directors. A proactive approach might ensure that assignments accurately reflect student learning, especially for all student populations. By examining disparities and refining methods, we could foster a culture of continuous improvement that reflects the student learning potential of every community at the College.

Current Model: Data Collection to Dissemination

LaGuardia's current assessment process begins with students depositing authentic artifacts in designated courses across the curriculum via program maps that address the competencies and abilities. Our Center for Teaching and Learning then organizes the artifacts for scoring. Volunteers are solicited for scoring sessions called benchmark readings, where faculty and staff norm artifacts, discuss rubrics, and resolve confusion around the process. The Center leads participants to then join reflection sessions, where data is shared and communicated; from there, data travels to program directors, departments, and institution leaders. Figure 1 summarizes the assessment process.

Figure 1

Process of Collecting and Analyzing Students' Artifacts During Benchmark Readings



Artifacts Collected for Benchmark Readings

The sample size for all artifacts and scores collected annually in 2018 and 2019 were 5,818 and 4,347, respectively for all core competencies. The number of scores available per sample is higher than the sample size for each since each artifact is at least scored twice.

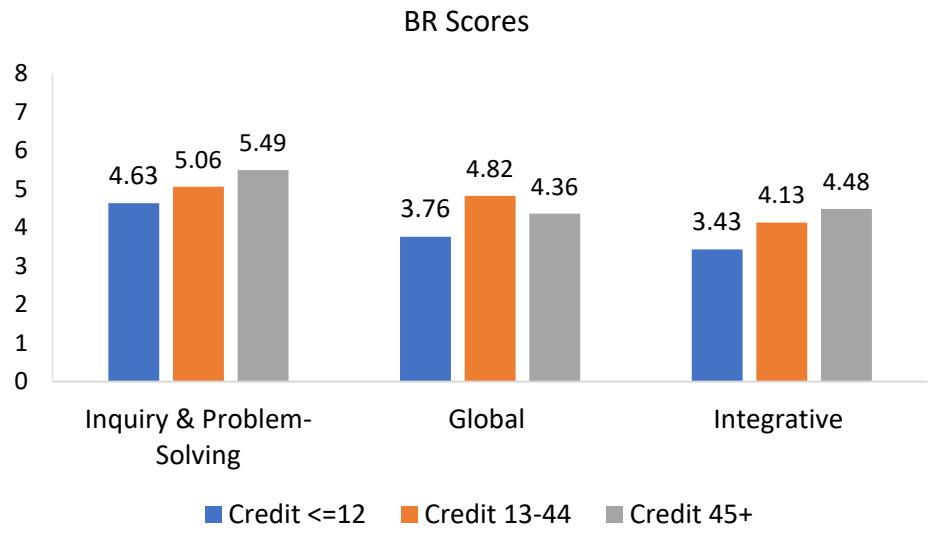
Scoring Artifacts for Benchmark Readings

Two faculty members score each artifact on a scale of 1 to 4, with a combined score earning up to 8 points. If the two scores differ by more than one point, the artifact is scored by a third person. The scores are determined based on the following proficiency levels: a score of 4 (combined score of 8) is considered proficient, a score of 3 (combined 6) is considered competent, a score of 2 (combined 4) is considered emerging, and a score of 1 (combined 2) is considered novice.

Figure 2 presents an example of data produced following a benchmark reading scoring session. As the graph shows, the benchmark reading shows learning over time in most of the college's competencies.

Figure 2

Benchmark Reading Results (BR) From 2019-2020 for Artifacts Collected In 2018-2019.



HSI Inquiry: The Equity Index

To this point in LaGuardia's history, our outcomes process has not asked critical questions about what populations of students are represented, and what they are learning in our annual benchmark process. This is hardly exceptional, however. Bensimon (2012) asks why, half a century after the 1964 Civil Rights Act, institutions of higher education have not equalized learning gaps for racial and ethnic groups. His query emphasizes the paradigm shift in assessment that moves from student actions to institutional responsibilities. It offers a transformative approach rooted in action research, enabling

educators to examine an institutional ethos introspectively to confront racial disparities and to question benchmarks of equity and inequity.

Bensimon et al. (2003) ground their work in a theoretical framework that involves using equity indicators and accountability systems to assess and address disparities in educational outcomes. This approach involves:

1. Using the "Equity Index," a method used to measure equity in educational outcomes. This index calculates equity based on comparisons between the actual representation of students in assessment data and their expected representation based on demographic factors.
2. Emphasizing the role of accountability in education systems suggests that institutions notice what is measured. Making disparities visible through systematic reporting (like 'report cards' for organizations) acknowledges issues and becomes a foundation for initiating change.
3. Delving into specific areas where disparities are evident.
4. Pointing to the inadequacy of broad racial/ethnic labels in understanding equity gaps, given the diverse backgrounds within these categories. It suggests a more nuanced approach that considers factors like immigration status, socioeconomic background, and specific ethnic distinctions.

We base our inquiry in this study through the application of Equity Index, although we have yet to fully articulate the model to study nuances in race and ethnicity, nor other forms of identity and equity, such as gender and class.

Equity-Minded Assessment of Existing Data Sample

LaGuardia began with the recognition that traditional assessment methods likely did not capture our actual student representation, particularly as an HSI. By integrating equity into our processes, we sought to study whether our benchmark assessment process reflected our student body, and to identify divergent outcomes in the students we serve. Prior to this exercise, general education data for benchmark readings were only disaggregated by credit level. To begin, we approached the Office of Institutional Research and Assessment (OIRA) to disaggregate the data and shared their efforts with the Center for Teaching and Learning. We decided to initiate a new equity-based analysis of our three core competencies using artifacts collected in the academic years 2017-2018 and 2018-2019, which were analyzed during the benchmark readings in 2019 and 2020. We selected these artifacts because they were collected prior to the COVID-19 pandemic, in order to avoid any variables that may have been introduced by the pandemic.

To maintain consistency with current benchmark reading and norming practices, as well as our current rubric scoring range, we analyzed individual scores on a scale of 1 to 4. This approach allowed us to examine individual scores, rather than the student artifacts they came from, to determine the amount of variation in the scores.

The data below provides a comprehensive overview of the data collected during the benchmark reading process. Table 1 shows the sample size for artifacts created by students in 2018 and 2019 for the three core competencies: Global Learning (G.L.), Integrative Learning (I.L.), and Inquiry and

Problem Solving (IPS) are in Table 1. Figure 3 shows the distribution of sampled artifacts by credit accumulation at the time of collection measured different ranges of credit accumulation, scored in 2019 and 2020, respectively.

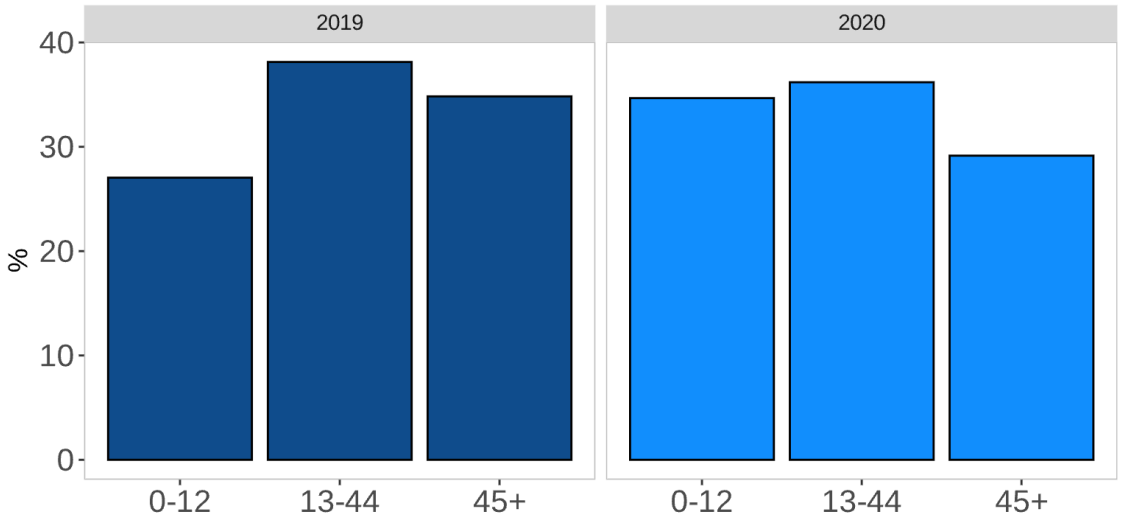
Table 1

The Sample Size for Artifacts

Year	Global Learning	Integrative Learning	Inquiry and Problem Solving
2019	833	802	788
2020	672	650	579

Figure 3

Distribution of Sampled Artifacts by Credit Accumulation



Assessing for Equity: Racial and Ethnic Demographics

As an HSI, for our pilot we adopted an equity-minded approach by analyzing learning trends based on racial and ethnic populations. Figure 4 shows the demographics of our institution as reported by students (some of our demographics are unclear due to students not disclosing their race and ethnicity during the application process. Additionally, a number of student records are incomplete each year, with missing race and ethnicity values due to LaGuardia's status inside a larger university system with centralized databases. This limitation will be discussed later). For this sample of core competencies in 2019 and 2020, about 7.6% (347 out of 4,590) and 5.4% (188 out of 3,500), respectively, had missing race and ethnicity records. We have excluded groups of students identified as Native American due to small sample sizes, with representations below 0.5% of the annual samples. As shown in Figure 4, the majority of our students are Hispanic, but we also have large numbers of Asian, Black, and White

students. In the figures below, we show the focus of our equity-based assessment at the level of representational equity and performance outcomes.

Figure 4

Student Demographics by Race and Ethnic Origin in 2018 and 2019

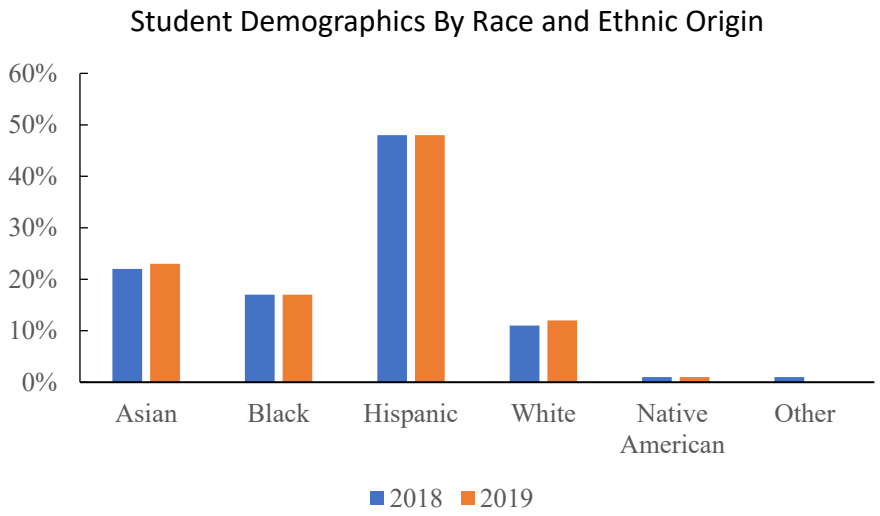


Figure 5 shows the distribution of artifacts by credit and competency for both years. Different numbers of artifacts were collected at different stages of credit accumulation. The proportion of artifacts collected for different years does not match. Still, since the artifact scores come from a random sampling of these selections, the differences should not affect what we learned about representational equity and equitable performance.

Figure 5

Distribution of Artifacts by Credit Accumulation and Competency

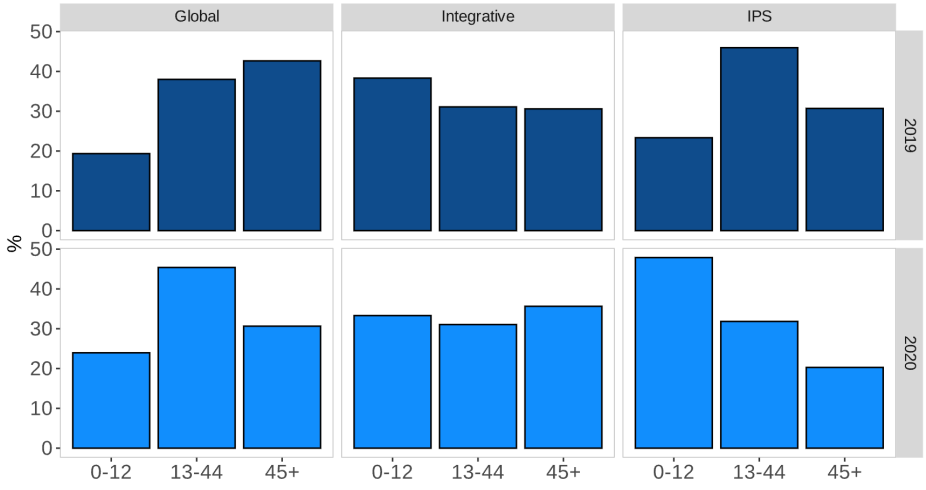


Figure 6 presents the distribution of sampled artifacts by race/ethnicity for the 2019 and 2020 scoring sessions, respectively. Readers can see the number of artifacts pulled for our equity-minded assessment exercise. The artifact distribution roughly matches the overall demographic composition of students at the College.

Figure 6

Distribution of Sampled Artifacts by Race and Ethnicity Disaggregated by Core Competency

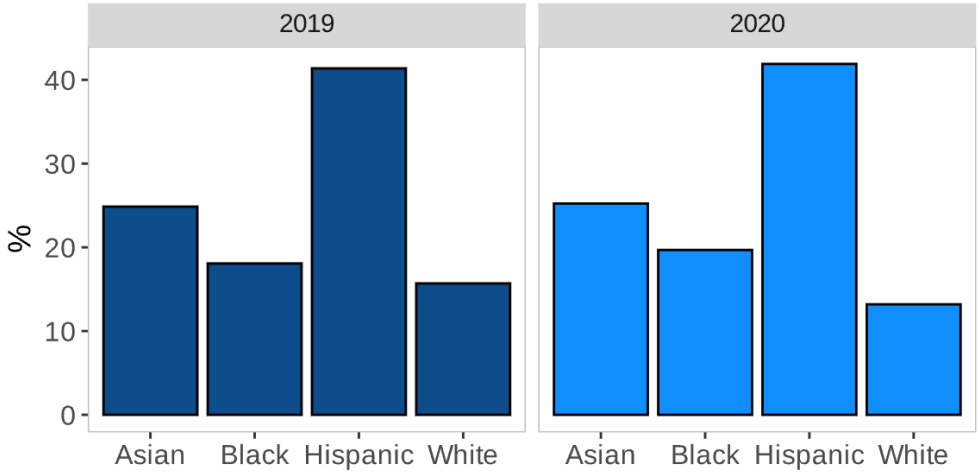
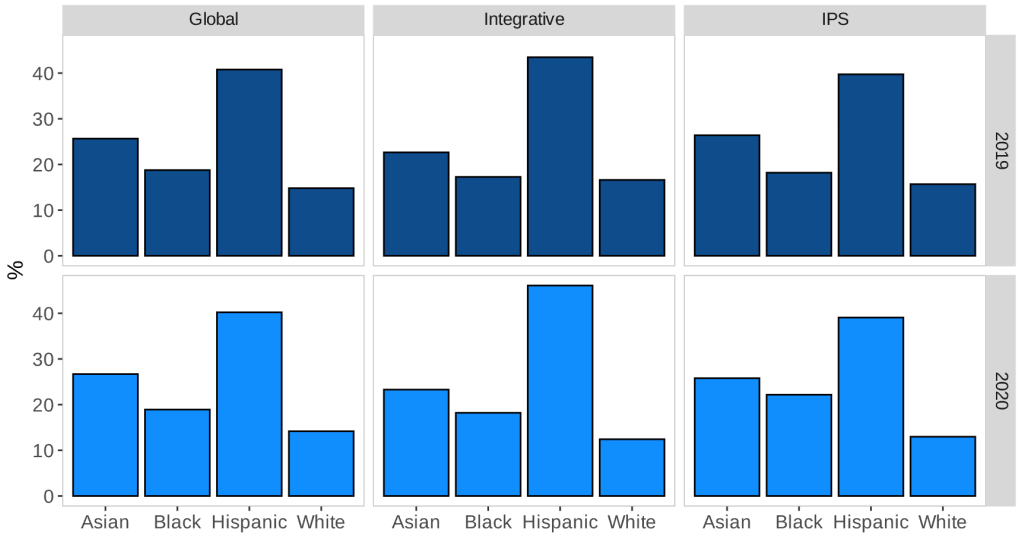


Figure 7 highlights the distribution of sampled artifacts by race and ethnicity disaggregated by core competency. Readers may observe that the sampling of artifacts by competency matches the overall demographic proportion of artifacts above. We held constant the sample size of racial difference by competency to the overall racial composition of the College.

Figure 7

Distribution of Sampled Artifacts by Race and Ethnicity Disaggregated by Core Competency



Analyzing for Representational Equity

LaGuardia is an HSI serving a student population that is 48% Hispanic and 12% white (Lerer et al., 2022). In this section, we will disaggregate the data, calculate our equity scores, and analyze a crucial part of our assessment process. For the sample of artifacts collected that were generated in the academic year (AY) 2018-2019, the Equity Index of representation of artifacts deposited by Hispanic students in the sample can be calculated as:

$$\text{Hispanic's Equity Index for sample collection of artifacts created in AY 2019-2020} = \frac{\frac{\text{1,775 artifacts collected generated by Hispanic students in AY 2018-2019}}{\text{4,234 artifacts collected in the sample for AY 2018-2019}}}{\frac{\text{9,234 Hispanic students enrolled during AY 2018-2019 at the College}}{\text{19,236 students enrolled during AY 2018-2019 at the College}}} = \frac{0.42}{0.48} = 0.88$$

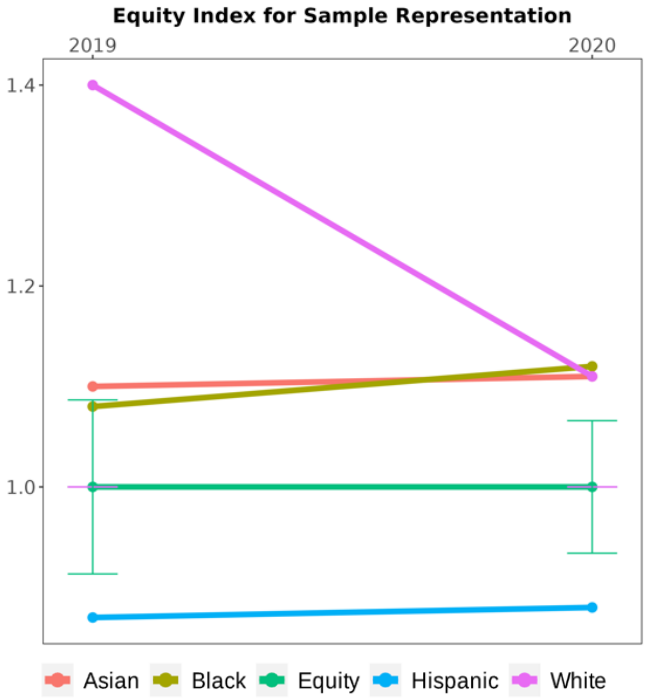
Using the calculation above, the representation of artifacts deposited by Hispanic students is standardized with respect to the general population enrolled at LaGuardia in AY 2018-2019. The equity index score is equal to 0.88. This tells us that student work by our Hispanic population is underrepresented in the sample of artifacts.

Below, Figure 8 shows the change of the Equity Index scores across race and ethnicity groups for the artifacts deposited by students in the AY 2018-2019 and AY 2019-2020. The green line at 1.0 represents the range of Equity Index values (between 0.9 and 1.1) considered at equity, with the accompanying error bars (the error bars are the light green vertical lines that act as endpoints under the graph space for 2019 and 2020) for each benchmark reading year. These error bars were calculated based on the Equity Index of the average proportion of missing records of students' race and ethnicity in each year and the sample. When interpreting the figure, we assume that the reference population is the sample for a given benchmark reading year. It is important to note that the features observed when analyzing the change in Equity Index from 2019 to 2020 are intensified when we use as the reference population as LaGuardia's demographics.

This figure illustrates how our artifact samples for our benchmark readings disproportionately represented artifacts created by non-Hispanic students (Asian, Black, and White) while underrepresenting artifacts created by Hispanic ones on both benchmark readings (see blue line). In contrast, the Equity Index scores for artifacts created by Asian (pink line), Black (olive line), and White (magenta line) students are above 1.0, indicating the overrepresentation of these groups for both benchmark readings. Additionally, the Equity Index scores for both 2019 and 2020 serve as lagging indicators about any gaps in equity in the samples.

Figure 8

Equity Index for Sample Representation



Specifically, our findings show there is an underrepresentation of the majoritarian racial and ethnic group (in this case, Hispanics), while there is an overrepresentation of other minoritarian racial and ethnic groups (in this case, white students). This lack of representational equity highlights the need for an improved artifact collection process.

This lack of representation cannot be changed since benchmark readings cannot be repeated. The data also highlight, however, the importance of improving the samples of artifacts for future benchmark readings. We can do this by selecting artifacts from a variety of racial and ethnic groups in proportions that reflect their demographics in the college, program, or depositing course, depending on the purpose and goal. Overall, our goal should be to observe changes in Equity Index scores from year to year. By ensuring that the sample is more representative of the student population, the Equity Index scores can more accurately reflect the representation of different racial and ethnic groups.

Analyzing for Equitable Outcomes

In this section, we offer a comprehensive examination of each core competency across all credit tiers. We provide a focused analysis for each competency segmented by credit level.

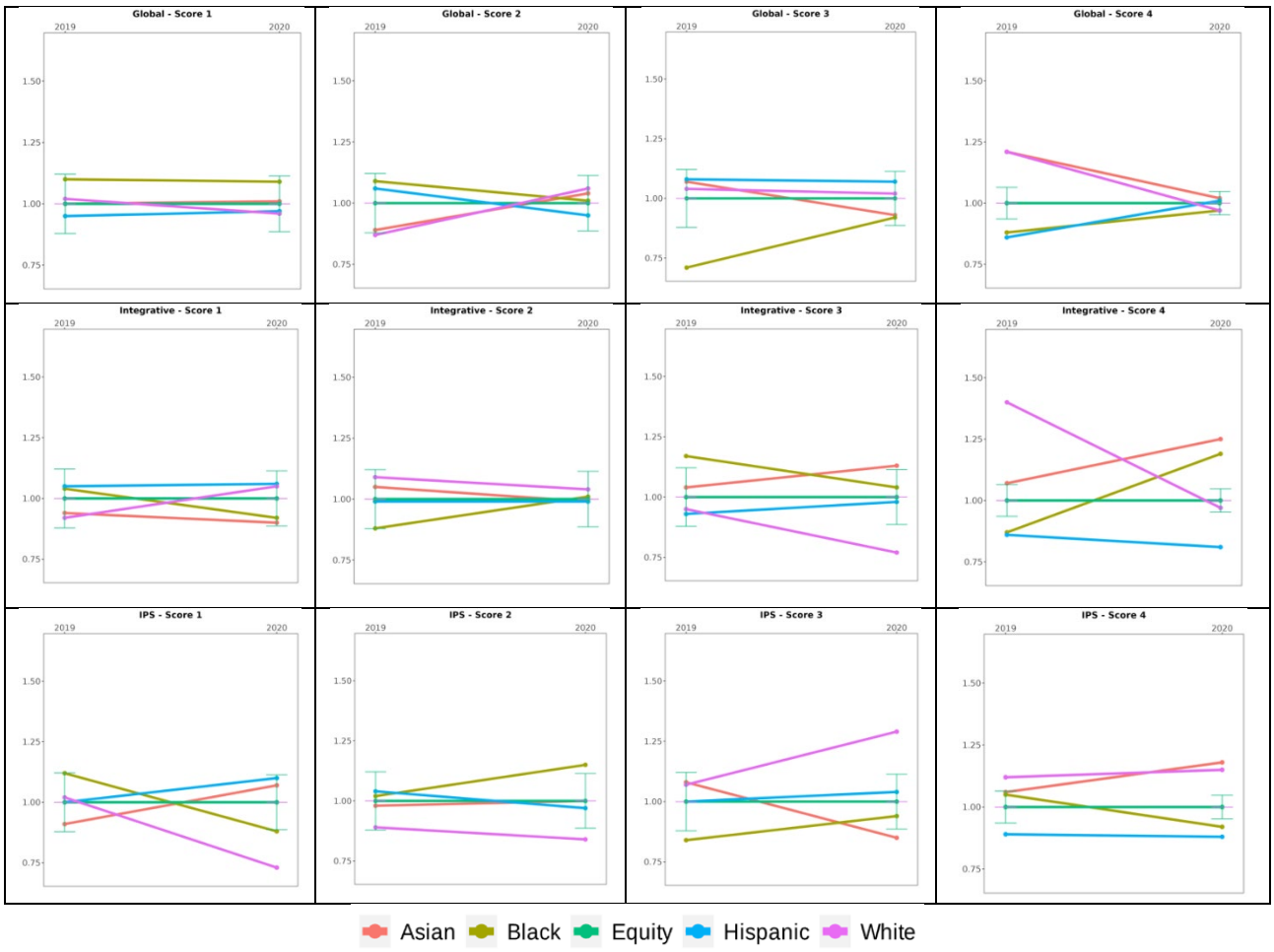
Core Competencies, Representational Equity, and Equitable Outcomes

The graphs below present the Equity Index for each core competency using scores from our benchmark readings, ranging from 1 to 4. When the score is 1, being below equity (i.e., under 1) is desirable as it

indicates an underrepresentation of novice learners for the competency. However, for higher scores (e.g., 3 and 4), we aim to achieve equity scores of 1, which would suggest that our demographics are proficient. Although the graphs show movement from 2019 to 2020, it is important to stress that the annual relationship of each demographic to each other demographic is most important, and not so much the movement from year to year. This is because large movements from year to year may suggest issues with variable inputs creating the data, such as program assignments or rubric norming sessions. In general, we seek stable horizontal lines within the error bar across 2019 and 2020. Angled, slicing, rising, or falling bars alert us to tremors in the data that suggest the need for attention.

Figure 9

Equity Index for Each Core Competency



When we analyze scores of 1 (Novice) across all the competencies in Figure 9, we observe that for Global Learning and Integrative Learning each demographic is equitable and falls within the error bar

for both 2019 and 2020 (the error bars are the light blue vertical lines that act as endpoints under the graph space for 2019 and 2020). However, in the case of Inquiry and Problem Solving, the White demographic's score (purple bar) is below equity (underrepresented) in 2020, indicating that White students had a relatively smaller share of novices compared to the overall sample.

Upon examining scores of 3 in Figure 9, we observed variations among different demographics. For example, in all three competencies, different cohorts of Black students exhibited different outcomes in 2019 than in 2020. On the other hand, Hispanic students consistently displayed outcomes for scores of 3 across the three core competencies in both years. In addition, scores for white students are also inconsistent. For instance, in 2020, the Equity Index for Inquiry and Problem Solving is much higher than one, indicating an over-representation of White students for the competency. This over-representation is significant because it means White students are disproportionately influencing collegewide data compared to their actual numbers.

When it comes to scores of 4 for all groups, the tight bands we seek appear more chaotic, with many lines crossing at high angles well beyond the error band. For Integrative Learning and Inquiry and Problem Solving, Hispanic data is well below the error bar and suggests a lack of equitable outcomes. This result suggests the college should be more sensitive to equitable outcomes with Hispanic students nearing graduation.

Stepping back, we see that scores for Integrative Learning demonstrate significant variations among various demographics, and even between the two years for scores of 3 and 4; the lines are uncontrolled, haphazard, and flinging. Specifically, the equity indices for Asian and Black students increased to overrepresentation (i.e., Equity Index > 1 and outside the error bar), whereas the score for White students decreased from overrepresentation to parity. In contrast, Hispanic students showed a lack of representational equity for both years. This was a major finding considering our status as an HSI.

Regarding Inquiry and Problem Solving, White students are overrepresented in scores of 3 and 4 (competent and proficient) and are underrepresented in scores of 1 and 2 (which is desirable because it indicates a lack of proficiency). Hispanic students are at parity for scores of 3 but below equity for scores of 4.

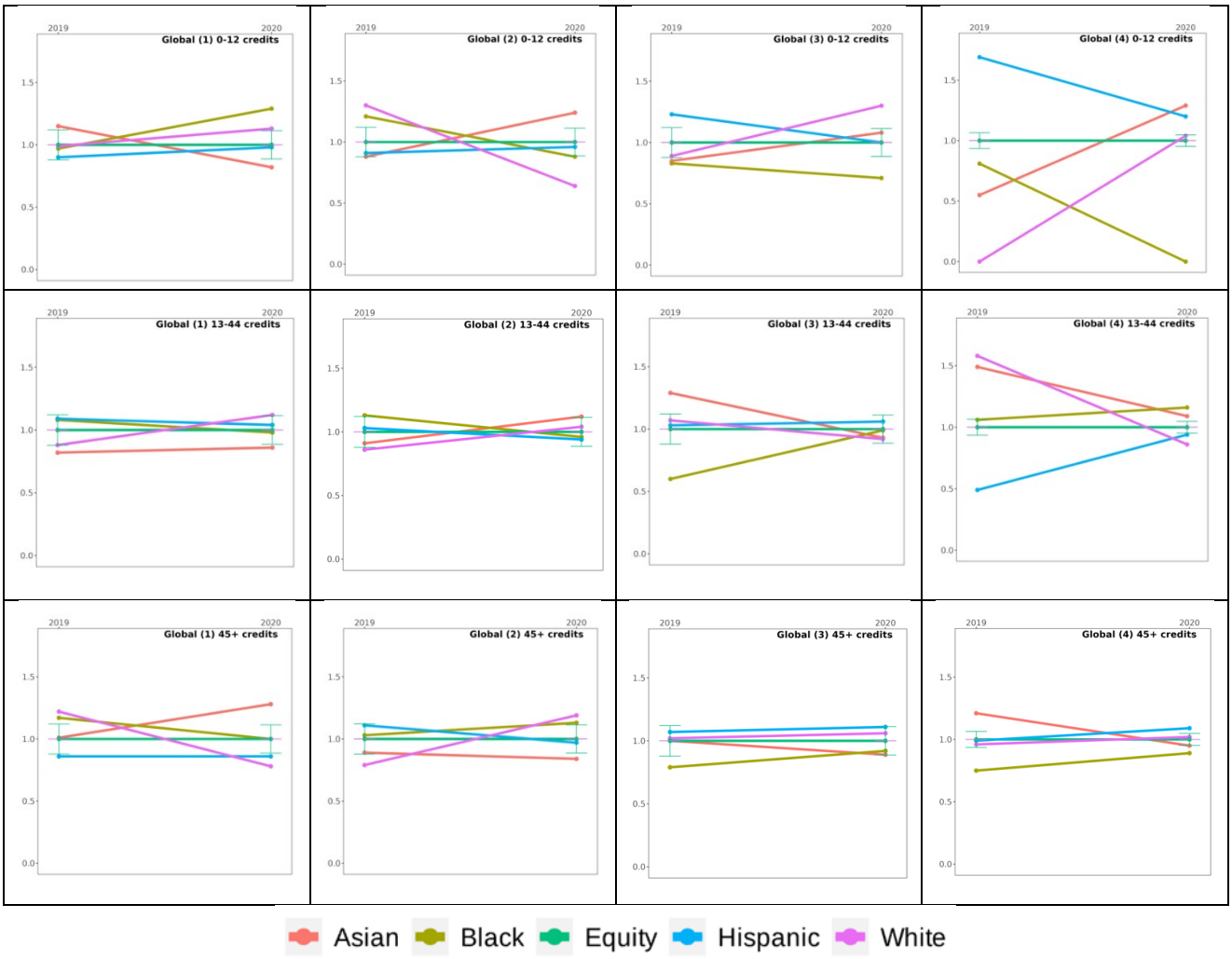
Credit Levels, Representation, and Outcomes

In this section, we focus on a particular core competency and separate data by credit levels. Once more, we seek tight bands of lines within the light blue error bar. Further, we desire each demographic to fit along the central bar representing equity. Below, we look at each of the core competencies.

Global Learning

Figure 10

Global Learning Equity Index for Each Credit Level



When we examine the graphs in Figure 10, we can see the tight bands unravel in the middle credit range (13-44), which is the center row. In that last column, we also observe chaotic findings in the top-right boxes of the 45+ credit range. Reading the middle row, we can surmise that equitable outcomes decrease as students score higher for Global Learning. In other words, there is significant variation by racial identity as students become more proficient in the competency; again, this is a major finding since it conflicts with our status as an HSI.

On the one hand, looking at 2019 for scores of 4, we can see an under-representation of Hispanic students and an over-representation of Asian and White students. Going ahead, we may want to review data from that year and reconsider how representational inequity challenges our understanding of Global Learning for those years. On the other hand, we can also see some resolutions by 2020 for scores of 3 and 4; in that respect, we may want to affirm the learning equity for students in that year with greater confidence.

Returning to scores of 4 across all credit buckets for Global Learning, we read the vertical column for another story about those two years. For students becoming proficient in Global Learning in their early credit semesters, there is wide variation in how students perform by racial demographic. As with scores of 3, many of the issues appear to have been resolved somewhat from 2019 to 2020, but not all. We should think carefully about why Black students fall outside the equity range at earlier credit levels in both years. We should also think carefully about what might happen if Equity Index scores became a focus of conversation during the college's benchmark reading sessions going forward.

Table 2 below summarizes the Equity Index results of Figure 10. A + sign indicates an overrepresentation/above equity, a - sign indicates an underrepresentation/below equity, and a = sign means at equity for the artifacts analyzed in 2020.

Table 2

Equity for Benchmark Reading for Global Learning Scores of 1 and 4

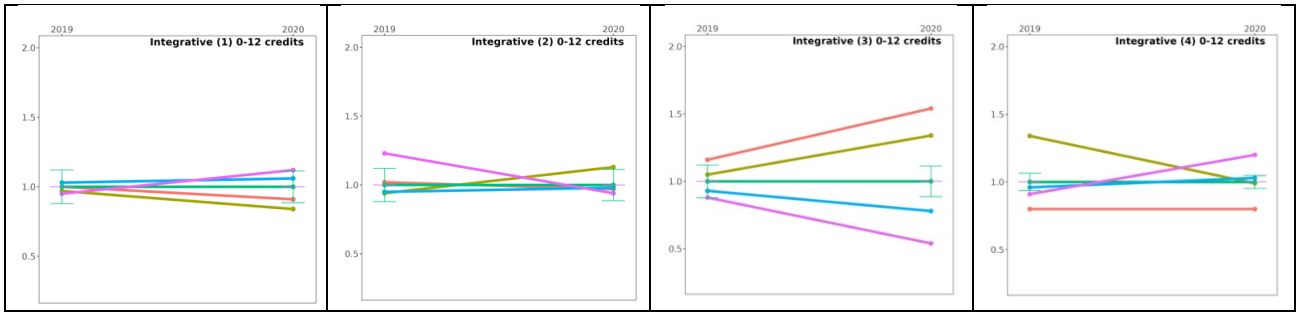
Demographics	*Benchmark Reading* Score of 1			*Benchmark Reading* score of 4		
Credit Brackets	0-12	13-44	45+	0-12	13-44	45+
Asian	–	–	+	+	+	=
Black	+	=	=	–	+	–
Hispanic	=	=	–	+	=	+
White	+	+	–	=	–	=

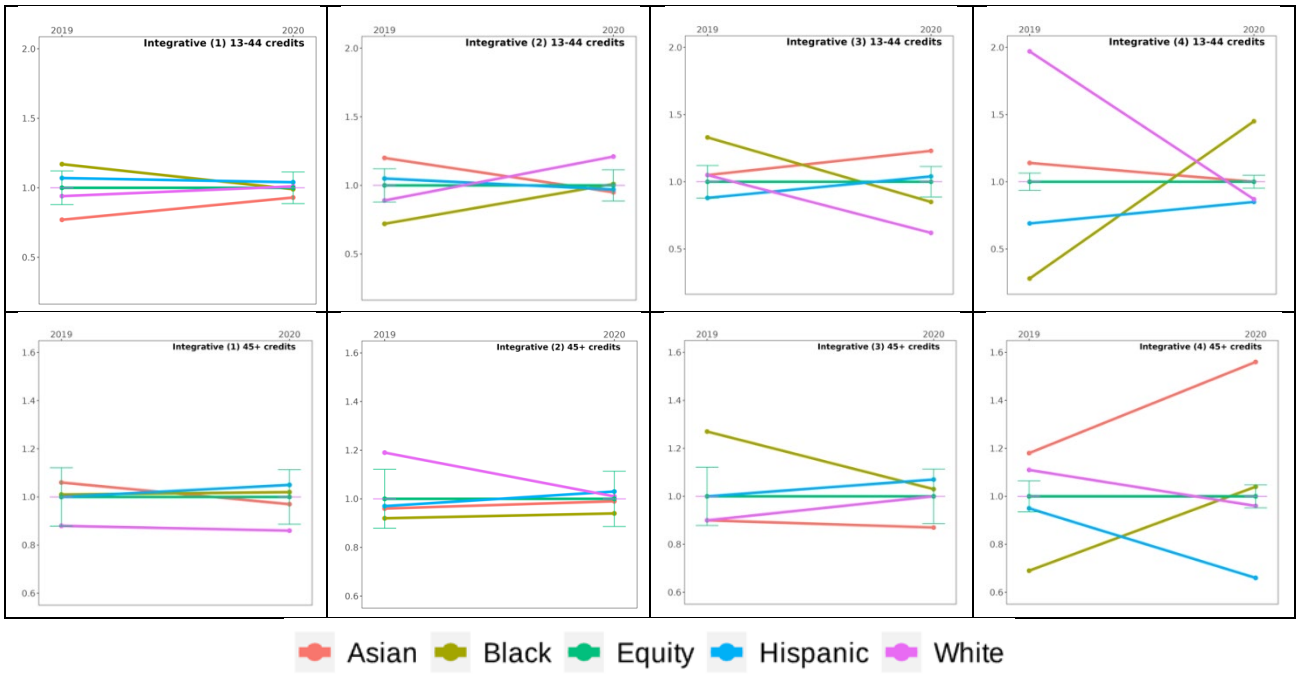
Although there are various ways to analyze the data, for 45+ credits the cohorts with scores of 4 (proficient) have an underrepresentation of Black students. However, Asian and Hispanic students have achieved or surpassed equity levels in this demographic group. This lack of equitable representation is a finding we will integrate into our analysis and conclusion.

Integrative Learning

Figure 11

Integrative Learning Equity Index for Each Credit Level





When we view the Equity Index scores for Integrative Learning in Figure 11, we apprehend similar issues as with Global Learning. For scores of 3 before 45 credits, there is wide variation in how different demographics are represented. Similarly, for scores of 4 we observe a lack of equity as students advance in their semesters, including for Hispanic students. These results suggest we should consider data inclusion when measuring student outcomes as they progress toward degree completion. Further, we need to reflect on the over-representation of Asian scores for the outcomes of 4 scores at higher credit levels. Similar to Table 2, Table 3 conveys the same concept for Integrative Learning.

Table 3

Equity for ***Benchmark Reading*** *for Integrative Learning. Scores of 1 and 4*

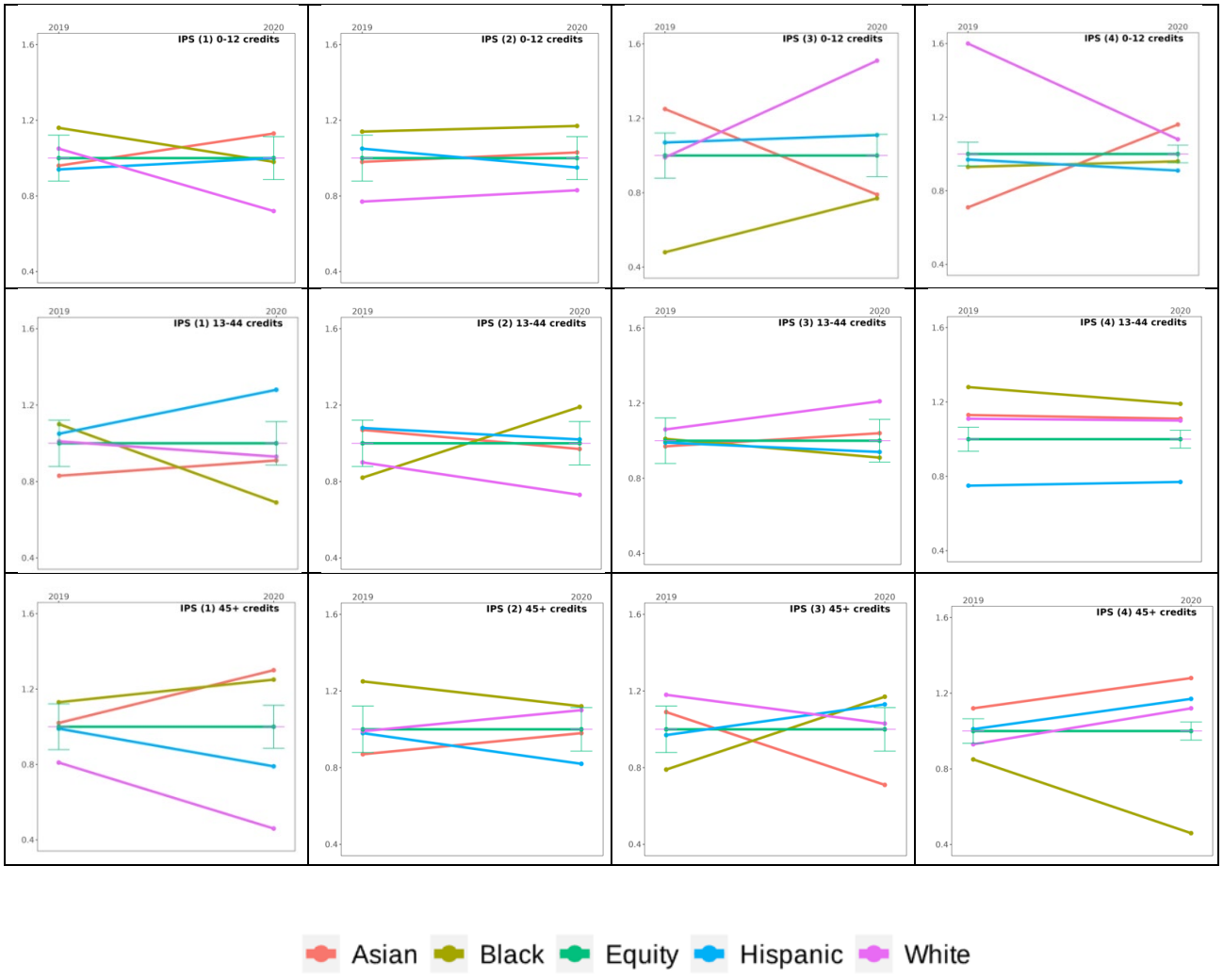
Demographics	*Benchmark Reading* Score of 1			*Benchmark Reading* Score of 4		
Credit Brackets	0-12	13-44	45+	0-12	13-44	45+
Asian	=	=	=	–	=	+
Black	–	=	=	=	+	=
Hispanic	=	=	=	=	–	—
White	=	=	–	+	–	=

As Table 3 reflects the graphs for the 45+ credit demographic with scores of 4 (proficient), there is an underrepresentation of Hispanic students. However, Asian, Black, and white students have achieved or surpassed representational equity in this demographic group.

Inquiry and Problem Solving (IPS)

Figure 12

Inquiry and Problem Solving Learning Equity Index for Each Credit Level



Turning to Inquiry and Problem Solving in Figure 12, we note several core issues with equity. First, unlike the prior competencies, there are large discrepancies in equity from the start, especially as students accumulate credits and score in the lower range. Second, there are some equity issues with scores of 2 and 3 as students accumulate credits. Perhaps most importantly, students with scores of 3 and 4 near graduation (45+ credits, in the bottom-right of the last row) appear under-representative of Asian and Black populations. Looking at the field of equity boxes as a whole, the overall story suggests much less coherence (with large fluctuations in the equity index). The college will need to look carefully at Inquiry and Problem Solving throughout the credit sequence and think about how each population navigates the competency.

Similar to Tables 2 and 3, Table 4 conveys the same concept for Inquiry and Problem Solving. As with Global Learning, the 45+ demographic with scores of 4 (proficient) has an underrepresentation of Black students, while Asian and Hispanic students have surpassed equity levels in this demographic group.

Table 4

Equity for Benchmark Reading for Inquiry and Problem Solving Benchmark Reading Scores of 1 and 4

Demographics	*Benchmark Reading* Score of 1			*Benchmark Reading* Score of 4		
Credit Brackets	0-12	13-44	45+	0-12	13-44	45+
Asian	+	=	+	+	+	+
Black	=	-	+	=	+	-
Hispanic	=	+	-	-	-	+
White	-	=	-	+	+	+

Discussion

The data analyzed above reflects the state of equity in general education assessment at LaGuardia during the years in question, but also feeds our Equity Index tool for pinpointing specific areas where disparities exist. Our inquiry had a dual purpose for considering representational equity and equitable outcomes: to consider a broad examination of each core competency across all credit levels, and to consider specific competencies at different points.

Our analysis revealed several insights into equity-based learning:

1. Inquiry and Problem Solving: These data presented the most pronounced equity discrepancies. From the outset, there are evident disparities, especially as some students progress and score lower (see Figure 12). The data suggest a lack of coherence in how different student demographics navigate this competency.
2. Integrative Learning: Integrative Learning displays disparities in representational equity and equitable outcomes. The most significant concerns arise for scores of 3 and 4, especially among Hispanic students as they advance in their academic journey (See Figure 11).
3. Global Learning: The data suggest that student performance in Global Learning becomes less equitable as students score higher. This is particularly evident in the middle credit range (13 - 44). Furthermore, there's noticeable representational inequity among different racial and ethnic populations, especially when considering scores of 4 (See Figure 10).

The college uses authentic student artifacts for our benchmark readings to assess our general education competencies, but the samples deposited for this pilot study are not representative of the college population. This is supported by the data in Figure 8, which shows that artifacts from Hispanic students are underrepresented in the two years under consideration. Given that we are an HSI, it would seem important to collect artifacts from a representative sample of Hispanic students. In sum, then, we found significant equity gaps across all core competencies and at key credit levels for both

representational equity and equitable outcomes, particularly for our Hispanic students. These disparities exist for all racial and ethnic demographics because of under- and over-representation and because of inequitable outcomes in learning over time.

Limitations

When we reflect on the limitations to our approach, we note that courses mapped for deposit occur throughout the curriculum, and each program has its own deposit map. Some demographic populations may be underrepresented in certain majors, however. Another limitation to the findings concerns the need to break down racial and ethnic categories into nationality and primary language. As we know, there can be wide discrepancies in academic performance within the categories 'Hispanic', 'Asian', and 'Black', all of which can conceal more nuanced patterns in culture, education, immigration, and legal status.

The reality of intersectional identities further complicates our study. While we sought an analysis linking representational equity and equitable outcomes to racial and ethnic identity, these are not the only primary ways students identify themselves, or the only ways we might highlight diversity, equity, and inclusion. Future studies should evaluate how racial categories intersect with gender identity, class status, and national origins, to name just some of the more obvious categories of identity. Further, an intersectional approach might allow us to reconsider how students living at the intersection of such identities are represented in assessment outcomes, and how they perform compared to their peers. This is crucial, for example, because the experiences of a Hispanic female student might differ significantly from those of a Hispanic male student. Further, many of our students are first-generation college students, and we may want to account for this going forward, too.

Promoting Equity-Minded Assessment: Next Steps

We expect these findings to become a starting point for larger conversations at the college. Below, we discuss the steps we are taking and reflect on further strategies that may help address these gaps related to general education representation and outcomes between different racial and ethnic groups. In addition, we plan to pilot new equity-based assessments focusing on various identity categories. . We hope this data and analysis can act as a starting point for more systemic changes both at LaGuardia and in our larger system, the City University of New York. Moving forward, it is important to recognize that data collection means ensuring that data is representative of the population. A more comprehensive and inclusive approach is needed to ensure that all demographics are represented equitably in the general education artifacts. We hope our findings allow faculty and program directors to see what students actually deposit, and to tailor assessment practices to represent all students fairly.

While we initiated this pilot study using an Equity Index to transform general education at LaGuardia, we admit that changing the culture will take time. The sources of the inequity we found are complex. For one, like many other institutions, our institution created its assessment practices during a period when assessment itself was still becoming a norm. The assessment movement emerged from concerns over student learning, and those concerns were not framed initially around equity. For another, the

ability to create digital models and visualize data drawing upon thousands of student artifacts remains novel, if rapidly expanding. In other words, we have only recently learned how to use software programs that can mathematically model the equity gaps we now find. Those programs require relative expertise, too: two of the primary authors of this initiative were both math faculty. Finally, it would appear self-evident that institutions of higher education must address issues of equity gaps in representation and outcomes because they are reflections of our larger society and, therefore, reproduce systems of inequality, bias (conscious and unconscious), and selective privilege (Bensimon, 2007).

The first step to transforming that culture will be to raise awareness about the issues involved. To better foster heightened awareness about equity in outcomes assessment, for instance, we organized a one-day workshop generously funded by Black, Race, Ethnic Studies at CUNY (The City University of New York, n.d.). We hosted the workshop for two cohorts of faculty and staff, and we aimed to share knowledge on how assessment can uncover hidden inequities and establish a coalition committed to equity. In the workshop, we discussed some of the data presented in this paper. As a token of appreciation and to further their understanding, each attendee received a copy of the book "From Equity Walk to Equity Talk" (McNair et al. (2020). Among the attendees were several program directors, and our director of assessment from the Center for Teaching and Learning. The director recently informed us that, starting in fall 2023, there has been collaboration with program directors to include disaggregated data in the guidelines for periodic program reviews. All Key Performance Indicators will now encompass enrollment, retention, and other metrics, broken down by ethnicity, gender, age, and other categories. This initiative is aimed at making assessment more student-focused, enhancing our understanding of student learning outcomes.

Additionally, we tried to create a conversation with key college constituents involved in assessment. We initiated discussions with our dean for the Center of Teaching and Learning to imagine how we might integrate an Equity Index more comprehensively within general education assessment. In tandem, we had conversations with our Institutional Research team, which led to the development of dashboards to enable faculty to access, analyze, and disaggregate data based on credit level, gender, race/ethnicity, and major. This is a significant step in the right direction. As Dowd and Bensimon (2015) note, institutional researchers facilitate equity-minded assessment by analyzing and disaggregating data. Going forward, we should include OIRA in our annual assessment data collection and analysis.

Challenges remain, however. Institutional contexts and governance also play a crucial role in promoting equity-minded assessment practices. For its part, LaGaurdia has not yet fully embraced this approach systemically, and our study has not been repeated nor expanded. We hope that an Equity Index would become standard to the benchmark reading process and offer data about critical categories of student identity, including race, gender, class, nationality, and primary language (to start). To be sure, leaders within academic affairs are actively engaging academic chairs in discussions to systematize equity comprehensively. Given the scope and sensitivity of the findings and implications, we agree it is crucial to adhere to governance processes to ensure democratic discussion and inclusive implementation. Looking ahead, we recommend strategic communication with program

directors in the early stages of the assessment cycle related to program reviews to ensure outcomes are aligned with the college's strategic goals.

Additionally, we hope programs working through program review can use an Equity Index to make equity-based improvements within their major cohorts. Since the data visualization can be complex, we recommend program directors practice using this information to identify disparities in scores among different demographic groups. They can also utilize existing enrollment data about their programs to better determine the most effective approaches for collecting artifacts.

Looking beyond our institution, we see issues of representational equity and equitable outcomes as the next logical step for assessment practitioners nationally. Integrating an Equity Index would seemingly be imperative for public and private colleges and two- and four-year institutions. Being able to make broad and legitimate claims about student learning over time should include qualifications about who is fairly represented in the data underlying those claims, as well as who is contributing to the outcomes themselves. We see this as a logical step for not just the missions of national organizations such as the National Institute for Learning Outcomes Assessment, but also for regional accreditors seeking to determine how institutions live their missions about diversity, equity, and inclusion.

Adopting these practices would align with new standards for reaccreditation, such as those set by the Middle States Commission on Higher Education concerning diversity, equity, and inclusion. Yet they also reveal deeper truths about the value of outcomes assessment at and beyond our institution. We believe assessment practitioners must carefully consider the implications of equity-based learning: as we've discovered, the random selection of student artifacts does not ensure all students are learning equally. As institutions grapple with the meaning of their assessment data, it is important to understand that randomly anonymized data sets may not reflect institutional demographics. Further and as importantly, reviewing data linked to demographic profiles may reveal significant gaps in which communities are learning over time. We understand these concerns as relevant to discussions of representational equity and equitable outcomes throughout U.S. higher education generally, and at public community colleges in particular.

Acknowledgments

The authors would like to thank Eric Hofmann, Rejitha Nair, and Kyoung Kang from the Center of Teaching and Learning for their support, sharing data, and answering our questions. We are also grateful for the assistance of LaGuardia's Office of Institutional Research and Assessment, specifically Jeff Weintraub and Nava Lerer.

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