Journal of Access, Retention & Inclusion in Higher Education

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Edited by John B. Craig, Ed.D.

Foreword by

Ontario S. Wooden, Ph.D.

Senior Associate Dean

University College

North Carolina State University

EDITOR'S NOTE

John B. Craig, EdD

We are excited about this year's Journal. The scope of the topics covered this year are as varied as our readers. We believe this year's Journal will broaden your horizons and challenge the thinking our audience. This year represents the sixth volume, and we know readers will be edified by the articles herein. As researchers, practitioners, and advocates for students, we must continue to learn, grow, and deepen our understanding of students' experiences. Sometimes, what gets lost in our efforts to support students is our ignorance to how faculty are impacted. Thus, supporting students means that we must support our faculty and staff.

This year's Journal includes topics such as diversity, online learning, mathematics education and a faculty member's experience managing the demands of administrative decision making and student success. We are confident that readers will find the offerings in this volume to be helpful and informative.

Enjoy!

Journal of Access, Retention, and Inclusion in Higher Education

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FOREWORD

We have spent the last three years working our way through one of the most challenging events in recent history – COVID 19. During these tough times, we found a way to come together and support students and their success in ways that I have not witnessed over the course of my professional career. I was proud of us as a profession and as a community.

As we return to "normal' or our "new normal," I hope that we never forget the lessons we learned during the pandemic. Most importantly, the lesson that learning can take place anywhere – at any time! In fact, many of us remain in Zoom meetings because of its ability to bring groups of people together quickly – no room reservations, travel, or even getting professionally dressed. I am sure our students will miss this flexibility as they continue their education.

As you peruse the pages of Volume 6 of the Journal of Access, Retention, and Inclusion in Higher Education (JAIRHE), I hope that the articles contained herein will advance your thinking and knowledge-base on issues that remain near and dear to all of us in the student support and student success communities; issues that impact the lives of traditionally underrepresented, first generation, and other marginalized communities.

There are four articles contained in this volume. Each of them contributes to our knowledge and understanding of college students in several ways. More specifically, these articles delve into ideas relating to first-year seminar courses, co-requisite education, mathematics skill acquisition, and developmental writing skills to name a few. What remains true is whether we are in a pandemic or not, the ideas brought forth in this volume continue to amplify the voices and needs of those students and professionals committed to access, retention, and inclusion in higher education.

As with the five previous volumes of the Journal of Access, Retention, and Inclusion in Higher Education, this volume appropriately contributes to our scholarly and practical knowledge base in these areas. I hope you enjoy this volume as much as the editorial board enjoyed pulling it together. Let us know what you think. I am sure our editor would love your feedback.

Enjoy,

Ontario S. Wooden, PhD
Senior Associate Dean, University College
North Carolina State University

Online Orientation Course: A Predictor of New Student Persistence and Academic Success

Hailey A. Manicone, Ed.D.

Dwayne K. Melton, D.B.A

Brian C. Yates, Ed.D.

Abstract

Leaders at higher education institutions desire to see students persist from matriculation to degree conferral. Students leave institutions for various reasons and end up leaving at high rates after their first year. For this reason, initiatives like summer orientations and first-year seminars are implemented to support first-year students. An online orientation course available for students before they begin at an institution provides valuable information that promotes academic success and increases retention. This non-experimental, causal-comparison quantitative study investigated the relationship between completion of an online orientation course and academic success and retention. These results indicate that completion data of an online orientation course should be collected by institutions and integrated into predictive analytics to identify at-risk students.

Introduction

Persistence is the process of students at higher education institutions progressing from matriculation to graduation. Leaders in higher education have used student persistence as a measurement of success for decades. In 2021, 75.7% of students that started college returned for their sophomore year (National Student Clearinghouse Research Center, 2023).

Researchers over the last 50 years have confirmed a variety of factors that influence student persistence. These factors range from financial difficulties and unrealistic college expectations to personal and academic issues, such as stress and a lack of study strategies. Burger and Naude (2020) note that influential factors differ from student to student, creating complex situations institutions should try to mitigate. Higher education leaders create programs and develop initiatives using research on confirmed predictors of academic and social success to increase retention.

Factors of Persistence

Students with higher levels of engagement and stronger motivation persist at higher rates compared to their counterparts (Al-Sheeb et al., 2018). Studies confirm this by examining a student's self-efficacy, which is the belief about their ability to successfully complete a task, and their goal orientation. Results indicated that self-efficacy and goal orientation were influential as students approached academic tasks (Hsieh et al., 2007). A study from Spain found that students who coped with difficult academic situations with positive acceptance and problem solving were more resilient than their peers (Meneghel et al., 2019).

Building on the idea of motivation and engagement, conscientiousness is a confirmed predictor. "Conscientiousness is a big-five factor most strongly and consistently associated with

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postsecondary academic performance" (Dollinger et al., 2007, p. 873). This specific factor implies an interest in taking their responsibilities and work seriously. Conscientious students typically demonstrate intrinsic motivation, self-regulated study behavior, and degree program satisfaction, which are also confirmed predictors of persistence (van Rooij et al., 2018; Burger & Naude, 2020; Meneghel et al., 2019). Students from one study indicated that not only did interactions with like-minded peers keep them motivated, but it also increased their perception of the amount of people who supported their goals (Burger & Naude, 2020). The students' perception of increased support positively contributed to their college success (Burger & Naude, 2020).

From an engagement perspective, factors like class attendance and the quantity and quality of interactions with faculty are important. These factors greatly influence whether a student decides to continue their education or withdraw from the institution (Umbach & Wawrzynski, 2005). "For nearly 80 years, researchers have found that class attendance predicts collegiate performance" (Dollinger et al., 2007, p. 873). Umbach and Wawrzynski (2005) highlighted Tinto's model that suggests a positive connection between students' interaction with various campus supports and learning and retention.

In one study that relied on voluntary data, homesickness was measured after about one month into the first semester. It proved to be a predictor, in that instance, of short-term college retention (Sun et al., 2016). At another institution, dining data was used to measure student engagement with campus life to combat homesickness. Results indicated that early engagement, a relationship in the first week of classes, predicts student retention and graduation several years later (Bowman et al., 2019).

Measuring Persistence

It is imperative for institutions to measure students' adjustment, engagement, and motivation. Beer and Lawson (2017) note that due to the complexity of student situations, "one-shot solutions" (p. 781) cannot solve the larger problem of student retention. Measuring confirmed predictors of academic success and retention allows institutions to meet the needs of their specific students in ways that make complex situations a little clearer (Blanchard, 2018; Beer & Lawson, 2017).

Data analytics in higher education is growing rapidly with the advent of artificial intelligence and predictive analytics. This moves analytics beyond standard linear models using more complex analysis, such as random forests, which is a classification algorithm. In one study, random forests analyzed data from the first two semesters of courses to confirm prediction of longer-term degree completion (Beaulac & Rosenthal, 2019).

Orientation Courses

Students leave institutions at high rates after their first year, so a variety of initiatives are implemented to ensure students are supported and integrated successfully. Orientation programs/courses date back to the 1870s and 80s. While college orientations serve a variety of populations, the overarching purpose is introducing new students to the institution (Boykin et al., 2015). Orientations have also focused on student development success (Jacobs, 2003).

Equally important to the impact orientations have on students is the data that can be gleaned from completion rates. This data assists university administrators and faculty as they work to retain and develop successful students. Oregon State University, for example, analyzed data regarding new students, which included completion of a Freshmen Orientation Course. The

analyses have assisted them in the development of orientation and other programs (Murtaugh et al., 1999).

Online Orientation Courses

Today, institutions have even more creative ways to engage students than did Oregon State back in the 1990s. Burke (2019) explained that "institutions will need to invest in new and innovative programming to engage students and increase their institutional commitment" (p. 19). Social media and online education tools, like learning management systems, have created ample opportunities for institutions to meet the needs of their student populations.

Higher education leaders can build on the knowledge of the past to leverage student online orientation tools. These tools will also better equip universities with information to proactively engage at-risk students. In addition, online orientation courses can be completed wherever students are physically, which allows them to connect to their institutions without traveling expenses or having to take time off work. This is important since research notes that institutions must consider the demographics and socioeconomic statuses of their students (Burke, 2019).

Students from lower socioeconomic status at times perceive their financial situation to be more evident to their peers than it is (Pratt et al., 2019). Because of this, institutions should be actively finding ways for the students that perceive this about their situation, to not hinder their success. Online orientation courses can assist with this because completion is most often not contingent upon finances, so concerned students can communicate their course completion to their peers. This not only increases their sense of belonging, but also their perception of the intuition's inclusiveness, which is connected to retention (Pratt et al., 2019).

Another benefit of online orientation courses is the potential to increase a student's sense of belonging since they are increasing their institutional knowledge and connection before even arriving on campus. Gillen-O'Neel (2021) notes that it's important for institutions to find ways to increase a student's sense of belonging on an individual level. The study goes so far to say that on a day where a student's sense of belonging towards their institution is high, their motivation and desire to engage at a variety of levels is also high (Gillen-O'Neel, 2021).

Online Orientation Course Completion and Academic Success and Retention

Overall, research about the use and effects of online orientation courses is new and scarce. The purpose of this study was to explore the relationship between completion of an online orientation course and academic success and retention in first-year students.

Methods

Participants

The participants of this study were brand new full-time residential students from a large private 4-year institution located in Virginia who started during the fall of 2019, spring of 2020, fall of 2020, and spring of 2021. The sample included transfer students but excluded NCAA athletes and international students. Upon completing their financial check-in process, which confirms their decision to attend the institution with their first tuition payment, students were added to the online Orientation Course.

Online Orientation Course

Over the four semesters in review, the online orientation course was housed on Blackboard (fall of 2019 and spring of 2020) and then Canvas (fall of 2020 and spring of 2021), which was the institution's primary learning management system at the time. The course is

comprised of short videos containing information from stakeholders across the institution that were pertinent to student success. The course took students between three and five hours to complete. The students had to complete all five assessment quizzes to be considered as having completed the course. The online delivery of the orientation course allowed all students to access valuable information wherever they were at no additional cost to them or the university.

Data Analysis

The data for this casual-comparative study included demographic information, online orientation course completion status, institutional GPA for their first three semesters, and attempted and earned credit hours for their first three semesters. Chi-square tests and linear regressions helped determine whether completion of the orientation course can serve as a predictor for retention and academic success.

<p style="text-align:center">**Results**</p>

Descriptive Statistics

This study included 7,097 new students attending a large private four-year institution in a mid-Atlantic state. The sample included 3,195 males and 3,902 females. The top three reported ethnicities were White (53%), Unreported (35.8%), and African American (3.6%). This study analyzed data from students that started during the academic years of 2019-2020 and 2020-2021 and were enrolled in the orientation course. Table 1 outlines the number of students that started each semester.

Table 1

Semester started

Semester	Number of students
Fall 2019	3374
Fall 2020	3260
Spring 2020	246
Spring 2021	217
Total	7097

Of the 7,087 students in the sample, 4,996 (70%) completed the orientation course and 2,101 (30%) did not.

Grade point averages (GPA) are calculated at the end of the student's high school career and every semester at the institution. Table 2 shows the average high school GPA for the sample, as well as the average GPA for each semester of the study. Students that withdrew from the institution during a semester did not have a GPA for the corresponding semester.

Semester GPA was the indicator used in this study for academic success and is specific to the grades earned during the semester as opposed to being cumulative over all course completed over multiple semesters. Table 2 also shows the average semester GPA grouped by orientation course completion status. Students who completed the orientation course earned higher GPAs than those that did not complete the course.

Table 2

Grade point averages for sample

	Grade point average	Number of students	Mean GPA
Total sample	HS GPA	6971	3.52
	First Semester GPA	7097	3.18
	Second Semester GPA	6445	3.19
	Third Semester GPA	5830	3.19
Students that did not complete the course	First Semester GPA	2101	2.86
	Second Semester GPA	1815	2.84
	Third Semester GPA	1584	2.89
Students that completed the course	First Semester GPA	4996	3.31
	Second Semester GPA	4630	3.33
	Third Semester GPA	4246	3.30

Retention rates are a measure of the continued enrollment of students. Semester-over-semester retention rates are determined by the number of students who start a semester and enroll in the following semester. Of the 7,097 students that started their first semester, 6,447 started their second semester, resulting in a semester-over-semester retention rate of 90.8%. Of the 6,447 students that started their second semester, 5,788 started their third semester, resulting in a semester-over-semester retention rate of 89.7%.

Year-over-year retention rates are determined by the number of students who start one semester and enroll in their third semester. Of the 7,097 students that started their first semester, 5,788 started their third semester, resulting in a year-over-year retention rate of 81.5%.

As seen in Table 3, students that completed the orientation course enrolled in the second (92%) and third (84%) semesters at a higher rate than those that did not complete the course (86% and 75%).

Table 3

Retention status grouped by orientation course completion

	Retention status	Yes	No	Total
Completed the course	Enrolled in the second semester	4630 (92%)	366 (8%)	4996
	Enrolled in the third semester	4241 (84%)	755 (16%)	4996
Did not complete the course	Enrolled in the second semester	1815 (86%)	286 (14%)	2101
	Enrolled in the third semester	1583 (75%)	518 (25%)	2101

Null Hypothesis One

To investigate the relationship between online orientation course completion and continued enrollment in the next semester, chi-square tests of independence were run. A chi-square statical analysis evaluates whether an expected outcome and an actual outcome are statistically different (Cronk, 2018). The expected outcomes determined by the chi-square analysis are distributed to the categories evenly based on the sample, which would indicate no relationship between the variables. The variables for the test are categorical and result in a 2 x 2 chi-square analysis. Students either completed or did not complete the orientation course and students either registered or did not register for the next semester.

The chi-square analysis evaluating the relationship between orientation course completion and whether students enrolled in their second semester revealed a statistically significant relationship $\chi^2(1) = 70.065$, p <0.001.

Of the 7,097 students eligible to enroll in the next semester, 652 did not (9%). The expected outcome of students that did not enroll in the next term and did not complete the orientation course was 193 (2.7% of the total eligible students). However, 286 students that did not enroll in the next semester did not complete the course (4% of the total eligible students),

which is 93 students higher than expected and 43% of those that did not enroll. Additionally, the expected outcome for those that completed the course but did not enroll was 459 (6.4% of the total eligible students). The actual number of students that completed the course and did not enroll in the next semester was 366 (4.7% of the total eligible students), which was 93 students less than expected.

The chi-square analysis evaluating the relationship between orientation course completion and enrollment in the third semester, revealed a statistically significant relationship$\chi^2(1) = 57.923a, p < 0.001$.

6,445 students were eligible to enroll in the next semester; however, 752 did not (11%). The expected outcome of students that did not enroll in the next term and did not complete the orientation course was 211 (3.2% of the total eligible students). However, 300 students that did not enroll in the next semester did not complete the course (4.6% of the total eligible students), which is 89 students higher than expected and 39% of those that did not enroll. Additionally, the expected outcome for those that completed the course but did not enroll was 540 (71% of the total eligible students). The actual number of students that completed the course and did not enroll in the next semester was 452 (60% of the total eligible students), which was 88 students less than expected.

Null Hypothesis Two

Linear regressions evaluated the relationship between a student's GPA and their online orientation course completion. Linear regressions are utilized when the dependent variable is a continuous variable, like GPA. Linear regressions evaluate whether there is a statistically significant relationship between the variables and whether one variable accounts for any variance of the other variable (Cronk, 2018).

Upon running the linear regression, the prediction equation was: GPA = .456 + 2.861x. Completion of the orientation course statistically significantly predicted GPA, $F(1, 7,095) = 408.136$, $p < 0.001$), accounting for 5.4% of the variance ($R^2 = .054$). For the second semester data, the prediction equation was: GPA = .485 + 2.846x. Completion of the online orientation course statistically significantly predicted GPA, $F(1, 6,443) = 307.030$, $p < 0.001$), accounting for 5.7% of the variance ($R^2 = .057$).

Discussion

This study confirmed that completion of an online orientation course can serve as a predictor of academic success and retention in first-year students. Because of this, higher education leaders should consider a student's online orientation course completion status when collecting and analyzing data about student persistence and success.

The chi-square test results revealed a statistically significant relationship between online orientation course completion and whether a student continues to enroll in the next semester. Not only is the relationship statistically significant, but including the online orientation course completion in the model increased the accuracy of the predictive model. Every additional student found in each category increased the accuracy of the predictive model, with some categories finding 80 or so additional students. This is important since students are leaving institutions at high rates after their first or second semester.

As for the relationship between online orientation course completion and academic success (GPA), linear regressions revealed a statistically significant relationship, with online orientation course completion finding a little over 5% of GPA's variance. Academic success can

be measured in a variety of ways, but this connection between online orientation course completion and GPA is important.

Furthermore, additional predictive models analyzed the first and second semester data including a variety of combinations of orientation course completion, high school GPA, amount of credit hours the student earned for the semester, and gender. When additional linear regressions were conducted with these other confirmed predictors of academic success, online orientation course completion continued to find unique variance and statistically significantly contributed to the predictive models. This means that adding online orientation course completion statuses widens the picture leaders have of their students.

While completion of the online orientation course may help students succeed, it is likely that completion of the course is evidence of other important contributing factors. Students that complete the course before arriving on campus were engaged early and had the intrinsic motivation to complete the task before the deadline. This high level of intrinsic motivation is a confirmed predictor of academic success and retention (Al-Sheeb et al., 2018). Closely related to intrinsic motivation is self-efficacy and goal setting, which are also confirmed predictors of student success (Hsieh et al., 2007). Students had to set the goal of finishing their online orientation course before school started, despite having to juggle vacations, jobs, and other obligations. They likely also encountered distractions and problems while trying to complete the course, but they successfully pushed through, which research indicates is a predictor of success (Meneghel et al., 2019).

Engagement in the course and the information gleaned from the course may have also contributed to the student's institutional identity, which Burke (2019) explained was important. Another study found a positive correlation between sense of belonging, motivation, and

enjoyment, so the researchers noted that increased opportunities to transition to college well may address lack of motivation in students (Pedler et al., 2022).

Institutions aim to support students in such a way that they persist from matriculation to degree completion. It can be difficult, however, since there are a variety of reasons students do not persist. How those reasons impact each student differs, so data should be collected and analyzed to give insight into the student experience and needed support (Beer & Lawson, 2017). Nieuwoudt and Pedler explain that after their qualitative study about retention and persistence, it's imperative that institutions collect and use a variety of data points that influence decisions (2023). The use of different data points can give higher education leaders appropriate context to student situations to support the students.

Given the results of this study, online orientation course completion appears to be a confirmed predictor of academic success and retention in first-year students and should be collected and analyzed by higher education institutions. Li and Carroll (2019) explained the importance of early interventions, which institutions can facilitate using online orientation course completion statuses. Not only is the online orientation course completion an important data point to collect and analyze, but it can also be one of the first data points collected by the institution that is specific to direct student engagement with the institution as opposed to data points related to high school.

Limitations and Future Research

A limitation of this study is the inability to confirm if the student completed the course on their own, as part of a group, or with a parent or guardian. The assumption would be that the

student engaged early, established a connection, and displayed motivation, which translates into positive characteristics that impact academic success and semester-to-semester persistence.

This study should be duplicated at other institutions such as large state schools and small private colleges to measure effectiveness in different environments. If the study positively impacts academic success and persistence across a variety of conditions, it provides evidence of reliability when utilized to onboard diverse enrollment numbers and circumstances.

Qualitative research should be conducted to account for the perspective of students on the impact of the orientation course on their academic success and persistence. Exploration of the student experience would allow for measurement of intrinsic motivation factors that influence their incentive to meet specific goals.

Finally, it is important to recognize that online orientation information should not completely substitute for all new student and family interactions as part of the experience for matriculating students. As Potts (2021) identified through qualitative data collection, when in-person interactions are lacking, a sense of isolation and loneliness can result. While online orientation courses can build personal interactivity into the curriculum, in-person engagement assists with the overall feeling of connectedness and belonging, leading to persistence.

Conclusion

To continue research on improving the persistence and academic success of incoming freshmen, this study utilized a predictive model to track cohorts from fall of 2019, spring of 2020, fall of 2020, and spring of 2021 that completed an online orientation course. The online course was initially developed to leverage technology and reduce expenses for the university and students. At the same time, there was a desire to increase accessibility and create more

meaningful engagement for the activities in which students and their families engaged on campus.

The results found a statistically significant relationship between course completion and student enrollment in the next semester. The chi-square test not only found this relationship statistically significant, but the utilization of both the model and online orientation course completion increased the accuracy of the predictive model. The various combinations of data analyzed (online orientation course completion, high school GPA, amount of credit hours earned, and gender) all displayed positive statistical significance when assessing academic success and persistence over the first and second semester. Considering the results, institutions should consider collecting online orientation course completion data as it will give productive insight into their student population.

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Author Biographies

Hailey Manicone, Ed.D., is currently the Executive Director of Academic and Career Success at Liberty University and oversees online and residential Tutoring and Writing Services, Career Services, and the Center for Professional and Continuing Education. Her research interests include student success, retention, and early intervention systems.

Dwayne Melton, D.B.A., is currently the Associate Dean for the College of Applied Studies and Academic Success at Liberty University. He has served in the field of higher education for 17 years in various capacities ranging from Advising, Academic Support Services, and Academic Operations.

Brian Yates, Ed.D., is currently the Vice Provost for Residential Programs and Dean of the College of Applied Studies and Academic Success at Liberty University. He earned his Ed.D. in Administration and Policy Studies and has served as a Professor of Education in both undergraduate and graduate programs.

Mathematics Stories: Mirrors and Windows

Tonya DeGeorge

Katherine Pinzon

Abstract

Students who need additional mathematics support at the college level are often put into corequisite courses. With the additional support time, this study seeks to understand how incorporating "math stories" in a mathematics classroom can provide students opportunities to focus on the self and their own learning using an instructional tool, Adobe Express. Findings from this study suggest that through the creation of webpages and videos, students begin to perceive themselves and mathematics in a variety of ways. Adobe Express can provide the mirror for students to reflect on their own perceptions of learning and the window for instructors into how students think about themselves, their struggles, and mathematics as a whole.

Keywords: student success, mindset, corequisite, reflection, technology, mathematics stories

Many students who come to college struggle with identifying which career path to take. This struggle, in part, is due to the required prerequisite and remedial courses students must take before being able to explore and learn about their options. Mathematics courses, for instance, are often the requirements (and hurdles) students must overcome, especially if they intend to pursue a Science, Technology, Engineering, and Mathematics (STEM) career. Students who are assessed as needing remediation in mathematics are less likely to graduate than those who do not (Logue et al., 2019).

To address those needs, many colleges have traditionally placed students in remedial courses before allowing them to take college-level courses (Kim, 2016). Due to the large number of remedial students who never finish a degree, however, colleges have turned to alternative methods to deliver developmental (remedial) mathematics, such as the corequisite model; "a

concurrent learning experience providing just-in-time support to students who, under other circumstances, would not yet be enrolled in gateway courses" (Atkins & Beggs, 2017, p. 21).

Implementing corequisite courses have shown to increase success rates of remedial students (Kim, 2016) and are more affordable to students because they do not have to take remedial courses before their gateway courses. With the additional support time, some instructors have used that time to focus on students' self-efficacy beliefs, believing that "these are an important tool to predict students' behavior, persistence, and achievement in education" (Kim, 2016, p. 37). Students' attitudes and emotions around the learning of mathematics and the events of their lives can greatly affect choices students make.

Other important factors considered are the social and cultural contexts. Ernest (2009) claimed that mathematics, like many other aspects of human life, is situated within a cultural context from which it cannot be detached. Additionally, aspects such as gender, race, and socioeconomic status, greatly influence how people perceive the world and often defines their place in society. Women, for example, traditionally have not been allowed to engage in the mathematics community, making mathematics unattainable (Sriraman & Steinthorsdottir, 2009; Walls, 2009). These experiences help create the narrative of who can or cannot do mathematics. Despite the recommendations for schools to make mathematics more culturally relevant and be made more meaningful to learners, "most mathematics taught in schools is divorced from the context in which it developed and from contexts in which the mathematical ideas might arise" (Masingila & de Silva, 2001, p. 329).

Focusing on student cultures is a good first step to help students start to feel they belong in the classroom. However, they also need to feel that their teachers care about them as people as

well as their learning. Caring relationships[1] between teachers and students are "central to education – the glue that brings teachers and students together and makes life in classrooms meaningful" (Noblit et al., 1995, p. 680). Feelings of connectedness and the relationships that are formed can in turn increase student motivation, performance, and academic success (Eccles, 2004; Lumpkin, 2007; Maloney & Matthews, 2020). Thus, teachers have the responsibility to help students "build a sense of connectedness and belonging, particularly for historically disenfranchised students" (Maloney & Matthews, 2020, p. 400). The feeling of belonging and connectedness can stem from the student-teacher relationships that are created in the classroom.

One way to increase student-teacher interactions and include students' culture in the classroom is by incorporating writing in the curriculum. When students create their own mathematics writing, it gives students the opportunity to "reflect, clarify, record or demonstrate their learning in mathematics" (Lauritzen, 1992, p. 3). Writing has been shown to enrich student learning of content, in any curriculum area (Egan, 1979; Lauritzen, 1992; Wells, 1986). Lauritzen (1992), for instance, conducted math story sessions with second and sixth graders to facilitate their learning of mathematics concepts by allowing students to write their own math stories; stories that stemmed from their exposures and experiences with mathematics. Some students chose to write their stories within a narrative structure; stories that included plots and conflicts that would be resolved by the end of the story and included varying levels of mathematics. Some would use mathematics to describe the context (i.e., the room was 10 feet wide), while others incorporated mathematics as way to resolve the conflict of the story. The

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[1] Many studies across all realms of educational research (see Caldwell & Sholtis (2008) and Watts et al. (2020) for some examples) have argued that developing an ethic of care can comfort, motivate and encourage students in the classroom. These works stem from the scholar Nel Noddings, who first introduced the ethics of care in an educational setting and centers on the notion that caring relationships are "unique, customized, and reciprocal" (Watts et al., 2020, p. 52). Teachers can approach their caring in many ways but must reflect the individual student's needs.

findings of this study highlight that mathematics writing can provide a window into how students think about the mathematics content.

Writing in the mathematics classroom, however, does not have to be limited to writing only about mathematics. Incorporating other types of writing in the classroom can also provide teachers information about their students. Writing as a learning tool in the context of mathematics can allow students to think critically about the mathematics topics and the beliefs they have about the nature of mathematics. Writing is one method teachers can use to interact with students, which fosters building a sense of community. This in turn, helps create a supportive classroom environment, increase students' sense of belonging, include students' culture, and potentially increase student outcomes, because they begin to see the value of mathematics and the relevance of math in their lives (Maloney & Matthews, 2020).

Methods: Implementing Math Stories in the Classroom

In this study, we begin to look at how students think about their own learning of mathematics by asking them to create webpages about themselves and numbers that are important to them; a first step in inviting students to share their experiences, emotions, and thoughts. Participants from this study attend a four-year public all access institution, described as being a minority-majority institution and ranked as the most ethnically diverse regional college in the southern region in an Intro to Mathematical Modeling course. The college has recently earned the title as a Hispanic Serving Institution (HSI), with a student enrollment of about 12,000 students.

Students interested in pursuing a STEM degree but who have also exhibited a past in struggling with mathematics, are required to take Introduction to Mathematical Modeling, a course

for students[2] who are not yet ready for College Algebra (a prerequisite for many STEM courses). This class comprises of a maximum of twenty students and each professor has the freedom to use the additional learning support time (3 credit hours) in ways that will best benefit the students.

Although instructors are given the freedom to choose how they want to use the additional time in their corequisite classes, we believe "learning takes time and is a product of effort" (Boaler, 2013, p. 145). Given that many of our students have struggled with mathematics, we incorporated Boaler's (2013) ideas of growth mindset because mathematics is a subject area that often communicates fixed ability with achievement.

Yet, teaching a mathematics support class requires understanding students' struggles with mathematics as well as their own perceptions of their learning. Students in corequisite courses may struggle with the mathematics content but also need time and guidance to learn how to think about their own learning. Personal barriers, such as poor study habits, lack of confidence in their abilities, and motivation, can influence student learning and affect their learning outcomes. To help students become reflective learners and begin to overcome some of these barriers, we asked students to participate in multiple activities, such as exam debriefs, learning journals, midterm check-ups, study skills, class discussions, and mindset assignments throughout the semester. Although we incorporated many types of activities to address the idea of mindsets and study skills in the classroom, the focus of this paper will be on one part of a semester-long project where we asked students to create webpages and videos about their mindsets and those of others.

Data for this project were collected over three semesters (Fall 2019, Spring 2020, and Fall 2020) from six courses by two faculty members with a total of 63 student projects. In these three-part self-reflection projects, students created a digital story to describe what they learned about

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[2] Students are placed into the course based on a number of criteria, such as high school GPA or results from a placement exam.

themselves: their mindsets, how they handle struggles and feedback, and what they think it takes to be successful (as students, mathematicians, and people). For the purposes of this paper, we will be focusing on part one,[3] which asked students to create their "math story" highlighting numbers that are significant to them and their lives. In addition, it gave students the opportunity to display their own knowledge and experiences in a creative way using Adobe Express[4] (an online interactive tool where students created their own videos and webpages), which served as an avenue for student voice[5] through their choices on content, images, and layout.

What Can Educators Learn About Students from Their Stories?

Within their webpages, students used a variety of tools, images, and words to describe their significant numbers and the way in which students wrote about these numbers varied greatly. Some students chose to focus their entire story on one specific number, while others wrote about multiple numbers. Some chose to offer simple explanations as to why these number(s) are significant while others provided a deeply personal account or life experience associated with their number(s). Students chose a variety of numbers from one to one million, often choosing numbers between one and six as well as 18 and 19, which were the ages of students at the time. Despite how students decided to represent their stories, it was evident that numbers played a significant role in many of their lives, often associating with a specific person or event.

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[3] Note that that while this paper focuses on one part of a semester long project, this part of the project is independent of the other two parts. The intention of the first part of the project was to get students acclimated to the technology for which they will use in addressing the content for the second and third parts. We did not initially intend to analyze this part of the project, but after seeing how students responded in our pilot study, we decided to include this part as well. The second and third parts of the project asks students to research growth and fixed mindsets, define them, and reflect on the impact of mindsets on their own lives and the lives that surround them.

[4] Formerly known as Adobe Spark.

[5] "Student voice is critical as it can often be problematic for adult researchers to understand the world view of students" (Larkin & Jorgensen, 2016, p. 928).

Data analysis began with an analysis of the narratives with a "description of the themes that hold across the stories" (Polkinghorne, 1995, p. 12). We read through each story and focused on choices as they relate to: the numbers students chose to talk about, the reasons for the numbers chosen, and how students portrayed their ideas using Adobe Express. Given that students created their webpages in story form, we felt it necessary to "develop concepts from the data rather than imposing previous theoretically derived concepts" (Polkinghorne, 1995, p. 13) by naming each segment of data followed by a more focused phase of organizing our initial open codes (Charmaz, 2014). During this open coding phase (Ezzy, 2002), we constructed codes that closely aligned with participants' words, defining those that appeared to be significant (Charmaz, 2014) while trying to remain open to all possibilities (see Table 1).

Table 1

Initial Codes of Why Numbers Are Significant

Initial codes
Favorite person
Favorite item
Family member's birthday
Student's birthday
Specific month of important event
Specific day of important event
Specific age of important event
Number of family members
Number of letters in their name (first or middle)
Number of pets
Current age
Meaning of Number
Intrinsic Value of Number
Personal Goals
Aspirations
Other

Note. This table demonstrates all the initial codes in the first round of analysis.

In the second phase of analysis, second-level codes were created by grouping initial codes together (Charmaz, 2014; Ezzy, 2002). As patterns developed, codes were grouped into categories that were similar to each other (with some segments of data coded into multiple categories). These categories started to form our themes. Table 2 represents second-level codes and the percentage of how often the codes were used in students' stories.

Table 2

Codes in Second Phase of Analysis

Codes Grouped According to Content	Percentage of Use in Student Stories
Favorite Item/Person	7.11%
Family Member's Birthday	8.79%
Student's Birthday	10.88%
Specific Time of Important Event (Month, day, year)	8.37%
Age of Student of Important Event	3.35%
Number of Family Members (including pets)	23.01%
Number of Letters in Name (First/Middle)	7.53%
Current Age of Student	10.46%
Meaning of Number Chosen	4.60%
Personal Goals	0.84%
Other	15.06%

Note. Percentages were calculated based on the number of codes in that category out of the total number of codes (239).

As indicated in Table 2, one of the central "themes" is the sense of family. Regardless of the type of family students had or who was in their family, many students chose numbers to represent the number of people in their family and describe the importance of their relationships.[6]

Other codes, such as Family Member's Birthday and Favorite Item or Person also included family members. Students spoke of a particular family member and focused on the significance of the life they lived rather than focusing on the family as one unit. Students shared stories of those

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[6] Pets were initially coded separately, but because students often referred to their pets as family, we grouped pets within the same category.

who treated them in a special way and shared memories explaining why their birthday or number was significant. In addition, in the Favorite Item/Person category of codes, students often spoke about numbers that associated with a particular person's sports (jersey) number. The majority of people included in this code were students' families as well as favorite sports players. Although sports players are not typically considered as part of the family, some students made it clear that watching a particular person play became part of the family culture. The bond created while cheering for the same person or team was a significant part of their lives.

The data also indicate that many students chose their birthday as a significant number. We assume birthdays are significant to most people, especially at this critical age and were not surprised to see those numbers in their projects. A large number of students, however, chose their current age and discussed how reaching that age was an important milestone to them. Students reflected on what they've accomplished thus far in life and proudly spoke about those accomplishments (i.e., finishing school, being able to attend college, etc.).

Other significant numbers chosen were related to a specific event and how they remembered that event. Some students remembered events by day, month, or year while others remembered how old they were when that event occurred and varied tremendously.

> *This was the day that I can say changed my life for the better. I saw life through a different lens. It not only gave me confidence but it gave me more of a reason to get up in the morning and look forward to the day. When I say it drastically CHANGED my life it did. Because the back pain I had for as long as I remembered ceased to exist. I was able to buy clothing that expressed me better, able to work out without my back failing me. I am a better person because of it.*
> *(Samantha,[7] 2020)*

Lastly, a very small minority chose to discuss their numbers in terms of their meaning or personal goals. Many students chose the number one, for instance, since it represents competition,

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[7] Pseudonyms used for every student data/quote. In addition, quotes chosen were not altered in any way. Students word choice, punctuation, and grammar seen here is how students wrote these pieces in their stories.

independence, and support from family to reach that level. Other students chose their favorite number, stating that these numbers represent peace and service to others. It was interesting to see how these numbers are interpreted in multiple cultures and how they carry these numbers with them throughout their lives. Students' elements of culture are a part of their reasoning and choices they made in the significance of a number.

> *The number 2 is so important to me because of my dad. He stays every two years in America to spend time with me and my family and supports us in aid, money, food, etc. Then I don't get to see him for two years because he has to go to Nigeria to support his business. So, in general I get really excited to see him every two years.*
>
> *(Harry, 2020)*

While elements of culture were sprinkled throughout students' webpages and videos, some students boldly stated their heritage and emphasized why it was important to them.

> *I wanted to first introduce myself and second share why I choose to use my name as an important number even though its not a number. My name has 8 letter as I stated before and I truly love my name. Its a Muslim name because I am Muslim and it means many things such as pure, pious, and sharp. I love the name I was given.*
>
> *(Malia, 2020)*

Along with emphasizing their culture or cultural upbringing, many of the students incorporated elements of their culture in the words and images they chose to share.

While the data does not suggest that creating math stories can help students succeed in their courses, we believe the stories gave students the opportunity to express themselves in ways they may not be able to share in a typical mathematics classroom. As shown in our analysis, students incorporated pieces of themselves in relation to their lives, their beliefs, and aspirations. Other students chose particular numbers as a goal to reach (i.e., 1 million as the number of followers he intends to have on Instagram).

With a focus on growth and fixed mindsets in the next two parts of the project, we did not expect students to speak about their learning of mathematics. Yet, there were some students who chose to speak about their struggles with mathematics and were open to share some of these ideas early on.

> Now on to math, the relation between me and math is complicated. Literally. At sometimes I get it and other it is difficult me. But lately I figured math isn't that hard. If I just study really well, do my homework and practice I can get it and pass. I think anybody can be a genius in math.... Anyways, I am starting to like math because I realized if you just study it by practicing, and doing homework I will get it in no time. In two years, I want to go to University to study electrical engineering. I am hoping everything goes well!
>
> *(Jasmine, 2020)*

 The content students were willing to share in the first part of their projects helped create a space for us to begin to talk about mathematics and mindsets in the classroom and with students individually. Not only were we able to learn more about our students as individuals (and of their family and culture), but we were also able to see glimpses of how they perceived themselves. Thus, this project also helped us build relationships with students; simultaneously showing students professors care about what they think in relation to themselves, their culture, and mathematics. While this does not always translate to how a student might think of themselves in the learning of mathematics, it provided us a starting point in being able to have conversations of self-efficacy surrounding mathematics.

How Does Adobe Express Help Students Convey Their Stories?

Students used written reflections, graphics and videos to create a cohesive story integrating their lives into their stories. Interestingly, as this project was given before and during the pandemic, we cannot ignore the possible impact the pandemic and online format might have had on students. Giving students the opportunity to express their ideas and thoughts in more than

just written form, gave us the opportunity to really get to know our students in a time when the only way to interact with students was through an online platform. As we were analyzing the data, we noticed that the number of students who chose to use personal photos increased as the pandemic continued (see Table 3).

Table 3

Frequency of Students Who Chose to Include Personal Photos by Semester

Semester	Number of Students Who Used Personal Photos
Fall 2019	2 (out of 9)
Spring 2020	8 (out of 28)
Fall 2020	22 (out of 26)

Note. This table illustrates the increase in the number of personal photos students incorporated into the math story over the course of three semesters.

This could indicate that students felt the need to be seen and creating their story provided an avenue for that. The assignment to simply talk about significant numbers in their lives gave them the space to freely express their thoughts and invite others into their lives.

We also saw an increase in the way students decided to use image and sound in the creation of their stories, as some students chose to use visuals as the primary content of their webpages. One student, for instance, simply stated she is an artist and used her webpage to showcase her work. Although she didn't write as much as other students, her creativity in including her artwork as glideshows[8] or in photogrids[9] made the website visually appealing while also communicating the importance of art in her life (see Figure 1).

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[8] Glideshows provide the background image and moves along the page as you scroll down.

[9] Photogrids are arranged like a collage.

Figure 1

Student Artwork Displayed on a Webpage

Note. This student chose to use the photogrid option to highlight her artwork as well as providing some text (as shown in the bottom right corner) to supplement her art in describing why the number five was chosen for her math story.

For these students, writing was not the central method of content delivery. While in the minority, it does open the idea that students may need other avenues of creativity to express themselves.

Limitations and Directions for Future Research

Just like with any research, there are some limitations of this study and areas for further research. Although this project started in Fall 2019, the subsequent semesters occurred during the time of COVID-19. Therefore, data was collected in person as well as in online synchronous class sessions. Despite the format of the class, however, students seemed to enjoy the assignment overall as indicated by the number of students who created webpages filled with personal stories. While many students focused on the purpose of the project in discussing their significant

numbers, many students inserted pieces of their lives with no clear ties to any significant number. Further research could look at the effects of the pandemic and the support students may need to be seen or heard during a time with limited contact.

Some of the images students chose did not seem to reflect the content or writing of their webpages. It was unclear why certain images that were chosen helped the development of their story or how it related to the numbers they were describing. Future studies could use a photo-elicitation method (Harper, 2002) to gather additional data from students in understanding why they chose particular photos. This could highlight the importance of images not only in the creation of their webpages but also how these images held meaning and value. By incorporating or highlighting the ways in which students see themselves, we begin to consider other ways to effectively teach students, such as including elements of culturally relevant pedagogy and ethics of teacher care. Yet, simply including the images in students' assignments and classrooms is not enough. Teachers must reflect on how these images have impacted their students and show students that they are genuinely interested and care about their students as people.

While we did not specifically measure student outcomes, studies (Averill, 2012; Eccles, 2004; Fraser et al., 2010) have indicated that by focusing on strengthening the student-teacher relationship within the classroom, students' achievement levels improved. We did not initially intend to use math stories to include students' culture in the classroom, but we now see that this is a great avenue to focus on students, their backgrounds, their achievements, their aspirations, and their fears. We would encourage others in the field who wish to build more equitable classrooms, to consider this project as one way to increase teacher-student interactions, while showing students that teachers care about all aspects of them and their learning (Averill, 2012).

Concluding Remarks

While this assignment provided a window to see our students more than just students, we must also remember that "stories evolve over time, implying individuals' meanings attributed to important events may also change…stories are contextual, suggesting stories are both created and discontinued within established cultural norms and traditions" (Bragelman & Maciejewski, 2021, p. 1370). Just as we can change over time, our students will too along with their goals and aspirations.

> *I'm gonna be sure to making another one of these in the next 18 years to*
> *see where I am then seeing if I accomplished my dreams.*
> *(Damon, 2020)*

This project can introduce new dimensions in the mathematics corequisite classroom by encouraging students to reflect upon their life experiences, feelings, knowledge and beliefs about mathematics that goes beyond just learning the content. For instructors, it can bring awareness of who their students are and can shape the way in which they respond to their students' needs.

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Author Biographies

Tonya DeGeorge is an Instructor of Mathematics at Georgia Gwinnett College where she teaches primarily developmental mathematics courses (up through Calculus). Her research interests include looking at systematic barriers in education and the success of minoritized groups within STEM.

Katherine Pinzon is a Professor of Mathematics and the Assistant Chair of Mathematics at Georgia Gwinnett College and teaches a wide range of mathematics courses (both developmental and upper-level courses). Her research interests include student motivation, active learning techniques, and HIPs for gateway STEM courses.

Living in the Disjuncture Between Administrative Decision-Making and Student Success

Margaret E. Weaver, Ph.D.

Director of Composition and Professor of English, Missouri State University

Abstract

Because definitions of success differ among different stakeholders, faculty are often trapped in the disjuncture between administrative decision-making and student success. This paper examines three current "student success" initiatives that a faculty member was tasked with implementing (a corequisite course, an online developmental writing course, and online directed self-placement) and how these initiatives were short-circuited by administrative decisions that dismissed research conducted by the faculty member about the local student population.

I recognized that tone. I had heard it often enough, in myself and other women. It is the tone of a woman almost in touch with her anger, who is determined not to appear angry, who is willing herself to be calm, detached, and even charming.—Adrienne Rich[10]

      I looked at the numbers and bowed my head. I knew the percentages would be higher, but I had not expected this much. Perhaps that is not entirely accurate. It would be more accurate to say that I hoped that the percentages would not be this high. I should have said "no" with more voracity. Years ago, my husband gave me one of those battery-powered "NO" buttons that sits on my desk. It was supposed to

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[10] (Rich, 1972 p. 20).

serve as tangible reminder that I do have choice and can refuse when an administrator asks me to do something with which I disagree. Each time the button is pushed, it spits out a different response: "No," "Hell No," "Absolutely not," "No way, and "N-O." I had not literally or figuratively pushed the "no" button with the vigor I felt inside.

Since COVID (Fall 2020), the NP/W rate for our university's ENG 100[11] has hovered around 26%. This past fall, however, the NP/W rates for ENG 100 jumped to 43%. What had happened to prompt this radical percentage increase? I knew. Four of the five sections were offered online. The impact that this administrative decision had on student success was devastating. Almost half of the students did not pass or withdrew from ENG 100.

I remain wracked with guilt. Even though I was not responsible for the decision, I am riddled with anxiety and culpability in my position as the Director of Composition.[12] As a result, "My body is experiencing events" (Anzaldua, 1987, p. 70).[13] I read a draft of an MA thesis this semester in which the graduate student recounts the lack of confidence the general public places in her decision-making ability as a secondary school teacher. She describes it as nothing short of "insulting and infuriating" (Woolsey, 2023, p. 4). Her words continue to reverberate within me. My hope is that sharing my experiences as a faculty member will help to illuminate the inner turmoil that faculty experience when caught in the disjuncture between administrative decision-making and student success. I examine three student success initiatives that I was tasked with implementing (a corequisite course, an online developmental writing

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[11] ENG 100 is a 3-hour basic writing course that is graded Pass/No Pass so as not to penalize students who need more practice in writing prior to enrolling in ENG 110, a 3-hour college composition course. ENG 100 is credit-bearing for financial aid purposes and enrollment, but not for graduation or degree requirements. A "Pass" is determined by a committee of ENG 100 instructors who assess each ENG 100 student's writing portfolio at the end of the semester.

[12] Though the Director of Composition has administrative responsibilities, such as processing transfer credits, preparing biannual reports for general education review, and training and supervising graduate teaching assistants who teach the majority of ENG 110 courses, the directorship is considered part of the teaching load of a faculty member. The director does not have a budget, hiring, or scheduling authorization. The position also does not include any additional compensation for administrative duties. I assumed this position in Summer 2020, during the outbreak of COVID.

[13] My primary care practitioner has raised my blood pressure medicine twice in the past 6 months and keeps insisting that I learn to manage my stress better.

course, and online directed self placement) and how my efforts to support student success were short-circuited by others' administrative decisions.

The Corequisite as Student Success Initiative

Writing program administrators find ourselves enmeshed in a debate regarding the efficacy of developmental education. A cursory glance at article titles in *Chronicle of Higher Education* and *Inside Higher Ed* reveals a less than hospitable landscape: "Colleges need to re-mediate remediation," "Overkill on Remediation," and "Students: Just say no to remedial classes" (Rose, 2009; Fain, 2012; Fay, 2023). These calls for reform reflect growing concerns about increasing college debt and lower retention and graduation rates. Complete College America (CCA) has suggested, quite persuasively, that these concerns are directly linked to the number of non-credit remedial courses students must take prior to enrolling in gateway courses. According to CCA, fewer than 36% of students who take "remedial" courses will ever enroll and/or complete gateway courses and only 17% will graduate from college (*Corequisite remediation*). The culprit, in other words, is developmental education. Weaver, Hall, and Glaessgen (2022) point out that

> Research has not brought clarity…especially given the contradictory nature of the findings. Some researchers have found students are less likely to graduate if required to take developmental courses ("Spanning the Divide"); other researchers have found students who take developmental courses are more likely to graduate (Attewell et al., 2006). Some scholars link developmental courses to a decrease in retention rates (Cholewa and Ramaswaami, 2015) while others argue such courses boost retention rates (Boylan & Bonhan, 1994; Otte and Mlynarcsyk, 2010). (p. 77)

Despite these contradictory findings, many states have passed legislation that eliminates developmental courses in higher education and mandates the adoption of the corequisite model (Scott-Clayton, 2018).

Barshay (2017) cautions that these states are embracing the corequisite model "before we know if it works and, if it does, for which students."[14]

My 4-year university had followed a prerequisite model of basic writing instruction since the early 1990s.[15] The university required a single writing course (ENG 100) for students with English ACT scores below 18 prior to enrolling in the college composition course (ENG 110).[16] This model shifted when the Missouri legislature passed HB 1042, mandating that state institutions of higher learning replicate "Best Practices in Remedial Education" (Thompson, 2012). Though the Missouri Department of Higher Education did not require all institutions of higher learning adopt the same model, it sponsored a multiple-day workshop in 2016 entitled "Missouri Corequisite Academy" that state colleges and universities were highly encouraged to attend.

Because I was the most senior member of the composition faculty and the only full-time faculty member who taught ENG 100 at our university,[17] the Assistant Department Head asked me to attend this statewide workshop and pilot a corequisite section. At the workshop, attendees were divided into workgroups and each institution was directed to develop an action plan for 2016-19 that would culminate in the elimination of stand- alone developmental writing courses. According to the institutional research that had been provided to the workshop coordinators, only 2% of students at our particular university were required to enroll in developmental writing, and 65% of the students who enrolled in our developmental writing course completed the gateway course (ENG 110) within two years. Our statistics were significantly higher than the national average reported by CCA.[18] Nevertheless, we were curious if

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[14] The majority of CCA's self-reported data regarding the success of the corequisite model have been collected from community colleges, not 4-year universities.

[15] "Basic" is the preferred term used by composition practitioners, as opposed to "developmental" or "remedial."

[16] The threshold score for ACT was determined by the state legislature, not our institution.

[17] By default, this made me the unofficial coordinator of Basic Writing at our university. For the previous 12 years, I had trained the TAs selected to teach ENG 100, served as their mentor, and coordinated the end-of-semester portfolio assessment for the basic writing courses.

[18] CCA reports that 12% of students at 4-year institutions nation-wide enroll in "English Remediation" (*Data Dashboard*), and fewer than 36% of students who take "remedial" courses will ever enroll and/or complete gateway courses (*Corequisite remediation*).

implementation of a corequisite could increase student success rates at our university. The Assistant Department Head, the Director of Composition[19], and I developed an action plan, as instructed at the workshop, that would gradually move to 100% scaling of the corequisite—with the caveat that the scaling was contingent upon student success in the course.

In Spring 2017, we linked an ENG 100 section with an ENG 110 section to create a 6-hour corequisite course. Student completion rates were comparable to the prerequisite, so we moved forward with 50% scaling of the corequisite during the next academic year (four sections of the three-hour prerequisite ENG 100 and four sections of the six-hour corequisite ENG 100/110). As a faculty member and composition scholar, I saw this as a fortuitous opportunity to learn more about our students' perspectives regarding this student success initiative. I was curious why students chose to enroll in either the prerequisite or corequisite writing course. Following IRB approval,[20] all ENG 100 students were given a survey within the first three weeks of the 2018 and 2019 fall semesters. The 10-15 minute survey asked students a variety of multiple-choice and open-ended questions. One question asked students why they chose to enroll in ENG 100 as either a prerequisite or corequisite. As expected, over half of the students in both the prerequisite and corequisite confirmed that they had enrolled because the course was a requirement based on their English ACT scores. In line with CCA's assumption that students desire to matriculate quicker, 55-60% of students in the corequisite indicated that they chose the course because they "wanted to complete the general education Writing I requirement in one semester" (Weaver et al., 2022, p. 91). Students could select multiple responses, and these responses provided additional insight into our students. Twenty-nine percent of prerequisite students reported that they had intentionally chosen the prerequisite because they wanted to work on their writing skills before taking ENG 100. Approximately 16% of the prerequisite students also reported that they did not want to take ENG 100 and ENG 110 concurrently. Perhaps most surprising, approximately a quarter of the students enrolled in both

[19] At this time, I had not yet stepped into the Director of Composition position.
[20] IRB Protocol Number IRB-FY2018-121 at Missouri State University.

prerequisite and corequisite were eligible to enroll in a stand-alone section of ENG 110 but opted to remain in ENG 100 (as prerequisite or corequisite) even after being informed that they were eligible for ENG 110.[21] In short, these findings revealed that a significant number of students did *not* desire the fast-track pathway of a corequisite. Many students preferred a prerequisite model of writing instruction that afforded them more time to work on their writing in a low-risk environment prior to enrolling in ENG 110.

Undergirding developmental education reform is a major social justice debate within composition studies: Does requiring underprepared students to take basic writing courses function to support or subvert the success of these students? More importantly, does such a requirement impede "students' right to make an informed choice about their education" (Toth, 2018, p. 147)? Organizations such as CCA argue that students should not be required to enroll in developmental courses at the college level that delay their graduation and increase their student debt. Unfortunately, "the Corequisite Reform Movement has begun to shift the discussion surrounding 'choice' to complete elimination of all Basic Writing Courses" (Weaver et al., 2022, p. 95). Perhaps the most obvious example is the Missouri Corequisite Academy that I attended in 2016. Even though the Missouri Department of Higher Education did not require all institutions of higher learning to adopt a corequisite model, we were instructed at the workshop to develop an Action Plan that would gradually move our university to 100% scaling of the corequisite. Other states have been a bit more forceful and passed legislation that mandates the adoption of the corequisite model as the sole form of "remediation" (Scott-Clayton, 2018). If our university moved to 100% scaling of the corequisite, we would be limiting our students' autonomy to choose the type and length of writing experience they desired.

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[21] Prior to the first day of the semester, I checked the ACT score of all students enrolled in ENG 100 (both prerequisite and corequisite). Students whose ACT score was 18 or above were notified that they were eligible for a stand-alone section of ENG 110 and did not need to take ENG 100. This notification gave students the opportunity to add/drop if they had somehow been misadvised during registration.

Research revealed that many of our students made an informed choice about their education and chose the prerequisite ENG 100 so that they could have more time to work on their writing skills in a low-risk environment. These findings prompted our composition faculty to place the action plan created at the Missouri Corequisite Academy on hold. Rather than continuing to move toward 100% scaling of the corequisite, we recognized that the most effective thing we could do to advocate for our students' success was to assure that multiple pathways remained available. Though the corequisite was approved as a stand-alone 5-hour course (ENG 105: Writing I with Studio) that also met the General Education requirement, the composition faculty committed to providing options for our students rather than offering only the corequisite. This commitment is clearly stated on the departmental web site under the "General Education" link:

> We recognize that each student's college experience is unique. Therefore, the English
> Department provides multiple opportunities to help you develop as a writer and critical thinker.
> You can fulfill the General Education "Written Communication and Information Literacy"
> requirement by choosing one of three pathways, based on placement recommendations. Path
> One is ENG 110 (Writing I), Path Two is ENG 105 (Writing I with Studio). Path Three is ENG
> 100 (Introduction to College Composition) followed by ENG 110 in the next semester.

Inevitably, one of the questions that arises is whether students really do know what they need. When I stepped into the composition directorship in Summer 2020, I suddenly had access to student completion data. This data allowed me to look at the back end of the course to see if students had indeed selected the pathway that resulted in their success. In Fall 2019, just prior to the outbreak of COVID, completion numbers for ENG 100 had been high; eighty-six percent of ENG 100 students passed the course. In both Fall 2020 and Fall 2021, the course completion rates for students dropped slightly in all 100-level composition courses. This was understandable given the challenges of the pandemic and a shift

in course format.[22] For students enrolled in the prerequisite ENG 100, the completion rate was 74% for both Fall 2020 and Fall 2021. For students enrolled in the corequisite ENG 105, the course completion rate varied from 85% to 71%, respectively. For students enrolled in ENG 110, the completion rate was 82% during Fall 2020 and Fall 2021. These completion rates indicated that students experienced comparable course success in all three pathways. Given that the course completion rates were comparable, there was more to gain by offering multiple pathways that increase students' sense of autonomy over their own success.

Directed Self Placement as a Student Success Initiative

Given the timing of when I was asked to step into the Composition Directorship, I was confronted with an immediate challenge. Many new incoming students would not have ACT scores due to COVID and reduced testing opportunities. I was asked by my Department Head to develop a placement mechanism. After extensive research about online Directed Self Placement (DSP), the composition faculty and I designed and implemented an online DSP for incoming students. Because the DSP gives students more autonomy to choose the level of writing support they desire, we conceived of this as another important student success initiative, much like our multiple pathways.

Compositionists over the past decade have been examining our complicity in reproducing structures of social inequity. We are keenly aware of the research that questions the consequential validity of using the ACT or SAT for writing placement. Consequential validity is a consideration of the consequences of particular tests and how such consequences may be socially undesirable or unjust. Many

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[22] I was delightfully surprised to see these high course completion rates in Fall 2020 and Fall 2021, some of the highest on campus. During Fall 2020, most classes on our campus were offered online. The composition program, however, committed to offering our 100-level courses seated, albeit in a slightly modified form. Half the students in a given class would attend the first day of the week and the other half would attend the second day of the week. This arrangement allowed for safe social distancing in the physical classroom. The same material would be taught on both days, and the rest of the course material would be taught through asynchronous online activities throughout the week.

researcher have demonstrated that standardized placement tests disproportionally penalize students of color and other historically disadvantaged groups (Inoue & Poe, 2012; Bailey et al., 2010; Moreland, 2018). Unlike the standardized ACT/SAT test, DSP is a low-risk survey that asks the student a variety of questions about past experiences with reading and writing. Based on how the student answers the questions, the survey is programmed to provide a placement recommendation (and any corresponding course permission, if necessary).

From the administration's standpoint, the DSP was initially a stop-gap measure, only necessary until all incoming students could again be required to have standardized test scores for admission. As such, the only students allowed to utilize the DSP are students without standardized test scores. The "English Placement" web page[23] clearly states, "Students' placement in their initial English composition class is based on their English ACT/SAT scores. There is no appeal to this placement." This stance reflects a skepticism about most students' ability to self-place into a writing class, and this skepticism is not completely unwarranted. When large numbers of community colleges moved to DSP in the early 2000s, compositionsts doubted whether students understood the writing context well enough to know what they do not know (Bedore & Rossen-Knill, 2004; Condon, et al., 2001; Neal & Huot, 2003; Nicolay, 2002; Schendel & O'Neill, 1999). As one such example, Blakesley (2002) pointed out, that when Southern Illinois University-Carbondale moved to DSP, 97% of the students felt they had placed themselves correctly in a [college composition] course[24], but 20% of the students did not pass, "so one wonders whether those students did indeed make the correct choice" (pp. 37-38).

Despite these concerns, administrators at some universities recognized that a "test-optional" approach to admissions might be a useful recruitment tool during COVID. In fact, the majority of Ivy League universities (Cornell, Columbia, Dartmouth, Harvard, Princeton, and Yale) adopted "test-optional" admissions policies at the beginning of the pandemic and have continued to extend these

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[23] This particular web page is maintained by the Provost office, not the English Department.
[24] The equivalent course would be our ENG 110.

admissions policies. A "test-optional" approach allows students to choose whether to submit standardized test scores. A similar approach is "test-flexible," which means that students are not required to submit test scores *if* they meet a qualifying GPA (Prepory). In response to declining enrollments, our university president adopted this "test-flexible" approach in 2021. High school students with at least a 3.25 GPA no longer were required to submit ACT or SAT scores.

As might be expected, this administrative decision increased the total percentage of incoming students using the DSP for writing placement from 1% in Fall 2020 to 6% in Fall 2021. This increase in DSP users also provided a fortuitous opportunity to compare the placement accuracy of DSP vs ACT/SAT scores in terms of completion. The composition faculty reasoned that if we could demonstrate that the DSP was as effective at placement, the university might consider moving away from using standardized test scores for placement. Thus, I began collecting data on completion rates of students who used the DSP.

In Fall 2021, 19% of the students enrolled in ENG 100 used the DSP for placement, 4% of the students enrolled in ENG 105 used the DSP for placement, and 6% of the students enrolled in ENG 110 used the DSP for placement.[25] What I discovered was that 69% of self-placed students (9 students) passed ENG 100, 100% of self-placed students (2 students) passed ENG 105, and 90% of self-placed students (36 students) passed ENG 110.[26] Of the self-placed students who passed ENG 100, *all* successfully completed ENG 110 the next semester. Students placed according to ACT/SAT scores showed slightly lower percentages of course completion rates, with the exception of ENG 100. Seventy-four percent of ACT/SAT-placed students passed ENG 100, 85% of ACT/SAT-placed students passed ENG 110, and 82% of ACT/SAT-placed students passed ENG 110. While the actual number of self-placed students was too small to draw any definitive conclusions about the effectiveness of the DSP vs ACT/SAT in terms of course completion rates, the percentages were promising. If course completion rates are indeed comparable, there is more to gain by adopting a test-optional admission policy for all students. Inoue

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[25] In actual numbers, this represented 13 students, 2 students, and 40 students, respectively.
[26] Passing ENG 105 or 110 was defined as earning an A, B, or C.

(2009) found that DSP encourages retention, even when students fail their courses because students experience a sense of satisfaction at having selected their composition course.

Online Flexibility as a Student Success Initiative

Prior to Fall 2019, ENG 100 had never been offered online. The composition faculty had chosen not to offer ENG 100 online because research shows that F/W rates are substantially higher when developmental courses are offered online (Xu & Jaggars, 2014; Hart et al., 2018; Xu et al., 2021). Nevertheless, the Department Head asked me to create an online section for those students who were enrolled in completely online programs. If a student in one of our university's online programs was required to take ENG 100, the student had to transfer in the credit from another institution. Offering a section of ENG 100 would increase accessibility for this particular group of students. Because I was sympathetic to this concern, I agreed to offer an online section of ENG 100 in Fall 2019.

The Fall 2019 pass rate in our seated sections of prerequisite ENG 100 was 86%. As expected, the pass rate in my online prerequisite section was lower (69%) and reflected what other researchers have found regarding completion rates in online developmental courses. As a result, the composition faculty agreed that offering online sections of ENG 100 should be the exception rather than the rule. I would continue to offer one online section each semester for our students enrolled in completely online programs. When my faculty responsibilities shifted in Fall 2020 and I took over as Director of Composition, the responsibility for teaching the online section of ENG 100 shifted to another full-time composition faculty member in the department.

When Definitions of Student Success Conflict

Our local data revealed that all three initiatives that I had been tasked with implementing (a corequisite course, online directed self-placement, and an online developmental writing course) were effective for our student population, with slight modifications. The implementation of a corequisite course provided a pathway for our students who "wanted to complete the general education Writing I requirement in one semester." By choosing to offer the corequisite as an option, rather than a requirement, we were also able to honor the autonomy of our students who wished to work on their writing skills in a low-risk writing course prior to ENG 110. On a pragmatic level, the creation of online DSP for students provided a placement tool for incoming students without standardized test scores. More importantly, the introduction of DSP opened the door for discussions about the importance of consequential validity when admitting and placing students into classes. Finally, designing and offering an online prerequisite ENG 100 every semester allowed us to improve accessibility for students enrolled in completely online programs. All three initiatives encouraged students to take ownership of their definition and pursuit of success.

It would be wonderful if my story ended here. Sadly, all three student success initiatives were short-circuited in Fall 2022 when our department experienced a change in administrative leadership. Even though the local data indicated that our basic writers wanted to have autonomy to choose different pathways, our new Assistant Department Head, [27] an enthusiastic proponent of the corequisite model, replaced all but one section of ENG 100 with sections of ENG 105 in Fall 2022. Composition faculty discovered this decision had been made when the course schedule went live online. The new Assistant Department Head was aware of the composition faculty's commitment to multiple pathways, but he ultimately decided that it was best for students to enroll in ENG 105 because the course would decrease

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[27] The Assistant Department Head is the person who handles all course scheduling and hiring of per course faculty within the department. Coordinators of the various programs within our department, including the Director of Composition, can make recommendations regarding the course schedule and hiring of per course faculty, but they do not have authority or access to make any changes. I should note, too, that the Assistant Department Head is not a compositionist.

students' time to graduation and save them one credit hour of tuition. Therefore, students enrolling for the Fall 2022 semester who were required to have additional writing assistance were prescribed a single path for success—ENG 105—a high-stakes writing course.[28]

The "No" button on my desk gives me the impression of having more agency than I as a faculty member actually have. I can advocate for our students based on the data I have collected, but my efforts are easily thwarted by administrative decision-making. I understood why 100% scaling of the corequisite was appealing to the new Assistant Department Head. I recognized that he felt political pressure from legislators to excise anything that could be labeled as developmental education. I remembered all too well how the Department of Higher Education had funded the 2016 "Missouri Corequisite Academy" and how attendees were instructed to develop action plans that culminated in 100% scaling of the corequisite (even though the Department of Higher Education did not want to be prescriptive). I also recognized that he felt pressure from upper administration to enhance the competitiveness of our course offerings and generate revenue for the university. A local community college had recently converted to DSP completely. Students could, therefore, bypass any basic writing requirement at the community college, whereas they were required at our university to take either ENG 100 or 105 if minimum ACT/SAT scores were not met. Granted, students also had the option to self-place at our university but *only if* they did not have ACT/SAT scores. ENG 105 allowed students to meet their General Education requirement in a single semester without the hassle of having to transfer in an ENG 110 equivalent from the community college. Enrolling in a five-hour corequisite writing class was more desirable than having to transfer in credit.

Bess and Dee (2014) point out that administrative decisions "may be driven by a desire for revenue generation, and only secondarily include academic considerations. As a result, the interests and concerns of faculty may be downplayed" (p. xiii). This is not to say that administrators do not consider the concerns voiced by faculty. In 2016, the Center for Analysis of Postsecondary Readiness (CAPR)

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[28] Unlike ENG 100 that was designed as a low-risk P/NP writing class, ENG 105 is a writing class that counts toward a degree and generates five hours of GPA. The consequences of not passing, therefore, are more serious, possibly resulting in a loss of financial aid.

disseminated a survey to a random sampling of 1,055 faculty, staff, and administrators at two-year and

four-year colleges and universities. The purpose was to inquire about developmental writing education.

Results revealed several factors drive institutional practices for improving the writing skills of students

identified as underprepared at public 4-year institutions. The two most commonly selected factors were

"faculty input" (86.8%) and "research conducted by your institution" (71.7%). This was followed by

"availability of resources, such as space and staffing costs" (69.8%) and "state policies" (58.5%)

(Rutschow, Cormier, Dukes, & Cruz Zamore, 2019). Important to note is that the CAPR survey did not

aggregate the results according to faculty and administration. The survey also did not ask respondents to

identity the importance of one driver over another. So for instance, an administrator may have reported

that faculty input is one of the drivers in improving writing skills, but the administrator may not consider

it as one of the more important drivers in decision-making. At our university, the Assistant Department

Head had downplayed input from composition faculty, which included me as the Director of

Composition, regarding how our students define student success. What I struggled to understand was

why. I knew the Assistant Department Head was committed to student success.

     While it might be tempting to label my Assistant Department Head's decision regarding the

corequisite as an anomaly, I argue that his decision is emblematic of the larger discussion surrounding

student success. Definitions of success often differ among different stakeholders (Higher Learning

Commission, 2018; Majid, 2017; O'Shea & Delahunty, 2018; Thacker, 2020; Wallace & Wallace, 2016;

Weatherton & Schussler, 2021). Administrative definitions typically codify student success in terms of

completion metrics such as retention and graduation rates (Higher Learning Commission, 2018, p. 3;

Wallace & Wallace, 2016, p. 88). As articulated in the Higher Learning Commission's report on *Defining*

Student Success Data (2018), "A student is only deemed successful upon completion from a particular

institution—not from the various educational experiences with which they engaged with along the way"

(p. 3). Yet it is these education experiences that many students use to define success. Stout, president and

CEO of the non-profit *Achieving the Dream*, discovered that some students define success as simply

obtaining the skills needed for a career (in Nazerian, 2018). Oh and Kim (2016) found that Mexican-American students, for instance, most often defined success as *going* to a 4-year university. Success may have little to do with attainment of a degree or a high paying job (Higher Learning, 2018, p. 9; Wallace & Wallace, 2016, p. 99). Success, in other words, may be defined as having time to work on their writing skills in a low-risk environment, as was articulated by many of our students.

The Higher Learning Commission's report (2018) poses what is meant to be a provocative question: "To what extent is the success-focus driven by institutional success rather than student success?" (p. 4). This question is not an accusation that institutions are not committed to student success. Institutions of higher learning have committed substantial resources to student success centers and programs. Instead, the question serves as a reminder that what is being defined and measured as student success may not really be "student" success. Wallace and Wallace (2016) are more explicit in their observation:

> Success initiatives are described in terms of student success when, in fact, they measure institutional effectiveness. Retention, persistence, and graduation measure institutional outcomes and not student experiences, yet they have become the benchmarks used to drive institutional planning and assessment as well as to define and measure student success. (p. 90)

My university, similar to the universities described by Wallace and Wallace, measures student success by institutional effectiveness. Our university web site is quite explicit: "The university measures student success and progress through completion/graduation rates" (Missouri State University). A deeper dive reveals just how closely aligned student success is with graduation. "Student Success" Data (such as licensure rates, job placement, satisfaction) is only collected through exit surveys when a student graduates from the university. What is not being taken into account is our students' desire and ability to define their own success. This omission creates an enormous misalignment between administrative decision-making and student success.

Administrators such as my Assistant Department Head are concerned about students taking "unneeded" courses. "Unneeded" is defined as courses that do not count toward a student's major and/or graduation. But what about the learning experiences that happen in these classes? From the students' perspective, these experiences may be absolutely necessary for their future success, regardless of whether the institution chooses to "count" the courses toward its definition of success. Yes, financial aid does play a role in the counting scheme, limiting the number of courses a student may take, but this concern seems to be more a function of what courses an institution deems as "necessary" for a students' success. If strong writing skills are considered to be essential in the workplace, as stated on countless websites, it is understandable why a quarter of our students choose to take ENG 100 or the 5-hour ENG 105 even when they are eligible to take ENG 110. These students desire more time to work on their writing skills.

This misalignment between administrative decision-making and student success became quite apparent when students began to enroll in composition courses for Fall 2022. The department office phone began to ring incessantly as advisors and students expressed dismay that our department was offering only one section of ENG 100. After numerous calls, including one from the Dean's office, the Assistant Department Head reconsidered his decision and added four sections of ENG 100 at the last minute. Clearly, these other stakeholders were more persuasive than I had been. When he came by my office to share the news, he emphasized that all four sections would be designated as "online."

I was delighted that he had agreed to add these sections for our students and reinstate multiple pathways, but I also recognized the ramifications of this last minute decision. Because he had waited so long to add the ENG 100 classes, none of our full-time composition faculty or graduate teaching assistants were available to teach these classes. This meant that per course faculty would have to be hired. The Association of Departments of English (2020) cautions that "part-time and temporary teaching appointments should be avoided as a rule." This caution exists because research shows *overuse* of part-time faculty can have a negative effect on student retention (Jacoby, 2006). Though our department regularly hires adjunct faculty to fill in gaps in the course schedule, this practice has been the exception

rather than the rule. Suddenly hiring adjunct faculty to teach 80% of our basic writing courses in Fall 2022 bordered on "overuse."

Though I was concerned about the overuse of adjunct faculty, I was more concerned that all the added sections would be online. This decision would derail one of our other student success initiatives—offering seated, high-contact sections ENG 100. During a departmental planning committee meeting, the Assistant Department Head shared that the Provost wanted more online programs and courses because "students want flexibility." Flexibility, rather than accessibility, was now the rationale being used for offering more courses online. The irony was not lost on me. Offering all but one of the ENG 100 sections online was anything but flexible; students would be forced to take ENG 100 online even if they did not desire to do so. I expressed my concern and reemphasized what research, including our local data, showed about persistence and success rates for online developmental courses. The Assistant Department Head's response then shifted, "adjunct faculty all want to teach online since COVID." Indeed, Mandernach, Register, and O'Donnell (2015) surveyed 603 adjunct faculty and found that the majority (88%) taught only online courses and over half desired to "maintain their current status" (p. 5)--and this was *pre*-COVID. Though online flexibility was being marketed by the Provost as a student success initiative, the Assistant Department Head admitted that he had made the decision to offer four online sections in an effort to entice adjunct faculty to teach at our university rather than at the two other universities and community colleges in our area. Last minute staffing needs trumped student success. I was frustrated and stopped protesting. The Assistant Department Head was altering the implementation of yet another one of the student success initiatives.

At the end of Fall 2022, I looked at the NP/W numbers and bowed my head. I knew the percentage would be higher for ENG 100, given that 4 of the 5 sections were online, but I had not expected 43%. While the completion rates for ENG 105 and ENG 110 were comparable to the completion rates from Fall 2020 and 2021, 83% and 85% respectively, the completion rate for ENG 100 dropped 17%. I knew this extreme drop would speak louder than I had been able to do, but I feared how it would

be interpreted, especially if administration choose to ignore the effect of modality on completion rate in a developmental course. Would it serve as a form of confirmation bias for the Assistant Department Head? Would the low 57% completion rate serve as justification to eliminate ENG 100 as a prerequisite writing course and move to 100% scaling of the corequisite?

The ramification of these online sections became even pronounced when I began preparing my presentation for the departmental research forum, entitled "Writing Placement, Student Autonomy, and Social Justice." I had initially hoped to demonstrate that DSP was an effective tool for placement so the university might consider moving away from using standardized test scores for placement. In Fall 2022, a larger number of students used DSP than in Fall 2021. This provided an ideal opportunity to collect more data. The course breakdown for self-placed students included 17% of students enrolled in ENG 100, 11% of students enrolled in ENG 105, and 12% of students enrolled in ENG 110.[29] The completion rates of these students were slightly lower for ENG 105 (73%) and for ENG 110 (78%), but the completion rates were significantly lower for those who self-placed into ENG 100. I was disheartened to discover that 61% of the students who used DSP did not complete ENG 100. Would this data serve as confirmation bias for upper administration, confirming that under prepared students do not know that they need to succeed? Would it be used to derail yet another student success initiative? That is, would it be used to justify the elimination of DSP and a complete return to ACT/SAT placement?

The administration was already doubtful of students' decision-making ability to self-place. Three years after the pandemic, the only students given a "test-flexible" option at the university continue to be students with a 3.25 or higher high school GPA. All other students are required to submit ACT/SAT scores, if available. The university extends decision-making only to highly qualified students, not all students. On first glance, the data appears to confirm this decision. However, as I carefully explained during my research presentation, the term "self-efficacy" was misleading because our DSP asked no

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[29] In actual numbers, this represented 13 students, 11 students, and 69 students, respectively.

questions about students' experiences with online instruction. The composition faculty had never considered that students might be forced to take ENG 100 in an online format because that was the only option available. Thus, students who used the DSP and self-placed into ENG 100 did not have all the necessary information to make an informed choice regarding course selection.

After sharing this data from Fall 2022, I continue to remain anxious about how it will be used— not by faculty, but by administrators. Will the completion data be stripped of important details, such as the modality of the ENG 100 courses? Will the placement data be stripped of important details, such as the omission of questions regarding technology experience on the DSP? Perhaps most frightening, will last minute staffing needs continue to determine modality regardless of student success? Will the local data just be ignored?

Trapped in the Disjuncture

Faculty find ourselves living in a disjuncture between administrative decision-making and student success. We are tasked with implementing countless student success initiatives. These initiatives come from the state legislature, university administration, and even our own academic departments. We design and implement these various initiatives because we want students to succeed. We conduct research and gather data to determine if the initiatives improve student success in our local context, and if so, how and under what conditions? We make adjustments to student success initiatives so that they better meet the needs of our particular student population. Our research, however, is often dismissed by decision-makers who prefer to rely on national trends and definitions of student success that have little to do with actual student success.

This disjuncture creates an emotionally frustrating place to live. As one of my graduate students articulated, it feels "insulting and infuriating" when administrators lack confidence in faculty's decision-making ability as professionals in our respective fields. Faculty are wracked with guilt when we can

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foresee the catastrophic results of a hasty administrative decision and do not have the authority to say "no." We find ourselves wondering if we protested enough or provided enough data. Conversely, we worry that the extensive data we collected may be taken out of context and used in ways we did not intend, confirming rather than negating institutional decisions that undercut students' success. We lose sleep when we recognize that even our best attempts at advocating for students may make us complicit in reproducing structures of social inequity. Anzaldua (1987) observes, quite astutely, that faculty bodies experience events.

Nevertheless, I tend to agree with Bess and Dee (2014) that the expression of conflict can "empower faculty and administrators to engage in innovative and creative processes to improve their institutions" (p. xx). I could have remained calm, detached, and determined not to appear angry, or I could choose to share my experience openly as a faculty member living in the disjuncture between administrative decision-making and student success. My hope is that in expressing this conflict, those who are in administrative decision-making positions will begin to recognize the value in using faculty expertise to inform/transform student success initiatives.

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Author Biography

Dr. Margaret E. Weaver is the Director of Composition, Basic Writing Coordinator, and a Professor of English at Missouri State University. Prior to these positions, she served as Director of the Writing Center for 10 years. Her areas of expertise include writing center studies, feminist theory, and basic writing. Her work has appeared in such publications as *Writing Center Journal*, *Journal of Advanced Composition*, *Journal of Basic Writing*, and *Journal of General Education*.

Impacts of Embedding Diversity and Inclusion Training into First-Year Experience Curriculum

Dr. Michael Holik

Dr. Whitney Katirai

Dr. Matin Katirai

Abstract

The purpose of this study was to determine what, if any impacts including diversity and inclusion training had on college student's during their first-year experience course. The study was part of a first-year experience course offered at a suburban, public, four-year university. Participants were asked pre- and post-training questions to gather their perceptions of the effects of the diversity and inclusion training and the impacts training had on their academic success. After training, understanding of diversity and inclusion increased by nearly 13.5%. Of the participants, 88% felt that the diversity and inclusion training helped them gain a greater awareness about the issues facing diverse groups (n=287). Most participants, 90%, also felt the training helped them put more effort into their thoughts and actions toward others (n=292). These findings further emphasized the importance of the continued integration of diversity and inclusion content in first-year experience courses, and throughout the academic curriculum, regardless of course of study.

Keywords: diversity, inclusion, curriculum, first-year

Impacts of Embedding Diversity and Inclusion Training into First-Year Experience Curriculum

Studies have indicated exposure to diversity throughout the collegiate experience enhances academic success, contributes to cognitive and social developments as well as retention, and improves the campus environment (D'Lima et al., 2014; Parker et al., 2016; Roksa et al., 2017; Rossman & Trolian, 2019). Earlier studies concentrating on the perceptions of first-year students indicated the more diversity students were exposed to, the more positive implications on college outcomes and preparation for life beyond college (Pascarella et al., 1996; Thakral et al., 2016). Additional studies that focused on students in their first year of college posited that the efficacy of students in relation to diversity positively enhances their overall academic experience (Thakral et al., 2016; D'Lima et al., 2014). Other studies provided convincing evidence that embedding diversity and inclusion education during the first year is invaluable on later collegiate and professional outcomes (Karimi & Matous, 2018; You & Matteo, 2013).

The purpose of this study was to determine what, if any impacts, embedding diversity and inclusion training in a first-year experience course had on students. This study contributes to previous research on diversity throughout the post-secondary experience and the effects diversity and inclusion have on college outcomes and career readiness (Rossman & Trolian, 2019; Parker et al., 2016; Pascarella et al., 1996; Thakral et al., 2016; D'Lima et al., 2014). This study attempts to answer the following research questions: (1) What impacts do exposure to diversity and inclusion training during a first-year experience course have on students in a four-year university? (2) What components of diversity and inclusion training do students feel create the most impact? (3) Do demographics such as gender, sexual orientation, race, or residence help determine the level of impact on a student? The researchers also had two hypotheses: H_0 There is no significant correlation between place of residence—urban vs. rural—and level of diversity acceptance. H_1 There is a significant correlation between place of residence—urban vs. rural—and level of diversity acceptance.

Literature Review

Diversity and Relationship to Academic Outcomes

Rossmann and Trolian (2019), Pascarella and Terenzini (2005), and Goodman (2017) noted that the quality of education for college students increases when there is more diversity on campus, especially when it begins in their first year. While there are many definitions for diversity, it can commonly be defined as perceived differences and characteristics among people and groups that create dissimilarity, including but not limited to profession, ethnicity, religion, heritage, race, sexual orientation, gender, and education (Luu et al., 2019). Theoretically, there are three types of diversity college campus experiences (Gurin et al., 2002; Pike & Kuh, 2006; Roksa et al., 2017). *Structural*, which is representative of multiple races being included in the student body, *formal*, which happens inside the classroom, and *intergroup contact or informal-interactional diversity*, which occurs outside the classroom (Gurin et al., 2002; Pike & Kuh, 2006; Thakral et al., 2016; Rossman & Trolian, 2019). All referring to how dissimilar student groups interact with each other (Karimi & Matous, 2006; Gurin et al., 2002).

Ervin (2001), Roksa et al. (2017), and Rossman and Trolian (2019) noted diverse interactions throughout college plays a significant role on the successful academic outcomes for students, especially when considering critical-thinking, problem-solving skills, positive civic outcomes, and intellectual engagement. Hurtado (1992) found that socializing with someone of a different racial group, discussing issues related to race and ethnicity, attending racial awareness workshops, enrolling in ethnic studies classes, and participating in campus demonstrations can increase a student's commitment to promoting racial understanding. You and Matteo (2013) and Thakral (2016) stated that students who have access to intergroup interactions on diversity during a first-year experience course have a higher probability of successful collegiate outcomes. Students who are regularly exposed to lessons of diversity throughout their college experience have an increased opportunity to gain new perspectives and can narrow the inequality gap between groups (You & Matteo, 2013; Rossman & Trolian, 2019). In addition to gaining

the skills identified and narrowing the inequality gap, students experience increased cognitive and social development through diverse studies (Goodman, 2017; Pascarella & Terenzini, 2005).

Impacts on Development

Lessons and continued exposure to topics centering around diversity on college campuses has been noted for supporting cognitive and social development in students (You & Matteo, 2013; Roksa et al., 2017). Additionally, Roksa et al. (2017) posited that exposure to diverse interactions during college have implications on cognitive and social development at a critical time before the transition to adulthood. Research has shown significant academic gains in programmatic knowledge and critical thinking within a student's first year of college (Pascarella & Terenzini, 2005; Goodman, 2017).

Pascarella et al. (1996) noted college as the time where students develop more openness and social and political tolerance. Comparatively, other studies reported diverse interactions having no impact on cognitive development within the first-year experience, but later in the four-year experience (Loes et al., 2012). Positive and negative diversity experiences contributed to cognitive and social development in addition to overall learning outcomes (Goodman, 2017; Roksa et al., 2017). Intergroup contact on diversity increases social development and improves social cross-ethnicity relationships (Thakral et al., 2016; Rossman & Trolian, 2019). Conversely, Hurtado (1992) found that being a member of a fraternity or sorority (groups that are typically very homogenous) is negatively related to increased commitment to the goal of promoting racial understanding.

Impact of Experiences and Demographics

Parker et al. (2016) explained that when post-secondary institutions offer a range of diversity experiences and courses, there is greater impact on students' ability to self-reflect and achieve a better understanding of their personal identity. Being able to understand personal identity promotes self-efficacy and positive interactions between diverse groups (Parker et al., 2016). Goodman (2017) noted that including diversity education throughout courses impacts students' ability to consider their own actions

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and those of others more easily. Additionally, cross-racial collaborations rendered affirmative impacts on learning, academic motivation, and self-efficacy (D'Lima et al., 2014; Goodman, 2017). Researchers noted academic motivation, successful outcomes, and exposure to diversity correlate with gender, sexual orientation, race, and residence (D'Lima et al., 2014).

Exposure to diversity tends to render higher academic gains in Caucasian and Latino/a students (Gurin et al., 2002; D' Lima et al., 2014; Roksa et al., 2017). Underrepresented minorities are more likely to experience discrimination and less likely to attend college with successful outcomes than Caucasian students (Roksa et al., 2017). D'Lima et al., (2014) noted evidence that students with ethnic differences take longer on average to complete a bachelor's degree. Other studies have shown no correlation between diversity experiences among race/ethnicity and outcomes (Mayhew et al., 2008; Pascarella et al., 2014; Roksa et al., 2017). According to Goodman (2017) impact is spread evenly among various racial groups and no significant effects. Malaney and Berger (2005) and D'Lima et al. (2014) noted self-efficacy and academic goal attainment were higher in females than males, and students from rural areas had higher self-efficacy than those from urban areas.

Theoretical Framework

This study was informed by Allport's Intergroup Contact Theory (1954) because it provided a foundation supporting the importance of reducing prejudice (Allport, 1954). The theory indicated four significant variables: equality, cooperation, institutional support, and collective goals (Allport, 1954; Pettigrew, 2021). According to Allport (1954) and Pettigrew (2021) to reduce prejudice and establish equality, each member of a particular environment should have equal status in ranked relationships, theoretically, eliminating the traditional instructor/student relationships and creating a respectful partnership. There should be cooperation from each participant in both groups with the intention of working toward common goals. Finally, thinking with a top-down administrative structure within the institution, administration should establish support for equality from the top and ensure it flows throughout the institution appropriately.

Finding the ability to attain collective goal achievement through collaboration and cooperation is the next step to reducing prejudice (Allport, 1954; Pettigrew, 2021). Creating a democratic learning environment where students are empowered to make decisions and feel they have ownership of a portion of their education could contribute to cooperative attainment of common goals. To counteract a top-down management approach, institutional authorities should support faculty and student diversity for the final step in prejudice reduction (Allport, 1954). Contact theory provides the framework to help understand the subtleties and remunerations of diverse exchanges in a post-secondary environment (Pettigrew, 2021; Rossman & Trolian, 2019).

Data and Methods

This study utilized action-based research (ABR) while incorporating a mixed methods research approach (Hendricks, 2017; Sagor, 2011). ABR was appropriate for this study because it is used when educators want to learn how to improve and adjust their teaching and learning practices (Herr & Anderson, 2015; Hendricks, 2017). Sagor (2011) defined ABR as reflective in nature, contributing to self-improvement. In ABR, the educator participant serves a dual role acting internally and externally as a participant and a primary investigator (Herr & Anderson, 2015; Sagor, 2011). Internal research is often controlled by the participant and external by the investigator (Hendricks, 2017; Herr & Anderson, 2015). Utilizing the mixed methods research approach is beneficial, both internally and externally, as well as offering additional reliability and credibility to the study.

Hendricks (2017) explained the importance of remaining objective and unbiased when serving in dual roles and emphasizes ensuring researcher credibility and reliability through the means of triangulation. To support the data collection procedure and reinforce the results, the researcher collaborated with two co-investigators who acted in only an external role. The co-investigators reviewed data to help maintain objectivity, which is denoted as peer debriefing (Hendricks, 2017). The second point in triangulation was periodic check-ins with participants to see if there were any follow-up questions, comments, or concerns (Hendricks, 2017). The final point of triangulation to support the reliability and

credibility of the dual-role investigator was testing the survey on three faculty members in three different programs as well as running a Cronbach's Alpha on the survey, rendering a .923 confidence rating (Creswell, 2014; Hendricks, 2017).

After approval from the university's institutional review board, the study included three different sections of a first-year experience course offered at a suburban, public, four-year university with a total population (N = 412). Students entering the university with less than 24 earned credit hours are required to take the first-year experience (FYE) course. Each fall semester, there are 15-19 sections of FYE varying in structure from 100% in-person to a 50/50 blended model where students participate in large lectures and small breakouts.

Three training modules consisting of diversity, equity, and inclusion were included in the FYE course. Training consisted of before-learning knowledge activities, guest speakers, power point presentations, critical-thinking activities for individuals and small groups, statistics, polling, interactive role-playing, personal narratives, perception-based attention tests, and after-learning knowledge activities. Alignment of learning activities and Allport's model, can be found in table one. All students participated in the same diversity and inclusion training as part of the course work. Upon completing the training, students were asked to participate in a follow-up survey. A sample population (n = 326) consented and participated in the survey anonymously.

The data collection tool was developed by the primary and co-investigators explicitly for this study. The tool was a post-training survey, administered immediately following completion of the diversity and inclusion training during class. The survey was designed to take no more than 10 minutes and participants were given time at the end of class to complete it. It is also worth mentioning the concern for acquiesce bias in this study. The researchers included specific language in the consent read to the students pertaining to the potential for acquiesce bias. Students were reminded the survey is completely anonymous, so they should respond to the questions as honestly as possible, not how they think the

researchers would want them to answer. The survey consisted of six demographic questions and 19 Likert Scale questions. The Likert Scale used a rating of strongly disagree to strongly agree.

Two logistic regression models were used as the primary method of analysis. The models were used to examine the relationship between students who believed they understood diversity and inclusion before and after diversity training and the diversity of the student's home zip code, which was a proxy variable for urban vs rural, while controlling for the student's gender, race, sexual orientation, and on-campus housing. The diversity of the student's home zip code was retrieved from the US Census Bureau's quick facts website using 2019 data. The variable was calculated by taking the total number of white people and subtracting it from the total population to determine the percentage of people of color. The dependent variables were students who had selected agree or strongly agree for (Model1): "before participating in this training, I had a thorough understanding of diversity and inclusion" and (Model 2): "after participating in this diversity and inclusion training, my understanding has improved" compared to those who selected the other three options of neither agree or disagree, strongly disagree, and disagree. Results that were reported back and interpreted included odds ratios (OR), confidence intervals (CI) and P values along with data frequencies and descriptive statistics.

DISTRIBUTION OF FYE STUDENTS IN STUDY
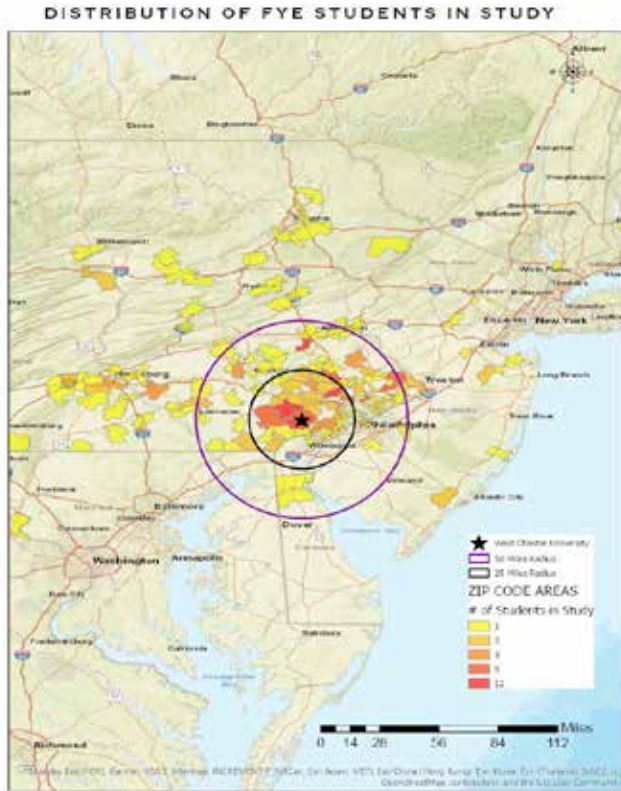
Table 2 outlines the participant demographics including the *n* value and percentage as it relates to the entire population. The demographic information collected included the following: gender, earned credit hours, sexual orientation, race, and place of residence. The largest group identified as female/woman, followed by the male/man, with very few identifying as Trans, Genderqueer, or something else. The majority, 67.75% of participants had less than 12-earned credit hours, followed by 27.16% who were between 12 and 25 earned hours, with a total of 94.91% being classified as first-year based on earned hours. The most significant group of participants, 87.77%, identified as straight, with the remaining as either LQBTQIA+ or other. White/Caucasian students identified as most participants

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completing the survey at 81.35%, with the next highest, 9.48%, being Black/African American. Most participants, 90.18%, lived on campus.

<div align="center">Results</div>

Research Question One

  What impacts do exposure to diversity and inclusion training during a first-year experience course have on students in a four-year university? The survey was created and used by the investigators. Participants were asked pre-training and post-training questions to gather their perceptions of diversity and inclusion training and the impacts training had on their academic success. In addition to the collection of pre- and post-training data, descriptive statistics were garnered through a series of questions that focused on self-efficacy.

  The first set of pre-training questions were designed to gather data on the value and relationship of diversity and inclusion training and academic success, as well as comprehension of the topics. Prior to training, most participants, 70% agreed or strongly agreed they found diversity and inclusion training important to their overall academic development (n=326). A slightly higher amount, 74%, felt they had a thorough understanding of diversity and inclusion prior to training (n=326). See Table 3.

  After analyzing post-training participation data, on the same questions, both increased. Participants who agreed or strongly agreed diversity and inclusion training was important to their overall academic development increased from 70% to 84%. After-training, understanding of diversity and inclusion increased by nearly 13.5%. Additional post-training questions asked participants to reflect on their awareness of diversity and inclusion issues as well as implications the training had on being more thoughtful about the way they speak to and treat others. Participants totaling 88% felt the diversity and inclusion training helped them gain a greater awareness about the issues facing diverse groups (n=287). A slightly larger percentage of participants, 90%, stated the training would make them put more effort into their thoughts and actions toward others (n=292). Data for these questions are presented in Table 4.

<div align="center">79</div>

The second section of the survey contained questions designed to garner participant perspectives on the importance, value, and meaning of diversity and inclusion as related to their academic experience. Most participants, 87%, agreed or strongly agreed that celebrating diverse and inclusive environments was important, and 84.97% stated they enjoyed having discussions with people whose ideas and values are different from their own. Participants were asked if the value of their college education lies in their introduction to different values, of which 80% stated they agreed or strongly agreed. Many participants, 86%, noted they enjoy talking with people who have values different from their own because it helps them better understand themselves and their personal values. This result compares to the lower participant portion of 72% who felt diversity and inclusion courses challenged their beliefs and values.

Two questions focusing on the same topic were asked in a slightly different manner to allow investigators to compare data when presented differently. Both questions involved exposure to diverse populations and backgrounds and the value it brings to participants' overall education. One question merely stated different cultures and backgrounds whereas the other provided more specific descriptors of individuals and backgrounds. The results of the questions were similar, and, in both cases, most participants felt learning from and contact with diverse groups of people positively impacted their college experience. The final two descriptive questions asked participants to reflect on the types of courses they are taking thus far in their college experience as they relate to challenging personal values and beliefs or thinking about topics from different perspectives. In both cases, most students reported enjoying courses that challenged their beliefs and values and made them consider issues from alternative perspectives. See Table 5.

Research Question Two

What components of diversity and inclusion training do students feel create the most impact? Data for this research question were garnered from the diversity survey. This four-question Likert scale portion of the survey was created to evaluate the training components that have the most impact on

student learning. Participants worked through different modules throughout their training experience including definitions, statistics, perception activities, and personal narratives.

Key terminology related to diversity and inclusion were presented for students to identify. Participants were provided statistics, where the investigator used polling software to engage the students bringing awareness to diversity-related suicide, employment, diversity and inclusion-related barriers preventing diverse populations from fully participating, and the community issues. Perspective activities gave participants the opportunity to test their level of awareness of diversity and inclusion issues. The presenter created awareness by sharing their personal narrative and encouraged participants to share personal narratives to learn additional perspectives on diversity and inclusion issues.

For all components, participants reported each being an effective modality to train students on diversity and inclusion and increase impact. Additional pre- and post-training activities included before-learning activities such as an Anticipation Guide where students read statements and respond whether each is true or false using only their existing knowledge, guest speakers, power point presentations, critical-thinking activities for individuals and small groups, interactive role-playing, perception-based attention tests, and after-learning knowledge activities. One example of after-learning activity was finishing the Anticipation Guide. Students re-read the statements after learning the material and responded again, then compared their before and after knowledge of the topics. Effectiveness of training components are highlighted in Table 6.

Research Question Three

Do demographics such as gender, sexual orientation, race, or residence help determine the level of impact on a student? Before the diversity and inclusion training 73.62% of the first-year students either agreed or strongly agreed with the statement that they had a thorough understanding of diversity and inclusion. After the training, this number increased to 87.42% of survey respondents who either agreed or strongly agreed that they had a thorough understanding of diversity and inclusion. Most students, 69.64%,

either agreed or strongly agreed that diversity and inclusion was important to their overall academic success. After the training, this percentage increased to 83.74%. See Table 3.

There were 206 unique zip codes reported from participants with the highest frequency from any zip code being 12 (roughly 8-miles from the university's campus) and the second highest reported frequency was six students from one zip code. With respect to diversity (percent students of color) from the student's home zip code the mean value was 22.70% with a standard deviation of 18.23%. The maximum value of the percent of students of color was 84% and the minimum of the dataset was 2%.

Results from the logistical regression model of "thorough understanding of diversity and inclusion prior to the training" indicate that females were more likely (OR = 2.204, C.I. 1.297 – 3.746) than males to say they understood diversity and inclusion. See Model 1. This means females were 2.2 times more likely than males to select agree or strongly agree on the survey that they have a thorough understanding of diversity and inclusion before the training program in their first-year experience course. No other variables in the first model were found to be significant at the 95% level. After training, females were more likely (OR = 3.81, C.I. 1.818 – 7.798) than males to select agree and strongly agree that after training they had a better understanding of diversity and inclusion. See Model 2. After training, those who identified their sexual orientation as straight when compared to the other options were approximately 4.4 (OR = 4.424, C.I. 1.816 – 10.78) times as likely to select agree or strongly agree that their understanding of diversity and inclusion improved. None of the variables were found significant at the 95% level in Model 2.

Discussion

The purpose of this study was to determine what, if any impacts, embedding diversity and inclusion training in a first-year experience course had on students. Student perceptions of the implications of diversity and inclusion training on their academic experience were identified. As in similar studies, students reported acquiring a new perspective and learning from others who are dissimilar

to themselves (You & Matteo, 2013; Rossman & Trolian, 2019). Participants in the study reported that the focus on diversity and inclusion had positive impacts on their academic experience and personal gains, which is like previous studies (Goodman, 2017; Roksa et al., 2017). As in the study by Goodman (2017) 89.3% of students felt the focus on diversity throughout their program of study contributed positively to their own actions and awareness of the action of others. In the results from this study, 88.3%, participants reporting a positive impact regarding participation in diversity and inclusion training and its impact on increasing awareness and positive academic outcomes, remain consistent with the findings of similar studies (n=287) (Malaney & Berger, 2005).

The results of this study found that females were 2.2 times more likely than males to select agree or strongly agree that they have a thorough understanding of diversity and inclusion before the training program in their first-year experience course. After training, females were more likely than males to select agree and strongly agree that they had a better understanding of diversity and inclusion.

This clear distinction between male and female responses in understanding diversity and inclusion before and after the trainings is an important finding from this study. Schuman et al. (1985) conducted an analysis of trends and summaries of studies of racial attitudes in the U.S. and found that gender is widely considered to be an important predictor of racial attitudes. Women tend to be more liberal than men in their attitudes toward race. Some have speculated that part of the gender difference in social attitudes towards diversity is rooted in the relative higher group position of men, particularly heterosexual white men, and the desire to protect group interest within the social structure — i.e., to maintain power, privilege, and the status quo (Küpper & Zick, 2011). Also, white men have fewer experiences with societal oppression and thus may be less aware of these forces than women. At this point, little is known about gender and its relation to changes in racial beliefs. Although there may be an initial gender gap, there is

contradictory information about the degree to which college experiences may differentially impact men and women. Some studies indicate that women become more open to diversity issues as they progress through college compared with their male counterparts (Astin, 1993; Whitt et al., 2001). Yet, other findings indicate no gender differences in the rate of change in diversity attitudes over time (Todd et al., 2011).

The investigators hypothesized that neighborhood diversity would be more indicative of acceptance of diversity; however, these findings were not confirmed by the data. The diversity (percent students of color) from the participant's home zip code was 22.7% (mean value) with a standard deviation of 18.23%. Compared with the U.S. average of 23.7% of non-white persons, the Commonwealth of Pennsylvania average of non-white persons is 18.4%, and the Chester County, PA (location of study) average of non-white persons is 14.7%. The average non-white percentage in the home locations of the students in the study was close to the average diversity in the United States as a whole. In the meta-analysis of racial attitude studies in the US, Schuman et al., (1985) found that geographic region of the respondent has been a determining factor of racial attitudes.

Allport (1954) found that contact among groups can either lessen or increase racial prejudice depending on the nature and quality of the contact. Allport suggested that residential contact can lessen prejudice if the contact is sanctioned by institutional supports, such as living on-campus and can lead to the perception of common interests and shared humanity between members of the groups. Research also suggests that other measures of students' background and precollege experiences are important predictors of students' views about diversity. Milem (1994) analysis of changes in the racial attitudes of college students found a great deal of variation in student attitudes and predispositions about race based upon race and gender.

Hurtado (1992) found that multiple student behaviors increase student commitment to promote racial understanding, including talking with faculty outside of class. This is an indication of the effect that faculty have on a student's attitude or acceptance of diversity and inclusion. Milem (1994) found that

faculty with more activist orientations are likely to have used pedagogical practices that encourage greater discussion of social and political issues. These faculty who are engaged in research related to issues of race and diversity and participate in community service can have an important impact on the racial attitudes of students. These faculty norms can "set a tone" on campus that encourages or discourages student participating in discussions of racial or ethnic issues, socializing with someone from another race, or attending racial awareness workshops. These findings further emphasize the importance of the continued integration of diversity and inclusion content in first-year experience courses and throughout the academic curriculum, regardless of the course of study.

Patterns of societal segregation have consequences regarding the types of educational experiences in which students think they will be involved while in college. This is important information given Astin (1993) assertion that the effectiveness of any educational institution should be gauged by how far it moves students along different educational continua. To determine the most effective ways to move students forward in their development of attitudes towards diversity and inclusion, it is important to know where student attitudes are when they first come to campus. The findings of this study provide important baseline information about where students are regarding diversity-related outcomes, which will allow us to continue to assess how much progress students have made regarding these important outcomes.

Conclusion

In conclusion, utilizing ABR research methods for this study helped the researchers determine the diversity and inclusion training they were offering first-year students was effective and valuable. Overall, while the training methods utilized were mostly reported as being highly effective, the data revealed a lower area to be improved for future lessons. Improvements and adjustments in the perception-related activities were made for the next cohort of first years. Another area of improvement and adjustment that was revealed from the ABR study was not in the training methods, but one content area of diversity and inclusion-related courses or lessons. Many students reported not enjoying courses that challenge their values and beliefs. This outcome created the opportunity for the researchers to revisit the controversial

topics that could lead to discomfort as related to values and beliefs and adjust them accordingly. In addition, it helped pave the way for more focused discussions around "the why." A new training section was added, dedicated to critical thinking discussions that centered on why students did not enjoy courses or topics that challenged their values and beliefs.

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Table 1

Diversity Training Alignment with Allport's Intergroup Contact Theory Model Variables

	Equality	Cooperation	Support	Goals
How Comfortable Am I with Diversity, Equity, and Inclusion – individual critical thinking activity	X	X	X	X
Barriers of Exclusion and How to Stop Them – small group critical-thinking activity	X	X		X
Personal Narratives – paired sharing activity		X	X	
Statistics and Polling – large group activity as individuals	X		X	X
Interactive Role Playing – small groups		X		X
Perceptions-based Attention Tests – large group activity as individuals or small groups	X		X	
Small Group Discussions	X	X	X	X
Before and After Learning Activities – large group activity as individuals or small groups	X	X	X	X

Model 1

Logistic Regression Results Before Training - Through Understanding of Diversity

	S.E	Exp(B) - Odds Ratio	95% C.I. for Exp(B) Lower	95% C.I. for Exp(B) Upper
Gender	0.271	2.204***	1.297	3.746
Sexual Orientation	0.419	0.935	0.411	2.124
Persons Race	0.373	1.765	0.849	3.668
On Campus Housing	0.437	0.901	0.382	2.124
Zip Code Diversity	0.85	3.544	0.67	18.75

Model 2

Logistic Regression Results After Training - Through Understanding in Diversity

	S.E	Exp(B) - Odds Ratio	95% C.I. for Exp(B) Lower	95% C.I. for Exp(B) Upper
Gender	0.377	3.81***	1.818	7.984
Sexual Orientation	0.454	4.424***	1.816	10.78
Persons Race	0.502	0.64	0.239	1.71
On Campus Housing	0.535	1.086	0.381	3.099
Zip Code Diversity	1	0.161	0.023	1.146

***Significant at the 99% Level

Table 2

Participant Demographics (n = 326)

Participant Demographics	*N*	%
Gender		
Male/Man	122	37.31
Female/Woman	200	61.16
TransMale/TransMan	0	0
TransFemale/TransWoman	1	.31
Genderqueer/Gender Non-conforming	1	.31
Decline to Answer	1	.31
Something Else	2	.61
Earned Credit Hours		
Less than 12	226	67.75
12 – 24	88	27.16
More than 25	10	3.09
Sexual Orientation		
Lesbian	5	1.53
Gay	3	.92
Bisexual	19	5.81
Queer	2	.61
Straight	287	87.77
Decline to Answer	7	2.14
Something Else	4	1.22
Race		
American Indian	0	0
Alaskan Native	1	.31
Black and or African American	31	9.48
White/Caucasian	266	81.35
Asian	6	1.83
Pacific Islander	2	.61
Middle Eastern	2	.61
Hispanic	5	1.53
Decline to Answer	5	1.53
Something Else	9	2.75
Place of Residence		
On-campus	294	90.18
Off-campus	32	9.82

Table 3

Student Perceptions of Diversity and Inclusion Training Prior to Participating (n = 326)

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Before participating in this training, I felt the topic of diversity and inclusion was important to my overall academic development. *(n = 326)*	5	15	79	158	69
	1.53%	4.60%	24.23%	48.47%	21.17%
Before participating in this training, I had a thorough understanding of diversity and inclusion. *(n = 326)*	10	23	53	178	62
	3.07%	7.06%	16.26%	54.60%	19.02%

Table 4

Student Perceptions of Diversity and Inclusion Training Post Participation (n = variable)

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
After participating in this training, I felt the topic of diversity and inclusion was important to my overall academic development. *(n = 326)*	3	5	45	138	135
	.92%	1.53%	13.80%	42.33%	41.41%
After participating in this diversity and inclusion training, my understanding has improved. *(n = 326)*	9	3	29	116	169
	2.76%	.92%	8.90%	35.58%	51.84%
Participating in this training helped me gain a greater awareness about diversity and inclusion issues. *(n = 325)*	8	1	29	146	141
	2.46%	.31%	8.92%	44.92%	43.38%
After participating in this training, I will be more thoughtful about the way I speak to and treat others. (n = 327)	4	4	27	122	170
	1.22%	1.22%	8.26%	37.31%	51.99%

Table 5

Descriptive Statistics of Diversity and Inclusion Training (n = variable)

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I feel celebrating diversity and inclusive environments is important. (n = 327)	5	6	31	140	145
	1.53%	1.83%	9.48%	42.81%	44.34%
I enjoy having discussions with people whose ideas and values are different from my own. (n = 326)	4	1	44	163	114
	1.23%	.31%	13.50%	50.00%	34.97%
The real value of a college education lies in being introduced to different values. (n = 327)	5	12	50	147	113
	1.53%	3.67%	15.29%	44.95%	34.56%
I enjoy talking with people who have values different from mine because it helps me understand myself and my values better. (n = 327)	4	1	41	160	121
	1.22%	.31%	12.54%	48.93%	37.00%
Learning about people from different cultures and backgrounds is a very important part of my college education. (n = 327)	4	10	46	145	122
	1.22%	3.06%	14.07%	44.34%	37.31%
I enjoy taking courses that challenge my beliefs and values. (n = 326)	6	9	75	157	79
	1.84%	2.76%	23.01%	48.16%	24.23%
The courses I enjoy the most are those that make me think about things from a different perspective. *(n = 328)*	6	6	60	158	98
	1.83%	1.83%	18.29%	48.17%	29.88%
Contact with individuals whose backgrounds (e.g. race, national origin, sexual orientation) are different from my own is an essential part of my college education. (n = 326)	5	7	58	156	100
	1.53%	2.15%	17.79%	47.85%	30.67%

Table 6

Measuring the Effectiveness of Training Components (n = variable)

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I felt the definition of terms in this training improved my overall understanding of diversity and inclusion. *(n = 327)*	6	3	50	173	95
	1.83%	.92%	15.29%	52.91%	29.05%
I felt the statistics in this training improved my overall understanding of diversity and inclusion. *(n = 327)*	6	8	48	163	102
	1.83%	2.45%	14.68%	49.85%	31.19%
I felt the perception activities in this training improved my overall understanding of diversity and inclusion. *(n = 328)*	8	14	48	166	92
	2.44%	4.27%	14.63%	50.61%	28.05%
I felt the personal narrative in this training improved my overall understanding of diversity and inclusion. *(n = 327)*	6	4	35	144	138
	1.83%	1.22%	10.70%	44.04%	42.20%

Author Biographies

Dr. Michael Holik is an Associate Professor of Nutrition at West Chester University.

Dr. Whitney Katirai is an Associate Professor of Health at West Chester University.

Dr. Matin Katirai is a Professor of Geography and Urban Planning at West Chester University