"I Felt Like Nothing I Did Prepared Me": The Experiences of Engineering Transfer Students on Academic Probation

Shannon Buenaflor, Program Director for Transfer Student Advising and Admissions, Clark School of Engineering Advising & Academic Support Office, University of Maryland

Shannon Bate, Program Coordinator, Clark School of Engineering Advising & Academic Support Office, University of Maryland

Transfer students face a variety of challenges when matriculating to a four-year institution. While the literature has highlighted a number of factors that impact transfer student adjustment, many engineering transfer students struggle with academics. As a result, these students are placed on academic probation. The purpose of this study was to explore the experiences of engineering transfer students who were placed on academic probation during their first year at a four-year institution. Using a conceptual framework based on Laanan's (2001) research on transfer student adjustment and O'Banion's (1972, 2009) description of developmental advising, this article presents narrative findings from five student participants, focusing on perceptions of campus resources, classroom and faculty interactions, student expectations of the four-year school, peers and sense of belonging, challenges with online learning, and mental health. The paper concludes with recommendations for practitioners who are seeking to support transfer students facing academic difficulty.

Keywords: transfer students, academic probation, retention

Research on transfer student success has highlighted several resources that support students as they navigate the transfer process prior to matriculating to the four-year institution (Hayes et al., 2020; Packard & Jeffers, 2013). After transfer, research has described the experience of transfer shock and adjustment that students undergo as they learn to navigate the four-year campus (D'Amico et al., 2014; Hills, 1965). However, few studies have sought to explore specific resources that can support the retention of transfer students at four-year schools. Even fewer studies have looked specifically at the factors that can facilitate the persistence of engineering transfer

students. Some scholars, such as Smith and Van Aken (2020), have highlighted several student and institutional categories that can affect the persistence of engineering transfer students. These factors include student characteristics, pre- and post-transfer academics, institutional culture, academic advising, student integration, and goals and commitment. Within these categories, some of the most notable factors are the availability of scholarships, the number of credits completed prior to transfer, social integration, and inclusive institutional culture. While these factors can lead to positive transfer experiences, a number of students may continue to struggle when adjusting to the four-year campus (Buenaflor, 2021; Laanan, 2001). This claim has been supported by research on transfer student retention broadly and by research on engineering transfer student retention specifically.

According to the National Student Clearinghouse (2021), only 14% of all students who began their education at a community college in 2013 completed a bachelor's degree within six years. Further, when looking at associate degrees among science, technology, engineering, and math (STEM) students, the National Science Board (2018) reported that Black and Hispanic students earned 35% of science and engineering associate degrees, yet only 9% of Black students and 13% of Hispanic students went on to earn a baccalaureate degree in these fields (National Science Board, NSB, 2018). Thus, a persistence gap exists between the community college and the four-year institution—particularly for underrepresented engineering students. When students struggle academically, one potential outcome is academic probation. To date, very few studies have examined the experiences of transfer students who are placed on probation. Therefore, the purpose of this study was twofold. First, using a qualitative case study design, we explored the experiences of engineering transfer students who were placed on academic probation during their first year at a four-year institution. Second, based on findings from this study, we discuss interventions that can be used to support engineering transfer students both before and during academic probation.

Literature Review

Research examining academic probation has tended to focus on what academic probation means, why students are placed on academic probation, and how students on academic probation can be supported (Earl, 1988; Gehrke, 2006; Kamphoff et al., 2007; Kelley, 1996). For the purposes of this study, we defined academic probation as a point in time when cumulative GPA falls below 2.0. When the student's GPA drops to this level, they are placed on academic probation and are typically given one semester to improve their cumulative GPA. Should the GPA not improve, the student is at risk of being academically dismissed from the university. Students are placed on academic probation for a variety of reasons, including challenges balancing class and work, financial constraints, or lack of access to faculty support (Earl, 1988; Gehrke & Wong,

2007). For transfer students, these factors are often compounded as they transition to a new campus. For example, in a study comparing transfer students to students originating at the institution, Graham and Dallam (1986) found that transfer students were more likely to be placed on academic probation than students who started at the institution. These findings point directly to the risk of transfer shock (Cejda et al., 1998; Hills, 1965).

TRANSFER SHOCK
The term transfer shock was developed to describe the challenges that community college students initially experience when enrolling at a four-year school (Cejda et al., 1998; Hills, 1965). Typically, this experience of shock is illustrated by a lower GPA that recovers after the shock has passed (D'Amico et al., 2014; Hills, 1965).

In a study examining transfer shock, Cejda and colleagues (1998) found a lack of consensus in the literature concerning its definition. These findings suggested that past research on transfer shock may not have considered the complete landscape. Rather, scholars were focusing on isolated—often fragmented—populations of transfer students. For example, some research has indicated there is far more variability in transfer shock depending on the academic rigor of the new university (Pennington, 2006), students' academic major (Carlan & Byxbe, 2000; Cedja et al., 1998), when students transfer (Ishitani, 2008), and students' age, gender, or race/ethnicity (Berger & Malaney, 2003; Pennington, 2006; Wang, 2012). While challenging the notion of transfer shock, these studies also point to the importance of context when seeking to understand the transfer experience.

Research on engineering transfer student shock is limited; however, in a recent study, Smith et al. (2022) looked specifically at the academic experiences of engineering transfer students at one four-year institution. Through their research, Smith and colleagues found that engineering students who transferred vertically with associate degrees had lower levels of transfer shock and higher graduation rates than vertical transfer students without associate degrees. The authors also found that engineering transfer students who struggled in their first semester continued to struggle for the next two semesters at the four-year institution.

Beyond transfer shock, a number of factors have been found to affect the transfer adjustment process for engineering students specifically. In another study, Smith and Van Aken (2020) found that if students are successful in rigorous core engineering courses before they transfer to a four-year university, they are more likely to prosper academically post-transfer. Scholarships have also been found to be incredibly influential, given that students who can work less than 20 hours per week have been shown to have better academic performance (Smith & Van Aken, 2020). Altogether, these

factors can affect how students perform academically. When students perform poorly for multiple semesters, they may be at risk of being placed on academic probation.

STUDENTS ON ACADEMIC PROBATION
Very little research has looked at the experiences of engineering students on academic probation. Therefore, our review of the literature will focus broadly on how academic probation affects different types of students, including transfer students. Gehrke and Wong (2007) explained that "transfer students may be particularly susceptible to being on academic probation [...] they are also transitioning to a new and different environment where they must balance life and college simultaneously and independently" (p. 139). Navigating this transition independently while balancing life and academics often results in feelings of isolation. This claim aligns with past research indicating many transfer students struggle to integrate socially on campus (Deil-Amen, 2011). Transfer students also may not realize how different their new institution is from their previous institution and may feel overconfident due to success at their previous institution (Gehrke & Wong, 2007). According to Gehrke and Wong (2007), one common mistake transfer students make in the transition to a new institution is believing that the policies and procedures at all institutions are the same when, in reality, each institution has its own unique set of policies and procedures.

Gehrke and Wong (2007) stated that "although advisors are accessible to all students, many do not utilize their advisor's knowledge and experience until a time of crisis, such as being placed on academic probation" (p. 136). Transfer students on academic probation may feel like they do not have any individuals on campus to whom they can go for help. This is particularly concerning, given the critical role that advisors play in supporting student retention. King (1993) explains that "academic advising is the only structured service on our campuses that guarantees students some kind of interaction with concerned representatives of the institutions" (p. 30). For this reason, King asserts that advisors are in a position to assist transfer students. In order to encourage students to use advising resources, it is imperative that academic advisors create a welcoming environment and establish connections with their students so they feel comfortable reaching out prior to times of crisis (Gehrke & Wong, 2007). Establishing strong connections with advisors could mean the difference between college success and dismissal from an institution. If students trust their institutional contacts, they are more likely to take advantage of recommended referrals and available resources.

Conceptual Framework
The conceptual framework guiding our research borrows from transfer student literature as well as foundational frameworks from the field of academic advising. First, we focus on Laanan's (2001) conceptualization of transfer student adjustment. Laanan's (2001) research highlights specific variables that are associated with the

persistence of transfer students. These variables are broadly organized around personal, demographic, and environmental characteristics and focus on specific factors such as students' perceived value of their education, educational aspirations, self-concept, family, job, and finances. Laanan argues that these variables will impact the extent to which a student is able to adjust to their new campus environment. When considering the experiences of students placed on academic probation, our work borrows from Laanan's (2001) conceptualization of transfer students' adjustment to consider specific factors that may impact the academic performance of engineering transfer students.

We also posit that academic advisors play a critical role in supporting students both before and during their time on academic probation. Therefore, we borrow from O'Banion's (1972, 2009) description of developmental advising. Originally written to describe an advising process for community college students, O'Banion's description of developmental advising as a five-step process provides useful insight into our research. The following dimensions are critical to O'Banion's model: (a) defining life goals, (b) understanding vocational goals, (c) determining program choices, (d) selecting appropriate courses, and (e) determining scheduling options. Together, Laanan (2001) and O'Banion (1972, 2009) provide a holistic and practical approach to advising transfer students by considering student inputs, environmental factors, and the role of academic advisors. A visual representation of our framework is illustrated in Figure 1.

Figure 1. *Conceptual Framework of Transfer Student Persistence*
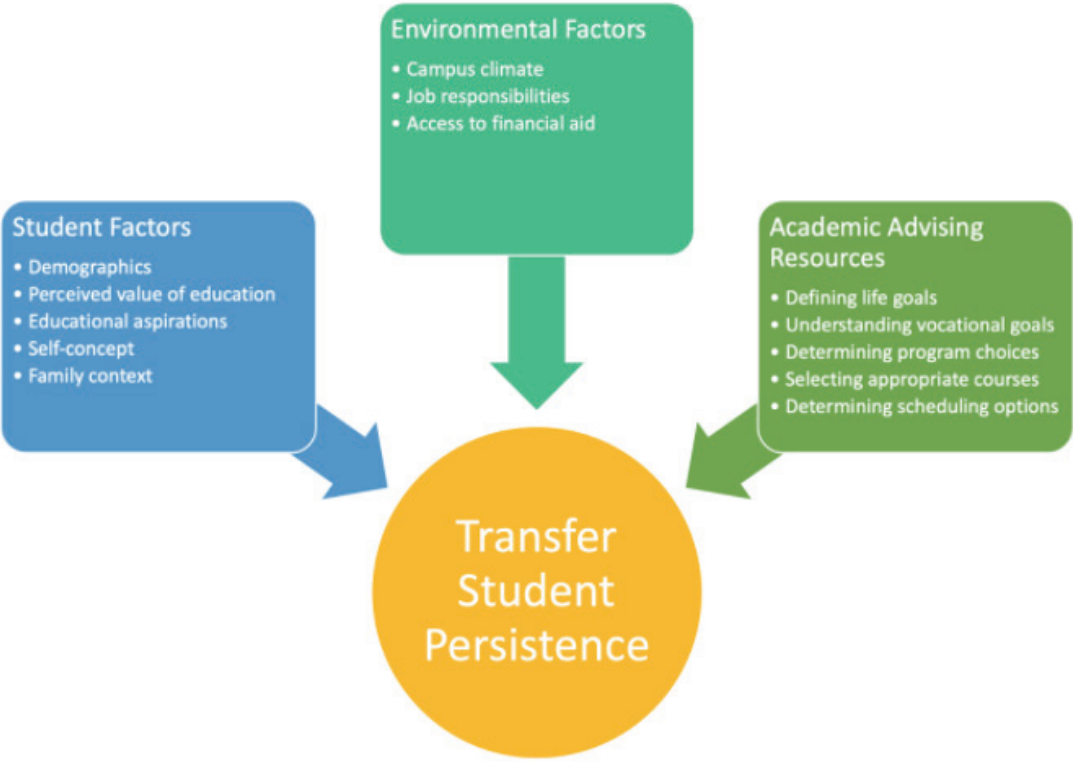
Methods

The purpose of this study was to answer the following research question: What are the experiences of engineering transfer students who were placed on academic probation during their first year at a four-year institution?

In order to answer our research question, we employed a qualitative case study. Case study methodology investigates real-world phenomena and is bounded by a specific unit of study (Merriam, 1998; Yin, 2013). Given our focus on engineering transfer students on academic probation at one four-year institution, case study was an appropriate methodology. Data for this study were collected in partnership with the Undergraduate Advising Office in the Engineering College at Mid-Atlantic State University (MSU; pseudonyms). In order to be eligible to participate, students transferred to the Engineering College at MSU and were placed on academic probation between Fall 2018 and Fall 2020. All of the participants in our study were placed on academic probation during their first year post-transfer. It is worth noting that the Engineering College at MSU currently has an academic probation program (APP) that all students complete in the semester after they are placed on academic probation (as they work to raise their GPA). This program is managed through an online learning platform and includes various modules as well as skill development workshops. Throughout our findings, this program is referenced as each student completed the APP requirements.

We collected a list of eligible participants and sent an email to students inviting them to participate in an interview. Due to the relatively small population, our sample size included five total students (see Table 1). All five students were interviewed individually using Zoom. Interviews lasted approximately 60 minutes. Our interview protocol, which consisted of 17 questions, was informed by our research questions, conceptual framework, and literature review. The protocol included broad questions about challenges experienced during the first semester as well as more specific questions about if/how students used campus resources (e.g., Did you feel prepared to attend office hours at MSU?).

[Insert Table 1 About Here]

We used both inductive and deductive coding techniques to analyze our interview data (Saldaña, 2014). Our team created codes using our conceptual framework and research questions. Additional codes were added as new themes arose during data analysis. Each transcript was coded by two members of the research team. Given the unique narrative of each student, we treated all five participants as individual cases using research vignettes. Langer (2016) described the use of vignettes as a reflexive method of interpretation designed to present qualitative research findings. In addition

to analyzing each case as an individual vignette, we also engaged in cross-case analysis and used various methods to ensure the trustworthiness and credibility of our data (Glesne, 2011; Saldaña, 2014; Yin, 2013).

Findings

The five students who participated in our study shared similar experiences while on academic probation; however, their narratives were all unique. Therefore, our findings begin with individual narrative vignettes in order to provide a nuanced understanding of our participants' experiences. Following these vignettes, we will present findings from our cross-case analysis.

VIGNETTES

Andrew, a 33-year-old white male, transferred to MSU from Western Community College in Fall 2018. Andrew is an electrical engineering major who was placed on academic probation following the Spring 2019 term and completed AAP during the Fall 2019 semester.

While enrolled at the community college, Andrew valued mentorship; however, he had difficulty finding a mentor at MSU. He explained that approaching faculty at the community college was much easier than at MSU. He is a self-described "relational learner" and needs "a relationship with someone to learn."

Andrew felt prepared to transfer to MSU, but learning became more difficult because he was not familiar with the type of instruction and the classroom environment at the four-year institution. When describing MSU, he stated:

> It was a different style than a community college. We've all heard that before. It was much more just you felt a little bit more like a robot or a computer, just getting the instruction, performing work, getting instruction, performing work.

When describing his expectations regarding the transition to MSU, he stated, "I felt prepared. I felt a little bit overprepared" and underestimated how different MSU would be from his community college experience. He became frustrated because he was determined to work hard and do well, but his exam grades did not reflect these ambitions:

> I just walked into [MSU] like I got this; I'm going to work hard. And I realized that I just brought myself. I just chilled out just a little bit too much. And then the next thing you know, I'm failing these exams, and it was really frustrating because I can see how easy the work was if that makes sense.

His academic performance did not reflect the effort he was putting into his courses. This was frustrating for him because he knew the work was not that challenging and he could do well if he put his mind to it.

Andrew knew his time management skills needed work. He realized that traveling home every weekend took away from the time he could be studying and doing homework. Although he spent the same amount of time studying for courses at MSU, the studying took more energy than at the community college because "it was a denser amount of time [I] was putting more energy into that slightly larger bit of time." Andrew's perception of the Tutoring Center at MSU was based on his peers' opinions, which ultimately discouraged him from seeking help. Office hours at the community college were refreshing, whereas at MSU, they caused him anxiety. Professors at his community college broke everything down to the "Barney basics." They would "take you to the next step and then the next step. [They] never thought that you were stupid [or] that you couldn't do it." But at MSU, "it's more of an enter-into-this-box, dish-out-what we're-serving-you" feeling. Andrew stated that APP "was good and that it kept my mind fresh to stay alert and to be vigilant." The exercises and reflections in APP helped him think critically about why and how he ended up on academic probation.

Esther is a 28-year-old white female who transferred from Northern Community College to MSU in Spring 2020 and is majoring in chemical engineering. She was placed on academic probation after Spring 2020 and completed APP in Fall 2020.

Esther entered MSU during the COVID-19 pandemic when classes and campus activities were conducted fully online. She reported having challenges with online learning due to a learning disability and mental health concerns. She shared that part of her mental health concerns resulted from a previous relationship that caused emotional trauma. She has seen therapists; however, at the time of the interview, she was not seeking professional support.

Due to her learning disability and mental health concerns, Esther was unable to give her full attention to her classes. She saw the computer as a distraction and stated, "I have this entire computer at my disposal, so it is a bit difficult." The setting was a challenge because she was alone in her apartment with her "noisy" cat. She would have preferred to have in-person classes, especially for labs, rather than listening to lectures online, "It was just like, you know, pedagogically, I felt very conflicted that I was learning lab skills not in a lab. So, there was a few assignments where they're like draw [this], and it's like ok, sure." She struggled with test anxiety associated with the online environment. Esther struggled to feel motivated to do practice problems that were recommended by her professors because they were not required homework.

She voiced that, at the community college, it was easier to find study groups, and the faculty were a great support system. When she told her community college professor about her acceptance into MSU, "[the professor] was more than willing to send along additional materials that she was not able to cover but she knew would be necessary to know for [Organic Chemistry 2] at [MSU]." Once at MSU, Esther spoke with Disability Services about her learning disability; however, she did not keep regular contact with them. She worked with her academic advisor, who recommended a tutor for her chemistry course, but she did not use her peers for class help. Instead, she thought of her peers as "an excellent opportunity to talk with like another student just like about our experiences and such get some of the social vibe going and then there's someone else." She only "went to office hours because it was mandatory." When asked if she found office hours useful or just something she did to check a box, she stated that it was "something I did to check a box for sure."

Esther viewed APP as another course on her schedule with quizzes. When asked what aspect of APP she found most beneficial, Esther discussed the time management plan by explaining the benefits of scheduling her entire day, including "your time eating, sleeping, studying, class." While Esther knew time management was a valuable resource, she would get off track, and this likely was a contributing factor to her academic probation status.

Rico is a 21-year-old black Nigerian male who transferred to MSU from Southern Community College in Spring 2020. He is a mechanical engineering major who was placed on academic probation following the Spring 2020 term and went through APP during the Fall 2020 term.

Rico struggled with the transition to online learning. He stated, "that's where I found myself to struggle quite a bit. Because I wasn't really used to the online space." Unlike community college, Rico felt a lot of pressure to do well on exams at MSU. At Southern Community College, his professors would prep the class for the test so he didn't experience test anxiety. However, at MSU, test anxiety caused him to struggle during exams, "I feel like nothing that I did prepared me for the exams [...] And I think that recently I found that I'm starting to realize that I think I have a test anxiety." He quickly realized that he needed to prepare for classes in advance. Rico recalled, "I will say that I had to start reading the textbook, studying the textbook more so that I would be prepared for the next class." Since Rico was not used to preparing for class ahead of time, he had to find time in his day to fit that in.

When discussing which class he found to be most difficult, he admitted, "I'll say [Electronics] was the one that I found to be more difficult because that was the one that I really put most of my time to [...] I put a lot of time." He admitted that

dedicating a majority of his time and effort to one class may have contributed to his poor performance in other classes, "So for the other classes, I would say that my performance, my low performance was on me." He felt like some of his other classes were easier and didn't require as much attention as his electronics course, "while I was taking the class, it felt easy to me." He was overconfident in the course because it felt easy, and thus, he paid less attention to it at the beginning of the semester. When he began to notice that his grade was not reflecting the easiness of the course, it was more difficult to catch up.

Rico did not feel like his community college prepared him for the four-year institution, "I don't think anybody from a community college would say that their community college prepared them for life at [MSU] because it's a very different dynamic." He viewed the faculty at both institutions very differently when stating that at the community college professors "prioritize understanding the material or ideas" more than those at the four-year institution. He explained that MSU professors tended to curve grades. In contrast, he believed the community college professors were less likely to grade on a curve, suggesting "that shows that more people, more students understood the material."

Sarah, a chemical engineering major, is a 21-year-old female who identifies as multiracial. She transferred from Eastern Community College to MSU in the Fall 2019 and was placed on academic probation following the Fall 2019 term. She completed APP during the Spring 2020 term.

Sarah decided to take two summer classes at MSU prior to her first semester, and she thought, "oh, this is just intro. I'll be dipping my toes in. It won't be anything like too difficult," but that was not what she experienced. Due to the difficulty of the summer courses, she did not think she could be successful in the engineering major and considered dropping out. She felt "like a little teeny fish in a huge pond." Although the fall semester seemed significantly better than the summer term, she "still just felt alone." Sarah did not have a strong sense of belonging on the MSU campus and struggled to find peers with whom to connect. She explained that "I didn't really have like a support group of people because I really knew no one and felt as if everyone had already formed their groups of people." Class difficulty did not seem to be an issue for her in the fall because she enjoyed challenging herself, working hard, and learning, but she "felt like I was just by myself and everyone else had their group of people to help them through whatever stress, whatever struggles."

Sarah craved the sense of belonging she had at the community college; however, she had difficulty making connections with other students. She stated that "the biggest contrast for me was that, at community college, every semester, no matter who was in

my class, they would be willing to help me with anything." She got the feeling that, at MSU, it was everyone for themselves. She felt like other students were most concerned about their own success. In talking about other MSU students, she stated, "I need to make sure I succeed. So why would I help you?" She wanted to find a study group that could hold each other accountable.

The professors, and their teaching styles, also differed at MSU when compared to her community college. She stated, "sometimes it can feel as if the teaching isn't really teaching. They're kind of just like placing it in front of you and like you have to figure it out yourself." She felt like a majority of the learning was happening outside the classroom. The biggest change Sarah faced when transitioning from the community college was the time spent on academics. She didn't seem to have much free time or work/life balance. She discussed the challenge by stating:

> I literally spend every second of the week working on homework, studying for exams, attending class, attending office hours. More specifically, I feel like the homework is just so involved. So literally, you take the entire week doing it, and then the next one's assigned.

While she didn't necessarily think that she was underprepared for MSU, she shared, "the biggest contrast is that, at a smaller institution, you have a closer relationship with the professor or closer relationship with your classmates." The classroom culture at MSU was very different, as the class sizes were much larger. This made it more difficult for her to build close relationships with her professors and classmates like she had at Eastern Community College.

Tom is a 23-year-old Asian male. He transferred to MSU from Central Community College in Spring 2018. He is a mechanical engineering major who was placed on academic probation following the Fall 2018 semester and participated in APP in Spring 2019.

Part of the reason Tom started to fall behind in his courses was that he was not aware of the online learning system. While he had used a similar system at Central Community College, it was a different platform and was not used to the same extent as at MSU. He felt like "almost every single one of my teachers, they must've thought it was like the norm that everybody at that point knew how to use [the platform]." When talking about his experience, he recalled being "introduced [to it] very briefly during orientation, but during orientation, the main focus was picking classes, getting your schedule, getting into a good class." He wished there was more of an introduction to the system that taught him how to navigate the platform to find videos and homework assignments posted by the professor. He would sit in class and see everyone was turning in

homework, and he was just sitting there: "I was like, 'Where did everybody get these books? Where did everybody get these questions?'" He tended to do well on exams, but because he was unaware of the posted assignments, he did not submit the assignments, and his grades suffered.

Tom initially held negative perceptions of the academic resources offered at MSU. He thought the professors would "tell you how they teach or they're going to tell you how they expect you to learn or expect you to participate and really go along with getting extra help on your own and such." This was not the case. He thought he would have received more information on the campus resources available. However, he was unaware of the vast majority of helpful resources for those students who were struggling with the transition to a four-year institution, such as tutoring, guided study sessions, and study skills workshops. He viewed professors and office hours as less approachable at MSU. He also shared that office hours at his community college were far more flexible than the limited times available at MSU. Tom viewed professors at MSU as less personable than his professors at the community college, "they could see you every day in class. Then, you show up to the office hours, and they're like, 'I've never seen you in my life.'"

Tom also experienced challenges with time management due to a long commute to campus. He felt like he "had a lot less time compared to my peers who were in the same situations." He described taking two buses in order to commute to campus, which took away time from studying and self-care practices (i.e., the gym).

CROSS-CASE ANALYSIS
Findings from the five individual student vignettes led to several themes that were similar for each of our participants: (a) perception of campus resources, (b) shift in classroom culture and faculty interactions, (c) expectations of the four-year school, (d) peers and sense of belonging, (e) challenges with online learning, and, (f) mental health.

Several of the students in our study placed a very low value on campus resources prior to when they were placed on academic probation. Rico and Andrew both illustrated a lack of interest in office hours. Similarly, during his conversation with us, Tom reflected on his decision not to participate in a one-credit transitional course designed to support transfer students. While he initially wanted to focus solely on his major requirements, he reflected that the transition course would have been helpful: "Now that I'm looking back on it, those transition courses would have really helped me." For each of these students, campus resources were only viewed as beneficial after they experienced challenges.

The classroom environments also shifted for students. For example, Rico talked about the difference between exam times at the community college and four-year school by stating, "[at community college] I didn't feel any pressure taking the exams." At many community colleges, students have unlimited time for exams. Therefore, students were unprepared for the rigorous structure of exam times at MSU. Students also indicated that faculty at MSU were less personal and less available than what they were used to at community college.

In many ways, students were unprepared for the rigor of MSU. Tom explained that there was no way to easily transition into the courses. He had initially assumed that professors would tell the students exactly what to expect on the exams; however, this was not the case. Andrew and Rico echoed similar sentiments throughout their interviews, reflecting on how challenging the assignments were at MSU as compared to their community college.

For other students, academic rigor was not the most challenging aspect of their experience. Sarah talked a great deal about the challenges she encountered in identifying a supportive peer group. Esther also described her desire to connect with peers. However, Esther's experiences were slightly different from Sarah's due to the online nature of her education during the COVID-19 pandemic. Three of our five participants were placed on probation during the pandemic. Rico, Esther, and Sarah all described the challenges that they encountered with online learning. For Esther and Sarah, virtual learning created challenges due to the asynchronous nature of the courses. Rico shared, "I would say that the struggle started to come when we switched to online learning. That was where it all started."

Online learning and lack of community then led to mental health challenges for multiple students. One common theme throughout the interviews was the role of test anxiety in constraining student success. Sarah and Esther both discussed their mental health challenges in detail. For example, Esther stated, "test anxiety here is a real thing."

Discussion

When reflecting on our findings, it is evident that student factors (e.g., self-concept), environmental factors (e.g., campus climate), and academic advising resources (e.g., selection of coursework and scheduling options) all impacted the transitional process. Several of the students in our study had false expectations about the rigor of the four-year institution. Both Andrew and Rico indicated that they did not put as much effort into their courses during the first few weeks because they were overconfident. Prior research suggests that students can develop a sense of transfer student identity, self-concept, and self-efficacy while enrolled at the community college (Buenaflor, 2021; Laanan, 2001); however, little research has unpacked the role of overconfidence in the

transfer process. The framework used for this study indicates that self-concept plays a critical role in transfer student persistence. When considering the role of academic advising, it is important that advisors clearly articulate the rigor of academic coursework and assist students in selecting appropriate courses that will allow them to excel.

The students in our study also spent a great deal of time discussing the difference between faculty at two-year and four-year institutions. The community college faculty were more hands-on and prioritized student learning. In contrast, our participants felt that the faculty at the four-year school were inaccessible and unhelpful. Given that several institutions use faculty advising structures, faculty who serve a dual role as instructors and advisors are positioned to provide mentorship and guidance to transfer students who need support as they navigate their first year at the four-year institution. Institutions should work with faculty to ensure that they are aware of transfer student needs and have the resources to support transfer students.

Finally, the findings from this study highlight the role of institutional culture in shaping the student experience. Continuously, students referenced their community college as a supportive, welcoming, and inclusive environment. For example, Sarah indicated that she craved the sense of belonging that she felt at the community college. Each of the community colleges attended by our student participants was significantly smaller than MSU. As the flagship institution in the state, MSU is a large campus and a Predominately White Institution (PWI). Laanan (2001) indicated that environmental factors, specifically campus climate, play a critical role in transfer student persistence. When academic advisors are working with incoming transfer students, they should be mindful of the environmental transition that students undergo and consider ways to foster a sense of belonging among transfer students.

Implications

Past research on transfer student adjustment has highlighted the role of inaccurate expectations (Laanan, 2001; Lukszo & Hayes, 2019). This was absolutely true for our work, as well. Students were not prepared for the rigor of the classroom environment or the structure of the learning environment. However, it is worth noting that academics were not the only challenge our students faced. Several students struggled with mental health, felt little to no sense of belonging, and had a difficult time navigating both physical and online spaces on the MSU campus. With this in mind, the following sections will discuss implications for academic advisors and other institutional agents who may be supporting transfer students. First, we will identify interventions that can support transfer students before they encounter academic challenges. Then, we describe recommendations that can support transfer students while they are on academic probation.

SUPPORTING TRANSFER STUDENTS BEFORE ACADEMIC CHALLENGES
In order to prepare transfer students, it is important to provide resources before they begin to face academic difficulties. Understanding the availability of resources from "Day 1" will prepare students to better navigate the transition to a four-year institution. One strategy for better supporting students is through the development of onboarding programs (beyond the standard orientation session) that are designed to share academic resources with students. Onboarding programs can provide students with academic workshops focused on campus resources, study skills, and time management. Additionally, onboarding programs can provide students with the opportunity to engage more directly with their peers. This will enable students to develop a sense of belonging with their campus community at the very beginning of the semester.

Another strategy for supporting transfer students is through structured peer engagement, such as academic peer coaching. Academic peer coaching is available at a variety of institutions across the nation (e.g., Northwestern University, St. Mary's University, and the University of Texas at Austin) and focuses on academic goal setting and skill building. Students from our study highlighted the desire/need for academic coaching. Andrew stated, "I think the biggest thing that you could offer is a safe place that we can go to where we get coached, and not just, you know, ask questions, here's your answer." Peer coaches can provide strategies and recommendations to help transfer students feel more confident attending office hours, help students identify existing resources within the college, and provide basic tutoring for foundational topics. They can also serve as touch points throughout students' first semester by encouraging them to persist in the rigorous science and engineering courses.

SUPPORTING TRANSFER STUDENTS ON ACADEMIC PROBATION
Regardless of the support provided to students prior to when they face academic challenges, there will always be students who struggle with their coursework. Therefore, it is also necessary to provide interventions to support students who are placed on academic probation. For example, institutions can offer a course (credit or non-credit bearing) for students focusing on academic skill building. Students in this study consistently referenced MSU's APP as an online course but indicated that they would benefit from more in-person support. With this information in mind, institutions should examine their current academic resources and look to develop structured academic sessions that provide a community for students facing academic probation. This course could focus on topics such as what academic probation means, what grades are needed in order to be removed from probation, how to successfully repeat courses, how academic probation affects their degree, and how to make a realistic plan for success. Additional strategies include the implementation of a self-assessment in which students can reflect on the factors that contributed to their academic probation status, the creation of a time management plan, S.M.A.R.T. goals, and skill development

activities. This is also a great opportunity for community building among students who are on academic probation, so students know they are not alone.

Finally, it is critical to remember the role of practitioners in supporting students both prior to and during academic probation. Students in our study indicated that they would like a main point of contact when placed on academic probation. Academic units should consider designating a lead advisor for supporting students on academic probation and provide mandatory, structured advising sessions. Altogether, findings from this study and the recommendations presented above can be used by academic units to provide wraparound services to transfer students throughout their adjustment process.

References

Berger, J. B., & Malaney, G. D. (2003). Assessing the transition of transfer students from community colleges to a university. *NASPA Journal*, 40(4), 1–23. https://doi.org/10.2202/1949-6605.1277

Buenaflor, S. (2021). Transfer student self-efficacy: A success-oriented narrative of the transfer student experience. *Community College Journal of Research and Practice*, 1–16. https://doi.org/10.1080/10668926.2021.1967226

Carlan, P. E., & Byxbe, F. R. (2000). Community colleges under the microscope: An analysis of performance predictors for native and transfer students. *Community College Review, 28*(2), 27–42. https://doi.org/10.1177%F009155210002800202

Cejda, B. D., Kaylor, A. J., & Rewey, K. L. (1998). Transfer shock in an academic discipline: The relationship between students' majors and their academic performance. *Community College Review, 26*(3), 1–13. https://doi.org/10.1177%2F009155219802600301

D'Amico, M. M., Dika, S. L., Elling, T. W., Algozzine, B., & Ginn, D. J. (2014). Early integration and other outcomes for community college transfer students. *Research in Higher Education*, 55(4), 370–399. https://doi.org/10.1007/s11162-013-9316-5

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

Earl, W. R. (1988). Intrusive advising of freshmen in academic difficulty. *NACADA Journal, 8*(2), 27–33.

Gehrke, R. L. (2006). *Dynamics between the academic advisor and student on probation which lead to academic success* [Doctoral dissertation, University of Texas at Austin]. Texas Scholar Works. http://hdl.handle.net/2152/2867

Gehrke, S., & Wong, J. (2007). Students on academic probation. In L. Huff & P. Jordan (Eds.), *Advising special populations* (Monograph No. 17, pp. 135–150). National Academic Advising Association.

Glesne, C. (2011). *Becoming qualitative researchers: An introduction*. Pearson.

Graham, S., & Dallam, J. (1986). Academic probation as a measure of performance: Contrasting transfer students to native students. C*ommunity/Junior College Quarterly, 10*(1), 23–33. https://doi.org/10.1080/0361697860100103

Hayes, S., Lindeman, L., & Lukszo, C. (2020). The role of academic advisors in the development of transfer student capital. *NACADA Journal*, *40*(1), 49–63. https://doi.org/10.12930/NACADA-18-35

Hills, J. R. (1965). Transfer shock: The academic performance of the junior college transfer. *The Journal of Experimental Education, 33*(3), 201–215. https://doi.org/10.1080/00220973.1965.11010875

Ishitani, T. T. (2008). How do transfers survive after "transfer shock"? A longitudinal study of transfer student departure at a four-year institution. *Research in Higher Education, 49*(5), 403–419. https://doi.org/10.1007/s11162-008-9091-x

Kamphoff, C. S., Hutson, B. L., Amundsen, S. A., & Atwood, J. A. (2007). A motivational/empowerment model applied to students on academic probation. *Journal of College Student Retention: Research, Theory & Practice, 8*(4), 397–412. https://doi.org/10.2190%2F9652-8543-3428-1J06

Kelley, K. N. (1996). Causes, reactions, and consequences of academic probation: A theoretical model. *NACADA Journal*, *16*(1), 28-34. https://doi.org/10.12930/0271-9517-16.1.28

King, M. C. (1993). Academic advising, retention, and transfer. *New Directions for Community Colleges, 1993*(82), 21-31. https://doi.org/10.1002/cc.36819938204

Laanan, F. S. (2001). Transfer student adjustment. *New Directions for Community Colleges, 2001*(114), 5-13. https://doi.org/10.1002/cc.16

Langer, P. C. (2016). The research vignette: Reflexive writing as interpretative representation of qualitative inquiry—A methodological proposition. *Qualitative Inquiry, 22*(9), 735-744. https://doi.org/10.1177%2F1077800416658066

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

Merriam, S. B. (1998). *Qualitative research and case study applications in education: Revised and Expanded from Case Study Research in Education*. Jossey-Bass.

National Student Clearinghouse (2021). *Tracking transfer* [Dataset]. https://nscresearchcenter.org/tracking-transfer/ National Science Board (2018). Science and engineering indicators. National Center for Education Statistics. Available at https://www.nsf.gov/statistics/2018/nsb20181/report/sections/higher-education-in-science-and-engineering/undergraduate-education-enrollment-and-degrees-in-the-united-states

O'Banion, T. (1972). Organizing and administering student development programs in the community junior college. *Peabody Journal of Education, 49*(4), 268–278. https://doi.org/10.1080/01619567209537865

O'Banion, T. (2009). An academic advising model. *NACADA Journal, 29*(1), 83–89.

Packard, B. W. L., & Jeffers, K. C. (2013). Advising and progress in the community college STEM transfer pathway. *NACADA Journal, 33*(2), 65–76. https://doi.org/10.12930/NACADA-13-015

Pennington, R. (2006). Rethinking grade transfer shock: Examining its importance in the community college transfer process. J*ournal of Applied Research in the Community College, 14*(1), 13–27.

Saldaña, J. (2014). Coding and analysis strategies. In P. Leavey (Ed.), *The Oxford handbook of qualitative research* (pp. 581–605). Oxford University Press.

Smith, N. L., Grohs, J. R., & Van Aken, E. M. (2022). Comparison of transfer shock and graduation rates across engineering transfer student populations. *Journal of Engineering Education, 111*(1), 65–81. https://doi.org/10.1002/jee.20434

Smith, N. L., & Van Aken, E. M. (2020). Systematic literature review of persistence of engineering transfer students. *Journal of Engineering Education, 109*(4), 865–883. https://doi.org/10.1002/jee.20357

Wang, X. (2012). Factors contributing to the upward transfer of baccalaureate aspirants beginning at community colleges. *The Journal of Higher Education, 83*(6), 851–875. https://doi.org/10.1080/00221546.2012.11777272

Yin, R. K. (2013). Validity and generalization in future case study evaluations. *Evaluation, 19*(3), 321-332.

Appendix A. Participant Table

Student Pseudonym	Transfer institution	Major	Gender	Race/Ethnicity	Age	Semester on Probation
Andrew	Western Community College	Electrical engineering	Male	White	33	Fall 2019
Esther	Northern Community College	Chemical engineering	Female	White	28	Fall 2020
Rico	Southern Community College	Mechanical engineering	Male	Black or African American	21	Fall 2020
Sarah	Eastern Community College	Chemical engineering	Female	Multiracial	21	Spring 2020
Tom	Central Community College	Mechanical engineering	Male	Asian or Pacific Islander	23	Spring 2020