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The aim of NCCCJTI is to provide all North Carolina Community College System faculty and staff with an outlet for publishing manuscripts of research and practice, as well as to provide open access to readers or scholars interested in higher education topics surrounding North Carolina community colleges.

NORTH CAROLINA COMMUNITY COLLEGE
JOURNAL OF TEACHING INNOVATION

The Journal of North Carolina Community Colleges

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Editor's Note

YEAR TWO! After months of reviewing manuscripts, I am pleased to announce that we have a new issue full of robust, quality articles. We have seen some editor departures in this last year, but we have also gained a few new staff members. Additionally, I have been working with Tiffany Watts to launch *58 Collaborate*—a podcast focused primarily on the stories of North Carolina community college faculty, staff, administrators, and students. Whereas this journal has been an outlet for publishing opportunities, the podcast has been an outlet for storytelling and opinions that we cannot always get from our journal. After speaking with colleagues across the system I have learned a few things that I will now share.

First, the resolve of those working in North Carolina community colleges is profound. Many colleagues have been working diligently to bring their colleges back to a pre-COVID sense of normal. A good friend of mine recently told me that due to the pandemic, "students don't know how to college." What he meant by this is that despite students being back in the classroom, there are still challenges surrounding student engagement in clubs, student services, and advising. These sentiments have been shared by colleagues across the state, and despite it being an uphill journey ahead, I admire the tenacity of those rolling up their sleeves to better our students.

Second, the innovation occurring in and out of the classroom is monumental. In both the podcast episodes and in these articles, we are seeing an explosion of new methods of instructional design, instructional delivery, and the incorporation of technology. I can only imagine how these new implementations will better serve our efforts of student persistence and retention.

Third, community college faculty, staff, and administrators are done being polite when it comes to championing the hard work of their peers. There has been a strong prejudice that those working in universities are better than those working in community colleges, though with greater teaching and advising loads, greater assessment requirements, and greater student barriers, these individuals are ready to take the lead in educating and training the future of North Carolina.

Finally, community college faculty and staff are ready for wages that meet their credentials. This is not to say that these individuals are not working hard, but a recent look at the NCCCS faculty salary comparison dashboard lists North Carolina community college faculty as 41st in the nation, and staff at 34th in the nation. This needs to change, and now. Every faculty member I have spoken with across the state has stated that pay is the number one barrier for being able to do their job adequately, as many individuals are taking on part-time positions or overloads just to get by.

I would like to humbly thank the entire editorial staff for their contributions to this issue, the authors of the collected articles, and most importantly, you (the reader). We hope you enjoy our new issue, we hope you are inspired by the articles, and we hope that you continue to impact students across the great state of North Carolina.

Happy Reading!

Dr. Josh Howell—Editor-in-Chief

Research Paper

A Mixed Methods Study to Understand the Perceptions of ADN Graduates Concerning Nursing Faculty Attrition and the Impact on Student Success

Kelly Traylor Eller

Abstract

A shortage of nurses is not only being experienced at the bedside; qualified nursing educators are also in short supply. The sequence of events following the exit of a nursing faculty member can impact an organization in many ways. Challenges caused by nursing faculty turnover include a shift in workload, budgetary implications, and instructional inconsistencies. The literature is replete with information on why nursing faculty exit an institution, but there is a gap in the literature concerning the impact of faculty attrition on students. Therefore, a mixed-methods study was conducted to understand better organizational challenges' effects on nursing students' success. Twenty Associate Degree Nursing graduates from one institution were surveyed, and seven were interviewed to determine their perceptions of the impact faculty attrition had on their programmatic success. The participants were graduates who completed the ADN program between 2016-2020 at Salty Waves Community College (a pseudonym). Results indicated that the student-faculty relationship is a significant factor in student success. Therefore, when that person exits the institution, the additional stress placed on the student makes it more challenging to meet outcome expectations and achieve programmatic success.

Keywords: nursing faculty, attrition, student success, student persistence

A Mixed Methods Study to Understand the Perceptions of ADN Graduates Concerning Nursing Faculty Attrition and the Impact on Student Success

The need for qualified nursing professionals increases as the world's population grows in number and age (Rosseter, 2017). Registered nurses' (RN) role has expanded to include advanced practices and non-traditional roles that take these individuals away from the more traditional bedside care they are trained to provide. Though these trends are necessary for the healthcare industry and offer new career advancement opportunities, the current supply of nurses does not meet industry demands. An aging population and continuous healthcare advancement are only two factors affecting the nursing workforce (Kirkham, 2016). Nursing schools cannot graduate enough students to fill vacancies in area hospitals (Rosseter, 2017). The insufficient number of graduates from accredited nursing programs reflects the resource shortages affecting nursing programs across the country, including nursing faculty turnover and attrition (AACN, 2017; Fang & Bednash, 2014; Harris, 2019; Kavilanz, 2018).

Research indicates that in addition to degree requirements, the top reasons why nurses leave the field of higher education include the demanding workload, low salaries, insufficient support from campus administrators, incivility, and retirement (Dalpezzo & Jett, 2010; Westphal, Marnocha, & Chapin, 2016). Educators may also experience frustration when colleagues exit, leading to different workload expectations (Salvucci & Lawless,

2016). Multiple studies have reviewed measures to improve faculty retention, but retention strategies are not standard practice, and the lack of nursing faculty continues to be problematic to the nursing profession (Carlson, 2015; Scruth, Garcia, & Buchner, 2018; Westphal, Marnocha, & Chapin 2016).

When a faculty member departs from the institution, the student's academic performance may suffer due to their mentor's or support person's exit (Ofori & Charlton, 2002). A gap in the literature indicated a need for contemporary research to investigate the impact of instructional consistency on nursing student success. There is little research on how faculty attrition in nursing programs influences student performance. An explanatory sequential mixed-methods study was conducted to explain the relationship between instructional inconsistencies by faculty attrition and nursing student success.

Brief Review of Literature

Nursing faculty attrition and student success have received much attention as separate issues impacting nursing education. A review of the literature demonstrated that there are numerous articles that: (a) discuss factors influencing faculty turnover (Bleich, 2013; Bittner & Betchel, 2017; Fang & Bednash, 2014; U.S. Bureau of Labor Statistics, 2019), (b) propose factors influencing nursing student success (Froneman, du Plessis, & Koen, 2016), and (c) illustrate the need to graduate more nurses (Kirkham, 2016; Rosseter, 2017).

Additionally, the literature recognizes that joint efforts are being made to minimize faculty and student attrition to improve student outcomes and meet workforce demands (Daw, Mills, & Ibarra, 2018; Jeffreys, 2015; Kirkham, 2016). Higher education institutions attempt to develop programs focused on nursing educator preparation and recruitment to minimize faculty turnover (Daw, Mills, & Ibarra, 2018). For example, the State of Maryland invested in the Nurse Support Program II as a multifaceted approach to combat the nurse faculty shortage (Daw, Mills, & Ibarra, 2018). Program models such as Nurse Success, implemented by Piedmont Virginia Community College, aim to retain nursing students through mentor relationship building between nursing faculty and nursing students (Bloomfield, Diment, & O'Meara, 2014).

Problem of Practice

An opportunity for additional research was recognized after conducting a thorough literature review. There is a need for contemporary research to investigate the impact of instructional inconsistency caused by faculty attrition on student success. There is little research on how faculty attrition in nursing programs influences student performance. An explanatory sequential mixed-methods study was conducted to understand better the relationship between instructional inconsistencies caused by faculty attrition and the influence on student outcomes.

This study's explanatory sequential mixed methods design assesses the number of times nursing faculty turnover occurred within the nursing department during a student's tenure and seeks to determine the extent of the impact on their nursing education. The first phase of the mixed-methods study, the quantitative phase, surveyed alums to quantify the degree to which instructional inconsistency occurred due to nursing faculty turnover. In the second phase, the interview portion of the study, the participants were asked to elaborate on the variables impacting instructional inconsistency and ideal student success.

Conceptual Framework

The student attrition model, formerly identified as the synthesis of a theoretical model of student attrition developed by John P. Bean (1981), provides the study's conceptual framework. Bean's (1981) attrition model incorporates social and academic integration variables as part of its organizational component. According to Bean (1981), an organization's culture directly affects student success and their intent to leave an institution. A study by Bakker et al. (2019) found that institutional learning environments significantly influenced a student's decision to leave an institution. The researchers conducted 10 face-to-face interviews, revealing that the program organization's lack of support added to their stress and ultimately affected their decision to drop out (Bakker et al., 2019).

Bean refers to Pascarella's 1980 conceptual model of student-faculty informal contact and the student and faculty's perceived relationship as an organizational variable (Bean, 1981). Organizational factors such as the amount of informal communication an educator has with a student are expected to influence educational success. The literature consensus is for nursing programs to evaluate the attrition rates at their institution to determine what factors inhibit student success; implementing strategies to promote

student success programs can combat attrition (Horkey, 2015; Serembus, 2016).

Bean (1981) further posited that organizational determinants such as the student's perceptions of institutional and instructional quality are "objective situations in which the student finds him or herself" (p.14). Faculty turnover and instructional inconsistency are institutional setbacks that influence the students' environment. Using the ideas expressed in Bean's (1981) causal model of student attrition, participant data was collected for this study to identify the perceived impact that organizational variables had on student success at a given institution.

Methods

After receiving official approval from the active institutional president, the researcher conducted an explanatory sequential mixed-methods study to investigate recent Associate Degree Nursing graduates' lived experiences from Salty Waves Community College (a pseudonym). A descriptive, sequential design is a mixed-method approach that integrates quantitative and qualitative methods to understand pertinent issues surrounding a critical topic (Hardin & Wright, 2017). This mixed-methods research study combines quantitative and qualitative efforts to investigate a current trend in increased nursing faculty turnover and the perceived impact on student success.

An explanatory sequential mixed-methods study utilizes two consecutive phases (McCoy, 2016). The two-phase research consisted of an initial quantitative portion using a survey as the instrument for data collection. The researcher-development tool was vetted and validated by two expert nurse educators. Since nursing students come from various backgrounds, the survey was also reviewed by a nurse educator whose primary language is not English; this educator provided suggestions on wording and formatting to ensure the tool would be easy for an international student to understand.

Additionally, the survey was distributed to a test group of six active nursing educators from SWCC. This process allowed the researcher to ensure no issues with distributing the survey and collecting responses. The educators did not express any concern and completed the study as designed. All responses from the faculty test group were removed before distributing the survey to potential study participants.

Participants

All students who graduated between 2016-2020 from the Associate Degree Nursing program at SWCC were asked to participate in this study. In the first phase, the researcher sent surveys to all nursing program alums identified by the SWCC registrar to have met graduation requirements for the ADN program within the given period. Fifty-nine graduates were identified as eligible participants, and their student email addresses were provided. The researcher then sent each graduate an email explaining the study's purpose, which included a link to the online Qualtrics survey. Twenty alumni completed the survey in its entirety, with at least one representative from each of the five graduating cohorts participating. Eight graduates consented to participate in the second phase of the study.

The survey inquired about the start date of the participant as well as the completion date. This information was valuable because it allowed the researcher to further evaluate student success by assessing which participants completed the course as designed and which participants needed additional time to meet graduation requirements. The researcher did not collect demographic information during the survey phase. However, participants in the interview portion disclosed their age, race, and gender. To maintain the integrity of the study and ensure participant confidentiality, the researcher utilized robust, secure passwords and encrypted electronic files, ensuring that only the researcher could access the collected data.

Initially, the researcher planned to use purposive sampling to identify participants by including survey respondents who were willing to participate in an interview and reported extreme support levels (both high and low). The aim was to interview 10 graduates. However, given the low level of interest, all respondents who expressed interest were asked to participate in phase two.

Despite offering a $20 Amazon gift card as an incentive, phase two participation was lower than anticipated. Eight of the phase one participants expressed an interest in the interview and received an email outlining phase two's purpose; seven consented to participate in a face-to-face consultation with the researcher. Of the seven interview participants, six were female, six identified as Caucasian, and one participant identified as African American. Only one male agreed to participate in the interview.

Setting

The participants were interviewed using their preferred method of face-to-face, phone, or virtual (Zoom or Google Meets), as indicated in their email response. The interviews were audio-recorded and conducted in a private office in the nursing department at SWCC. The virtual interviews were recorded through the video conferencing platform. Two participants elected to submit answers to interview questions electronically by submitting typed responses due to pandemic-related challenges.

Procedure

Phase One

The survey was created and disseminated through Qualtrics, and no identifying information was collected. Since this is a web-based survey, voluntary participation provided implied consent. The participants were informed of the purpose of the study and all potential risks and benefits. Participants were told that they could withdraw from participation at any time.

The survey included multiple-choice questions and rating opportunities using a 5-point Likert scale. The first six questions asked about the extent of turnover within the nursing department while the participant was enrolled in the Associate Degree Nursing program. Questions 7 and 8 asked about the student's support level, including a dedicated tutor, mentor, or other informal student-faculty contacts.

The middle portion of the survey asked participants to answer questions indicating the degree to which they agreed or disagreed with statements describing organizational factors such as leadership, culture, and the nursing program environment at SWCC. The response options were strongly agree, agree, neutral, disagree, or strongly disagree. The questions were designed to provide the researcher with a better understanding of the organizational impact on instructional inconsistency and support level variations.

The final portion of the survey provided participants with an opportunity to rate the Associate Degree Nursing program in four areas on a scale of 0-10, with 0 being poor and 10 being outstanding. Students were asked to rank instructional consistency, faculty advising, accessibility of faculty, and general programmatic support. Assigning a number to these items allowed the researcher to evaluate trends specific to a given cohort. The researcher also planned to divide the participants into two groups based on their reported support level. The aim was to interview participants reporting low support and those reporting high support to understand better the relationship between instructional inconsistency and the student's perception of programmatic support. However, due to the limited interest in phase two participation, this purposive sampling methodology was abandoned, and all volunteers were interviewed.

Phase Two

Following phase one survey closure, the researcher collected the names of participants who expressed interest in participating in phase two interviews. The researcher then emailed each of the eight individuals who provided their contact information. In the email about phase two participation, the researcher also included consent documents for them to review. The participants received instruction that the consent must be signed and returned via email before their scheduled interview.

In addition to collecting consent, the researcher also provided a time frame for the interviews. The participants were asked to submit their desired interview time and method. Seven participants signed the consent and completed their recorded interview as scheduled. Of the seven alums, there was no representation of the 2016 graduation cohort. Three participants graduated from the ADN program in May 2020.

The average length of the interviews was 25 minutes. The semi-structured interview protocol consisted of open-ended questions to encourage the participant to elaborate on the following topics: overall experience, culture, and factors influencing or impeding student success. The participants were also asked to define the following terms: outstanding student success, the faculty-student relationship, and instructional inconsistency. The final question prompted the participant to provide any additional information they wished to share with the researcher.

Following the recorded interviews, the responses were transcribed verbatim into a Word document and sent to member-checking participants. Participants were asked to review the transcript and report any inaccuracies as necessary. Two participants also sent typed electronic responses to the interview questions. The researcher validated the transcription information and conducted a thematic analysis of the qualitative data.

Data Analysis

A two-phase study also requires two phases of data analysis. The researcher entered the quantitative data into the Statistical Package for the Social Science (SPSS) version 26 and then imported the qualitative data into NVivo, version 12. The researcher manually transcribed verbatim, validated through member checking, and uploaded the transcription into NVivo, version 12.

Phase One

Since this study focuses on the impact of faculty attrition on student success, the researcher designed the survey questions to introduce the term "instructional inconsistency." Participants were asked to rank the degree of inconsistency they experienced while enrolled in the nursing program at SWCC. The overarching research question is to what degree nursing faculty attrition influences the ideal success of nursing students. Therefore, the data analysis's primary focus was to identify the significance and strength of the relationships between the factors included in the survey.

The SPSS version 26 was used to run each statistical test in this study. The correlation test was used to describe relationships, and the Pearson product-moment correlation coefficient (Pearson r) was used to assess the strength of the relationship between multiple variables. Though correlation does not equal cause and effect, knowing a relationship exists between two quantitative, continuous variables prompted the researcher to run additional tests to investigate the finding further.

The one-way ANOVA test was used to analyze the impact of the turnover rate on programmatic support perception. The survey responses were divided into two groups, (1) alums reporting low programmatic support (0-5) and (2) the participants who reported high programmatic support (6-10). There were 10 participants in each category; the number 5 was used as the cut-off to determine high versus low support to allow for an equal number of participants in each group.

Phase Two

Phase two analysis involved a detailed exploration of participants' perceptions of the relationship between inconsistency and faculty turnover. The researcher uploaded the transcribed data in NVivo, version 12, to uncover connections and identify interview themes. The software sorted information and examined relationships.

The themes were named, defined, and sorted by the participants' graduation date. The researcher compared the perspectives revealed in the interview against survey responses with the corresponding graduation year. The researcher did a convergence of information by integrating the findings from phase one data into the analysis of phase two interview responses to test validity and develop a more robust understanding of nursing faculty attrition's impact on student success. These findings will be elaborated upon further in the following sections.

Results

Quantitative

Phase one, the quantitative portion of the study, involved surveys distributed to 59 individuals who graduated from the Associates Degree Nursing program at Salty Waves Community College (SWCC). The survey was open from 8/26/2020-9/18/2020, and the response rate was 34%, with 20 participants completing it, which was much lower than expected. The researcher did not include partial responses in the data analysis; only those marked as complete were reviewed. Only one participant indicated that faculty turnover did not exist during their time at SWCC; however, that participant reported a change in leadership within the department.

Furthermore, 50% of participants responded that during their time at SWCC, three or more nursing faculty exited the institution. Seventy-five percent of participants indicated that at least one exiting faculty also served as their assigned advisor, whereas 25% did not experience a change in advisor during their educational experience. The term advisor was not defined in the survey, and the researcher did not evaluate the quality of advising in this study.

The researcher used a correlation analysis to measure and describe the relationship between variables ($p \leq 0.05$). The Pearson r test was used to evaluate the association of study variables determining a positive or negative correlation. Correlation analysis indicated a statistical significance between programmatic support and advising quality ($p = 0.002$). The Pearson correlation value is positive at 0.654, which shows a strong correlation.

Advising standards need to be more consistent among nursing programs across the country concerning academic support criteria and student expectations (Harrell & Reglin, 2018). In this study, faculty attrition and advising quality demonstrated a moderate correlation; however, the relationship between the exiting faculty and advising quality was not sta-

tistically significant (p =0.880). There was a strong correlation regarding the relationship between faculty exits and reported instructional inconsistency (Pearson r = 0.641). The p-value (p = .002) indicated that the correlation is significant.

Each participant was asked to report the following categories on a scale of 1 to 10, with 1 being low support and 10 being high support: instructional consistency, faculty advising, accessibility to faculty, and programmatic support. Participants who reported the highest level of support also indicated that they had a dedicated tutor or coach during their time in the nursing program at SWCC. The reported values for instructional support ranged from 3-10 (M= 7.25). The standard deviation was 2.65.

The last question of the survey inquired about phase two participation. The participant were aware of the incentivized interview that would take place as a follow-up to phase one. Eight participants indicated an interest in participating and provided contact information to the researcher; however, only seven completed the required consent to participate in the interview process.

Qualitative

During the synthesis of these data, several major themes emerged through the coding process. The semi-structured interview protocol allowed participants to provide detailed responses while focusing on the project topic, which is the perception of the degree of impact variables, such as instructional inconsistency, have on student success. Three main themes emerged regarding the variables perceived to be impacted by faculty turnover. The participants discussed the impact exiting faculty had on the quality of instruction, programmatic culture, and individual efforts. The three themes are explained further in the following sections.

Theme #1: Importance of Quality Instruction

The first central theme from the qualitative data was the importance of instruction quality, the quality of education each nursing faculty provides, and how learning is impacted when the educator exits the institution. Participants expressed that their success depended on a quality educator providing them with the tools to be successful. One 2018 graduate stated, "essential components of student success include a supportive learning environment, classroom structure, and competent instructors." The participant continued to describe a time when instructional inconsistency impacted quality as she stated, "all students noticed one instructor's absence."

The educator's quality can impact instruction quality; nursing programs must employ well-qualified educators to adequately prepare nursing students (Ghasemi, Moonaghi, & Heydari, 2020). A 2020 graduate stated that quality instruction is essential for student success. The participant indicated that nursing programs should employ "qualified staff with a wide range of nursing backgrounds." The student also stated, "one teacher may be better at teaching certain subjects than another instructor due to their nursing background." When asked how faculty attrition impacts the learning experience, the student responded, "A loss of an instructor makes it hard, especially when it is an instructor that you love their teaching style." Students' academic achievement and engagement can be influenced by teaching styles that actively include students in the learning process (Ghasemi, Moonaghi, & Heydari, 2020).

The term “passion” was used in 38% of the interviews when discussing instructional quality and instructors’ and advisors' roles in student success. A 2018 graduate stated that "without passion for the nursing education for adult learning, students would have no chance to succeed." Additionally, a 2020 graduate expressed that in a program "with faculty that are encouraging and uplifting, students will gain confidence." She explains that passionate and positive faculty encourage students to be "more engaged." This finding is consistent with Ghasemi, Moonaghi, and Heydari's (2020) assertion that student engagement is essential to student success. Nursing educators identify the best teaching strategies to promote and sustain the engagement of nursing students in academic and clinical settings (Ghasemi, Moonaghi & Heydari, 2020, p. 104).

Theme #2: Differences in Organizational Culture/Learning Environment Experiences

The participants expressed aligned views concerning the organizational environment and culture. The three participants from the 2017 and 2018 cohorts provided similar comments when asked, "How would you describe the culture of the nursing program while you were enrolled at SWCC?" The repetitive view described an intimidating setting and a culture of negativity. A student from the 2017 cohort could not recall the programmatic culture during her time at the school. However, she did express that "We were isolated." When asked to elaborate, the student stated, "we didn't even have time to interact with students in other programs."

Another student described the nursing program saying, "When I started the program in 2016, it was a boot camp experience. I did not feel comfortable asking for help or confiding in anyone." This student's statement corresponds with the data in which 60% of students completing the ADN program at SWCC in 2016 or 2017 reported a negative learning environment.

It appears that a change occurred in 2018 that impacted the learning environment at SWCC; when the researcher included the 2018 graduates in the learning environment evaluation, 62.5% of respondents indicated that the learning environment was either positive or neutral. This percentage corresponds with the feedback from an interview with the 2018 graduate; the participant stated that "the institution's culture was warm and welcoming." Furthermore, a re-entry student proclaimed that after failing a course in 2018, "I didn't want to return. It took me a while to decide, but everything was different when I walked in." The student continued to elaborate on the cultural changes, such as promoting an inclusive and collaborative environment. She concluded the interview by stating, "I am glad I came back."

The four interviews from the 2019 and 2020 alums included responses consistent with the 83.3% of survey participants who reported a positive learning environment; one alumnus indicated the setting was neither negative nor positive but rather a neutral learning experience. One alumnus from the class of 2020 described the culture of the nursing program like this:

> The nursing program's culture is much like what I have personally experienced in the real nursing world. The nursing program is much like a team or a small community. Students hold each other accountable at all times. This is likely due to the nursing program's culture from day one. I remember being told on day one of nursing school that 'the people in this room with you will understand what you are going through more than anyone else in your lives,' and from that moment on, the SWCC (a pseudonym) School of Nursing became my family. The school provided me with purpose, opportunities, and resources.

The comment concludes that SWCC promotes values such as respect and accountability integrated into the culture.

Other graduates from the 2019 and 2020 cohorts indicated that the culture was positive and that nursing faculty were actively invested in the students' programmatic success. Nursing educators who build positive relationships with students increase class engagement and student effort (Ingraham, Davidson, & Yange, 2018). When asked to elaborate on the institution's nursing program's culture, an interview participant from the graduating class of 2019 stated, "the culture was diverse and inclusive, and I loved it."

Interview responses from graduates who perceived the learning environment negatively expressed low support from faculty and a hesitancy to ask for guidance. The students proclaiming a positive experience indicated that faculty and classmates' support was a component of their programmatic success. The data were consistent with the assumption that faculty attrition can impact many organizational factors, including the culture and learning environment.

Theme #3: The Importance of Student Effort and Faculty/Student Relationships

Though students expressed high expectations for their nursing faculty instructors, the participants also recognized the importance of individual student efforts in achieving ideal nursing school success. Participants indicated that factors promoting and impeding success could be student-specific, and students can define success in various ways. The culture can also influence the student's efforts; as a 2020 graduate explained at SWCC, "Students hold each other accountable at all times. This is likely due to the nursing program's culture from day one."

Another 2020 graduate provided an insightful comment regarding student success and the student's efforts. The participant stated that "growing from where you started to where you finished" is critical to ideal student success. This statement's tone is similar to the terms a 2019 graduate used to describe factors influencing student success. The 2019 graduate used the words "sacrifice," "effort," and "priority" to describe students' role in success. The relationship between student effort and success seemed connected to the student and their faculty advisor's relationship. This finding is consistent with those of the study by Ingraham, Davidson, and Yang (2018), which found that nursing educators who are caring, accessible, and approachable pave the way for student success. Students made an effort to connect with their advisors and described them as their mentors indicating that their support empowered them to put more effort into their nursing education. A 2019 graduate stated that her faculty advi-

isor helped to "keep her on track," she added that the advisor "provided focus" when she needed it most. Another 2019 graduate added that the advisor "often sees things others did not."

Conclusion

This research aimed to determine if nursing faculty attrition impacted student success. The explanatory sequential study indicated a correlation between the graduates' perception of success and nursing faculty turnover. The main areas in which faculty attrition was perceived to have an impact included instructional quality, institutional learning environment, and the individual efforts of the student. The data indicate that faculty attrition can create an organizational barrier for students.

Limitations

Including only Associate Degree Nursing graduates and lack of diversity in this study may not reflect the degree of impact faculty turnover has on the global nursing student population. This study's population consisted of nursing students representing a single program within a single institution; therefore, the findings are not necessarily generalizable. For the results to be transferable, alterations to the questionnaire must reflect the individual institution(s).

As this was a retrospective study, there may have been limitations in the participant's ability to recall facts from their time as nursing students at SWCC. Also, there was limited participation in the study, as the survey completion rate was 34%. The low completion rate limits the ability to generalize the research findings. One factor impacting the response rate could be using the SWCC email address for distribution. Alums may no longer access that email address regularly. Incorporating a social media component could have been a better way to reach qualified SWCC graduates.

Recommendations

This study is a starting point to investigate further the relationship between nursing faculty turnover and optimal student outcomes. The researcher cannot determine an actual cause-and-effect relationship between those factors. Research that examines instructional inconsistency caused by organizational barriers on a larger scale is needed to understand student outcomes better.

References

American Association of Colleges of Nursing. (2017). Nursing faculty shortage fact sheet. www.aacnnursing.org/portals/42/news/factsheets/faculty-shortage-factsheet-2017.pdf

Bakker, E., Kox, J., Miedema, H., Bierma-Zeinstra, S., Runhaar, J., Boot, C., Van der Beek, A., & Roelofs, P. (2018). The protocol of the spring cohort study is physical and mental determinants of dropout and retention among nursing students. *BMC Nursing*, *17*(27).

Bean, J. (1981). The synthesis of a theoretical model of student attrition. Paper presented at the Annual Meeting of the American Educational Research Association, Los Angeles, CA.

Bittner, N. P., & Bechtel, C. F. (2017). Identifying and describing nurse faculty workload issues. *Nursing Education Perspectives*, *38*(4), 171-176. doi:10.1097/01.nep.0000000000000178

Bleich, M. R. (2013). The Institute of Medicine report on the future of nursing: A transformational blueprint. *AORN Journal*, *98*(3), 214-217. doi:10.1016/j.aorn.2013.07.008

Bloomfield, K., Diment, W., & O'Meara, K. (2014). Nurse success: A faculty intervention to help students realize their goals. *Inquiry: The Journal of the Virginia Community Colleges*, *19*(1), 57–62. https://commons.vccs.edu/inquiry/vol19/iss1/5

Carlson, J. S. (2015). Factors influencing retention among part-time clinical nursing faculty. *Nursing Education Perspectives*, *36*(1), 42–45. doi:10.5480/13-1231

Dalpezzo, N. K., & Jett, K. T. (2010). Nursing faculty: A vulnerable population. *Journal of Nursing Education*, *49*(3), 132-136. doi:10.3928/01484834-20090915-04

Daw, P., Mills, M.E., & Ibarra, O. (2018). Investing in the future of nurse faculty: A state-level program evaluation. *Nursing Economic$*, *36*(2), 59–66.

Fang, D. & Bednash, G. (2014). Attrition of full-time faculty from schools of nursing with baccalaureate and graduate programs, 2010 to 2011. *Nursing Outlook*, *62*(3), 164-173. https://doi.org/10.1016/j.outlook.2013.12.002

Froneman, K., du Plessis, E., & Koen, M. (2016). Effective educator–student relationships in nursing education to strengthen nursing students' resilience. *Curationis*, *30*(1), 1-9. doi:10.4102/curationis.v39i1.1595

Ghasemi, M., Moonaghi, H. & Heydari, A. (2020).

Strategies for sustaining and enhancing nursing students' engagement in academic and clinical settings. Korean Journal of Medical Education, 32(2), 103–117. https://doi.org/10.3946/kjme.2020.
159.
Hardin, J. & Wright, V. (2017). E-portfolio assessment: A mixed-methods study of an instructional leadership program's assessment system. *Research in the Schools*, *24*(1), 63–79.
Harrell, J. C., & Reglin, G. (2018). Evaluation of a community college's nursing faculty advising program relative to students' satisfaction and retention. *College Student Journal*, *52*(1), 33–48. http://search.ebscohost.com.proxy.library.maryville.edu/login.aspx?direct=true&db=ehh&AN=128618283&site=ehost-live
Harris, J. (2019). Challenges of nursing faculty retention. *Midwest Quarterly*, *60*(3), 251–255.
Horkey, E. (2015). It's not all academic: Nursing admissions and attrition in the United States. *Nursing Reports*, *5*(1). doi:10.4081/nursrep.2015.4849
Ingraham, K., Davidson, S., & Yange, O. (2018). Student-faculty relationships and its impact on academic outcomes. *Nurse Education Today*, 71. https://doi.org/10.1016/j.nedt.2018.08.021.
Jeffreys, M. R. (2015). Jeffreys's nursing universal retention and success model: Overview and action ideas for optimizing outcomes A-Z. *Nurse Educator Today*, *35*(3), 425–431. doi:10.1016/j.nedt.2014.11.004
Kavilanz, P. (2018). Nursing schools are rejecting thousands of applicants -- in the middle of a nursing shortage. *CNN*. https://money.cnn.com/2018/04/30/news/economy/nursing-schoolrejections/index.html
Kirkham, A. (2016). Enhancing nurse faculty retention through quality work environments: A photovoice project. *Nursing Economics*, *34*(6), 289–295. http://search.proquest.com/docview/1850303334?accountid=11259
McCoy, D. (2016). Mixed-methods research. In F. K. Stage & K. Manning (Eds.), *Research in the college context: Approaches and methods* (95–108). New York: Routledge.
Ofori, R. & Charlton, J. (2002). A path model of factors influencing the academic performance of nursing students. *Issues and Innovations in Nursing Education*, *38*(5), 507–515.
Rosseter, R. (2017). Nursing shortage. American Association of Colleges of Nursing, https://www.aacnnursing.org/NewsInformation/Fact-Sheets/Nursing-Shortage.
Salvucci, C. & Lawless, C. A. (2016). Nursing faculty diversity: Barriers and perceptions on recruitment, hiring, and retention. *Journal of Cultural Diversity*, *23*(2), 65-75.
Scruth, E. A., Garcia, S., & Buchner, L. (2018). Work-life quality, healthy work environments, and nurse retention. *Clinical Nurse Specialist*, *32* (3), 111–113. https://doi:10.1097/nur.0000000000000376
Serembus, J. (2016). Improving NCLEX first-time pass rates: A comprehensive program approach. *Journal of Nursing Regulation*, *6*, 38–44. https://doi:10.1016/S21558256(16)31002-X.
U.S. Bureau of Labor Statistics (2019). Registered nurses: National estimates for this occupation. https://www.bls.gov/oes/2016/may/oes291141.htm#nat
Westphal, J., Marnocha, S., & Chapin, T. (2016). A pilot study to explore nurse educator workforce issues [Research Brief]. *Nursing Education Perspectives*. https://doi:10.5480/14-1332

Author's Note

The author has no known conflicts of interest to disclose. Correspondence concerning this article may be addressed to Kelly Traylor Eller EdD, BSN, RN, Halifax Community College, Southern 100 College Dr, Weldon, NC 27890. Email: keller@halifaxcc.edu

Pedagogical Practice

Flexible Grading: Six Steps to Ungrading Your Courses

Candice L Freeman

Abstract

Student experience plays a critical role in academic retention. A key factor in promoting a positive student experience is providing learner choice and flexibility. Alongside learner choice, as found in the HyFlex modality, flexible grading schemes serve to interject learner opportunity for review, refinement, and revision of work with the aim of achieving goal mastery. One such evaluation scheme that has emerged over the past decade is ungrading. In ungrading, numerical grades are not used to assess learning performance but rather instructor feedback, coupled with learner reflection, provides deep evaluation and opportunities for learning refinement. This article examines six steps to implement an ungrading evaluation framework in any college course.

Keywords: assessment, evaluation, ungrading, grading scheme, student reflection, revision

Flexible Grading: Six Steps to Ungrading Your Courses

Flexible course attendance has become an increasingly desirable option for students seeking more autonomy in how they participate in lecture and learning activities. As more blended and HyFlex courses are offered, students expect more flexibility across the course, specifically in graded activities (Adams et al., 2021) Evaluative strategies, such as ungrading, have emerged as innovative ways to measure students' mastery of learning objectives (Guberman, 2021; Kohn & Blum, 2020; Pacharn et al., 2013).

Ungrading can be broadly defined as suspending the traditional way of grading for a more student-centered, empathic, and reflective practice whereby feedback and student reflection replace the assignment of a numerical score or letter grade (Kohn & Blum, 2020). The current grading system in the United States can be traced back to the late 19th century, and since its inception, very little has changed. However, there have always been educators modifying the traditional system and seeking methods of evaluation that are more considerate of the student (Bloom, 1968; Parcharn et al., 2013). Ungrading can be included in this list of modifications.

The purpose of this article is to provide six steps, or recommendations, to implement an ungrading evaluation system in your courses. These recommendations have arisen from the practice of grading for mastery, educator interaction with the ungrading scheme, and student feedback on learning satisfaction. It is important to understand that the ungrading system presented in this article is heavily focused on deep feedback from the instructor and continual, guided reflection made by the student.

Ungrading Process

The following six steps are recommendations for successfully replacing a quantitative grading system with a qualitative scoring system designed to create a more equitable and just system of student learning evaluation.

Step 1: Throw Out the Numerical and Letter Grades

This step could likely be a challenge for many students. Dropping numerical and letter grades for

learners who have only been evaluated through this system could elicit a tad bit of stress within the student. Expect this reaction. Also expect that you will have students who will greatly appreciate the unconventional grading scheme. Embrace both perceptions and encourage your students to give this scheme an open-minded try.

You will continue to monitor student progress toward goal mastery by using numerical grading that runs parallel to the ungrading scheme (Table 1). This is your legend that will ensure equity in ungrading and assigning feedback, but your students will not see this legend. Nothing changes regarding how the final grade is reported to your College registrar, which is why this legend is vital to your course.

Step 2: Commit to Feedback

Let's face it. Giving rich, deep feedback takes a lot of instructor time and many of us likely cut this part short, especially if we have a lot of students. Feedback is the cornerstone of the ungrading evaluation process, so shortcuts are a big no-no. There are several key components to providing effective feedback with the ungrade that must not be skimped on. These include specificity, timeframe, revision, and resubmission.

Specificity

Students will never know where improvements are needed without your detailed explanation and a solid, exemplary model of expected performance. When providing feedback, start out with specifics on what is correct about the student's work. Then transition into where improvements can be made. Avoid using the terms "incorrect" and "wrong." These convey a negative tone and threaten student motivation to improve.

Timeframe

It only takes a few weeks into a semester for students to establish habits from observed patterns expressed by their instructors. Use this fact to maximize your ungrading process by providing the ungrade and associated feedback consistently on the same weekday and around the same time. Your students will come to expect this information and feedback on a routine, scheduled basis, and you will be able to balance your work tasks and allocate ample time for feedback. If you find yourself struggling to meet this commitment, simply communicate with your students about the delay. They will see that you too can encounter challenges throughout the semester and need a degree of flexibility.

Revision

Provide students the option of revision. Keep in mind that it is the student's decision. If they are committed to learning the content, they are more apt to willingly revise the work under the guidance of your feedback, but they should not be required to revise. If the ungrade of "Proficient" is satisfactory for the student, that is perfectly fine. Regardless, ensure the feedback you provide gives detailed instruction on how to revise the work for improvement. Also, providing extra resources that align with your feedback provides the student with more options and support for revision.

Resubmission

Direct students to resubmit their revisions before the next weekly feedback day. Revisions should take less time to complete; therefore, they should require fewer days for resubmission. Along with resubmitted work, consider requiring student reflection on corrections made following your feedback. This reflection should include what worked well for achieving the resubmission as well as what challenges were encountered. Reflecting on the experience will likely help students in the successful completion of future assignments.

Step 3: Clearly Explain Your Ungrading Scale

Certainly, you will understand your ungrading scheme, but expect that students will not. To ensure there is no confusion about the way students will receive evaluative information, post your ungrading scale in multiple locations, including clearly outlined in the syllabus and within the online course content. Also include the scheme as part of assignment information and as part of any assessment within your course. This is also known as a rubric, and it is one of the most effective ways to instruct and scaffold students to accurate and precise completion of the assignment.

Step 4: Rubrics Are a Must

Including a rubric with any assessment achieves two major purposes: (1) provides learners with a roadmap and detailed list of submission expectations for associated scoring and (2) establishes an equitable system of evaluation. A rubric should be an essential part of any assessment and should maintain the same format and content regardless of application. As with the weekly feedback day, students will establish an expectation of use and understanding when the rubric format maintains consistency.

Numerical grades should not be included in the rubric but rather the ungrading scheme as outlined within the syllabus. Criteria associated with the assessment will obviously differ between assessments, but the ungrading classifications should remain the same. Lastly, the rubric should be used to evaluate the submission and for documentation of feedback. This is the document students will receive for review of evaluation.

Step 5: Plan for Regular Substantive Interaction

Regular substantive interaction (RSI) is a requirement for all online courses in postsecondary education; it is included in the Code of Federal Regulations (CFR). Your weekly assessment feedback should not be considered as fulfilling RSI requirements. However, it is part of the comprehensive student-instructor interaction within the course.

Two types of feedback to consider providing to your students are broad and narrow feedback. Broad feedback comes from comprehensive information that all learners can use to improve and refine their learning. Examples of broad feedback are FAQs, outlines of suggested improvements, and supportive resources such as websites and multimedia. Narrow feedback is feedback that is specific to the individual learner. Both bring value to your RSI and serve to demonstrate your commitment to student learning. An example of narrow feedback includes granular, exemplar models of how to make corrections and updates to the specific improvements needed by the student.

Step 6: Plan for Student Reflection

Preparation is needed to begin an ungrading practice, and these previous five steps will more than adequately prepare you to use the scheme for your formative and summative assessment. Ensure that the first five steps have been completed, and done with fidelity, before implementing ungrading. Additionally, consider including the following strategies after implementation.

Student Surveys

Survey your students on their satisfaction with the ungrading model. Make sure your students who do not like the model know they can still use the traditional grading scale because letter grades are aligned to the feedback ungrade. This provides another layer of learner customization and evaluation personalization.

Personal Reflection

As you utilize the rubrics to complete your ungrading of students through rich, deep feedback, reflect on your personal, and professional, satisfaction with the practice. You may find that this is not the best evaluative model for your students, and if that is the case, it is perfectly fine. Always assess your learning system and make the best choice that supports student success.

Share with Colleagues

As you implement and utilize this evaluation practice, share your experiences with colleagues. Often some of the best insights and recommendations come from informal discussion among faculty members. Varying perspectives and opinions serve to stimulate ideas for improvement, and collective intelligence is always the best well from which to draw.

Refinement

Do not hesitate to make changes, as needed. Small adjustments during implementation will likely serve to improve students' interaction with the practice; however, significant changes, such as changing the ungrading terminology, should be made at the end of the semester and without significant impact to students.

Conclusion

Keep in mind there is no one right way to evaluate student goal mastery, and if you are satisfied with the traditional 100-point scale grading system, that is perfectly okay. However, if you do venture into the world of ungrading, make sure you have a detailed map and plan when you enter. If you get confused or become unsure of outcomes, you can rest assured your students are feeling the same. Through systematic and purposeful planning and execution, an effective and efficient ungrading system can promote refined learning in your courses and potentially heighten the student learning experience.

References

Adams, S., Bali, M., Eder, Z., Fladd, L., Garrett, K., Garth-McCullough, R., & Weber, N. L. (2021). *Caring for students playbook: Six recommendations for caring for students*. Achieving the Dream. https://achievingthedream.org/caring-for-students-playbook/

Bloom, B. S. (1968). Learning for mastery, instruction and curriculum. *Evaluation Comment, 1*(2), n2. https://eric.ed.gov/?id=ED053419

Guberman, D. (2021). Student perceptions of an online ungraded course. *Teaching and Learning Inquiry*, *9*(1), 86-98. https://files.eric.ed.gov/fulltext/EJ1293608.pdf

Kohn, A., & Blum, S. D. (2020). *Ungrading: Why rating students undermines learning (and what to do instead)*. West Virginia University Press.

Pacharn, P., Bay, D., & Felton, S. (2013). The impact of a flexible assessment system on students' motivation, performance and attitude. *Accounting Education*, *22*(2), 147-167. https://doi.org/10.1080/09639284.2013.765292

Stommel, J. (2022, October 5). *Why I don't grade*. Jesse Stommel. https://www.jessestommel.com/why-i-dont-grade/

Author's Note

The author has no known conflicts of interest to disclose. Correspondence concerning this article may be addressed to Candice Freeman at 2201 Hull Road, Fayetteville, NC 28301. Email: freemanc@faytechcc.edu. https://orcid.org/0000-0003-1247-3908

Table 1

Grading Legend to Correlate with Ungrading Scheme

Ungrade	**Letter Grade**	**7-point scale**	**10-point scale**
Highly proficient	A	93-100	90-100
Proficient	B	86-92	80-89
Needs improvement	C	79-85	70-79
Not proficient	D	72-78	60-69
No performance	F	<72	<60

Pedagogical Practice

Hybrid Flexible Attendance (HyFlex) and Community College Student Success

Michelle A. Payton

Abstract

The inclusive attendance and HyFlex course delivery at A-B Technical Community College includes 115 students over two semesters: six English composition courses, 14- to 16-weeks in length, spring and fall 2022. Acceptable attendance includes three options: seated face-to-face, synchronous, and asynchronous. Data in this report includes type of attendance trends (seated, synchronous, asynchronous), video view trends and persistence trends (students' withdrawals and grades). Qualitative student feedback is also a part of this analysis. The inclusive attendance and HyFlex concepts are not a replacement for face-to-face offerings; these offerings mean to enhance student success for those who require more flexibility throughout a course period. These inclusive attendance and HyFlex offerings fill a gap for students in a community college environment for English composition. In addition, this offering is available at moderate institution costs. However, those courses successful with face-to-face offerings that find synchronous and online offerings limiting may need additional research. When this format is possible, it is an additional way to create student support by offering attendance availability through multiple avenues. Overall, both inclusive attendance and HyFlex break down barriers that community college students often experience and create more weekly inclusiveness for higher student success due to a number of best practices.

Keywords: hyflex, hybrid flexible attendance, hybrid teaching, inclusive attendance

Hybrid Flexible Attendance (HyFlex) and Community College Student Success

Adult students are at a high risk for low persistence due to managing multiple responsibilities outside of the classroom especially when these students feel a lack support. While attending community college, persistence is higher when adult students feel comfort, support, and respect during their community college experiences (Capp, 2012). In addition, many adult students don't have the same guidance when compared to younger students who may still be in high school and have educated parental guidance. For example, first-year community college students, at ages 19 to 23 who have access to educated parental advice, are more likely to attain higher persistence measures (Fike & Fike, 2008). Many adult students in community colleges are at risk of having low persistence when experiencing a lack of support.

One specific strategy to increase adult student support in community college classrooms could be to re-create the definition of attendance for courses commonly known as face-to-face. The following study looks at an option in community college classrooms and proposes inclusive attendance and HyFlex as a flexible attendance option to create an environment that serves more students' needs. This study shares trends on how this concept tests at the Asheville-Buncombe Technical Community College. This study also measures increases in student success over two semesters in 2022. Academic course requirements and technical design are not a part of this study; however, reusable videos,

class lecture videos, ADA compliant documents, and clear pedagogy all play a part in student success. Specific trends outline what instructors might expect with inclusive attendance and HyFlex in a classroom: a simultaneous offering of students being seated face-to-face at specific times and days, synchronous instruction using Zoom, and asynchronous instruction which occurs online through lecture recordings.

Data collection includes the type of attendance trends for seated, synchronous, and asynchronous instructional deliveries; frequency of video views; persistence trends (students' withdrawals and students' grades); qualitative student feedback; effective best practices; and in-class equipment options. This research includes 115 students and six English composition courses that span two semesters: spring 2022 and fall 2022. This course is a core-curriculum requirement for all community college students and is transferable to four-year universities. Definitive numbers provide a clear understanding of most student patterns, and qualitative feedback more clearly defines inclusiveness. For example, during the test period, inclusive attendance and HyFlex demonstrate instructor availability in part due to multiple attendance offerings. When students perceive instructors as present or available in the online classroom, a rapport develops. These instructor-student connections can result in students earning better grades; students who report feeling a rapport with their instructors are 30% more likely to earn a C or better (Skurat Harris et al., 2019, p. 118). Overall, this approach is a part of creating instructor-student rapport, and enhancing student success and persistence, by demonstrating availability through multiple attendance avenues. Both inclusive attendance and HyFlex break down barriers that limit student persistence and simultaneously create a sense of inclusiveness throughout a class experience that, ultimately, leads to higher student success.

Relevant Research: Flexible Environment for Student Success

One way to show college student support is to create a flexible environment. The study by Bos, Groeneveld, van Burggen, and Brand-Gruwl (2016) measures how online and face-to-face lectures contribute to university student success in the Netherlands over an eight-week period. Table 1 data shows, when given a choice, students reduce face-to-face classroom attendance and gravitate more toward a combination of face-to-face and online when moving into the second half of the semester. Knowing the viewing pattern is one part of the equation, but persistence is the ultimate goal. In Table 2, this test shows no adverse effects to grades.

In the last four weeks, supplementing (participating face-to-face and online) has the highest mean score with the second highest mean performance being online only. This is evidence that a decrease in face-to-face students and increase in online students does not have a negative impact on exam scores in the second assessment. When students have the choice to attend face-to-face, online only, or supplement with both, there is no significant exam score difference by the second 4-week assessment. A gap in the research is students not having more student-centered, flexible access to the course during the face-to-face meeting remotely (i.e., synchronous means).

Methods

Course Participants

The inclusive attendance for the spring 2022 test takes place at the Asheville-Buncombe Technical Community College. Participants included 40 students with the same instructor and same 16-week composition course (split into two sections) that fulfills a portion of the two-year degree requirement. Participants attended during the spring 2022 semester, and all 40 students registered for a face-to-face course. An email was sent on the first day from the instructor explaining inclusive attendance. For this research, acceptable attendance includes three options: seated, synchronous, and asynchronous.

Additional data for inclusive attendance and HyFlex was taken during the fall 2022 semester. This data includes four English writing and composition courses for first-year students. Of the four courses, three registration codes reflected the intention of offering HyFlex and one English course announced inclusive attendance in the day one email announcements. There were a total of 75 student participants for fall 2022. For the HyFlex courses, there were 58 student participants. For the in person section with inclusive attendance there were 17 student participants. The Hyflex courses were 15-16 weeks in length, and the inclusive attendance, face-to-face course offering, was14 weeks in length.

Equipment

Equipment can vary, but inclusive attendance

and HyFlex offerings used a remote webcam in spring 2022. Additional equipment was available for the second test period, fall 2022. For the spring 2022 semester test, a remote webcam was the primary equipment for inclusive attendance. For the fall semester test, more advanced equipment was available in the classroom as well, but the remote webcam was the primary tool used throughout the semester. The onlineweb conferencing platform, Zoom, was utilized for the synchronous course offering. For the remote webcam, costs are moderate, and this allows more access for classrooms to teach inclusive attendance and HyFlex. The remote webcam used in this study was a Logitech webcam, model C925e, which has an approximate retail cost of $75, and plugs into the front panel port of the classroom desktop.

Additional microphone devices to enhance audio, like a Snowball microphone, can also plug into the front panel port for an approximate retail cost of $60 to create higher quality audio recordings. For the advanced equipment, higher-tech audio devices, cameras, and screens are also available. No cost analysis is available for the higher cost equipment, but fewer classrooms are likely to outfit an inclusive attendance and HyFlex classroom. In addition, measurements are not available on whether the remote webcam or advanced equipment are most effective when teaching, recording, and impacting inclusiveness. Whether using a remote webcam or more advanced equipment, HyFlex and inclusive attendance offerings are feasible options.

Data Points Collection

There are several data points available for both the spring 2022 and fall 2022 tests. Data includes type of attendance trends (seated, synchronous, and asynchronous), number of video views, persistence trends (students' withdrawals and students' grades), and written qualitative student feedback. These data points are available for all six classes.

Weekly Best Practices

All recorded lectures were posted on the Learning Management System (LMS) before the end of the day. At least two emails per week were sent to all students to manage expectations. The most common emails included what was completed during a course lecture, what was due for the week, and what to expect in the upcoming week. On-time submissions from students received grades within one week or sooner; overall, grade updates in the Learning Management System were available, so all students were aware of their weekly grade status. In addition, if students were below a C, they received email communications on their current status and recommendations on next steps. Responses to student emails were typically available within 24 hours or sooner.

Results

Attendance Choices by Type

For spring 2022, all students signed up for seated classes and then chose their preferred attendance: seated, synchronous, and asynchronous. For fall 2022, three class codes showed a HyFlex offering during student registration, while the other was seated. When comparing spring 2022 to fall 2022, a higher percentage of students attended seated and lower percentage choose asynchronous for fall 2022: approximately 9% more students chose seated overall in fall, over 2% more students chose synchronous, and over 11% fewer students chose asynchronous (Table 3). In all cases, spring and fall, seated was the most common attendance choice for the first 4-week period: 55.2%-62.6% (Table 3). However, asynchronous was the most common attendance choice by the 14-16 week period: 79.1%-83.7% (Table 3). This is consistent with the findings found by Bos, Groeneveld, van Burggen, and Brand-Gruwl (2016).

An important note is that the three attendance choices are not in competition; no one attendance is superior to the other. What this does highlight is the importance of the inclusive attendance or HyFlex format to be equally accessible to all three types of attendance for all course weeks. This awareness maintains an inclusive environment that serves students' needs overall.

Video Viewing

In spring 2022, video views revealed when students voluntarily mark done after viewing in the Learning Management System (LMS). In fall 2022, there was a new data storage protocol college-wide, causing video views to reveal when students opened and viewed a video.

For spring 2022, video viewing dropped every four-week period: 21% for the period ending four weeks, 14% for the period ending eight weeks, then down 3% to 5% for the last weeks of the semester (Figure 1). For fall 2022, video viewing trends did not drop as soon or as low for eight weeks of the

semester. In fact, video viewing trends were two to nearly four times higher for certain periods in fall 2022: there were 28% video views for the period ending eight weeks for fall 2022—double that of spring—and 19% video views ending the period ending 12 weeks—nearly four times higher than spring (Figure 1).

Overall, fall 2022 video viewing was 7% higher than the previous test period: 11% for spring and 18% for fall (Figure 1). Measurements differ, however. The spring 2022 video views measurement shows when students voluntarily mark "done" after viewing videos in the LMS, and fall 2022 video views measurement revealed when students actually open the video. Video viewing did not equate to a particular attendance choice. No tracking device was available to understand the connection to video viewing for seated, synchronous, and asynchronous post-class meetings. However, when clear instructions were given that students must *see and hear* the instructor for best results regardless of attendance choice, video viewing trends could trend as high as nearly 30% for certain periods of time.

C or Better and Withdrawals

Students earned a C or better between 75% and 85% of the time during the two test periods. For fall 2022, the second test period, 10% more students earned a C or better than the first test period (Table 4). In addition, there were more than 3.5 times additional students in fall 2022: 17 total for spring 2022, and 60 total for fall 2022.

The percentage of withdrawals were higher for the second test period. For fall 2022, withdrawals were 10% higher than the spring 2022 (Table 4). The increase in withdrawals may have a connection to weekly email reminders to students whose grades drop below a C.

Student Qualitative Feedback

Students provided feedback on inclusive attendance and HyFlex at the beginning of the semester and in the last four-week period of the course offerings. Two questions focused on Zoom, recording offerings, and email practices. A third question focused on students' first-week perceptions of the inclusive attendance and HyFlex offerings. Overall, student responses were positive.

In weeks 11 or 12, students filled out an anonymous survey on the inclusive attendance and HyFlex processes and policies. Two questions focused on perceptions of Zoom during face-to-face class meetings and post video views in the Learning Management System (Moodle) as well as email communication:

1. Please share how attending Zoom Live during face-to-face class increased your success. Please share how watching the lecture recording after the face-to-face meeting increased your success. Did having these options matter to you?
2. How did the weekly "[what we] *did*, [what is] *due*, *to do"* emails work for you? What other email notification were or were not helpful?

Anonymous feedback across both semesters was similar for inclusive attendance and HyFlex. The student responses, broken down by English inclusive attendance for spring 2022 and English HyFlex and inclusive attendance for fall 2022, are similar. The common feedback across both test periods for question number one is that this is helpful to be able to go back to lecture videos for more instruction, to be able to balance work and school, to be able to access all information, and this increases the ability to pass the course.

> …Helped me succeed where I have failed in the past.
>
> Watching the recorded videos helped me understand what I missed…
>
> …able to join the class basically no matter what I had to do…. Some days I was called into work early… helped me not fall behind.
>
> Even though I did not attend face-to-face, I was able to hear and learn the same things people in person did.
>
> …Everything that we did in class was accessible to me.

For question two, students most commonly viewed email correspondence as giving effective updates and helpful reminders, and helping to prioritize tasks.

> In some of my other classes, more often than not, I was left wondering what it actually was that I had to have due by the end of the week. These emails helped me keep track of what I needed to do and what order I should do each of

my assignments.

…help so much to keep me on track.

…very helpful. It was another reminder on what I needed to finish.

…very impressed by the organization... especially as someone using the Zoom recordings it helped me stay on top of… assignments…

…All the emails were helpful, it worked as a checklist.

If you weren't there… still knew what happened that day.

As of the first week of fall 2022, student perceptions for the inclusive attendance and HyFlex offering were positive. The question to students is "Based on what you've learned about HyFlex in our first class session, how do you anticipate this model will help accommodate your specific needs (e.g., work, childcare, academic workload, etc.) this term?" Some of the most common feedback from students in the first week of the course was that stress decreased, it allowed them to work, tend to family, complete other course work and remain in this course; and it alleviated transportation concerns. Students perceived in the first week of the course that this was a contributor to their success.

…great opportunity to feel a sense of community with less stress & pressure.

…I have a lot of personal health issues & often find myself feeling extremely weak & tired. … being able to Zoom in on my bad days will be quite helpful.

…an excellent [way] to run a course… It will really help[ed] me by being able to get the most hours out of my job that I can while also being able to be fully participate and not miss any lectures in your class.

… I'm taking classes from two community colleges so having a class that I can attend from home will allow me to work on all my classes…

…seems super accommodating and if for some reason I'm not able to make it to class I have both online and recorded options…

…will help to accommodate my needs by allowing me to continue working while my children are in school. …will not have to take time off of work [in] order to attend classes. …will not have to miss any lessons if one of my children gets sick or is out of school.

… live about 40 min[utes] away from the school… makes it easier for me to also accommodate working into my schedule.

…with work and other school commitments it can help make certain days more manageable… will make class less stressful.

…heavy work schedule and am struggling to afford gas… On top of this, I often am in charge of watching my younger siblings, as my parents also work…

…help with stress levels in other areas of my college experience… not been a student in 27 years.

Students' perceptions were positive for inclusive attendance and HyFlex within the first week of the course, and students' perceptions remained the same once students participated in this offering, by the 11- or 12-week period.

Conclusion

Adult students in community colleges continue to be at risk of having low persistence when feeling a lack of support; however, a hybrid approach to attendance can have a positive impact on students' perspectives. Studies like Bos, Groeneveld, van Burggen, and Brand-Gruwl (2016), Skurat Harris et al. (2019), and the A-B Tech, spring and fall 2022 qualitative test demonstrate that it is a reasonable consideration to offer a student attendance environment reflecting choice and inclusiveness to increase student success. This creates an environment that demonstrates that no one attendance is superior to the other throughout the semester to encourage persistence; instruction must be equally accessible to all three types of attendance to serve students' needs. Overall, students have the opportunity to attend a

course multiple ways with inclusive attendance and HyFlex and institutions can offer that flexibility at a sustainable cost. By the completion of two test periods, spring and fall 2022, students were successful for a variety of reasons: 11-18% of students watched recorded lectures overall, students chose seated 30.6-39.5% of the time when it best served them, students were synchronous 8.5-10.7% of the time and were asynchronous 49.7-60.9% of the time when being physically seated is less of a necessity (Table 3; Figure 1). What is also known is equipment cost was sustainable by using a portable webcam for $75 or less. For both test periods, students and institutions benefited from the flexibility of inclusive attendance and HyFlex course formats.

Another success strategy is the instructor-student rapport, due to the perception of feeling support, as shown in the student surveys. This contributed to students having greater feelings of inclusiveness and support. In addition, the feedback on rapport provided some clarity on why student persistence was 75-85% in the A-B Tech test periods (Table 4). This approach offered instructor availability through multiple avenues to see and hear an instructor regardless of the type of attendance choice. Students most commonly shared on the first week of the fall 2022 semester that the structure decreased stress; allowed them to work a formal job, tend to family, complete other course work, and remain in the course; and alleviated transportation concerns. The common feedback near the end of the semester was Zoom and course recordings allowed students to go back to lecture videos for more instruction, they were able to balance work and school, and they could access all information, all of which increased their ability to pass the course. Qualitative feedback trends for this two-semester test were similar to the conclusions of Skurat Harris et al. (2019); when students feel a rapport with their instructors, they are more likely to earn a C or better. Overall, the majority of students viewed these inclusive practices as a contributor to their success to complete the course.

While inclusive attendance and HyFlex fill a gap in the community college environment that serves non-traditional students, it may not be a fit for all course offerings. This test shows positive trends from the perspective of English courses, but more research can benefit those courses that are successful with face-to-face offerings but find synchronous and online offerings limiting.

References

Bos, N., Groeneveld, C., Bruggen, J., & Brand-Gruwel, S. (2016). The use of recorded lectures in education and the impact on lecture attendance and exam performance. *British Journal of Educational Technology*, *47*(5), 906–917. doi: 10.1111/bjet.12300

Capps, R. (2012). Supporting adult-student persistence in community colleges. *Change*, *44*(2), 38–44. https://doi.org/10.1080/00091383.2012.655218

Fike, D. S., & Fike, R. (2008). Predictors of first-year student retention in the community college. *Community College Review*, *36*(2), 68–88. https://doi-org.lrc-proxy.abtech.edu/10.1177/0091552108320222

Payton, M. A. (2021, April). Online learning for non-traditional students. [White Paper #3, National Center for Developmental Education]. Retrieved January 29, 2022 from https://michellepaytonwriter.com/michelles-books/

Skurat Harris, H., Meloncon, L., Hewett, B., Mechenbier, M., and Martinez, D. (2019). A call for purposeful pedagogy-driven course design in OWI. *Research in Online Literacy Education, 2* (1). Retrieved July 16, 2020, from http://www.roleolor.org/a-call-for-purposeful-pedagogy-driven-course-design-in-owi.html

Author's Note

The author has no known conflicts of interest to disclose. Correspondence concerning this article should be addressed to Michelle A. Payton, English Department, Asheville-Buncombe Technical Community College, 340 Victoria Rd, Asheville, NC 28801. Email: michelleapayton@abtech.edu

Table 1

Number of Students by Lecture Type

Lecture Type	First 4-week assessment		Second 4-week assessment	
	Number Students	Percentage Students	Number Students	Percentage Students
Face-to-face only	104	26.3%	68	18.6%
Online only	47	11.9%	107	29.2%
Supplementer (face-to-face and online)	210	53.0%	143	39.1%
Non-user	35	8.8%	48	13.1%

Note. Information is based on Bos, Groeneveld, van Burggen, and Brand-Gruwl (2016) research.

Chart from Payton (2021) white paper (p. 13).

Table 2

Face-to-Face and Recorded Lectures Exam Trends

Lecture Type	First 4-week assessment Exam Performance	Second 4-week assessment Exam Performance
Face-to-face only	5.22 mean score	5.50 mean score
Online only	4.80 mean score	5.85 mean score
Supplementer (face-to-face and online)	6.37 mean score	5.99 mean score
Non-user (Neither attended face-to-face nor watched online)	3.86 mean score	4.24 mean score

Note. Information is based on Bos, Groeneveld, van Burggen, and Brand-Gruwl (2016) research.

Chart from Payton (2021) white paper (p. 13).

Table 3

Attendance Choices per Four-Week Periods and Overall

Course 4-week trends	Seated	Synchronous	Asynchronous
Spring 2022, 4-week	55.2%	2.2%	42.6%
Spring 2022, 8-week	34.7%	11.4%	54.0%
Spring 2022, 12-week	25.9%	10.3%	63.9%
Spring 2022, 13-16-week	6.6%	9.7%	83.7%
Total Spring 2022	**30.6%**	**8.5%**	**60.9%**
Fall 2022, 4-week	62.6%	12.3%	25.1%
Fall 2022, 8-week	37.1%	13.1%	49.8%
Fall 2022, 12-week	32.4%	12.6%	55.0%
Fall 2022, 14-16-week	17.6%	3.3%	79.1%
Total Fall 2022	**39.5%**	**10.7%**	**49.7%**

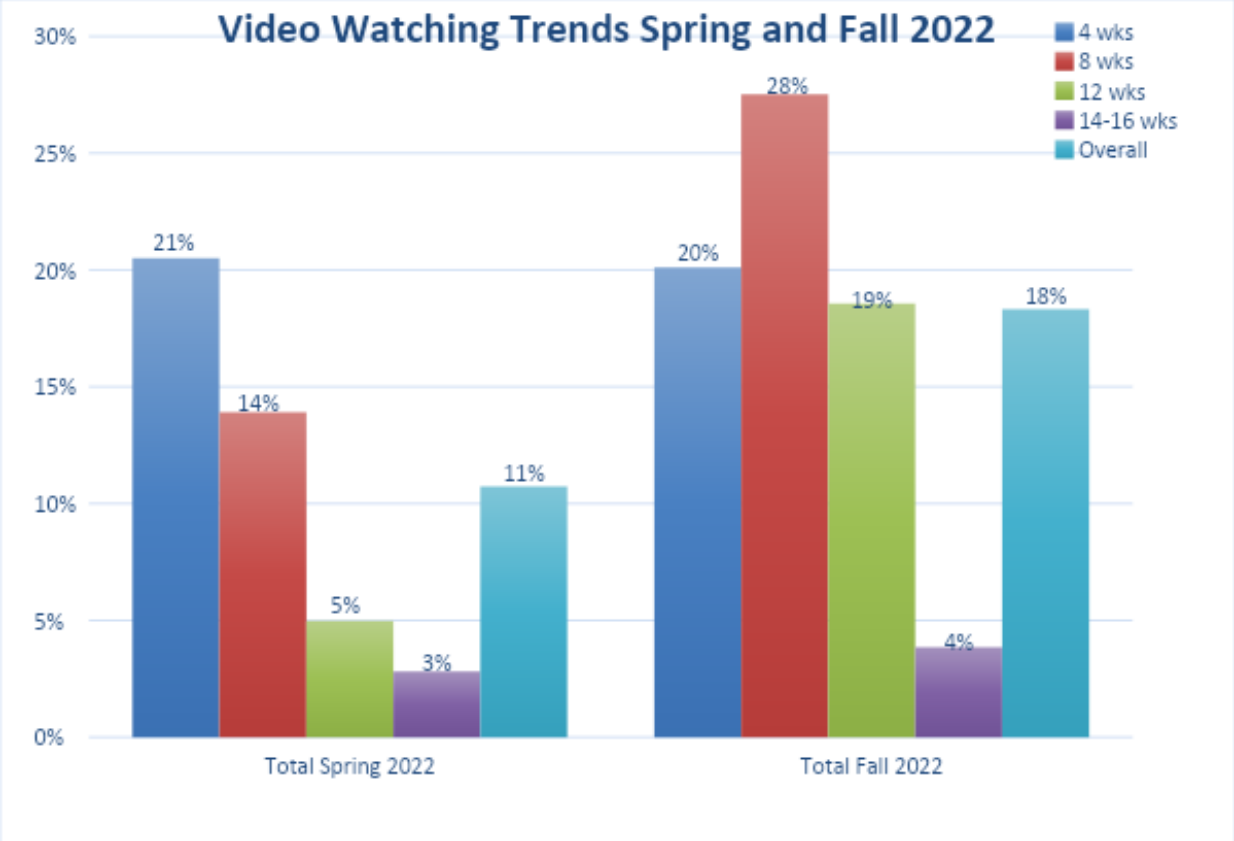
Table 4

Comparison Spring and Fall 2022 Semesters: C or Better and Withdrawals

Withdrawals and Course Grade	Spring 2022	Fall 2022	% Difference Fall 2022
Withdrawals	10%	20%	**+10%**
C or Better	75%	85%	**+10%**

Figure 1

Video Viewing per Four-Week Period, Spring and Fall 2022



Research Paper

Student Voices and Transfer Choices: Examining the Transfer Process of North Carolina Transfer Students

Ryan A. Miller, Lauren Slane, Carmen Serrata, and Mark M. D'Amico

Abstract

The vertical transfer function of higher education has resulted in inequitable outcomes, given the disparity between community college students who intend to transfer to a university to complete a bachelor's degree and those who ultimately complete a bachelor's degree. Prior work has examined the various socio-academic factors that impact vertical transfer outcomes. This qualitative study aims to understand how North Carolina transfer students make decisions, gather information, and engage in the transfer process. Findings suggest that students weigh convenience, cost, and career opportunities along the transfer process and navigate the process through independent research. Students in this study largely self-navigated and relied on a few key trusted people to gather information and engage in the transfer process. This study amplifies the need to center student voices to understand their experiences as they journey through the vertical transfer pathway.

Keywords: vertical transfer, community college, transfer student capital

Student Voices and Transfer Choices: Examining the Transfer Process of North Carolina Transfer Students

Community colleges play an essential role in access to and equity within postsecondary education due to their open access mission and proximity to the communities they serve (Birnbaum et al., 2022; Bragg, 2001). National Student Clearinghouse (2015) data from the 2013-2014 academic year indicated that nearly half (46%) of all students who earned a bachelor's degree at a four-year institution had previously attended community college in some capacity. Although the choice to attend a community college is complex, price and location (proximity to home) are key factors to students' decisions to start at the community college (Somers et al., 2006). For minoritized and low socioeconomic students, location and ease of access are primary drivers in the college choice process (Turley, 2009). Given their proximal access and cost, community colleges are often the access point to higher education for first-generation, Black, Latinx, and low-income students (Schudde & Goldrick-Rab, 2015).

While community colleges provide benefits that attract many students, there is a discrepancy between transfer intentions and transfer success into four-year institutions. More than four out of five students who start at a community college have bachelor's degree aspirations, but only about one in 13 students transfer and complete a bachelor's degree within six years (Kahlenberg et al., 2018). Vertical transfer—that is, students transferring from a community college to a university with the intention of eventually earning a bachelor's degree—is a key goal of community colleges; however, the transfer function has proven to be imperfect, resulting in inequity in educational success (Schudde & Goldrick-Rab, 2015). Increasingly, more students are entering community college with transfer intentions, which makes the need to assist in successful transfer even more essential (Hagedorn et al., 2006). The large divide between

those who enter community college with intentions to transfer compared to those who successfully transfer points to a vertical transfer gap (Taylor & Jain, 2017). The gap is even wider for students of color. Crisp and Nuñez (2014) refer to Martinez-Wenzl and Marquez's term *racial transfer gap* to explore inequities in vertical transfer rates based on racial identities. There are factors that can contribute to the narrowing of the gap between transfer intentions and transfer success. Jain et al. (2011) found that prospective transfer students who participated in outreach activities where they had the opportunity to learn from successful transfer students with similar racial backgrounds experienced a positive impact. As much as there are factors that can contribute to success, there are also factors that create barriers to success. For example, credit loss, the loss of college credits while transferring into a new institution, negatively impacts vertical transfer student success (Jenkins & Fink, 2015; Taylor & Jain, 2017).

North Carolina, the context for the present study, is considered an institution-driven transfer system (Hodara et al., 2017), in which community college students and their academic advisors cannot assume that their transfer credit will automatically apply in the same way to degrees at different institutions, thus presenting obstacles to smooth transfer pathways for students. Indeed, over 40% of North Carolina Community College System (NCCCS) transfer students to University of North Carolina (UNC) campuses follow a primary feeder pattern—that is, transferring from a community college to the most frequent transfer destination university. As such, the majority of NCCCS to UNC students do not follow a primary feeder pattern (D'Amico et al., 2022). Furthermore, a higher percentage of students transferring from community colleges located in economically distressed regions of the state have earned an associate in applied science (AAS) degree. While AAS degrees are typically associated with workforce preparation, they are often not aligned with a transfer pathway. As such, transfer students on an AAS pathway are not taking full advantage of North Carolina's Comprehensive Articulation Agreement (CAA), which is focused on those pursuing traditional transfer degrees such as the associate in arts (AA) and associate in science (AS) (D'Amico et al., 2021).

These findings, as well as the limited studies exploring the behaviors and experiences of North Carolina transfer students, demonstrate the need to expand the work from this initial exploration, through which we aim to understand how North Carolina transfer students make decisions, gather information, and engage in the transfer process. The following research questions guide this study:

1. How do North Carolina community college pre- and post-transfer students navigate the transfer process?
2. How do students' community college and four-year college experiences inform their transfer journeys?

Theoretical Framework

To guide this study, we examined transfer student capital frameworks. Prior research has examined the various factors that impact vertical transfer outcomes, including intentional institutional practices such as outreach, academic skill development, and academic advising (Jain et al., 2011). Transfer student capital frameworks emphasize the exposure to and engagement in academic skills and behaviors which help students in the transition to a four-year university (Laanan et al., 2010). The vertical transfer gap highlights the importance of supporting students in gaining specific skills needed to successfully navigate the transfer process (Jabbar et al., 2021). Laanan et al. (2010) found that community colleges provided academic skills that proved to be helpful to the students' academic transfer adjustment.

Transfer student capital includes four areas that assist students in acquiring transfer capital. These include experiences with academic advisors, student viewpoints on the transfer process, interactions with faculty, and the academic study skills learned while at community college (Laanan et al., 2010). Community colleges can often provide a conducive environment for gaining transfer capital. For example, the smaller class sizes in community colleges contribute to more peer and faculty interaction and provide space for the development of transfer student capital that is carried into students' four-year university adjustment. Pre-transfer students being exposed to faculty and advisors from the transfer institution can serve as the starting point for students to build their transfer student capital (Wang et al., 2020).

Transfer student capital frameworks also include "other engagements with baccalaureate institutions" and "transfer-oriented activities at community colleges" as other possible ways to develop transfer capital (Wang et al., 2020, p. 107). Prior research has linked the preexisting social and cultural capital with

which students enter community college and transfer capital acquired while at community college. For instance, Jabbar et al. (2021) found that when pre-transfer students attended an institution with strong academic and transfer knowledge support, they gained transfer capital, regardless of the social capital the student had when entering college. On the reverse, when there is weak institutional support, it creates wider inequalities among students (Jabbar et al., 2021). We use transfer student capital frameworks to contextualize student transfer engagement and experiences in this study to extend prior work in this area (Jabbar et al., 2021; Laanan, 2007; Laanan et al., 2010; Moser, 2013; Rosenburg, 2016).

Methods

Given the need to better understand the transfer experiences and hear the voices of transfer students in North Carolina, we conducted an initial study with interviews of eight students (four pre-transfer and four post-transfer) recruited from two community colleges and one public university. This precursor to a larger transfer student study in North Carolina sheds insight into the nuances of individual stories about educational journeys through the rich descriptions provided in interview data. Beginning with a smaller sample also allowed us to fine-tune the participant recruitment and interview process. We chose a qualitative approach in line with our purpose to understand the experiences of North Carolina students in depth (Merriam, 2001). We were guided by a constructivist epistemology (Charmaz, 2014), thus placed importance on understanding the perspectives of students in their own words and then co-constructing meaning of these experiences through our analyses. Specifically, we framed this investigation as a case study of transfer in North Carolina (Merriam, 2001), in line with our choice to recruit information-rich participants embedded within the case—namely, pre- and post-transfer students in the state who would be able to tell us about their experiences with transfer.

We used a purposeful sampling strategy (Merriam, 2001) to identify pre- and post-transfer students at several North Carolina higher education institutions who would be able to discuss their college and transfer experiences with us in semi-structured interviews. First, we identified two community colleges and one university located in varying geographic contexts (urban and rural) and to which we were able to gain access to recruit students. In the larger study, we will expand these research sites to include institutions throughout the state. College gatekeepers such as assessment directors and transfer advisors helped us recruit participants by sharing our recruitment message. Interested pre- and post-transfer students completed a short demographic survey and consent form to enroll in the study. Our team conducted semi-structured interviews with students via Zoom. The goal of the interviews was to learn more about how students experienced the transfer process (including transfer decisions, information, resources, and advising) and how students' social identities informed their transfer journeys. Interviews lasted 60-90 minutes, were transcribed verbatim, and then were read individually by all research team members. Participants who completed the interview received a $50 Amazon gift card as an incentive.

Participants (Table 1) included four pre-transfer and four post-transfer students—two working part-time, two full-time, and four not employed; six first-generation college students; two African American, one Latinx, one Asian American, and four White; five female and three male. Additional significant identities shared by some students included disability (ADHD), family composition (single parent household), first language (Spanish, Vietnamese), and sexual orientation (bisexual, homosexual).

We began data analysis by reading through transcripts individually and creating memos with initial impressions of students' transfer journeys. Then we met as a research team to discuss these impressions and to construct a matrix as a visual method of analyzing data (Miles et al., 2014). Each participant was represented as a row and each column represented areas of interest for the study, such as students' transfer decision-making process, information gathering, and engagement with resources. We built consensus by analyzing the data and identifying themes as a team to capture the key ideas shared across the eight participants.

Several strategies to bolster trustworthiness of the study were employed. We member checked by sharing transcripts with participants and asking them to verify or add any missing information. We also worked as a research team of four and built consensus around data analysis and the findings presented in the paper. We reflected on our individual positionalities and discussed as a team how our backgrounds and relationships to college transfer influenced our perspectives. Collectively, our team in-

cluded first generation and continuing generation college graduates, former transfer students, and current and former university and community college staff and faculty. In addition, we reflected on how our constellations of social identities (e.g., race, ethnicity, gender) influenced our perspectives.

Findings

Finding #1: Convenience, cost, and increased career aspirations informed students' decisions to enter community college and subsequently transfer.

Whether students entered community college after high school or after several years in the workforce, they detailed how they juggled multiple responsibilities (primarily family and employment) and needed an affordable higher education experience to fit their lifestyle, including convenient locations close to home and hands-on experience in their chosen fields of study.

Students valued particular attributes of community colleges, namely low costs, small classes, and one-on-one instructor contact, which factored into their decisions to start their education there. While some students embraced online learning due to its convenience (and necessity during the global health pandemic), others felt they needed more hands-on, in-person experiences, depending on their field of study. For instance, Vera, a community college certificate student, underscored the importance of community college faculty interaction:

> I just really liked the feel that the college had and the atmosphere of the teachers. Because we did get to interact, not just with the teacher himself, but sometimes other professors and stuff would come in and it just felt right.

Low costs and smaller class sizes were noted as factors in informing decisions to enter higher education at a community college, including for Katrina, an AAS community college student:

> It's a lot more economical to go to community college first and then transfer in as a junior or sophomore even. You save tons of money that way. Smaller class sizes and being able to build a connection with every person I've had as an instructor has been pretty interesting.

Students set goals to transfer early on in their time as community college students and, in selecting a receiving institution, prioritized cost, program focus/availability, location, and time to degree. Less often did students consider institutional reputation or the availability of online courses. For several students, transfer was the goal from the beginning of their time in community college, although they were unsure whether to earn the associate degree prior to transfer. Mila, a community college student seeking an AA, did not enter community college with the intention to earn an AA degree before transferring. Mila's advisor pointed out how close she was to graduating and that influenced her decision to complete the associate degree.

> I wasn't really trying to get an associate's. I was just trying to get the pre-reqs done that I needed in order to be able to get into nursing school. That was really the goal when I started, just doing what I had to do. I actually didn't decide to finish my associate's until I saw how close I was to it when I started back this past summer at [the community college] after taking the five-year break.

Conversely, Brenden intended to obtain an associate degree prior to transferring, but ended up transferring to a four-year university short one course. He explained:

> So, I did intend to get my associate's in science and then a couple of different semesters I dropped a class because I kept trying to take more than I wanted. And then I was one class short and then I thought I'd just transfer and then take a class there. And then my advisors told me I'm not allowed to take a class there while I'm taking classes at [the university]. So, I just never finished that associate's. I was one class short.

Vera, a community college student seeking a certificate, spoke about her transfer aspirations prior to starting at community college: "So from the beginning I knew that I was going to transfer to a university. I knew what the goals would be, for how long it would take me and what I needed to do to get there."

Several students were either undecided or not aiming to transfer when they began their studies, but ultimately chose to enroll at community college due to cost savings or a co-admission program. Katrina, an AAS student, explained her intentions:

> I originally just wanted to get an associate's in

> IT, and not transfer. I didn't have the plan to transfer. But after taking classes there, I've talked to some professors, and they've basically told me, 'Yeah. You probably need to transfer to a four-year. I think it would be in your best interest.' Because I do pretty well. I've maintained a 4.0 since I've there, so I think my advisors have been very encouraging to transfer.

Students also enrolled in co-admission programs. Elisa and Kane were not admitted to their intended four-year university out of high school, so they chose to attend community college first; Kane participated in a coordinated transfer program with a four-year university. When Kane was a community college student, he was admitted into a student transfer program that guaranteed admission from the community college into a public four-year university. The transfer program requirements included the plan to complete an AA or AS degree, maintaining a cumulative GPA of at least 3.2, being eligible to receive federal aid, and completing no more than half of an associate degree at the time of applying. Kane felt that the shift to online learning had a direct impact on not fulfilling the transfer program requirements and eventually transferring to a different university in the UNC System:

> My college plans changed tremendously because of the shift to online learning because my last semester ... So, I was in the [co-admission program] directly after getting my associate's. And the requirements are maintain the 3.2 GPA, do all the extra stuff, the community service, all that good stuff. So, I did everything except for getting the grades because ... I was taking four classes, and then I took organic chemistry over the summer at community college. And I had to get all As in all of those classes in order to maintain that 3.2. So, I got all As, except for my American government class, and that's because he didn't email us ... So, I feel like that's a direct correlation to the online learning because in that class, that was a paper class.

The transfer program requirements of Kane and Elisa's co-admission program aligned with the academic skill development for transfer adjustment proposed by transfer capital theory (Laanan et al., 2010).

Finding #2: Students primarily relied on themselves to navigate community college websites and receiving university websites to find information about admissions, transfer, and credit mobility.

Most commonly, students used websites for information gathering. They were skeptical of the accuracy of some information they received, and they sought out "legit" information on institutional websites. In the words of Sabrina, "You have too many things on the internet now and you don't know which one is legit, so it's just nice to go to an official website so you have pretty accurate information." Brenden, a university student who transferred prior to earning a credential, used institutional websites to determine courses designated for transfer:

> I'm a bit stubborn and I never used my advisers enough [in community college] and I try to just find information myself. So mainly the transfer guides and then as I was going through, I was looking at those and just looking at what I needed for gen eds. … So, every class I took at community college, I made sure, I don't remember how they signified it, but when you sign up for classes, they had a little T or something saying they could be transferable.

Thomas, an AS student, echoed an approach to information gathering grounded in self-reliance: "I don't like to ask a lot of people that do stuff for me, so I just Google it. We'll go on [the community college] website or [the university's] website or anything like that."

In reflecting on credit mobility, students did not focus on the role of advisors but instead described personal information seeking and the use of websites and portals. Pre-transfer students hoped for the best and were confident most credits would transfer, while post-transfer students described their approaches to ensuring credit mobility. Students expressed awareness of credits that would transfer and a rationale for courses they took that would not transfer, such as career enhancement, or that counted toward a previous major before switching majors. Elisa, a university student who earned the AA prior to transfer, noted her purposes for earning extra credit beyond what was required:

> For the most part, most of the [credits from af-

after that and I was trying to get my legal assistant diploma. I think it was a certificate actually for legal assistant and I didn't finish that. It was just some computer classes I had to take that didn't really transfer.

Sabrina, who earned an associate in engineering (AE) and a certificate prior to transfer, also noted a major change as the cause for her excess credit: "I have some classes that didn't transfer just because my major [at the university] is electrical engineering and some of the classes I took at [community college were] for computer science, some of the programming classes didn't transfer." Looking back on his pre-transfer experience, Brenden described the need to search for transferable courses when making enrollment decisions while in community college:

> I think I was careful to make sure they could all transfer, but there's that thing with the biology classes because I didn't have the associate's, they transferred as the liberal arts version rather than the science version. … Just check what transfers before you sign up for classes, I think it's helpful.

Katrina, an AAS student, described using the web portal for her intended receiving institution to understand which courses would transfer:

> Well, currently before I graduate this semester, 43 of my credits will transfer. That's already on my web portal for [baccalaureate institution], and I anticipate one more of my classes will transfer but I think I have 70 total. So that's a pretty good amount that will transfer... I don't think I would have taken different classes because all those credits were for my associate's for IT and I took a lot of software development classes, some that won't necessarily transfer, but I feel that was a really good choice especially if I'm going to be a computer science major because I don't think there are a lot of coding classes at [baccalaureate institution], not in general like that. So, I think that was a good choice.

Katrina's use of the community college's web portal to analyze credit transferability resonates with other students' use of online resources to navigate the transfer process. Online sources, particularly search engines (i.e., Google, YouTube), served as primary sources for students in this study.

Finding #3: Students relied on a few key trusted people in the transfer process.

These trusted people included close family members—regardless of their higher education experiences—and advisors at the community college and/or receiving institutions. In some instances, those sources were not necessarily the best positioned to offer accurate information. Many students consulted with family members on their educational journeys, regardless of where or when their family members attended college. Sabrina based her university choice on a family member's past attendance: "My cousin went to [this university] 20 years ago, but she said really good things about it and that's why I chose this university." Meanwhile, Katrina, an AAS student, had a more current connection to turn to on the transfer journey:

> Well, me and my fiancé are both doing the same track, so we've been comparing notes as far as transferring and what's required and what we need to do. I work with a woman in my department [on campus] but she used to work in financial aid and she's also been a really big help to both of us because we've had numerous conversations with her.

Students attempted to identify and build relationships with advisors (professional and/or faculty advisors) and other institutional agents. Various institutional agents—including but not limited to advisors—could play a pivotal role in students' transfer information and engagement. Some students developed positive relationships with advisors. For instance, Vera discussed the role of transfer advisors:

> [The transfer advisor at the community college] has been very helpful with providing any information or giving any resources that I need for the information to find what I have to do to get the transfer and everything done. Next semester, we'll talk about, "Okay, well you have to have this to get your transfer." … I liked that [the college] was pretty upfront about the transfer. The program has been pretty laid out for you. It's been kind of easier to follow and hasn't had as many "You could go in this direction or this." It's kind of very narrow in the way "This is the path. This is where you have to go, what you have to take to get there."

Elisa, who earned the AA prior to transfer, recommended that information be more easily available to students:

> I guess from my experience, advice to advisors and administration is just to maybe give more information out to literally everyone because I guess we're not all aware of the options we have. Even at a community college, I know there's stuff to do and things to get involved in. And most of us don't have a clue where to find that information.

Still, some advisors were seen as unhelpful or lacking knowledge about students' specific program or major. Kane, who earned the AS prior to transfer, explained his experience with a faculty advisor:

> So, my initial advisor [in community college] wasn't much help. I remember signing up for spring classes after my first semester, and he was a biology teacher so I'm thinking, "Hey, what class do you want me to take? Can you help me settle things down?" And he really didn't help me do the things that I should've done because I should've taken my second physics class that semester. I really did mess up on that. But outside of those two instructors I had, I mean I went to [transfer program] advisors for a couple of general questions or hypotheticals, but I never really confided into them the full situation and what to do afterwards.

Meanwhile, Sabrina described receiving incorrect information from a transfer advisor prior to her transfer:

> [The community college had] regular advisors, that is for a student who just wanted to go there for two years and take the degree and they don't want to transfer. Then they have transfer advisor; they handle everything after your general education. I went to talk with one of them and she advised me to take the wrong lab class. So, after that I had to talk with my professor and somehow he became my engineering advisor and transfer advisor.

Students' community college experiences furthered their development of transfer capital (Laanan et al., 2011), particularly coursework and close interactions with faculty members.

Discussion and Implications

Findings from this initial study substantiate that there is not a "one size fits all" approach for engaging transfer students, given the range of needs, experiences, and goals across diverse student populations (Crisp & Nuñez, 2014; Schudde & Goldrick-Rabb, 2015). Students in this study relied primarily on themselves and informal networks to gather information and make decisions about the transfer process. Students' experiences detailed in this study corresponded with elements of transfer student capital (Laanan et al., 2011). Students chose to begin their educational journeys at community colleges, reflective of their backgrounds and needs, as students prioritized low cost, convenient locations, and flexible schedules that would integrate with their existing responsibilities, such as work and parenting. This finding aligns with prior research which suggests that location, ease of access, and cost are key drivers of enrollment for students who start their postsecondary journeys at community colleges (Birnbaum et al., 2022; Somers, 2006).

Students also used resources including family members, community college faculty, advisors, and websites to develop specific transfer capital relevant to decisions, such as whether to complete the associate degree prior to transfer, which institution and program to enter, and whether to participate in transfer-specific programs. Largely, however, students relied on themselves to navigate information posted online by both community colleges and universities and on portals to determine credit mobility. Portals were particularly used by students who felt advisors might not be helpful or might convey inaccurate information. While such strategies are sometimes successful, this self-reliance on the part of students could also increase their credit loss, thus increase students' time spent and resources used pursuing higher education (Jenkins & Fink, 2015; Taylor & Jain, 2017). This is particularly troublesome in a state system where most students do not follow the primary feeder pattern from community college to the nearest state university (D'Amico et al., 2022), thus multiplying the number of agreements and degree plans that students must navigate, particularly for AAS students who are not covered under the Comprehensive Articulation Agreement (D'Amico et al., 2021).

These findings provide valuable information for

institutions seeking to further the development of students' transfer capital and skills. As is the case in North Carolina and similar state policy contexts, the transfer process is complicated in an institution-driven articulation system (Hodara et al., 2017) that requires students to know their intended university and major by the end of the first 30 credit hours. By frontloading and increasing advising touchpoints with students to discuss academic and career goals early in the process, institutions can improve feasibility of transfer (Wyner et al., 2016). Next, institutions, both at sending and receiving institutions, can foster a culture of care in advising by deepening relationships between students and transfer advisors, faculty, and other institutional agents. Doing so supports suggestions emerging from previous research on transfer student success (Jain et al., 2011).

Students' intent, aspirations, paths, destination universities, and other choices unfold over time. As such, regular communication about transfer decisions is necessary to ensure a seamless experience. Regularly assessing the usefulness and credibility of online transfer resources and maintaining the currency and relevance of information is also important (Schudde et al., 2020). Finally, by recognizing and drawing on students' diverse forms of capital, particularly those which students of color leverage to navigate social institutions, sending and receiving institutions can be more adequately prepared to serve students of diverse backgrounds (Ladson-Billings, 2000; Yosso, 2005).

In terms of methods, we noticed that students viewed the interview process as a chance to reflect on their transfer journeys. Several students shared with us that they prepared to answer questions from the interview protocol ahead of time, researched transfer pathways, and reflected on their identities to share these perspectives during the interviews. In this way, the interview itself may be a promising type of intervention to promote transfer preparation as well as identity reflection. This could potentially be used in the future by both scholars and practitioners (such as advisors) who seek to have one-on-one conversations with students about the big picture of their educational aspirations and plans, rather than the often transactional and limited-time nature of advising each semester for coursework and degree milestones.

Lastly, we hope this study can inspire future research in North Carolina that is relevant to transfer as an equity issue. We also call for future research that can delve into the transfer experiences of particular populations of transfer students (e.g., Black and Latinx students, immigrant students, LGBTQ+ students, disabled students) and recognize the unique forms of social and cultural capital they possess that can be leveraged as assets in the transfer process.

References

Birnbaum, L., Sonnert, G., Chen, C., Sadler, P. M., & Kröner, S. (2022). Intervening opportunities between home and college: Students' geographic mobility by college type. *Community College Journal of Research and Practice*, 1–16. https://doi.org/10.1080/10668926.2022.2064372

Bragg, D. D. (2001). Community college access, mission, and outcomes: Considering intriguing intersections and challenges. *Peabody Journal of Education*, *76*(1), 93–116. http://www.jstor.org/stable/1493007

Charmaz, K. (2014). *Constructing grounded theory* (2nd ed.). Sage.

Crisp, G., & Nuñez, A. (2014). Understanding the racial transfer gap: Modeling underrepresented minority and nonminority students' pathways from two- to four-year institutions. *The Review of Higher Education*, *37*, 291-320. https://doi.org/10.1353/rhe.2014.0017

Hagedorn, L. S., Moon, H. S., Cypers, S., Maxwell, W. E., & Lester, J. (2006). Transfer between community colleges and 4-year colleges: The all-American game. *Community College Journal of Research and Practice*, *30*(3), 223-242. https://doi.org/10.1080/10668920500322384

Hodara, M., Martinez-Wenzl, M., Stevens, D., & Mazzeo, C. (2017). Exploring credit mobility and major-specific pathways: A policy analysis and student perspective on community college to university transfer. *Community College Review*, *45*, 331-349. https://doi.org/10.1177/0091552117724197

Jabbar, H., Schudde, L., Garza, M., & McKinnon-Crowley, S. (2021). Bridges or barriers? How interactions between individuals and institutions condition community college transfer. *The Journal of Higher Education*, *93*(3), 375-398. https://doi.org/10.1080/00221546.2021.1953339

Jain, D., Herrera, A., Bernal, S., & Solorzano, D. (2011). Critical race theory and the transfer function: Introducing a transfer receptive culture. *Community College Journal of Research and Practice*, *35*

(3), 252-266. https://doi.org/10.1080/10668926.2011.526525

Jenkins, D., & Fink, J. (2015). *What we know about transfer*. Columbia University, Teachers College, Community College Research Center. https://doi.org/10.7916/D8ZG6R55

Kahlenberg, R. D., Shireman, R., Quick, K., & Habash, T. (2018). *Policy strategies for pursing adequate funding of community colleges*. The Century Foundation. https://tcf.org/content/report/policy-strategies-pursuing-adequate-funding-community-colleges/?agreed=1

Laanan, F. S. (2007). Studying transfer students: Part II: Dimensions of transfer students' adjustment. *Community College Journal of Research and Practice*, *31* (1), 37-59. https://doi.org/10.1080/10668920600859947

Laanan, F. S., Starobin, S. S., & Eggleston, L. E. (2010). Adjustment of community college students at a four-year university: Role and relevance of transfer student capital for student retention. *Journal of College Student Retention: Research, Theory & Practice*, *12*(2), 175-209. https://doi.org/10.2190/CS.12.2.d

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, *32*(3), 465-491. https://doi.org/10.3102/00028312032003465

Merriam, S. B. (2001). *Qualitative research and case study applications in education*. Jossey Bass.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage.

Moser, K. M. (2013). Exploring the impact of transfer capital on community college transfer students. *Journal of the First-Year Experience & Students in Transition*, *25*(2), 53–75.

National Student Clearinghouse. (2015). *Snapshot report: Contribution of two-year institutions to four-year completions*. https://nscresearchcenter.org/wp-content/uploads/SnapshotReport17-2YearContributions.pdf

Patton, L. D., Renn, K. A., Guido, F. M., & Quaye, S. J. (2016). *Student development in college: Theory, research, and practice* (3rd ed.). Jossey-Bass.

Rosenberg, M. J. (2016). Understanding the adult transfer student: Support, concerns, and transfer student capital. *Community College Journal of Research and Practice*, *40*(12), 1058–1073. https://doi.org/10.1080/10668926.2016.1216907

Schudde, L., & Goldrick-Rab, S. (2015). On second chances and stratification: How sociologists think about community colleges. *Community College Review*, *43*(1), 27-45. https://doi.org/10.1177/0091552114553296

Somers, P., Haines, K., Keene, B., Bauer, J., Pfeiffer, M., McCluskey, J., Settle, J., & Sparks, B. (2006). Towards a theory of choice for community college students. *Community College Journal of Research and Practice*, *30*(1), 53–67. https://doi.org/10.1080/10668920500248886

Taylor, J. L., & Jain, D. (2017). The multiple dimensions of transfer: Examining the transfer function in American higher education. *Community College Review*, *45*, 273-293. https://doi.org/10.1177/0091552117725177

Turley, R. N. L. (2009). College proximity: Mapping access to opportunity. *Sociology of Education*, *82*(2), 126–146. http://www.jstor.org/stable/40376042

Vignoles, V. L., Schwartz, S. J., & Luyckx, K. (2011). Introduction: Toward an integrative view of identity. In S. J. Schwartz, K. Luyckx, & V. L. Vignoles (Eds.), *Handbook of identity theory and research* (pp. 1-30). Springer.

Wang, X., Lee, S. Y., Nachman, B. R., & Zhu, X. (2020). It matters long before: How early exposure to faculty and advisors at baccalaureate institutions relates to upward transfer. *Educational Researcher*, *50*(2), 105-114. https://doi.org/10.3102/0013189X20956659

Wyner, J., Deane, K., Jenkins, D., & Fink, J. (2016). *The transfer playbook: Essential practices for two- and four-year colleges*. Columbia University, Teachers College, Community College Research Center and Teachers College, Columbia University and The Aspen Institute College Excellence Program. https://www.aspeninstitute.org/wp-content/uploads/2016/05/aspen-ccrc_transferplaybook_05-2016.pdf

Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race Ethnicity and Education*, *8*(1), 69-91. https://doi.org/10.1080/1361332052000341006

Table 1

Participant Characteristics

Name	Transfer status	First-generation	Employment status	Race	Gender	Relational/ social identities
Brenden	Post-transfer	No	Not employed	White	Man, Cisgender	ADHD; bisexual
Elisa	Post-transfer	Yes	Not employed	Latinx	Woman	Native language (Spanish)
Kane	Post-transfer	Yes	Not employed	African American	Man, Cisgender	Homosexual; single parent household
Katrina	Pre-transfer	Yes	Part-time	African American	Woman, Cisgender	
Mila	Pre-transfer	No	Full-time	White	Woman	
Sabrina	Post-transfer	Yes	Full-time	Asian American	Woman	National origin (Vietnam); Native language (Vietnamese)
Thomas	Pre-transfer	Yes	Part-time	White	Man	
Vera	Pre-transfer	Yes	Not employed	White	Woman	

Authors' Note

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Correspondence concerning this article should be addressed to Ryan A. Miller, Associate Professor of Higher Education, Department of Educational Leadership, The University of North Carolina at Charlotte, 9201 University City Blvd., Charlotte, NC 28223. Email: RyanMiller@uncc.edu

Research Paper

The Role of Identities and Engagement in the Intent to Transfer Among North Carolina Community College Students

Sandra L. Dika, Yi Wang, Mark M. D'Amico, and E. Michael Bohlig

Abstract

The vertical transfer gap between transfer aspirations and reality is intensified for lower income, neotraditional aged, and racially and ethnically minoritized students. Expanding vertical transfer and eventual baccalaureate degree completion is an important priority for the state of North Carolina. In this exploratory study, we applied a critical quantitative lens to examine student identities and engagement as determinants of intent to transfer among a diverse group of community college students in North Carolina, using data from the Community College Survey of Student Engagement. Our findings have implications for transfer policy that ensures equitable access to a baccalaureate degree and systemic institutional practice that facilitates connections with communities traditionally underrepresented in terms of postsecondary attainment.

Keywords: community college students, student identities, student engagement, transfer aspirations, North Carolina

The Role of Identities and Engagement in the Intent to Transfer Among North Carolina Community College Students

Successful vertical transfer of students from community colleges to universities can broaden participation in higher education and contribute to significant workforce demands. Research and national data have documented the vertical transfer gap between transfer aspirations and reality (Taylor & Jain, 2017), intensified among lower income, neotraditional aged, and Black, Indigenous, and People of Color (BIPOC) students (Crisp & Nuñez, 2014; Wood et al., 2011). Although a strong majority of community college students (75 -80%) seek to transfer to baccalaureate degree-granting colleges, only about a third actually do (Jenkins & Fink, 2016; Shapiro et al., 2017). Further, Asian and White students (about 48%) were much more likely to transfer to a baccalaureate degree-granting institution than Black (28.4 %) and Hispanic (37.2%) students (Shapiro et al., 2017). According to the National Student Clearinghouse Research Center, North Carolina's community college transfer-out rate of 23.5% was lower than the national average of 31.5% (Shapiro et al., 2017). This slightly lower rate is partially due to the strong focus on career education in the state's community colleges, but expanding vertical transfer and eventual baccalaureate degree completion is an important priority as the state seeks to have two million North Carolinians aged 25-44 with a credential or degree by 2030 (myFutureNC, 2022).

In this exploratory study, we applied a critical quantitative lens (Gillborn et al., 2018) to examine student identities and engagement as determinants of intent to transfer among a diverse group of community college students in North Carolina, using data from the Community College Survey of Student Engagement (CCSSE). We examined logistic regression models separately for three different racial/ethnic groups—Black/African American, Hispanic/Latinx, and White—to understand

how determinants of predisposition to transfer may differ by race/ethnicity. Our findings have implications for transfer policy that ensures equitable access to a baccalaureate degree and systemic institutional practice that facilitates connections with communities traditionally underrepresented in terms of postsecondary attainment.

Conceptual and Empirical Background

We drew on scholarship related to engagement, persistence, and predisposition to transfer among community college students to frame our study. The CCSSE and the companion National Survey of Student Engagement (NSSE) were built upon the synthesis of previous evidence-based research on effective practices in higher education: student effort and quality of experiences (Pace, 1980), student involvement (Astin, 1984), academic and social integration (Tinto, 1993), and principles of good practice in undergraduate education (Chickering & Gamson, 1987). The CCSSE benchmarks are used to compare similar institutions and reflect both institutional practices and student behaviors: "active and collaborative learning, academic challenge, student effort, student-faculty interaction, and support for learners" (CCCSE, 2017, p. 1). While researchers have used these benchmarks as indicators of individual student engagement, past directors of NSSE and CCSSE asserted that they should be viewed as indices of effective practices for institutional improvement, not latent constructs of engagement (McCormick & McClenney, 2012). Recent construct validity work on the 2017 version of the CCSSE (Wang & Bohlig, 2022) found eight student-level engagement factors underlying the benchmark and other engagement items on the survey. We used these engagement factors as variables in our current study to reflect more psychometrically sound indicators of student engagement.

Tinto's (1993) longitudinal model of institutional departure has been a prevalent way of understanding student persistence in higher education. While the model's primary focus is on the intellectual and social integration of students once they attend college, their goals and commitments, academic and social experiences once in college, and their many pre-entry attributes are also included. Drawing on other research critiquing the adequacy of Tinto's model for understanding the experiences of marginalized and neotraditional students, Deil-Amen (2011) argued for the importance of understanding community college students' perspectives on their own experience of integration. In a multi-method study of two -year community college students in career-related programs, Deil-Amen uncovered the notion of "socio-academic integrative moments," fused social and academic interactions that play a prominent role in two-year students' sense of connection and motivation to persist. The most common mechanisms identified by the students were in-class interactions, study groups (formal or spontaneous), social capital-generating interactions and relationships with institutional agents (faculty and staff), and consistent communication with similar students (e.g., cohort, learning community), with academically-relevant clubs and activities being less pertinent. Mechanisms of socioacademic integration identified in Deil-Amen's work are comparable to some of the engagement indicators used in this study.

Deil-Amen's (2011) findings emphasized the importance of interaction and support from institutional agents to provide validation (Rendón, 1994; Rendón et al., 2000) and informational benefits. Frequent interactions with community college faculty and other institutional agents are linked to learning, persistence, and satisfaction, particularly among BIPOC students (Lundberg, 2014; Strayhorn & Johnson, 2014; Tovar, 2015). Related more specifically to transfer, faculty and staff can provide logistical information for transfer (Rucks-Ahidiana & Bork, 2020), promoting transfer self-efficacy (Maliszewski, Lukszo & Hayes, 2020). Classroom involvement at community college (Schwehm, 2017) and interaction and mentoring from faculty (Moser, 2013) can promote greater adjustment and coping posttransfer.

Nora and Rendón (1990) used Tinto's framework to develop a model of community college student transfer behavior and attitudes. They found that social and academic integration were positively related to predisposition to transfer, while ethnic background was not related. Citing the low rate of vertical transfer among Black men, Wood and Palmer (2013; 2016) used Nora and Rendón's model to develop a study of the determinants of predisposition to transfer among Black male community college students with secondary data from an earlier version of the CCSSE. They found institutional identities (age, first-generation, enrollment intensity, developmental education), as well as institutional experiences and engagement (credit hours earned, hours studying, involvement in extracurricular activities, active and collaborative learning, use of student

services) were related to having transfer as a primary goal of attending community college. These findings diverged from previous research by evidencing social integration as a positive predictor of success for Black men.

Our research builds on the work of Wood and Palmer (2013; 2016) by utilizing data from the current 2017 version of the CCSSE to examine identities and engagement experiences as potential determinants of intent to transfer. Gee (2000) proposed that an individual's identity is formed from both self -conceptions and the perceptions imposed by others, including natural (state), institutional (position), discursive (trait), and affinity (shared experiences) identities. Our current study considered natural, discursive, and institutional identities ascribed by community college agents to understand their students (Levin et al., 2017). We examined the predictive models separately for Black/African American, Hispanic/Latinx, and White students to characterize how determinants of predisposition to transfer may differ by race/ethnicity due to intersecting marginalized identities and systemic inequities.

Methods

In this study, we applied a critical quantitative approach (López et al., 2018; Stage & Wells, 2014) by centering the racial and ethnic identity of community college students to examine the relationship of other intersecting identities and engagement experiences to their transfer predisposition. Critical quantitative inquiry combines methodological assumptions of post positivism (hypothesis testing) with criticalism to demonstrate inequities in education (Stage & Wells, 2014). Guiding tenets of a QuantCrit approach acknowledge that while numbers and categories are not neutral nor natural, statistical analyses can play a role in efforts toward social justice when interpreted from a critical framework (Gillborn et al., 2018). Our selection of cases, variables, and choice to examine the data separately for each racial/ethnic group reflect this QuantCrit approach.

Data Source

The primary data source for this research was the Community College Survey of Student Engagement (CCSSE). We obtained a data set of the 2017-2019 participating North Carolina CCSSE institutions to identify items and scales for use in the study. CCSSE is a national survey aimed at identifying effective educational practices and student behaviors that are correlated with student learning and retention. After updates, the latest CCSSE is the 2017 version with 47 questions and 124 items. Besides demographic information, the main body of the survey is composed of Likert-type items asking students about their college experiences such as the way they spend their time; their gains from classes; their relationships and interactions with faculty, counselors, and peers; how the college supports their learning, and so on. CCSSE is administered nationally during the spring semester through random sampling in credit bearing (curriculum) classes in each participating community college.

Selection of Cases

The original data set included over 12,000 cases from 25 North Carolina community colleges. We first selected responses from participants who identified as credential seeking and enrolled for at least three terms when taking the survey, so that they would have had time to engage at their college. Given our interest in examining the models by race/ethnicity, we included racial and ethnic categories with over 200 cases. Constrained by the available number of participants in racial and ethnic groups, only Black/African American (n =705), Hispanic/Latinx (n = 496), and White (n=3,691) student groups were included in the initial sample (n= 4,892). Of these, 56.89% (n=2,783) indicated that a goal of attending the community college included transfer to a four-year university. The comparison of identity information between the total sample and the students with transfer intentions is provided in Table 1. The percentages of gender, race/ethnicity, enrollment status, and developmental education enrollment were similar across the two groups. However, students with vertical transfer aspirations had a greater proportion of students aged 18-24, and lower proportions of married students and those with dependent children, when compared to students who did not express transfer intentions.

Description of Variables

Independent Variables

Student Identities. We examined eight variables that represent natural, discursive, and institutional identities for community college students. Gender was included as a natural identity, restricted to the categories of man and woman due to insufficient sample size for those with other gender identities.

Discursive identities included married (yes/no),

and having children as dependents (yes/no). Institutional identities were enrollment intensity (full-time versus part-time), age (traditional versus neotraditional), first-generation college (yes/no), developmental education (yes/no), and English as native language (yes/no).

Engagement Experiences. The model included the eight engagement factors identified in previous validity research on the 2017 CCSSE (Wang & Bohlig, 2022): personal development (PDV), interaction with faculty and peers (IFP), higher order thinking (HOT), institutional support perceptions (ISP), use of advising services (UAS), writing and critical thinking (WCT), student effort (SEF), and extracurricular activities (ECA). The scales of the 42 engagement items were variant (0-3, 1-4, 1-5, 1-7), so they were rescaled to a common range of 0 to 1. Factor scores are sums of the associated rescaled items (see Appendix Table A1 for a list of items associated with each factor). Three of the engagement variables show some alignment with the mechanisms of socio-academic integration in Deil-Amen's (2011) work: interaction with faculty and peers, institutional support perceptions, and extracurricular activities.

Dependent Variable

Intent to transfer was measured by a single item on which students indicated whether transfer to a four-year college or university was a goal of attending the community college (yes/no).

Data Analysis

In order to understand the extent to which identities and engagement predict predisposition to transfer within the three racial/ethnic groups, we conducted binary logistic regression models using IBM SPSS 27. We examined the data for missing values (all less than 6.5%), and used Little's (1988) MCAR test to determine that data were missing completely at random ($\chi 2(258)= 290.87$, $p=.08$). We proceeded with listwise deletion considering the incomplete data would be representative of the entire dataset. The final analytic samples for the logistic regression analyses are shown in Table 2 (n=4,566). All statistical tests were evaluated using the criterion of $\alpha=0.05$. Logistic regression coefficients present the change in the log odds of intent to transfer for a one unit increase in the predictor variable. The odds ratios and confidence intervals were examined to provide appropriate interpretation of all statistically significant coefficients.

Results

For all three racial/ethnic groups, the logistic regression model correctly classified over 60% of cases when comparing predicted to observed values of transfer intent (yes/no). This ranged from 64.2% among White students to 69.9% among Black/African American students. Nagelkerke R2 values, another indicator of model fit, ranged between .05 (White) to .19 (Hispanic/Latinx), suggesting the model was a better fit for Black/African American participant responses. The significant determinants related to odds of intent to transfer differed by racial/ethnic group, as summarized for ease of interpretation in Table 2. The full logistic regression tables for each racial/ethnic group, including odds ratios, statistical significance, and confidence intervals, are shown in the appendix (Tables A2-A4).

Identities

Among the natural and discursive identity variables, two significant effects were seen. Hispanic/Latinx students with dependent children had 54% lower odds of intent to transfer than those without dependent children, and White married students had 40% lower odds of transfer intentions than their non-married counterparts. Gender was not related to transfer intentions for any of the racial/ethnic groups.

Institutional identities were significantly related to transfer intention odds for Black/African American and White students, but not for Hispanic/Latinx students. The odds of transfer intention for White part-time students were 24% higher than for full-time students. Neotraditional age students expressed lower odds of intent to transfer than traditional aged students for Black/African American (62%) and White (34%) students. Similarly, students in developmental education had lower odds of transfer intent than those not in developmental education (Black/African American=40%; White=19%). Finally, White first-generation college students had 25% lower odds of intent to transfer than their continuing generation counterparts. English as a native language was not related to transfer intentions for any racial/ethnic group.

Engagement

Six of the eight engagement indicators had a relationship with intent to transfer in at least one of the racial/ethnic groups, while personal develop-

ment (PDV) and higher order thinking (HOT) were not significant for any group. Because all engagement indicators are continuous in nature, the odds ratio can be interpreted as the percentage change in intentions to transfer with a single unit change in the engagement factor score. Surprisingly, as interaction with faculty and peers (IFP) and perceptions of institutional support (ISP) increased, intent to transfer was slightly less likely among White students. For all groups, increases in use of advising services (UAS) and writing and critical thinking (WCT) were associated with positive transfer intentions. For White students only, greater extracurricular participation (ECA) and effort (SEF) were associated with predisposition to transfer.

Patterns of Identities and Engagement by Racial/Ethnic Group

Some patterns can be noted in looking at the results within each racial/ethnic group. Two marginalized institutional identities (neotraditional age, developmental education) were associated with lower odds of transfer intent for Black/African American students, while increased engagement in use of advising (UAS) and writing and critical thinking (WCT) was associated with greater likelihood of transfer intent. The model had the fewest significant predictors of intent to transfer for Hispanic/Latinx students. Among the various intersecting identities examined, the only significant predictor of transfer intentions was having dependent children. Like their Black/African American counterparts, only UAS and WCT were related to significant increased likelihood of transfer intentions.

The model of identities and engagement showed the greatest number of statistically significant predictors among White community college students. Four marginalized discursive and institutional identities (married, neotraditional age, developmental education, first-generation) were associated with lower odds of transfer, while use of advising services (UAS), writing and critical thinking (WCT), extracurricular activities (ECA), and student effort (SEF) were associated with higher transfer intention odds. Three unexpected results were observed for White students' intent to transfer: part-time enrollment was associated with higher odds, while greater interaction (IFP) and support (ISP) were related to lower odds.

Discussion and Implications

The models of predisposition to transfer by racial/ethnic group suggest that identities and engagement are not uniformly indicative of likelihood to transfer among community college students. While discursive and institutional identities are neither natural nor given, they represent the ways that institutional agents classify and categorize students, and may have real associations on the experiences of students whose identities are marginalized or minoritized in higher education institutions. For White and Black/African American students, being of neotraditional age (over 24) was associated with lower odds of intent to transfer. Further, results showed lowered odds of transfer intentions for married White students and Hispanic/Latinx students with dependent children. Through a critical lens, these findings could suggest a need to better understand structural barriers both within and external to the institution that can be addressed to permit vertical transfer aspirations of adult community college students who may benefit from additional skills and credentials at the baccalaureate level. A limitation of our study was related to insufficient sample size for inclusion of certain minoritized racial/ethnic groups (American Indian or Alaska Native, Asian) that may have unique and nuanced experiences in the NC context. Qualitative research to understand the more complex reasons behind students' intention to transfer in relation to their racial and other identities is warranted and necessary.

In terms of student engagement, use of advising services was universally associated with increased likelihood of intent to transfer among CCSSE participants in the sample. These findings support previous research on the importance of advising for student persistence and transfer (Fay et al., 2022), although the CCSSE variable used in this study does not capture the quality and accuracy of advice provided by institutional agents, which is a limitation. We find specific relevance to North Carolina, as the state has many assets including a required transfer seminar (ACA 122) that embeds transfer guidance. However, previous qualitative research based in North Carolina has shown that community colleges implement varied advising models and that ACA 122 may not always be entirely focused on transfer (Holliday-Millard et al., 2022), and that many students are using self-navigation and thus bypassing advisors (Miller et al., 2022). Current statewide articulation agreements are most helpful when students and advisors know students' majors and intended universities early in their time in the community col-

lege (D'Amico, 2022), Therefore, while transfer intent is associated with advising, it is critically important to consider the efficacy of current systems to make transfer more seamless for prospective vertical transfer students and the advisors who guide them. Additional qualitative or mixed methods research on student and advisor perceptions of the role of advising in their transfer trajectories would illuminate these connections.

The negative association of faculty and peer interaction and perceptions of institutional support with transfer intentions for White students in our sample requires further consideration. The 10 items included in the IFP variable represent a broad range of interactions, from clarifying class grades or content with the instructor to discussing ideas and having serious conversations with peers outside of class, and may not adequately capture socioacademic integration that fosters validation and belonging for community college students. Qualitative exploration of faculty and peer interactions could help better parse out how students view their utility for transfer aspirations and success. A further consideration is that interaction and support perceptions may have some connection to institutional emphasis and/or size. Students at larger, transfer-focused institutions may experience different opportunities to interact than those at smaller mixed or career-focused institutions. In one recent study, attending a mixed or career-focused institution (versus a high transfer institution) significantly predicted higher perceived support among White transfer-seeking students in North Carolina (Dika et al., 2022). In other states, community colleges with higher than expected transfer rates have demonstrated shared responsibility for transfer (Mery & Schiorring, 2011), along with a student-centered culture and culturally sensitive leadership (Miller, 2013). Our findings should not discourage institutional attempts to increase student-faculty and peer-to-peer interactions, particularly those that lead students to informational benefits and validation to navigate the community college environment and access vertical transfer pathways.

References

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, *25*(4), 297–308.

Center for Community College Student Engagement (CCCSE). (2017). How benchmarks are calculated: CCSSE 2017-present. https://www.ccsse.org/survey/docs/How_Benchmarks_are_Calculated_2017.pdf

Center for Community College Student Engagement (CCCSE). (2021). Survey of entering student engagement: 2021 cohort data. https://www.ccsse.org/sense/survey/reports.cfm

Chickering, A., & Gamson, Z. (1987, March). Seven principles for good practice in undergraduate education. *AAHE Bulletin*, *39*, 2–6. https://files.eric.ed.gov/fulltext/ED282491.pdf

Crisp, G., & Nuñez, A. (2014). Understanding the racial transfer gap: Modeling underrepresented minority and nonminority students' pathways from two-to four-year institutions. *The Review of Higher Education*, *37*, 291-320. https://doi.org/10.1353/rhe.2014.0017

D'Amico, M. M. (2022). North Carolina transfer enrollment patterns: A data snapshot (CLTRR-2022-4). UNC Charlotte Cato College of Education. https://tinyurl.com/CLTRR-2022-4

Deil-Amen, R. (2011). Socio-academic integrative moments: Rethinking academic and social integration among two-year college students in career-related programs. *The Journal of Higher Education*, *82*(1), 54-91. https://doi.org/10.1080/00221546.2011.11779085

Dika, S. L., Wang, Y., D'Amico, M. M., & Bohlig, E. M. (2022, April). Socioacademic integration, transfer capital, institutional culture, and sense of belonging among transfer-seeking community college students. Paper presentation (virtual) at AERA Annual Meeting, San Diego, CA.

Fay, M. P., Jaggars, S. S., & Farakish, N. (2022). "Lost in the shuffle": How relationships and personalized advisement shape transfer aspirations and outcomes for community college students. *Community College Review*, *50*(4), 366–390. https://doi.org/10.1177/00915521221111468

Gee, J. P. (2000). Chapter 3: Identity as an analytic lens for research in education. *Review of Research in Education*, *25*(1), 99–125. https://doi.org/10.3102/0091732X025001099

Gillborn, D., Warmington, P., & Demack, S. (2018). QuantCrit: Education, policy, 'Big Data' and principles for a critical race theory of statistics. *Race Ethnicity and Education*, *21*(2), 158-179. https://doi.org/10.1080/13613324.2017.1377417

Holliday-Millard, P., D'Amico, M. M., & Miller, R. 2022). Guiding vertical transfer: Perspectives of

(community college advisors (CLTRR-2022-3). UNC Charlotte Cato College of Education. https://tinyurl.com/CLTRR-2022-3

Jenkins, P. D., & Fink, J. (2016). Tracking transfer: New measures of institutional and state effectiveness in helping community college students attain bachelor's degrees. Columbia University, Community College Research Center and Teachers College. https://ccrc.tc.columbia.edu/publications/tracking-transfer-institutional-state-effectiveness.html

Levin, J. S., Viggiano, T., López Damián, A. I., Morales Vazquez, E., & Wolf, J.-P. (2017). Polymorphic students: New descriptions and conceptions of community college students from the perspectives of administrators and faculty. *Community College Review*, *45*(2), 119–143. https://doi.org/10.1177/0091552116679731

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*, 1198–1202.

López, N., Erwin, C., Binder, M., & Chavez, M. J. (2018). Making the invisible visible: Advancing quantitative methods in higher education using critical race theory and intersectionality. *Race Ethnicity and Education*, *21*(2), 180-207. https://doi.org/ 10.1080/13613324.2017.1375185

Lundberg, C. A. (2014). Peers and faculty as predictors of learning for community college students. *Community College Review*, *42*(2), 79–98. https://doi.org/10.1177/0091552113517931

McCormick, & McClenney, K. (2012). Will these trees ever bear fruit? A response to the special issue on student engagement. *Review of Higher Education*, *35*(2), 307–333. https://doi.org/10.1353/rhe.2012.0010

Maliszewski Lukszo, C., & Hayes, S. (2020) Facilitating transfer student success: Exploring sources of transfer student capital. *Community College Review*, *48*(1), 31-54. https://doi.org/10.1177/0091552119876017

Miller, R. A., Slane, L., D'Amico, M. M., & Serrata, C. (2022). North Carolina transfer student voices: A pilot study report. (CLTRR-2022-1). UNC Charlotte Cato College of Education. https://tinyurl.com/CLTRR-2022-1

Moser, K. (2013). Exploring the impact of transfer capital on community college transfer students. *Journal of the First-Year Experience & Students in Transition*, *25*(2), 53-76.

myFutureNC. (2022). https://www.myfuturenc.org/

Nora, A., & Rendón, L. I. (1990). Determinants of predisposition to transfer among community college students: A structural model. *Research in Higher Education*, *31*(3), 235–255.

Pace, C. R. (1980). Measuring the quality of student effort. *Current Issues in Higher Education*, *2*, 10-16.

Rendón, L. I. (1994). Validating culturally diverse students: Toward a new model of learning and student development. *Innovative Higher Education*, *19*(1), 33–51.

Rendón, L. I., Jalomo, R. E., & Nora, A. (2000). Theoretical considerations in the study of minority student retention in higher education. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 127-156). Vanderbilt University.

Rucks-Ahidiana, Z., & Bork, R. H. (2020). How relationships support and inform the transition to community college. *Research in Higher Education*, *61*, 588-602. https://doi.org/10.1007/s11162-020-09601-z

Schwehm, J. S. (2017). Do student demographics and community college experiences influence the adjustment process of adult vertical transfer students? *Community College Enterprise*, *23*(1), 9–25. http://www.schoolcraft.edu/cce/community-college-enterprise

Shapiro, D., Dundar, A., Huie, F., Wakhungu, P. K., Yuan, X., Nathan, A., & Hwang, Y. (2017, September). Tracking transfer: Measures of effectiveness in helping community college students to complete bachelor's degrees (Signature Report No. 13). National Student Clearinghouse Research Center.

Stage, F. K., & Wells, R. S. (2014). Critical quantitative inquiry in context. *New Directions for Institutional Research*, *2013*(158), 1-7. https://doi.org/10.1002/ir.20041

Strayhorn, T. L., & Johnson, R. M. (2014). Black female community college students' satisfaction: A national regression analysis. *Community College Journal of Research and Practice*, *38*(6), 534–550. https://doi.org/10.1080/10668926.2013.866060

Taylor, J. L., & Jain, D. (2017). The multiple dimensions of transfer: Examining the transfer function in American higher education. *Community College Review*, *45*, 273-293. https://doi.org/10.1177/0091552117725177

Tinto, V. (1993). *Rethinking the causes and curses of student attrition* (2nd ed.). University of Chicago.

Tovar, E. (2015). The role of faculty, counselors, and support programs on Latino/a community college students' success and intent to persist. *Community College Review*, *43*(1). 46–71. https://doi.org/10.1177/0091552114553788

Wang, Y., & Bohlig, M. (2022, April). Measuring student engagement in community college: Construct validity of CCSSE. Roundtable presentation at the 2022 Annual Conference of the Council for the Study of Community Colleges, Tempe, AZ.

Wood, J. L., Nevarez, C., & Hilton, A. (2011). Creating a culture of transfer. *Making Connections*, *13* (1), 54-61.

Wood, J. L., & Palmer, R. T. (2013). The likelihood of transfer for Black males in community colleges: Examining the effects of engagement using multilevel, multinomial modeling. *Journal of Negro Education*, *82*(3), 272–287. http://www.journalnegroed.org

Wood, J. L., & Palmer, R. T. (2016). Determinants of intent to transfer among Black male community college students: A multinomial, multi-level investigation of student engagement. *Teachers College Record*, *118*(8).

Table 1

Participant Identities for Full Sample and by Transfer Intention Goal

Identities	Full sample (n=4,892)		Transfer intention (n=2,783)		No transfer intention (n=2,039)	
	n	%	n	%	n	%
Gender[1]						
Men	2,125	43.40%	1,196	43.00%	888	43.60%
Women	2,767	56.60%	1,587	57.00%	1,151	56.40%
Age						
18-24 years	3,265	66.70%	2,070	74.40%	1,162	57.00%
25+ years	1,623	33.20%	711	25.50%	875	42.90%
Race/ethnicity						
Black or African American	705	14.40%	429	15.40%	254	12.50%
Hispanic or Latinx	496	10.10%	313	11.20%	179	8.80%
White	3,691	75.40%	2,041	73.30%	1,606	78.80%
Enrollment						
Full-time	3,530	72.20%	2,037	73.20%	1,440	70.60%
Part-time	1,362	27.80%	746	26.80%	599	29.40%
Developmental education	1,313	26.80%	724	26.00%	568	27.90%
First generation student	1,492	30.50%	771	27.70%	689	33.80%
Having dependent children	1,044	21.30%	463	16.60%	557	27.30%
Married	900	18.40%	366	13.20%	519	25.50%
English not native language	478	9.80%	300	10.80%	170	8.30%

[1] Other gender was not explored in the logistic regression analyses due to insufficient numbers when disaggregating into racial/ethnic groups.

Table 2

Logistic Regression Model of Transfer Intention Predictors for Student Groups by Race/Ethnicity

		Significant odds of transfer intention		
Category	Predictor	Black/ African American (n=481)	Hispanic/Latinx (n=394)	White (n=3,691)
Natural and discursive identities	Women	-	-	-
	Married	-	-	40% lower odds***
	Dependent children	-	54% lower odds*	-
Institutional identities	Part-time enrollment	-	-	24% higher odds*
	Neotraditional age (25 +)	62% lower odds***	-	34% lower odds***
	Developmental education	40% lower odds*	-	19% lower odds*
	First-generation college	-	-	25% lower odds**
	English not native language	-	-	-
Engagement factors	Interaction faculty & peers (IFP)	-	-	12% lower odds***
	Personal development (PDV)	-	-	-
	Higher order thinking (HOT)	-	-	-
	Institutional support (ISP)			11% lower odds*
	Use of advising services (UAS)	44% higher odds*	32% higher odds*	35% higher odds***
	Writing & critical thinking (WCT)	55% higher odds*	42% higher odds*	79% higher odds***
	Extracurricular activities (ECA)	-	-	39% higher odds**
	Student effort (SEF)	-	-	18% higher odds*
Overall model - percent correctly classified		69.9%	68.8%	64.2%

$^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$

Table A1

CCSSE Items Associated with Engagement Factors

Engagement Factors	Item Descriptions
Personal development (PDV)	*How much has your experience at this college contributed to your knowledge, skills, and personal development*
	Speaking clearly and effectively
	Thinking critically and analytically
	Writing clearly and effectively
	Working effectively with others
	Learning effectively on your own
	Developing clearer career goals
	Solving numerical problems
	Gaining information about career opportunities

Table A1, continued

CCSSE Items Associated with Engagement Factors

Engagement Factors	Item Descriptions
Interaction with faculty and peers (IFP)	*How often have you…?*
	Discussed ideas from your readings or classes with instructors outside of class
	Worked with classmates outside of class to prepare class assignments
	Discussed grades or assignments with an instructor
	Worked with instructors on activities other than coursework
	Worked with other students on projects during class
	Talked about career plans with an instructor or advisor
	Had serious conversations with students who differ from you
	Asked questions in class or contributed to class discussions
	Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)
	Tutored or taught other students (paid or voluntary)
Higher order thinking (HOT)	*How much has your college emphasized the following?*
	Forming a new idea or understanding from various pieces of information
	Applying theories or concepts to practical problems or in new situations
	Analyzing the basic elements of an idea, experience, or theory
	Making judgements about the value or soundness of information, arguments, or methods
	Using information you have read or heard to perform a new skill
Institutional support (ISP)	*How much does this college emphasize the following?*
	Providing the support you need to thrive socially
	Helping you cope with your non-academic responsibilities (work, family, etc.)
	Encouraging contact among students from different economic, social, and racial or ethnic backgrounds
	Providing the support you need to help you succeed at this college
	Providing the financial support you need to afford your education
Use of advising services (UAS)	*How often have you used the following services?*
	Academic advising/planning
	Career counseling
	Transfer advising/planning
	Financial aid advising
Writing and critical thinking (WCT)	*How often have you?*
	Worked on a paper or project that required integrating ideas or information from various sources?
	Prepared two or more drafts of a paper or assignment before turning it in?
	Made a class presentation?
	Done: (number...length) of written papers or reports?

Table A1, continued

CCSSE Items Associated with Engagement Factors

Engagement Factors	Item Descriptions
Extracurricular activities (ECA)	About how many hours do you spend in a typical seven-day week participating in college-sponsored activities (organizations, campus publications, student government, intramural sports, etc.)?
	How often have you used student organizations service?
Student effort (SEF)	How often have you used peer or other tutoring service?
	About how many hours do you spend in a typical 7-day week preparing for class (studying, reading, writing, rehearsing, doing homework, etc.)?
	During the current academic year at this college, I have participated in supplemental instruction/ supplemental learning (extra class sessions with the instructor or an experienced student)?
	The extent to which your examinations during the current academic year have challenged you to do your best work at this college.

Table A2

Logistic Regression Model of Transfer Intention Predictors Among Black/African American Community College Students (n=705)

Category	Predictor	β	SE β	Exp(β) (odds ratio)	
				value	95% C.I.
Natural and discursive identities	Women	0.08	0.22	1.08	[0.695, 1.673]
	Married	-0.20	0.30	0.82	[0.458, 1.460]
	Dependent children	-0.36	0.25	0.70	[0.429, 1.139]
Institutional identities	Part-time enrollment	-0.26	0.23	0.77	[0.488, 1.214]
	Neotraditional age (25+)	-0.97***	0.25	0.38	[0.231, 0.618]
	Developmental education	-0.51*	0.22	0.60	[0.387, 0.926]
	First-generation college	-0.23	0.23	0.79	[0.508, 1.238]
	English not native language	0.89	0.47	2.43	[0.957, 6.146]
Engagement factors	Personal development	-0.03	0.10	0.97	[0.800, 1.168]
	Interaction with faculty & peers	-0.12	0.10	0.89	[0.726, 1.086]
	Higher order thinking	-0.12	0.15	0.88	[0.653, 1.197]
	Institutional support	0.00	0.13	1.00	[0.769, 1.296]
	Use of advising services	0.36*	0.14	1.44	[1.088, 1.891]
	Writing & critical thinking	0.44*	0.17	1.55	[1.104, 2.187]
	Extracurricular activities	-0.11	0.26	0.89	[0.538, 1.487]
	Student effort	0.34	0.19	1.41	[0.973, 2.035]
	Constant	0.59	0.66	1.80	
Overall model evaluation	Model chi square	$\chi^2(16) = 72.77, p < .001$			
	Percent correctly classified	69.90%			
	Cox and Snell R^2	0.14			
	Nagelkerke R^2	0.19			

*p<.05, **p<.01, ***p<.001

Table A3

Logistic Regression Model of Transfer Intention Predictors Among Hispanic/Latinx Community College Students (n=496)

Category	Predictor	β	SE β	Exp(β) (odds ratio)	
				value	95% C.I.
Natural and discursive identities	Women	0.31	0.23	1.36	[0.859, 2.143]
	Married	-0.36	0.40	0.70	[0.317, 1.534]
	Dependent children	-0.77*	0.35	0.46	[0.233, 0.925]
Institutional identities	Part-time enrollment	0.14	0.25	1.15	[0.699, 1.889]
	Neotraditional age (25+)	-0.37	0.35	0.69	[0.349, 1.358]
	Developmental education	-0.32	0.26	0.73	[0.435, 1.224]
	First-generation college	-0.28	0.27	0.76	[0.451, 1.272]
	English not native language	0.24	0.24	1.27	[0.799, 2.02]
Engagement factors	Personal development	-0.06	0.11	0.94	[0.761, 1.167]
	Interaction with faculty & peers	-0.16	0.11	0.85	[0.681, 1.064]
	Higher order thinking	0.04	0.16	1.04	[0.757, 1.424]
	Institutional support	-0.10	0.15	0.91	[0.678, 1.208]
	Use of advising services	0.28*	0.14	1.32	[1.005, 1.736]
	Writing & critical thinking	0.35*	0.18	1.42	[1.007, 2.006]
	Extracurricular activities	-0.12	0.31	0.85	[0.464, 1.558]
	Student effort	0.45	0.24	1.57	[0.980, 2.51]
	Constant	0.29	0.71	1.34	
Overall model evaluation	Model chi square	$\chi^2(16) = 41.070, p < .001$			
	Percent correctly classified 68.80%				
	Cox and Snell R^2	0.10			
	Nagelkerke R^2	0.14			

*p<.05, **p<.01, ***p<.001

Table A4

Logistic Regression Model of Transfer Intention Predictors Among White Community College Students (n=3,691)

Category	Predictor	β	SE β	Exp(β) (odds ratio)	
				value	95% C.I.
Natural and discursive identities	Women	0.03	0.08	1.03	[0.874, 1.204]
	Married	-0.51***	0.12	0.603	[0.474, 0.767]
	Dependent children	-0.01	0.13	0.99	[0.772, 1.268]
Institutional identities	Part-time enrollment	0.21*	0.09	1.24	[1.033, 1.476]
	Neotraditional age (25+)	-0.42***	0.10	0.66	[0.535, 0.804]
	Developmental education	-0.21*	0.09	0.81	[0.676, 0.976]
	First-generation college	-0.29**	010	0.75	[0.621, 0.904]
	English not native language	0.344	0.27	1.41	[0.833, 2.388]
Engagement factors	Personal development	-0.07	0.04	0.94	[0.868, 1.008]
	Interaction with faculty & peers	-0.13**	0.04	0.88	[0.814, 0.945]
	Higher order thinking	0.03	0.06	1.03	[0.921, 1.151]
	Institutional support	-0.12*	0.06	0.89	[0.793, 0.988]
	Use of advising services	0.30***	0.05	1.35	[1.215, 1.494]
	Writing & critical thinking	0.58***	0.07	1.79	[1.577, 2.038]
	Extracurricular activities	0.33**	0.11	1.39	[1.118, 1.721]
	Student effort	0.17*	0.07	1.18	[1.026, 1.355]
	Constant	-0.15	0.24	0.86	
Overall model evaluation	Model chi square	$\chi^2(16) = 276.83, p < .001$			
	Percent correctly classified 64.20%				
	Cox and Snell R^2	0.09			
	Nagelkerke R^2	0.12			

*p<.05, **p<.01, ***p<.001

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Correspondence concerning this article may be addressed to Sandra L. Dika, University of North Carolina at Charlotte, 9201 University City Blvd., Charlotte, NC 28223. Email: sdika@uncc.edu

Opinion Piece

Minority Serving Institutions Are Vital to the Higher Education Landscape

Leslie M. Corpening

Abstract

This article will identify the role of minority serving institutions in higher education. Historically, the need for minority serving institutions arose from a lack of educational access due to racial and ethnic disparities. Thus minority serving institutions were established to bridge educational access for these marginalized groups. Consequently, institutions of higher education established for African Americans in the 1900s were among the first minority serving institutions. The difference between the designations of minority institutions (MI) and minority serving institutions (MSI) will be identified per the US Department of Education. Additionally, seven minority serving institution designations that are recognized by the US Department of Education will also be identified.

Keywords: minority serving institutions, STEM, HBCU, TCU, MSEIP

Minority Serving Institutions Are Vital to the Higher Education Landscape

Historically, the need for minority serving institutions in America arose from a lack of educational access due to racial and ethnic disparities. Because minorities were denied access to educational institutions on all levels, schools were established to provide educational access for these marginalized groups. Schools established for African Americans were the first minority serving institutions to provide educational access after the Civil War. The Higher Education Act (HEA) of 1965 designated these institutions as Historically Black Colleges and Universities which afforded them more resources by expanding institutional access to federal funding and programs. Since 1965, the HEA has been amended and modified to include access for several more marginalized groups. According to the US Department of the Interior's website,

> "Through Presidential Executive Orders and special legislation enacted over the past 20 years, minority serving institutions have accessed Department funds and leveraged other Departmental resources on behalf of their students and communities. These opportunities for MSIs are a direct result of the efforts of our office and our programs" (Minority Serving Institutions Program Section, para. 3).

Thus, the federal government has helped minority serving institutions serve many students and communities that may have been excluded from or severely limited in their pursuit of higher education. This article will provide the distinction between minority institutions and minority serving institutions. It will then discuss the role of minority institutions in the higher education landscape.

The term *minority institution*, according to the US Department of Education's website, means "an institution of higher education whose enrollment of a single minority or a combination of minorities exceeds 50 percent of the total enrollment" (Minority Science and Engineering Improvement Program Section, para. 3). This definition applies to the Minority Science and Engineering Improvement Program (MSEIP). According to MSEIP's web page, it "assists predominantly minority institutions in effecting long-range improvement in science and

engineering education programs and increasing the flow of underrepresented ethnic minorities, particularly minority women, into science and engineering careers" (Program description section). Moreover, the minority institution designation may also apply to other federal, public, private, or nonprofit minority programs that use the US Department of Education's definition as a part of their own criteria to determine eligibility. Thus, programs other than MSEIP may be recognized as minority serving if their statutes or regulations reference the same MI definition that MSEIP uses.

Higher education institutions that lack the 50% enrollment of a single minority or a combination of minorities to be designated as minority institutions are recognized by the US Department of Education as minority serving institutions. These seven institutions are categorized as Asian American Native American Pacific Islander Serving Institution (AANAPISI), Alaska Native Native Hawaiian Serving Institution (ANNH), Hispanic Serving Institution (HSI), Native American Serving Nontribal Institution (NASNTI), Predominantly Black Institution (PBI), Tribal College and University (TCU), and the list includes some Historically Black Colleges and Universities (HBCUs). The percentage of minority enrollment for an institution to be designated as an AANAPISI, ANNH, HSI, NASNTI, or PBI ranges from 40% to 10%. However, percentages are not used to determine whether an institution is designated as a TCU or HBCU. To be designated as a TCU, an institution must be a member of the Tribal Controlled Colleges and Universities Assistance Act of 1978. To be designated as a HBCU, an institution must have been established prior to 1964. Institutions may also obtain more than one of these designations if multiple minority groups are present that meet the percentage requirements for each group. Therefore, designations for minority serving institutions are a result of three factors: enrollment percentages (AANAPISI, ANNH, HSI, NASNTI, and PBI), legislative initiatives (TCU), and institutional origins (HBCU).

I believe that the need for minority serving institutions is more prevalent today because of trends like challenges to affirmative action across the nation. In the fall of 2022, the Supreme Court of the United States began hearing two cases that could have major implications for affirmative action across the country. Affirmative action seeks to allow qualified individuals access to opportunities that were historically denied to them or made virtually impossible to access. In the educational arena, affirmative action has opened many institutional doors that were essentially closed to qualified minority applicants through blatant racism and/or discrimination. If more court cases advance that weaken or eventually eliminate affirmative action, marginalized groups will need supportive institutions that are backed (recognized and supported) by the federal government. Thus, the significance of minority serving institutions will increase, because they are instrumental in affording educational access to marginalized groups. The very existence of minority serving institutions enables underrepresented and underserved Americans the opportunity to obtain valuable credentials for professional success, personal growth, and social mobility.

References

US Department of Education. (n.d.). Lists of postsecondary institutions enrolling populations with significant percentages of undergraduate minority students. https://www2.ed.gov/about/offices/list/ocr/edlite-minorityinst-list.html

US Department of Education. (n.d.). Minority science and engineering improvement program. https://www2.ed.gov/programs/iduesmsi/index.html

US Department of Interior. (n.d.). Minority serving institutions program. Office of Diversity, Inclusion and Civil Rights. https://www.doi.gov/pmb/eeo/doi-minority-serving-institutions-program

Author's Note

The author has no known conflicts of interest to disclose. Correspondence concerning this article may be addressed to Mr. Leslie M. Corpening, Communication Instructor, Communication Department, Fayetteville Technical Community College, 2201 Hull Road, Fayetteville, NC 28303. Email: corpenil@faytechcc.edu

Research Paper

Utilizing Robotics for Student Exploration of Introductory Chemistry Principles

Joshua J. S. Marsh

Abstract

In chemistry, it can be difficult for students to understand the chemical principles of abstract nanoparticles because they are not visible to the naked eye. While simulation programs exist, these two-dimensional simulations only partially allow students to participate in inquiry-based investigations in our three-dimensional laboratories. Sphero Mini is a software and hardware suite that enables students to observe and investigate nanoscale interactions between abstract atoms and compounds on the macroscale. Students can observe these interactions and collect data on robotic interactions based on programming the robots to replicate molecular-level interactions. These technologies also present students with a new way of presenting their understanding of abstract chemical principles by programming robots to interact with one another based on chemistry principles and laws. This experiment introduced, for the first time, the application of Sphero Mini Robot Balls for students to observe molecular-level interactions. The results of this experiment demonstrated students increasing their basic-level programming, their understanding chemistry principles' diverse applications, and their potential for a deeper conceptual understanding of introductory chemistry.

Utilizing Robotics for Student Exploration of Introductory Chemistry Principles

Students attending two-year colleges may experience difficulties when it comes to learning principles relating to introductory chemistry (Bruck & Bruck, 2018). These difficulties can be connected to a litany of issues from the understanding of abstract concepts (Makhleh, 1992), anxiety, and study habits (Bruck & Bruck, 2018) to students' backgrounds and life experiences (De Jong & Taber, 2013). Given these concerns, chemistry instructors and researchers have sought ways to improve students' understanding of chemistry through project-based learning and the application of instructional technologies.

Problem-Based Learning

To assist students in applying scientific skills, they can be presented with real-world problem scenarios requiring them to use concepts in their course to design a solution (Belt et al., 2002). These learning projects have resulted in students' increased attendance, positive views of their chemistry courses (McDonnell et al., 2007), and in-depth understanding (Jansson, 2015). New opportunities utilizing technology integration into chemistry courses in conjunction with problem-based learning (PBL) have increased students' agency and ownership of their learning and inquiry-based practices (Ramstedt et al., 2016). The following section will present how new technology approaches can be used with PBL to enhance students' learning of chemistry concepts.

Technology Integration in Chemistry

Utilizing technology for chemistry instruction can provide students with new experiences in understanding chemistry principles (Chen, 2006; Salame & Makki, 2021; Spring, 2014). Two-

dimensional and three-dimensional simulations provide new approaches for visualizing chemical interactions previously unavailable for improving students' understanding (Balo et al., 2017). While these tools have many benefits for helping students visualize chemical principles, the emergence of robotics offers an even more diverse opportunity for students in chemistry classrooms (Verner & Revzin, 2017).

Summary

Students taking chemistry in a two-year community college may face many difficulties completing their courses. Researchers have sought ways to increase student motivation and conceptual understanding through PBL and technology integration. Recent technologies have presented new ways to provide students with experiences in chemistry investigations, such as two-dimensional and three-dimensional simulations. Further exploration into newer technologies may allow students to advance their understanding of chemistry concepts. The following section will be used to establish the literature around technology integration in the chemistry field and how new technologies present new opportunities for PBL.

Literature Review

Technology integration in education can provide tremendous opportunities to improve student learning through collaboration (Humble-Thaden, 2011), problem-solving (Chen & Howard, 2010), and student engagement (Chou et al., 2012). The field of chemistry has also seen tremendous advances in how technology can be used to extend pedagogical practice with applications for content delivery (Silverberg et al., 2014), enhanced interactions (Morsch & Lewis, 2015), and personalized feedback (Ranga, 2018). One of the most critical applications of technology in chemistry is allowing students to visualize molecular interactions (Spring, 2014). In the following sections, I will illustrate how two-dimensional modeling programs have improved students' understanding of chemical principles and how emerging three-dimensional technologies can provide new research into the field of chemistry instructional applications.

Two-Dimensional Chemistry Technology

For this article, two-dimensional technologies refer to technologies where content is viewed on a screen (i.e., two-dimensional planes such as a computer, laptop, or tablet). These two-dimensional technologies have successfully advanced students' understanding of chemistry principles (Salame & Makki, 2021; Spring, 2014). For example, students in an introductory organic chemistry course who viewed computer models of molecular structures presented by their instructor showed significantly higher scores when compared to their classmates who had not seen the models based on pre- and post-tests (Springer, 2014). Improvements in learning and chemistry perceptions were determined for introductory chemistry students who completed online chemistry simulations (Salame & Makki, 2021). Students increased their conceptual understanding and were provided learning opportunities that they would only have received if they had been presented with the chemistry simulations (Salame & Makki, 2021). Newer technologies have provided even more opportunities for enhancing student learning, such as implementing virtual reality (VR) and augmented reality (AR).

Three-Dimensional Chemistry Technology

AR provides opportunities for students to interact with chemistry principles, such as molecular manipulation, in a three-dimensional space (Chen, 2006). Students can manipulate objects and see chemical interactions and molecular structures (Chen, 2006). VR also presents students with a virtual environment so that they can interact with virtual representations of molecules (Balo et al., 2017), equipment (Georgiou, 2007), and locations (Fung, 2019). The main difference between AR and VR is AR involves invoking the use of students' surroundings, while VR is typically administered in an all-virtual environment. VR also requires using VR headsets for students to be fully visually immersed in a virtual space. In addition to VR and AR, robotics have provided new and promising opportunities in chemistry education.

Robotics in Chemistry

Robotics, in this context, refers to robot-based projects, robots in education, or technology-enhanced learning environments (Curto & Moreno, 2016; Verner & Revzin, 2017). Previous applications of robotics involved students coding electronic devices, such as sensors, automatic titrations, and dispensers, to conduct specific tasks (Verner & Revzin, 2017). At the time of this publication, robotics in

chemistry education are relatively limited to engineering-based applications. However, with the invention of the Sphero Mini Robot Balls to allow students to design novel applications of robotics to represent molecular-level interactions.

Summary

There have been many applications of technology in the field of chemistry. Previous applications have revolved around two-dimensional and three-dimensional simulations. New robotic technologies have provided novel applications in the field of chemistry and provided opportunities for students to be introduced to basic programming and robotics design. Sphero technology advances robotics applications even further to allow students to observe molecular-level interactions at the macroscopic level for the first time. The following section describes the methods used for this experiment and how students were assigned work relating to Sphero robots.

Methods

The following study was conducted based on a mini grant provided by Caldwell Community College and Technical Institute (CCC&TI) in 2019. A laboratory set of 30 Sphero Mini Robot Balls were purchased utilizing the mini grant from CCC&TI. The Sphero Mini Robot Balls included a case and charging cable, which were used to charge each mini ball before each laboratory meeting. Students were able to access coding software using the Sphero Edu mobile application. The mobile application was downloaded onto students' devices before the independent laboratory research project. Students in General Chemistry I (CHM 151) were provided with simulations that had been preprogrammed into their Sphero Mini Robot Balls. General Chemistry II (CHM 152) students, whose work will be shown in the following sections, were required to develop their applications of the Sphero Mini Robot Balls based on principles they had learned in CHM 151 and utilizing the Sphero Edu program building platform. Students were familiar with the drag-and-drop coding requirements for their projects based on the previous labs they had conducted with the Sphero Mini Robot Balls in CHM 151. The following was the prompt provided to students in CHM 152 for the research and simulation building projects:

> A local pharmaceutical company needs your help in teaching CHM 151 principles to their incoming chemists who need a refresher. They would like to use new and advanced robotics to help teach their new employees in an engaging, hands-on way. Your responsibility is to use the Sphero Mini Robot Balls and the Sphero Edu programming software to create a hands-on demonstration of a course learning objective from CHM 151. You will also upload and present your final simulation to a member of the pharmaceutical industry to be evaluated on your chemistry presentation. Your presentation should include a slideshow of the chemical principle you have chosen, the code used in your Sphero Edu program, a demonstration of the simulation, and how you will evaluate students' knowledge after using it. Please submit a rough draft of your research proposal two weeks before conducting and creating your simulation. Publish your simulation on the edu.sphero.com website using the "Chemistry" tag.

Students were given four weeks to research and create their robotic simulation. They then presented to a member of the local pharmaceutical industry and were evaluated on their presentation. They also demonstrated their simulation using the Sphero Mini Robot Ball and Sphero Edu mobile applications. Students' simulations were published publicly on the Sphero Edu website (Figure 1) for other students and Sphero users to employ to investigate chemistry principles. These simulations can be found by accessing edu.sphero.com, clicking "Programs," and searching for the keyword "Chemistry." All programs shown in 2019 were provided by students from this research investigation.

Results

The results section for this investigation is unique, as I will showcase student presentations and simulations created using the Sphero Mini Robot Balls and the Sphero Edu program. I will discuss the principles the students showed, the codes they used, and highlights from their presentations. All students in the CHM 152 section completed the project, and all had very different applications.

Sphero Edu Website

Before this research project, only one chemistry-related program existed on the Sphero Edu website. The program had users match up atomic numbers with the correct elements from the periodic table by

rotating the ball to the correct assigned atomic number. As a result of this research project, 11 new programs are now available on the Sphero Edu website for chemistry programs. All these new programs were submitted by students in the CHM 152 course. The following are the results of students' submissions and research.

Sphero Edu Programs Designed by Students

Intermolecular Forces and Dipole-Dipole Interactions

Students used the Sphero Mini Robot Balls to show the intermolecular forces between atoms in an ionic compound, specifically those interactions relating to dipole-dipole attractions. The students marked the Sphero Mini Robot Balls with a positive sign to show the ionic compounds' partial positive and partial negative, and their interaction with another ionic compound. They even used the LED lights on the Sphero Mini Robot Balls to show the electron density of each molecule (Figure 2). The students' code (Figure 3) consisted of the two Sphero Mini Robot Balls moving toward each other and one of the balls having the proper color to signify the electron density.

Reaction Kinetics

Students used the Sphero Mini Robot Balls to represent the principles of kinetics. In this project, students illustrated how changes in variables, such as concentration and temperature, could increase the reaction rate for a chemical reaction. The Sphero Mini Robot Balls emitted blue light and moved slower for colder temperatures and emitted red light and moved faster for hotter temperatures (Figure 4). The students' code for this project (Figure 5) allowed users to see how these different variables impacted the movement of the Sphero Mini Robot Balls.

Gas Laws, States of Matter, and Osmosis

Other projects presented by students related to showing how pressure affected gas particles (i.e., gas laws). Students showed the difference between molecules in different phases of matter (i.e., solid, liquid, and gas) (Figure 6). Sphero Mini Robot Balls were also used to show how particles move during the osmosis process (i.e., particles moving across a semipermeable membrane) (Figure 7).

Diversity in Student Projects

As shown by the work displayed in the previous section, students explored very different projects for illustrating chemical principles from states of matter, kinetics, gas laws, osmosis, and intermolecular forces. Students only needed to be prompted on how to approach the projects within the instructions, as shown in the methods section.

Summary

A variety of applications were designed by students for their Sphero projects. Concepts ranged in depth and application from osmosis, kinetics, gas laws, and intermolecular forces. Students' codes also varied in depth for each project; some projects only required minimal coding, while others were much more detailed regarding utilizing the different capabilities of the technology. Students could apply the robots in ways that had never been applied before and upload their work to the Sphero Edu website for application into projects by other Sphero users. The following section will present the implications of students' work and future research utilizing Sphero technology.

Discussion and Conclusions

This experiment was the first application of Sphero Mini Robot Balls in community college introductory chemistry courses. This study exhibited several findings that relate to applying these tools in further research and pedagogical practice. First, students can learn basic coding principles through the Sphero Edu application software program. Through Sphero Edu hardware, students see simulated chemical interactions and principles for the first time in a three-dimensional platform. By applying this technology to core student learning outcomes for two-year chemistry programs, there is an opportunity for students to gain a deeper understanding of the concepts from these courses for future applications.

Basic Coding Practices

While not as complex as some forms of coding, such as html5, JAVA, or C++, students do get to utilize actions that require them to take on beginner-level drag-and-drop coding. Teaching students through drag-and-drop coding techniques has been shown to develop positive attitudes toward programming and improve student development (Kalelioğlu, 2015). Students who utilize coding for robotics have also been shown to learn programming faster (Liu et al., 2013). Teaching students to program can also impact how students view the world and interpret their surroundings (Soloway,

1993). Even if students do nothing with programming after this lesson, they have at least been exposed to the processes which govern robotics and computer programming. This experiment not only introduced coding to students for the first time, but it also allowed all students to see programmed molecular interactions in three dimensions for the first time in a real-world environment.

Student Observations of Chemical Interactions

This experiment was the first time Sphero Mini Robot Balls were used in a lab setting to visualize chemical processes. Students could showcase the movement of molecules due to increased temperature and pressure to illustrate gas law principles. Students were also able to simulate kinetic principles and how the rates of chemical reactions are impacted by changing variables, like surface area and concentration. The principles of osmosis were also observed by showing how particles can move through semipermeable membranes. These applications only scratch the surface of the possibility of these tools for demonstrating chemical processes. If actual laboratory data could be quantifiably transferred to programmable operations in the Sphero Mini Robot Balls, students would be able to see quantifiable results. These applications go beyond the current offering of introductory chemistry labs but should be considered as we think about innovating and growing students' understanding of chemistry. This experiment allows for new levels of conceptual understanding that previously had not been considered.

Deep Conceptual Understanding

By requiring students to program the Sphero Mini Robot Balls to replicate molecular-level interactions, students didn't just talk or present about molecular-level properties, they had to demonstrate them in a novel way. This required students to look deeper at the principle they were simulating. As an added layer to this project, I had students present to an industry known for applying chemical principles in the private sector. Giving students the added criteria of defending their work to a practitioner in the field only promoted an even closer evaluation of their protocols and procedures for their simulations. While students' presentations varied in depth for each concept, this will be the first time students programmed their understanding into a robot, and let us hope it will not be the last.

Conclusions

Sphero Mini Robot Balls were utilized for the first time for students to simulate molecular-level interactions to illustrate chemical principles. Students observed these robots simulating chemical interactions through their programming and project designs. This experiment presents a new concept in the application of technology in the introductory chemistry classroom. This experiment allowed students to explore basic coding, diverse applications of chemistry, and an in-depth understanding of chemical principles. Further research could apply Sphero Edu technology to various education spaces within science, technology, engineering, mathematics, and many other fields. This investigation presents a unique approach to applying robotics in community college pedagogical practice.

References

Balo, A. R., Wang, M., & Ernst, O. P. (2017). Accessible virtual reality of biomolecular structural models using the Autodesk Molecule Viewer. *Nature methods*, *14*(12), 1122-1123. https://doi.org/10.1038/nmeth.4506

Bruck, L. B., & Bruck, A. D. (2018). Tools for success: A study of the resources and study habits of General Chemistry I students at two community colleges. *Journal of College Science Teaching*, *47*(3). https://doi.org/10.2505/4/jcst18_047_03_9

Chen, Y. C. (2006, June). A study of comparing the use of augmented reality and physical models in chemistry education. *Proceedings of the 2006 ACM International Conference on Virtual Reality Continuum and Its Applications*, 369-372. https://doi.org/10.1145/1128923.1128990

Curto, B., & Moreno, V. (2016). Robotics in education. *Journal of Intelligent & Robotic Systems*, *81*(1), 3. https://doi.org/10.1007/s10846-015-0314-z

De Jong, O., & Taber, K. S. (2013). Teaching and learning the many faces of chemistry. In N.G. Lederman & S.K. Abell (Eds.), *Handbook of research on science education* (pp. 645-666). Routledge.

Fung, F. M., Choo, W. Y., Ardisara, A., Zimmermann, C. D., Watts, S., Koscielniak, T., Blanc, E., Coumoul, X., Dumke, R. (2019). Applying a virtual reality platform in environmental chemistry education to conduct a field trip to an overseas site. *Journal of Chemical Education*, *96*(2), 382-386. https://doi.org/10.1021/

acs.jchemed.8b00728
Garratt, J. (2002). Laboratory work provides only one of many skills needed by the experimental scientist. *University Chemistry Education*, *6* (2), 58-64. https://edu.rsc.org/university-chemistry-education/volume-6-2002/4014732.article
Jansson, S., Söderström, H., Andersson, P. L., & Nording, M. L. (2015). Implementation of problem-based learning in environmental chemistry. *Journal of Chemical Education*, *92*(12), 2080-2086. https://doi.org/10.1021/ed500970y
Kalelioğlu, F. (2015). A new way of teaching programming skills to K-12 students: Code.org. *Computers in Human Behavior*, *52*, 200-210. https://doi.org/10.1016/j.chb.2015.05.047
Liu, A., Newsom, J., Schunn, C., & Shoop, R. (2013). Students learn programming faster through robotic simulation. *Tech Directions*, *72* (8), 16. https://www.cmu.edu/roboticsacademy/PDFs/Research/LearnProgrammingFasterThroughSimulation.pdf
McDonnell, C., O'Connor, C., & Seery, M. K. (2007). Developing practical chemistry skills by means of student-driven problem-based learning mini-projects. *Chemistry Education Research and Practice*, *8*(2), 130-139. https://doi.org/10.1039/B6RP90026G
Nakhleh, M. B. (1992). Why some students don't learn chemistry: Chemical misconceptions. *Journal of Chemical Education*, *69*(3), 191. https://doi.org/10.1021/ed069p191
Ramstedt, M., Hedlund, T., Björn, E., Fick, J., & Jahnke, I. (2016). Rethinking chemistry in higher education towards technology-enhanced problem-based learning. *Education Inquiry*, *7*(2), 27287. https://doi.org/10.3402/edui.v7.27287
Ranga, J. S. (2018). Multipurpose use of Explain Everything iPad app for teaching chemistry courses. *Journal of Chemical Education*, *95*(5), 895-898. https://doi.org/10.1021/acs.jchemed.7b00676
Salame, I. I., & Makki, J. (2021). Examining the use of PhEt simulations on students' attitudes and learning in General Chemistry II. Interdisciplinary *Journal of Environmental and Science Education*, *17*(4), e2247. https://doi.org/10.21601/ijese/10966
Soloway, E. (1993). Should we teach students to program? *Communications of the ACM*, *36*(10), 21-24. https://doi.org/10.1145/163430.164061
Springer, M. T. (2014). Improving students' understanding of molecular structure through broad-based use of computer models in the undergraduate organic chemistry lecture. Journal *of Chemical Education*, *91*(8), 1162-1168. https://doi.org/10.1021/ed400054a
Verner, I. M., & Revzin, L. B. (2017). Robotics in school chemistry laboratories. In M. Merdan, W. Lepuschitz, G. Koppensteiner, & R. Balough (Eds.), *Robotics in education*, (pp. 127-136). Springer. https://doi.org/10.1007/978-3-319-42975-5_12

Author's Note

The author has no known conflicts of interest to disclose. Correspondence concerning this article should be addressed to Joshua J.S. Marsh, PhD, Information Technology Services, NC A&T State University, 1601 East Market Street, Greensboro, NC 27411. Email: jsmarsh@ncat.edu

Figure 1

Sphero Edu Website for Chemistry Programs

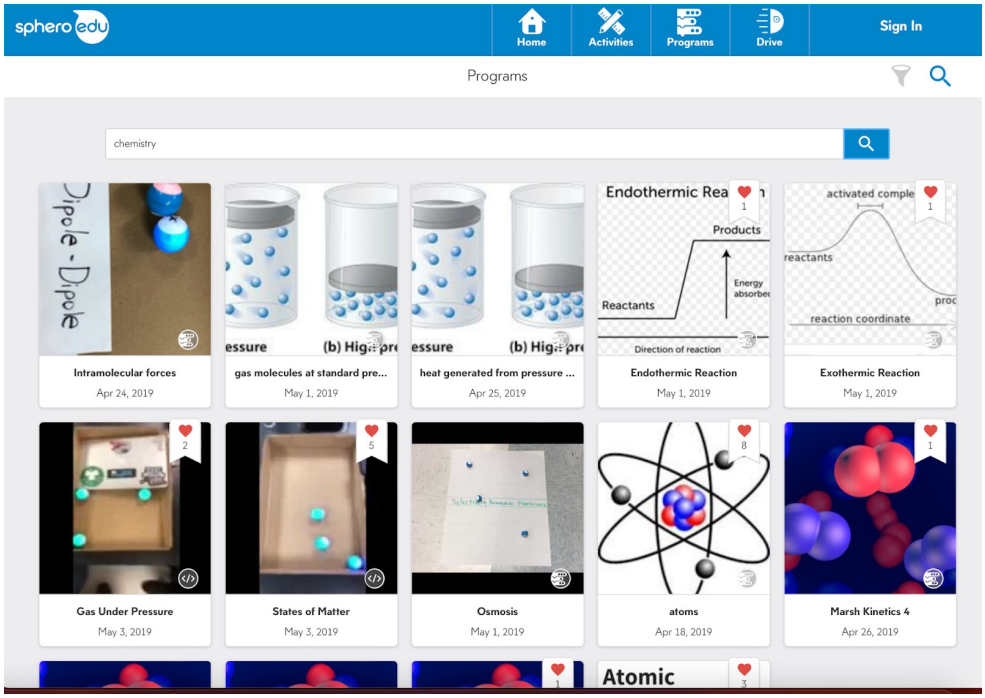


Figure 2

Image of Dipole-Dipole Interaction between Two Sphero Mini Robot Balls

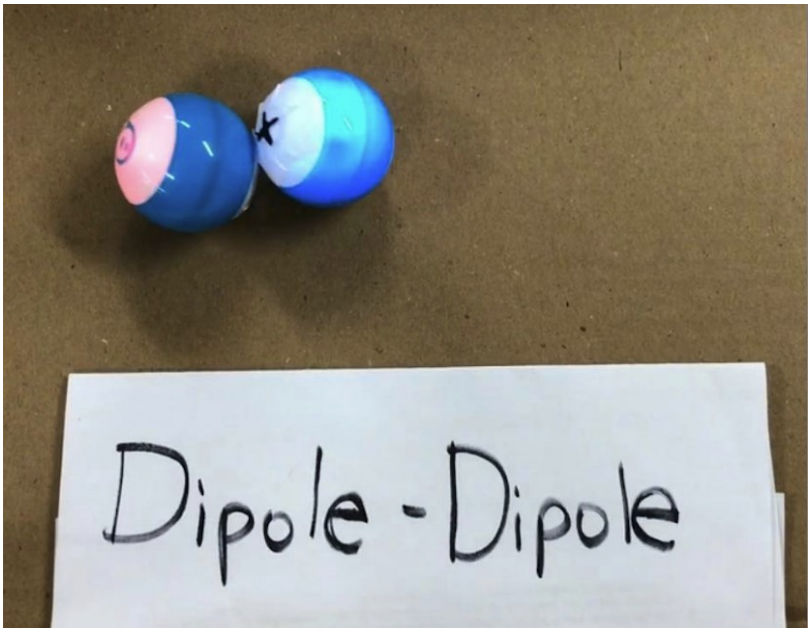


Figure 3

Students' Code for Showcasing Dipole-Dipole Interactions

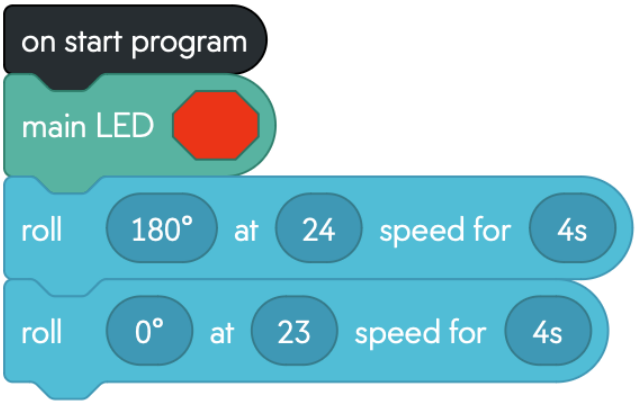


Figure 4

Sphero Mini Robot Ball Project Showing Blue Color for Colder Temperatures

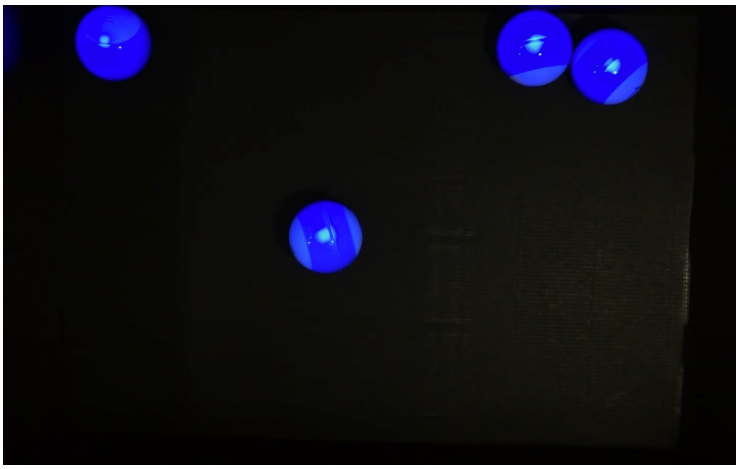


Figure 5

Sphero Mini Robot Ball Project Code for Reaction Kinetics

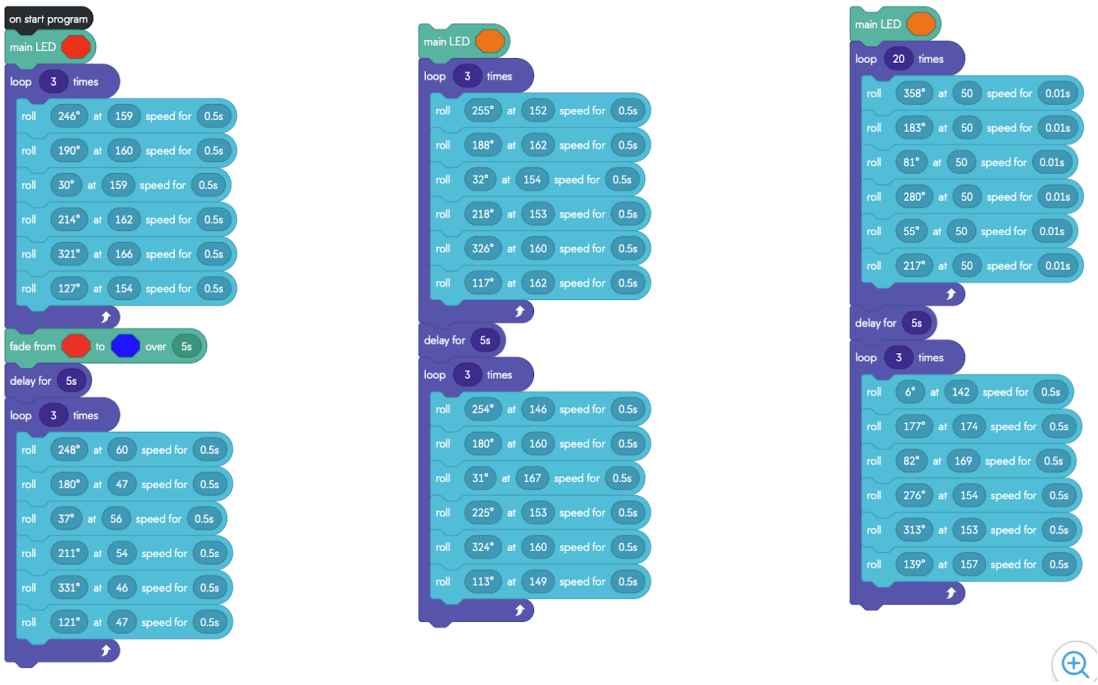


Figure 6

Padlet Presentation Illustrating States of Matter and the Effect of Pressure on Gas Particles

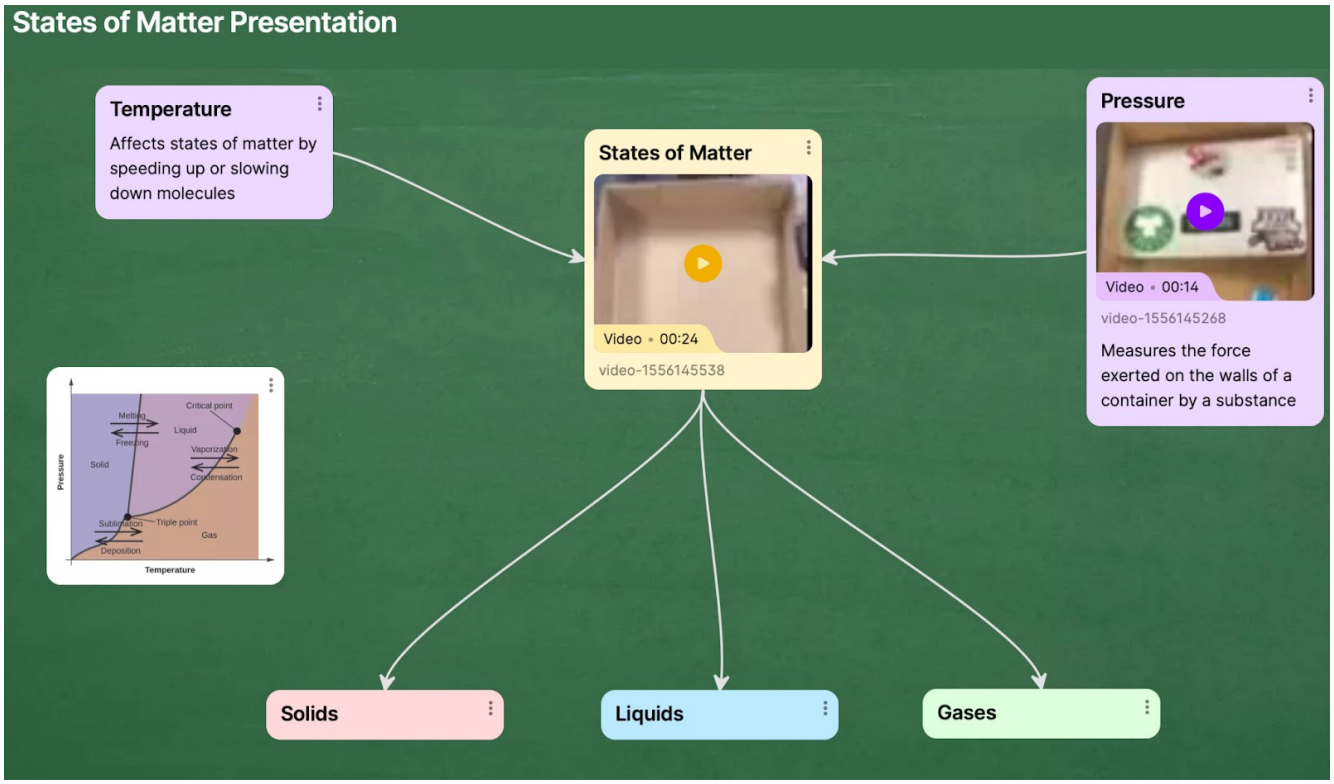
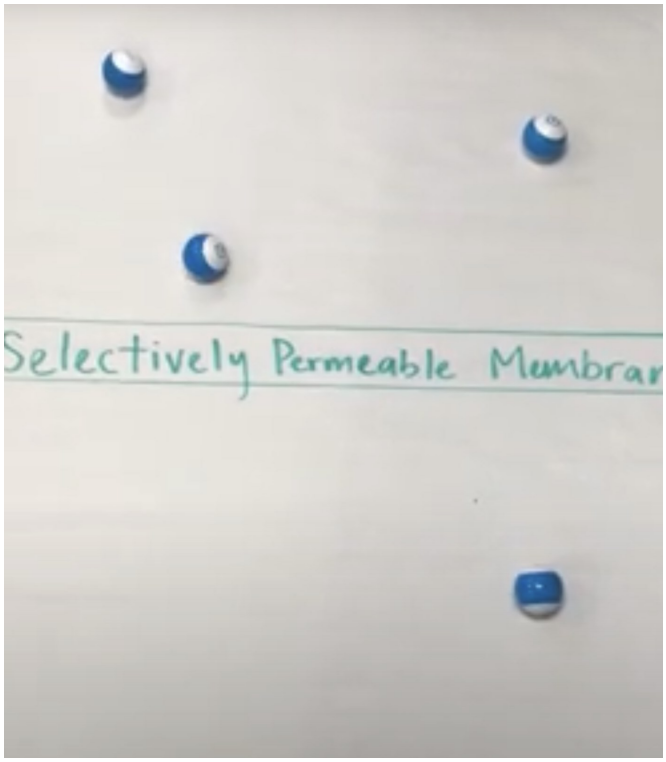


Figure 7

Image of Particles Moving Across a Semipermeable Membrane



Self-Care As an Empowering Pedagogical Practice

Elena M. Fleggas

Abstract

As the pandemic forced many individuals' job duties to change dramatically and abruptly in the spring of 2020, stress spiked throughout the nation. With so many human, social, economic, and political issues flooding television screens and headlines at the height of the nation's very first lockdown, many Americans needed self-care arguably more than ever, especially educators who tend to have a giving nature and take self-care for granted. Ultimately, my role as an educator while the world was in crisis taught me that jobs like teaching or nursing, which require individuals to give so much of their time as well as physical and emotional energy to others, make it difficult to (a) take the time to develop a self-care routine or (b) adhere to one once it is developed. Students experienced similar stress levels as their instructors during the pandemic and needed similar self-care practices. Moving forward, teachers and students must plan and practice effective self-care strategies and techniques to achieve the most beneficial and dynamic results in live, hybrid, and online learning environments.

Keywords: self-care, empathy, On Course, tracking forms, nursing, Mental Health First Aid, pandemic, pedagogy, teacher stress, academic stress, teachers, self-manage, professor stress

Self-Care As an Empowering Pedagogical Practice

I am a first-generation student, so I feel a lot of pressure to succeed in my academic pursuits and naturally do not believe in myself a lot of the time. I know that I always have the fear of failing, so I do not always seek help when I need it. I have never had much confidence in my writing ability because I consistently get high C's and low B's, and now I realize if I take better care of myself, I will be in a better position to perform well in this course and in college in general. After practicing my self-care regiment [sic] a few days in a row worked on in our tracking sheets, I come to class a lot more ready to participate and take notes. I even started the rough draft of my essay a week early last night.

--ENG 112 student, Fall 2022

Introduction of the Problem

In the spring of 2020, the world stopped. Many educators were forced to reevaluate their pedagogical techniques and adapt their lesson plans to best teach, reach, and help students thrive at a distance and behind a computer screen. While online teaching is a powerful platform for educators due to its convenience and flexibility, it also comes with its own set of challenges, including cyberbullying from students, an extreme sense of isolation, technical issues, and health problems due to too much screen time and not enough mobility. Instructors may become overwhelmed by these hardships and mental challenges without adequate coping mechanisms and strategies; therefore, educators and professionals across the nation must set forth self-care plans and practices daily to maintain

their mental and physical well-being.

Literature Review

Instructors in academia across the nation are no strangers to abrupt challenges ever since COVID-19 swept its way across the nation, shutting down colleges and schools and shifting classrooms to a foreign and daunting realm for many educators: the online classroom. As Lal & Mouyra (2022) note, "The COVID-19 pandemic has transformed the education sector [as] online learning/teaching is an integral part of the new normal…30% of US students are taking at least one online course" (p. 115). Due to the benefits of both synchronous and asynchronous classrooms, some students prefer to learn online. In synchronous teaching, teachers deliver live lectures to students, whereas in asynchronous teaching, lecturers upload their content to online platforms and students interact with it at their convenience (Lal & Mouyra, 2022, p. 115). The platform affords equal convenience for faculty. It allows mobility and flexibility, and instructors can often opt to teach online when and if it suits them.

Despite the benefits and flexibility of synchronous and asynchronous learning, studies have shown that online learning has caused educators and learners a lot of trouble and anxiety, leading them to need self-care more than ever before. Post pandemic, the key challenges of teaching are now classified into three categories: "technological challenges, social challenges, and pedagogical challenges" (Lal & Mouyra, 2022, p. 115). Notably, a pedagogical challenge in online teaching is retaining students' attention. It is easy for students to lose interest without dynamic, diverse, and engaging materials. Nonetheless, when COVID-19 hit, professors immediately had to find innovative ways to address, or at least remedy, this major retention problem (Lal & Mouyra, 2022, p. 115). Online innovative teaching methods are extremely difficult and time consuming to develop, and they lead to a series of technological challenges (narrated presentations, prerecorded and captioned instructional videos, game-based online teaching, and discussion forums, to name only a few examples), which potentially make deploying these materials that much more stressful and daunting to faculty. In the spring of 2020, educators were struggling with loneliness and isolation not only because of disconnections from their colleagues and students, but also the abrupt disruption of the semester from live to online instruction, all of which caused major challenges in developing new, effective materials. Further, increased screen time can impose "'computer related physical stress' such as back problems, dry eyes or strains, and carpal tunnel syndrome" (Idris et al., 2021, p. 2).

Already, live lecturers must figure out how to manage their professional careers, administrative work, personal lives, and social lives (Miguel et al., 2021, p. 2). In the context of teaching alone, they must possess a wide range of research and adaptability skills and constantly keep themselves up-to-date on effective pedagogical techniques. As Miguel et al. (2021) note, these "stressors" can result in "burnout" when they are persistent and not coupled with effective compensation mechanisms. Students who demand a lot of time and emotional effort are cited by Miguel et al. as the key catalyzers for professor burnout. Professor burnout was inevitable during the pandemic. To come to some sort of conclusion about how to teach online effectively in the spring of 2020, professors had to conduct a tremendous amount of research on online pedagogy on top of the research they already conduct for their various other responsibilities. Teaching workloads more than doubled, leaving little time for other activities outside of work —a mental health recipe for disaster.

Miguel et al. conducted an extensive cross-sectional, quantitative, qualitative, and analytical online study on the issues surrounding lecturers in the medical field and the challenges they faced throughout online teaching in the pandemic. Their research ultimately concluded that:

> the process of planning, preparing, and developing a fully online higher education course is estimated to take between six to nine months and require around three iterations to become effective. The minimal resources and urgency associated with quick approaches to online learning [in response to the pandemic] decrease[d] its quality. (Miguel et al., 2021, p. 2)

Additionally, ever since the pandemic, the severity of burnout can be even higher for teachers than for health care professionals and those in other stressful fields because not only is "teaching… considered to be a high-risk job" (Miguel et al., 2021, p. 2,), but due to the need to prepare new, effective, innovative materials (educators were certainly not afforded the luxury of no job changes during the pandemic), many educators were left feeling burned out with angry and sad emotions. Negative

feelings like this can, of course, potentially, and dangerously spiral into "somatic symptoms such as sleep disorders, headaches, gastrointestinal problems, alcohol, and drug abuse" (Miguel et al., 2021, p. 2). Having witnessed many faculty members resign either during or post pandemic and hearing stories of faculty with new addiction problems and healthcare needs—both physical and mental—these realities are not surprising at all.

My Personal Experiences

Having never taught online until the COVID-19 pandemic hit, my first day as an online instructor was filled with a sense of shock, loneliness, lack of direction, and confusion as to how I would develop an in-person composition course to be equally as effective as an online course, midsemester and immediately. It is no surprise, then, that my mental health was worse than ever. I developed a heightened sense of anxiety and depression in an online setting as I did my best to prioritize being a leader and resource to my students, and I learned the hard way that the work from home environment as a professor stripped me of my work-life boundaries. While I likely developed the unhealthy habit of overworking because of my resolute work ethic and my desire to best teach, reach, and help students succeed, I had also never developed a curriculum online before. Consequently, I found myself working until 10:00 p.m. most nights, including weekends. I also grew to neglect my psychological and physical needs, successfully failing to exercise, rest effectively, or eat healthily, let alone enough. At the same time, I was not interacting as much with my friends and family as I normally would have been had my schedule and job duties not been drastically altered by the pandemic.

Until late every night, I worked on Microsoft Teams with students, putting my energy and focus into being the best instructor I could be for them before I was the best me I could be for myself. Due to my desire to care for my students, I had my priorities in the wrong order. I prioritized making sure they would not fall behind in an online class (a format also new to many of them) before meeting my own physical and mental health needs. Although I had heard about self-care techniques as consistent practices, I had no idea that, even though the act may sound selfish, self-care has nothing to do with selfishness. In fact, my eventual self-care regime ended up being not driven by selfish desires or outcomes at all. The practice of self-care itself exists to help educators operate in a way that prevents them from suffering from what I did: employee burnout. *Employee burnout* is defined by The World Health Organization (2019) as a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: feelings of energy depletion or exhaustion, increased mental distance from one's job, or feelings of negativism or cynicism related to one's job.

Employee burnout, in turn, can "lead to significant consequences, which may include but are not limited to…depression, anxiety, resentment and a whole host of other negative implictions" (Glowiak, 2020). Many of these emotions and struggles I felt as I worked overtime and pushed my body, mind, and spirit beyond their natural limits.

Since being vaccinated, however, I have completed trainings such as On Course and the Mental Health First Aid training which made clear to me the following truth: to be the best educator possible to my students, I must first practice self-care, especially after receiving so much student criticism, which I found was also heighted during the initial era of the pandemic in the spring of 2020. To help fellow educators figure out how to best take care of themselves, I will provide examples of self-care practices that have proven useful in my own life. Next, I will outline how best to encourage students to practice individualized forms of self-care to ensure the classroom environment is as collegial as possible post pandemic. My hope is that with these strategies, educators and students alike can prioritize their mental health in academia, an ever-changing field with equally ever-changing challenges.

Background

Often heightened in an online setting, student criticism is a tough, painful facet of being a lecturer. Regardless, many educators like me choose to engage with student criticism and negative feedback of all forms. After all, poor feedback gives educators a chance to strengthen their course design from an accessibility and organizational standpoint if taken and given seriously, and with a respectful tone. Because I had never been given any feedback on a formal online course, I relied on student assessments more than ever when the pandemic hit in the spring of 2020. I collected student feedback by way of metacognitive reflections—ones that ask students que-

stions that prompt them to autonomously conclude how to develop "effective study strategies, how to monitor their progress, and how to self-evaluate" (Gamby & Bauer, 2022, p. 2). In my Writing and Inquiry (ENG 111) as well as Writing and Research Across the Disciplines (ENG 112) courses, for example, I asked students a series of questions (one series adaptation provided below) after teaching them for three consecutive class periods on the major assignments which weighed the most on their final grades. I adapted my questions from Paige Tutt's (2021) article, "5 Metacognitive Questions for Students Learning New Material." Those I provided to my Writing and Inquiry students regarding their first major essay, a personal argument paper, included the following:

- What stands out to me the most about the essay's prompt, prewriting, and the instructor's feedback so far?
- What follow-up questions do I have? Do any of my instructor's comments make me wonder anything about the assignment still?
- Why is taking this stance in this essay important to me, and most importantly, why have I taken the stance I have?

In addition to designing and distributing metacognitive reflections through these writing responses, I also collected responses from online surveys and polls after I attempted to adapt my live lesson plans into effective asynchronous online ones.

In hopes of strengthening my course assignments, instructional videos, and rubrics based on student reflections, in mid-April of 2020 I scrolled through students' answers. I was stunned at what I found. Students were the harshest I have ever seen, leaving feedback not on the course content but instead on the anger they felt about their semesters being abruptly moved online. Ultimately, as students sent me constant emails regarding their dissatisfaction with the online learning environment, what I was witnessing and experiencing was cyberbullying, a form of bullying where "…aggressive language is one of the primary means used to communicate with others, provoking embarrassment, hurt, and/or psychological harm" (Pereira et al., 2022, p. 111). Cyberbullying is naturally increased in an online environment, a reality I could have predicted but had not experienced. Online exchanges and relationships are quite different from face-to-face ones due to the context and setting of an online classroom, "especially since pseudonymity and anonymity enable [students] to be more disinhibited" (Pereira et al., 2022, p. 113). The confidence felt behind a blocked video camera call or computer screen did not stop with students, either. Parents even called me on students' Teams accounts to pressure me to increase student grade point averages.

Regardless of these poor evaluations and parental pressure, I did and do respect my students, even when they expose me to feedback that is not conducive to the learning environment or my teaching style. There was also a flipside to their negative feedback. I was inspired to further revamp some of my pedagogical approaches to ensure students were better equipped to communicate and engage with others respectfully, even when they disagreed with others' ideas or when they were feeling depressed or anxious. I also encouraged my students to engage in self-care in order to operate in a way that was healthy and allowed them to meet their full academic potential.

As noted by Mental Health America (2022) in "Teachers: Protecting Your Mental Health," in order to perform in a healthy, alert, serviceable way, "[professors and students should] get at least seven hours of sleep, eat a nutritious diet, spend time outside, and exercise regularly…[not forgetting] to work in some other self-care activities like journaling or meditation." The article recognizes that self-care "can be hard to do" between the myriad responsibilities of teaching, like creating lesson plans, meeting with students, and actually teaching. There is also no shortage of activities and obligations beyond the classroom for professors. To become an associate professor this past November, for instance, I led multiple student clubs, directed the college's Honors in Action project, founded and chartered an English honor society at my campus, published articles and book reviews, and organized and led community service events, to begin the list. For me and others who are also trying to achieve faculty rank in the community college system, self-care over the next few years will be crucial, especially considering the reality that for educators all over the nation, the work is getting harder and the stress is growing more difficult to shake off. In fact, since 2020, there have been a plethora of articles published by scholars and educators about teacher stress, or "unpleasant emotions that result from aspects of [an educator's] work, particularly when their work demands exceed their available resources or ability to cope" (Sanetti et al., 2022, p. 4). Surveys have even

found that:

> teachers are tied with nurses in having the highest rates of daily stress among occupations, with nearly 59% of respondents reporting significant stress at least several days per week. Teachers' chronic stress results in negative outcomes for both teachers and their students. Chronically stressed teachers are less likely to use evidence-based classroom management and instructional strategies, more likely to experience physical and psychological health problems, and more likely to leave the field of education prior to retirement. [Additionally,] students of chronically stressed teachers are more likely to demonstrate disruptive behaviors...associated with the stress response. (Sanetti et al., 2022, pp. 1-2)

Because educators, much like nurses, may come to see caring for their students not only as a central part of their jobs but also their identity, it can be difficult to develop routines and regimens that prioritize one's own well-being first. Ultimately, it can be difficult to develop an effective self-care routine, let alone one at all. Not only did I struggle to have a formal self-care regime during the pandemic, but I also did not understand how important self-care was to one's entire being, and, since I was new to online teaching, I neglected my mental health severely to put performing my best as an online teacher first. I struggled to find time to engage in activities that feel like self-care to me, such as art, spending time with my nephews, cooking, exercising, and writing. If activities like these do not sound soothing, it is important to note that self-care looks different for everyone, and it can even look like simply "re-engag [ing] with enriching or restorative creative activities, hobbies, or interests [one] may have set aside due to study or work" (Kelly et al., 2022, p. 302). Having a set daily plan for self-care made it much easier to adhere to it consistently, and I approached it as a fun project where I mapped out each part of my self-care regime one at a time. Next, I made a vow to stick with this routine each day regardless of how demanding online, seated, and/or hybrid teaching became.

I challenge educators and professionals of all kinds to stop right now and write down at least three activities that will bring them a sense of ease and comfort as well as help them to manage stress levels, especially as an educator, or as a student, or both (being both is incredibly difficult). Remember,

> [e]ngaging in a self-care routine has been clinically proven to reduce or eliminate anxiety and depression, reduce stress, increase happiness, and more. It can help [educators] adapt to changes, build strong relationships, and recover from setbacks. In a national survey, Americans cited benefits of self-care as: enhanced self-confidence (64%), increased productivity (67%), happiness (71%). (National Council for Mental Wellbeing, 2022)

Also, educators should stop and ask themselves: What does self-care look like to me, and am I engaging with it enough each day? How can I better make the time to implement self-care into my daily schedule and routine, even if it means I must do it with other people? Try to view these self-care practices not as outcomes, but as strategies to hone and work on each day to become a better educator.

The Importance of Empathy and Encouraging Students to Practice Self-Care

Self-care is equally as important for students as it is for educators to practice consistently. From talking to students throughout the lockdown, I learned that I was not the only one with heighted anxiety and depression. My students revealed this to me by way of personal stories. However, to validate this reality further, shortly after the pandemic hit in the spring of 2020, a study revealed struggles of online students, especially ones who did not choose to pursue an online education but had one forced upon them abruptly instead. These struggles included:

> (a) feeling a lack of institutional support, (b) lacking motivation, (c) feeling the stress of living and working at home, (d) physical discomfort of working with unsuitable facilities at home and, for students , (e) the perception that professors were not willing or able to use online platforms (Filho et al., 2020, p. 12).

Similarly, an early fall survey conducted by The Association for University and College Counseling reported "an increase in students experiencing anxiety, loneliness, and other difficulties, suggesting that although fewer students are seeking help, those who do are in greater distress" (Parry, 2021). Symptoms like loneliness have long been linked as a cause for bullying, and ultimately "lonely, depressed kids are more likely to bully" (Blair, 2019). As I listened to students' struggles with anxiety, forms of bullying (even in their classes), loneliness, and other frustrations with the online learning environment, I sought to be empathetic toward them, having witnessed and

experienced empathy's benefits time and time again. I am best able to express empathy when I have performed my self-care routine. As this allows me to be in a healthy mindset and perform at my best as an educator, I can continue to shine the light of compassion by finding a healthy balance between taking care of myself and taking care of my students.

When students are in distress, I have found that empathy is an incredibly powerful tool as an educator, and I believe it is important for teachers to be patient with and empathize with students when they are at their worst, while also taking time to take care of themselves. In my experiences, too, students are more likely to communicate to me if they are stressed out, feeling anxious or depressed, or even in crisis if I effectively exhibit forms of empathy. There are two forms of empathy that have proven effective in allowing students to communicate their struggles to me, which allows me, in turn, to provide them with the resources and assistance they need to succeed and improve in my class. *Affective empathy* is "defined as the ability to experience the feeling of another person," and *cognitive empathy* is "the ability to understand the emotions and perspective of others" (Johander et al., 2022, p. 1570). I find, however, that unless I am intellectually and cognitively well—which "can come from reading, studying, traveling, and the exposure to media" (Miller & Foster, 2010, p. 15)—I am unable to give students my best empathetic approach, offer helpful feedback, lecture in an alert fashion, or even manage emails effectively. Therefore, I now carve out time each day to ensure I practice activities that engage me intellectually and cognitively but that are not work related, such as reading; exercising; cooking; crafting; sending positive, decorated letters to friends; and exposing myself to positive media. It is equally as important to instill in students a series of strategies which permit them to take care of themselves but also be empathetic to others, especially when it becomes clear students are dissatisfied with their educational experience and/or begin lashing out at instructors and others.

Implementing Self-Care into a Daily Routine

To encourage students to develop a self-care routine, in my ENG 111 and ENG 112 courses, I teach a brief lesson on the definition of self-care and individualize its purpose to the writing process. Next, I pass out tracking forms and explain their purpose prior to having students fill them out, a technique I learned about in On Course training in the fall of 2022. Tracking forms permit students to track their progress throughout the writing process by way of charting out a long-term goal, a series of short-term goals to be accomplished throughout the semester, and a series of both outer and inner action steps to achieve these goals (On Course, 2022). See Appendix A, which shows the tracking form originally given to me in the On Course workshop. This approach can, of course, be adapted to one's own self-care plan as well as to any other discipline. For instance, in my composition courses, the document provided requires students to reflect on their goals as they chart out and plan their writing process for major assignments. See Appendix B, for example, to see how and in what way instructors may individualize this process and assignment to a discipline specific course.

As shown in the quote at the start of this article, the tracking forms have proven to be extremely effective. To ensure that students engage with their tracking forms in a way that is most conducive to their success, I allot about five minutes at the start of my composition courses each week to let students fill out their forms silently. Since students are often afraid of upsetting their professors, I tell them I won't look at their tracking sheets unless they ask me to do so. Instead, students share their tracking form responses with their peers after a few weeks, ultimately charting out strategies for success for one another throughout their college careers.

Discussion and Conclusion

Educators and students alike benefit from practicing self-care. Despite the fact that teachers and students were abruptly moved to the online environment as a result of the pandemic, studies and personal experiences have demonstrated that students can overcome setbacks not only in their personal lives but also in their academic lives if they practice self-care on a daily basis. Making time for self-care in an educator's life is challenging, but the productivity of the classroom depends on students and educators taking self-care more seriously than ever before.

References

Blair, K. (2019, August 29). Linking bullying to loneliness and belonging. *Carolina Journal*. https://www.carolinajournal.com/opinion/linking-

bullying-to-loneliness-and-belonging/
Firestone, L. (2013, October 25). Conquer your inner critic. *PsychAlive*. https://www.psychalive.org/conquer-your-inner-critic-by-lisa-firestone-ph-d/

Gamby, S., & Bauer, C. F. (2022). Beyond "study skills": A curriculum-embedded framework for metacognitive development in a college chemistry course. *International Journal of STEM Education, 9*(1). https://doi.org/10.1186/s40594-022-00376-6.

García-Rivera, B. R., Mendoza-Martínez, I. A., García-Alcaraz, J. L., Olguín-Tiznado, J. E., Camargo-Wilson, C., Araníbar, M. F., & García-Alcaraz, P. (2022). Influence of resilience on burnout syndrome of faculty professors. *International Journal of Environmental Research and Public Health, 19*(2), 910. https://doi.org/10.3390/ijerph19020910.

Glowiak, M. (2020, April 14). What is self-care and why is it important for you? *Southern New Hampshire University*. https://www.snhu.edu/about-us/newsroom/health/what-is-self-care

Guangul, F. M., Suhail, A. H., Khalit, M. I., & Khidhir, B. A. (2020, October 21). Challenges of remote assessment in higher education in the context of COVID-19: A case study of Middle East College. *Educational Assessment, Evaluation and Accountability, 32*(4), 519–535. https://doi.org/10.1007/s11092-020-09340-w

Harwood, L., Wilson, B., Crandall, J., & Morano, C. (2021). Resilience, mindfulness, and self- compassion: Tools for nephrology nurses. *Nephrology Nursing Journal, 48*(3), 241–249. https://pubmed.ncbi.nlm.nih.gov/34286934/

Idris, F., Zulkipli, I. N., Abdul-Mumin, K. H., Ahmad, S. R., Mitha, S., Rahman, H. A., Rajabalaya, R., David, S. R., & Naing, L. (2021). Academic experiences, physical and mental health impact of COVID-19 pandemic on students and lecturers in health care education. *BMC Medical Education, 21*(1). https://doi.org/10.1186/s12909-021-02968-2

Johander, E., Trach, J., Turunen, T., Garandeau, C.F., & Salmivalli, C. (2022, April 16). Intention to stop bullying following a condemning, empathy-raising, or combined message from a teacher: Do students' empathy and callous-unemotional traits matter? *Journal of Youth and Adolescence, 51*(8), 1568-1580. https://doi.org/10.1007/s10964-022-01613-5

Kapil, R. (2022, March 14). How and why to practice self-care. *Mental Health First Aid*. https://www.mentalhealthfirstaid.org/2022/03/how-and-why-to-practice-self-care

Kelly, M., Lynch, J., Mainstone, P., Green, A., & Sturman, N. (2022). Things we are expected to just do and deal with: Using the medical humanities to encourage reflection on vulnerability and nurture clinical skills, collegiality, compassion, and self-care. *Perspectives on Medical Education, 11*(5), 300–304. https://doi.org/10.1007/s40037-022-00724-w

Lal, S., & Mourya, R. (2022). For CS educators, by CS educators: An exploratory analysis of issues and recommendations for online teaching in computer science. *Societies, 12*(4), 116. https://doi.org/10.3390/soc12040116

Leal-Filho, W., Wall, T., Rayman-Bacchus, L., Mifsud, M., Pritchard, D. J., Lovren, V. O., Farinha, C., Petrovic, D. S., & Balogun, A.L. (2021). Impacts of COVID-19 and social isolation on academic staff and students at universities: A cross-sectional study. *BMC Public Health, 21*(1). https://doi.org/10.1186/s12889-021-11040-z

Miguel, C., Castro, L., Marques dos Santos, J. P., Serrão, C., & Duarte, I. (2021). Impact of COVID-19 on medicine lecturers' mental health and emergency remote teaching challenges. *International Journal of Environmental Research and Public Health, 18*(13), 67-92. https://doi.org/10.3390/ijerph18136792

National Council for Mental Wellbeing. (2023). Mental health first aid. https://www.thenationalcouncil.org/our-work/mental-health-first-aid/

On Course. (2021, March 22). On course textbook: Strategies for creating success in college, career & life. (9th ed.). Wadsworth/Cengage. https://oncourseworkshop.com/course-textbook/.

Pereira, N., Ferreira, P., Simão, A. M., Paulino, P., Oliveira, S., & Mora-Merchán, J. A. (2022). Aggressive communication style as predictor of cyberbullying, emotional wellbeing, and personal moral beliefs in adolescence. *Psicología Educativa, 28*(2), 111–116. https://doi.org/10.5093/psed2021a11

Sanetti, L. M., Pierce, A. M., Gammie, L., Dugan, A. G., & Cavallari, J. M. (2022). Scale-out of a total worker health approach for designing interventions to reduce teacher stress: Pilot implementa-

tion evaluation. BMC Public Health, 22(1). https://doi.org/10.1186/s12889-022-13241-6
Scheiderer, J. (2022, July 27). What's the difference between asynchronous and synchronous learning? *Ohio State Online*. https://online.osu.edu/resources/learn/whats-difference-between-asynchronous-and-synchronous-learning
Tutt, P. (2021, October 22). 5 metacognitive questions for students learning new material. *Edutopia*. https://www.edutopia.org/article/5-metacognitive-questions-students-learning-new-material/
World Health Organization. (2019, May). Burn-out an "occupational phenomenon": International classification of diseases. https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases.
Wynne, P. (2021. January 10). Pandemic stress: The toll it's taking on students. *Chemical and Engineering News, 99*(2). https://doi.org/10.47287/cen-09902-feature3

Author's Note

The author has no known conflicts of interest to disclose. Correspondence concerning this article should be addressed to Elena M. Fleggas, English Department, Wake Technical Community College, Scott Northern Wake Campus, 6600 Louisburg Road, Raleigh, NC 27616. Email: emfleggas@waketech.edu

Appendix A

Tracking Form A – General Tracking Form

Role:
Dream:
Long-Term Goal:
Short-Term Goals (to be completed this semester):
1.
2.
3.
4.

Outer Action Steps	**Dates**													

Inner Action Steps	**Dates**													

Appendix B

Tracking Form B – Individualized to Composition Course

Name:

Long-Term Goal for Paper 2 (other than earn a good grade):

Short-Term Goals (to be accomplished prior to paper 2's due date to help you accomplish your long-term Goal):

Note: As you fill out this chart, be as honest as possible, since I will not be looking at it unless you would like me to. You will instead just share this with a peer in a few class periods to track and reflect upon one another's progress. Lastly, you and a peer will use this as a tool to help you reevaluate your current technique in the course to best enhance your own success. Consider using symbols as you fill this chart out, such as check marks; notes like "yes," or "not yet, but I plan to _____"; etc. You will be using the first five minutes of each class period to fill out this tracking form for the next few class periods, so be sure that you keep this form with you and do not lose it.

OUTER Action Steps	**Dates**				
Collaboration with peers in class					
Active listening and notetaking in class					
Staying on task when permitted to use electronics in class for drafting workshops					
Asking questions when I do not understand something in English class					

INNER Action Steps	**Dates**				
Say my affirmations learned during the circle activity					
Talk more positively about English class and college					
Dispute my inner critic					
Visualize asking questions in English class					
Use proactive language. For example, rather than saying, "If only I had a better writing approach …" or "If I had a better grasp of the assignment …," the proactive speaker says, "I may not have had a good writing approach in the past, but I'm looking to develop a more productive approach in the future."					
Relax a few minutes before beginning an assignment					

Book Review

You Belong in College: A Review of *Inclusive Teaching: Strategies for Promoting Equity in the College Classroom* by Kelly A. Hogan and Viji Sathy

Elizabeth A. Watson

Abstract

A review of *Inclusive Teaching: Strategies for Promoting Equity in the College Classroom* by Kelly A. Hogan and Viji Sathy (2022) concludes that this title is a recommended resource. *Inclusive Teaching: Strategies for Promoting Equity in the College Classroom* provides strategies for helping all students succeed and feel welcome. This review discusses Hogan and Sathy's key ideas, particularly how college courses can be structured to be more inclusive.

Keywords: inclusivity, inclusivity in higher education, educational equalization, educational equity, inclusive syllabus, course structure

You Belong in College: A Review of *Inclusive Teaching: Strategies for Promoting Equity in the College Classroom* by Kelly A. Hogan and Viji Sathy

The traditional model of a college class, in which the professor lectures while students take notes and a student's entire grade is determined by three high-stakes assignments or tests, is dead. This class structure is outdated because it is not inclusive, especially for students from sometimes marginalized groups, such as English as a second language (ESL) students and students with learning differences. Structuring classes for inclusivity is one of the topics discussed in *Inclusive Teaching: Strategies for Promoting Equity in the College Classroom* by Kelly A. Hogan and Viji Sathy (2022). *Inclusive Teaching* is a recommended resource and is worthwhile because of its content, the methodology of the authors, the discussion of high structure versus low structure classes, and some practical examples of suggested actions instructors can take to make their classes more inclusive. However, there are some flaws and downsides to this book.

The authors of *Inclusive Teaching* have organized the content of the book in a way that makes a lot of sense. The book flows in a natural progression of planning, doing, and reflecting. It starts with writing syllabi and planning courses, moves on to teaching the course, and ends with assessing and evaluating how well the inclusive strategies work. The main arguments that Hogan and Sathy make are that college instructors can and should take actions to make their classes more inclusive, and that high structure classes are better and more inclusive than low structure classes. The chapters and a brief summary of contents are as follows:

1. "Inclusive Teaching as a Mindset": Describes what prompted the authors to make changes in the classes they teach
2. "The Value of Structure": Explains the difference between high structure and low structure courses and why high structure courses are more inclusive
3. "Designing Your Course and Syllabus with an Inclusive Mindset": Offers suggestions for designing and planning a new course or redesigning an established course
4. "Launching Your Course": Discusses suggestions for the start of the semester and first few days of class

5. "Classroom Environment and Interactions": Provides ideas to improve inclusivity in seated, physical classes
6. "Inclusive Practices Outside the Classroom": Presents ideas for making office hours, e-mails, online meetings, and online learning management systems more inclusive
7. "Reflecting and Documenting Your Inclusive Practices": Gives strategies for assessing how well the inclusive practices you tried worked or did not work

The research methodologies that Hogan and Sathy use in *Inclusive Teaching: Strategies for Promoting Equity in the College Classroom* are informal, anecdotal, and based on personal experience and trial and error. They did not do a controlled, double-blind study. However, both authors are experienced professors at the University of North Carolina at Chapel Hill, and they share tips, advice, and inclusion strategies that they actually tried in their classrooms.

Hogan and Sathy are pedagogical experts, and their book discusses pedagogical strategies. They include real stories and examples from the classes they teach, which makes the book more interesting and relatable. The feedback from students they received in response to their inclusion efforts provides evidence that their strategies work. The comments from their students are meaningful and provide a glimpse of the student perspective. For example, in a section on grouping students in class, Hogan and Sathy compare students' experiences in informal versus assigned groups. As they found from student comments, commonly used informal groups can be isolating. One student wrote, "The professor says, 'Talk to a neighbor,' but the neighbor has other friends, and I am left isolated" (Hogan & Sathy, 2022, p. 108). However, when the class adopted the high structure strategy of assigned groups, a more cohesive structure resulted. Commenting on working in assigned groups, one student remarked that the groups "felt more like an even 'playing ground,' without groups of friends who talked only to themselves" (Hogan & Sathy, 2022, p. 128).

One of the main arguments that Hogan and Sathy make are that high structure classes are preferable to low structure classes. Here are the definitions:

Low structure courses have traditional lectures with only a few high-stakes assessments, such as two midterm exams and a final exam. Highly structured courses assign daily and weekly active-learning exercises with the goal of providing constant practice with analytical skills required to do well on exams (Hogan & Sathy, 2022, p. 6).

In other words, Hogan and Sathy suggest that all students, especially students from marginalized groups, will do better if classes are designed with frequent opportunities to practice skills and receive feedback. Some examples of such practice opportunities are reading quizzes and graded review assignments. In a high structure course, students work before class, during class, and after class. Practice is required, not optional. High structure classes have a lot of small assignments. High structure classes also require a lot more active participation from students than passively listening to a lecture. For evidence to support their argument that high structure classes are better, Hogan and Sathy point to the comments from students on their end of the semester evaluations of the course, data collected from student surveys, and the study by Scott Freemean, et al. (2014), "Active Learning Increases Student Performance in Science, Engineering, and Mathematics." The data from the student surveys showed that students from often marginalized groups especially benefited from high structure classes. For example, they note that performance gaps for first-generation college students and Black students were decreased by increasing class structure. For further reading, *Reach Everyone, Teach Everyone: Universal Design for Learning in Higher Education* by Thomas Tobin and Kristen Behling (2018) is another resource on designing high structure courses that Hogan and Sathy recommend, and it contains additional evidence to support the argument in favor of high structure classes.

Inclusive Teaching is a worthwhile book because it offers practical and easy to implement suggestions for making classrooms, faculty offices, and online learning management systems (LMS) more inclusive. For example, they point out that some students may be shy about using their professor's office hours, so Hogan and Sathy suggest offering some office hours in neutral and less intimidating spaces like the student union building or a coffee shop. Sathy and Hogan (2022) write, "We can demystify the traditional office hours, make them more flexible, and invite more students in to help bring equity to office hour participation" (p. 162). One way to demystify office

hours is to provide prompts so students know what the office hours can be used for: talking about the student's future plans, going over homework questions, editing and revising essays, etc. Another practical tip for making classes more inclusive is for instructors to consider using open source textbooks that are free or low cost. This includes students who may be low income or struggling financially. The authors also suggest that professors could include the phone numbers for crisis and suicide prevention hotlines on their syllabi or learning management system communications. One suggestion for making learning management systems more inclusive is to be very structured about requiring posts to online discussion forums in the LMS. Being very structured means "requiring students to have a number of posts or replies, being clear with students about when posts are due, and providing guidelines about the nature of the posts" (Hogan & Sathy, 2022, p. 44).

Inclusive Teaching does have some flaws. One downside is that Hogan and Sathy's ideas may be a bit overly ambitious. Not everyone has the option or opportunity to redesign their course or design a new course to incorporate the high structure suggestions. Another critique is that adding all the things to the syllabus that Hogan and Sathy suggest, like the crisis telephone number, would make the syllabus too large and cluttered and deter students from actually reading it. Learning management system messages can also become similarly bloated by too many items. Another flaw is Hogan and Sathy do not focus enough on their argument that high structure classes are beneficial, especially for students from often marginalized groups. The part of the book about structuring classes could be greatly expanded.

Inclusive Teaching: Strategies for Promoting Equity in the College Classroom by Kelly A. Hogan and Viji Sathy is recommended and worth reading because of its suggestions on how to increase diversity and improve the success of students and professors, especially by designing high structure courses. The authors provide ideas on how to move students along the continuum from passive listening to active, constructive, and interactive learning in ways that give students a sense of belonging. One of Hogan and Sathy's students summed up the benefits of highly structured, inclusive classes:

> The course was organized to reduce the barriers to success: that is, course assignments were laid out clearly with many reminders, and also many ways to self-check that assignments were completed…The course was structured to discourage procrastination, with homework and quizzes serving both to ensure that students were keeping up with the material and also to reinforce learning that material. (Hogan & Sathy, 2022, p. 35)

Students of all backgrounds will succeed, like the student quoted above, when they are offered inclusive, high structured classes. No more classes with only three tests or papers. They leave people behind.

References

Freeman, S., Eddy, S., McDonough, M., & Wenderoth, M. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences of the United States of America*, *111*(23), 8410–8415. https://doi.org/https://doi.org/10-1073/pnas.1319030111

Hogan, K. A., & Sathy, V. (2022). *Inclusive teaching: Strategies for promoting equity in the college classroom*. West Virginia University Press.

Thomas, J. T., & Behling, K.T. (2018). *Reach everyone, teach everyone: Universal design for learning in higher education*. West Virginia University Press.

Author's Note

The author has no known conflicts of interest to disclose. Correspondence concerning this article should be addressed to Elizabeth Watson, Library Services, Wayne Community College 3000 Wayne Memorial Dr., Goldsboro, NC 27533-8002. Email: ewatson@waynecc.edu.
https://orcid.org/0000-0002-4500-5978

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