



## Engineering Transfer Students' Views on Orientation and Advising

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## **Engineering Transfer Students' Views on Orientation and Advising**

Transfers comprise a significant portion of engineering students, yet few studies highlight the unique challenges and opportunities they face in negotiating the transfer process and transitioning to the new culture at the receiving institution. Rather, research on student retention and success often focuses on either non-transfer students or non-engineering students. Our qualitative study helps to fill these gaps in the literature on engineering student pathways.

In this paper, we report the initial findings from interviews with 38 engineering transfer students attending four different 4-year universities. This qualitative study is a part of a larger longitudinal project focusing on the academic pathways and experiences of engineering transfer students at 11 institutions. The overarching goal of the current study is to identify the processes that facilitate and hinder successful transitions from one institution to the next. In this paper, we explore student experiences in accessing the information needed to transfer from one institution to another, focusing on transfer student orientation and academic advising.

### **Literature Review**

Students experience many challenges when transferring among institutions in pursuit of their baccalaureate degrees. There are concerns with what Rice<sup>1</sup> calls point-of-transfer issues that relate to the transfer process itself, such as applying to the receiving institution and obtaining credit for courses. Policy makers and others are concerned about the low degree completion rate associated with the loss of credits or the denial of acceptance of credits,<sup>2</sup> what Smith<sup>3</sup> refers to as a “transfer tax” burden in terms of the time and money lost when students lose academic credits during the transfer process.

Laanan<sup>4</sup> and Napoli and Wortman<sup>5</sup> contend that students face challenges after arriving at the receiving institution, including transfer shock – conceptualized by Hills<sup>6</sup> as a decline in GPA during the semester after transferring – and academic trauma – adjusting to the often more rigorous academic standards at the new institution. Additional studies document challenges in adjusting to the new social and cultural milieu of the four-year institution.<sup>7</sup>

Three theoretical frameworks are particularly useful for explaining how students negotiate the transfer process and were particularly pertinent to our current study on engineering transfer students. Although these concepts potentially overlap with one another, together they advance understanding of the transfer process and the interaction between student’s personal characteristics and institutional process and programs.

The concept of cultural capital draws attention to the importance of access to specialized information necessary for student success. According to Oldfield<sup>8</sup> cultural capital is “the knowledge, skills, education, and other advantages a person has that make the educational system a comfortable, familiar environment in which he or she can succeed easily” (p. 2). Thus, the ability to transfer successfully requires access to specialized knowledge that may not be obvious or equally available to all students.

Coleman's<sup>9</sup> (1988) social capital framework draws attention to the role of personal networks in explaining outcomes in a variety of settings. For the current study, we are interested in whether and how students used their personal networks in the context of orientation and academic advising to get the information they needed to succeed in the new institution.

The concept of transfer student capital (TSC) incorporates elements of both social capital and cultural capital and is especially useful for understanding whether and how students transfer successfully from one institution to another.<sup>10, 11</sup> TSC refers to "how community college students accumulate knowledge in order to negotiate the transfer process, such as understanding credit transfer agreements between colleges, grade requirements for admission into a desired major, and course prerequisites" (p. 177).<sup>10</sup> Four primary components of TSC are: academic counseling, perceptions of the transfer process, experiences with faculty, and learning/study skills. Thus, this concept highlights the academic, sociological, psychological, and extra-curricular factors that influence the transfer process.

For this paper, we explore how students acquire the knowledge necessary to transfer to, and succeed at, the receiving institution, through orientation and academic advising. We contend that these students use their social, cultural and transfer student capital, in the context of institutional efforts, to transfer from one institution to another.

The orientation process is important to students at any level in their educational careers, but is especially important for transfer students who generally enter the receiving institution at an atypical time compared to the native students. As Grites<sup>12</sup> contends "transfer students need an orientation to the culture of the new campus, the academic and social impacts of the new environment, the academic advising structure, and the support services, activities, and organizations that are available to them" (p. 126). However, more energy and resources are devoted to organizing and delivering orientation programs to first-year college students than to transfer students. Wickert's<sup>13</sup> qualitative study of 16 transfer students showed that orientation was only marginally useful for imparting information to students, as did Jacob, Busby and Leath's<sup>14</sup> study. A predominant theme, then, regarding transfer student orientation, is that transfer students are often an "afterthought" when planning for orientation (p. 71).<sup>15</sup>

In the context of two-year colleges, academic advisors play a key role in maintaining students' motivation and educational interest in transferring to a four-year institution. Providing accurate and timely information to students about academic credits, progress toward degree, and academic expectations for the receiving institution is essential for transfer student success. In a study of criminal justice transfer students, students who were satisfied with their advising were more likely to report feeling more integrated into the new university.<sup>16</sup>

On the other hand, Laanan<sup>17</sup> claims that academic advising may have the unexpected result of not preparing students for transferring. He claims that when students seek advice from counselors, they are usually already experiencing difficulties with the transfer process. Davies and Dickmann<sup>18</sup> found mixed results regarding the helpfulness of advisors at 2-year and 4-year institutions in Colorado. Students offered praise for availability of advisors, while others

complained about the shallow advising received from some counselors. These findings are similar to those reported by Rice<sup>1</sup> in her qualitative study of transfer students.

## **Background to Our Study**

The present paper is part of a larger, mixed-methods study involving a longitudinal analysis of the academic pathways of engineering undergraduate transfer students in MIDFIELD. MIDFIELD, or the Multiple Institution Database for Investigating Engineering Longitudinal Development, is both a database and a partnership of the 11 member institutions. The MIDFIELD database includes records for approximately 210,000 undergraduate students who matriculated into engineering, approximately 45,000 of whom were transfers, at the partner institutions between 1987 and 2009. The main goal of the larger study is to enhance understanding of transfer student characteristics and how transfer students may differ from native students in order to determine which factors lead to the most successful outcomes for engineering students.

The qualitative portion of the MIDFIELD study on transfer students will ultimately include semi-structured interviews with approximately 100 undergraduate engineering transfer students at five of the 11 partner universities to get a fuller picture of their motivations for transferring and the challenges they faced in the process. The present paper is based on preliminary analysis of transcripts from 38 of the 67 interviews conducted at the first four institutions visited.

The overarching research questions for our qualitative study include exploring why students choose to transfer, how they adjust, and identifying the factors that contribute to successful acculturation of engineering transfer students. For this paper, we are interested in identifying the resources that students used to negotiate the transfer process and transition to the new institution. We focus on how they obtained knowledge about the academic requirements and the sociocultural environment of the MIDFIELD institution through orientation and academic advising.

## **Methods**

Campus representatives at the four MIDFIELD institutions sent an invitation to all engineering students who had transferred into the institution in the two semesters preceding the semester of the interview. Interested students completed a survey to provide demographic and scheduling information. Participants were chosen from six engineering majors - civil, chemical, computer, electrical, industrial, and mechanical - and were diverse with respect to gender and ethnicity.

Selected students were interviewed in Fall 2011, Spring 2012, and Fall 2012. We used a semi-structured interview protocol to learn more about student experiences with the transfer process. The protocol covered a variety of topics including why students selected the engineering major, why they chose to pursue the transfer pathway, experiences with the transfer process, and challenges in making the academic and social transitions to the new institution. Just prior to the interview and after signing a consent form, each respondent also completed a background questionnaire that included questions about math and science courses taken at the receiving

institution, the financing of their college education, and current employment. Participants were paid \$20 upon completion of the interview. Interviews were audio-taped and then transcribed verbatim and verified. We then engaged in open coding of the 38 interview transcripts to identify themes related to our research goals.

## **Sample Description**

The average age of the 38 respondents was 22.5 years with 5 respondents (13%) indicating that they were 25 years old or older. Forty-five percent (n=17) classified themselves as seniors, 29% (n=11) as juniors, and 26% (n=10) as sophomores at the time of the survey. Our sample of interviewees is overwhelmingly white (79%) and male (66%). White students make up 70% of MIDFIELD transfers in engineering. Women are overrepresented in our interview sample since women comprise only 19% of engineering transfers in MIDFIELD. Two-thirds (n=25) of the 38 students interviewed reported attending a 4-year institution prior to their current institution. Thus, our sample is comprised of a higher proportion of lateral transfer students than is implied in the literature on transfer students, which tends to focus on vertical transfer students (i.e., those transferring from two-year to four-year institutions). Regarding their self-reported major, an equal proportion of respondents (29%) reported majoring either in chemical or mechanical engineering; 18% reported majoring in electrical engineering, 11% in civil engineering, 8% in general engineering (required at one institution before declaring an engineering major), and 5% in industrial engineering. Three of the 17 students (18%) who were asked about their parents' education appear to be in the first generation in their family to attend college; that is, neither their mother nor their father had attended college (we have no information about siblings). However, on the whole, the parents of these 17 respondents were well educated, with 12 of the 17 having at least one parent with a bachelors or graduate degree.

## **Results**

This first stage of our analysis has revealed several emergent themes related to how students obtain knowledge about the transfer process through orientation and academic advising. The main themes are summarized below. Quotations have been modified to improve readability by deleting verbal crutches, such as “um” and “you know” and false starts. We have also assigned pseudonyms to the MIDFIELD schools (A-State, B-State, C-State, and D-State) and some of the sending institutions (Local Tech, Metropolitan Community College (MCC), and College-Town Community College (CTCC)) to enhance readability while maintaining institutional confidentiality. Speakers are identified by their institution (A, B, C, or D) and the order in which they were interviewed.

### *Obtaining Knowledge about the Transfer Process through Orientation*

Most students recognized that the transfer process involved several discrete decisions and required access to information often not readily accessible through their own personal efforts. In particular, orientation programs and academic advising were an important source of information about the transfer process and about succeeding at the receiving institution. Students described participating in several types of orientation: at the university level, college level and departmental

level. Others participated in orientation activities both at the sending institution and the receiving institution. For example, one student participated in a “preview day” at the sending institution prior to being accepted at the MIDFIELD institution (D4), while another reported meeting with advisors who visited the sending institution campus (C1).

Various types of information were presented at orientation sessions, including general information related to campus safety, student services and clubs, and parking along with practical information related to course registration and how to succeed in college. D-State developed an extensive orientation process and program that once took place over a period of several days but has since reduced the program to half a day due to budget cuts. Among other activities, this program provided transfer students with mentors. This mentoring aspect was particularly valuable for one student at D-State. Her “transfer mentor” played an active role in the student’s adjustment to D-State by providing practical tips and wisdom for succeeding there: *“He gave me notes from other classes...that I was taking. He told me ‘Listen, this is hard. Don’t worry. Don’t stress out. Find friends. Get yourself a study group.’ ”* (D4) However, this student was one of the few who described benefitting from the program. We posit that the focused orientation may have been targeted toward special populations of transfer students as this student was both female and minority.

Students described benefitting from the quantity and quality of information provided at the campus orientation sessions. In the words of one student, *“they nailed it”* (B6) and provided just the right amount of information at orientation. Students were able to obtain information about campus services and programs, along with information about engineering in general and their department and major in particular. One student indicated that he was required to attend the orientation and actually had to provide documentation that he visited at least eight information tables at the “orientation fair.”

A few students reported they had the opportunity to meet with departmental advisors during orientation which helped them to learn more about the resources in their new department:

Interviewer: Do you recall if you visited the department at all [during orientation]? The mechanical engineering department? Or was it more just a general introduction to the university itself?

B10: *It was the first half of the orientation that was the introduction to the university, but then I remember the second half they divided everybody into their majors and I also got an introduce[tion] to my department, and they showed me the engineering building, which is pretty neat, and yeah, they have a lot of tools up here that [the sending institution] never had.*

The orientation was useful even for those students who found it to be a bit repetitive:

*There’s always something more that you can learn. Even if you’ve heard it a hundred times. Like, you can hear it a hundred and one times and maybe it’ll sink in this time.*

*I've heard people say, 'Go to your...professor's office hours. Like, go to 'em, go to 'em.'*  
*Can't say I – I do now, but...(C6)*

Despite the benefits of participating in orientation, a vast majority of respondents indicated that orientation was not particularly helpful to them for a variety of reasons. The amount of information fell far short of what several respondents expected, with one student describing the orientation more as a “*briefing.*” (B3)

Others claimed that the orientation was not at all targeted to their information needs and was rather pedantic in its delivery. As one respondent said, in spite of the fact that the orientation covered everything “*It was the most painful experience in the near history of my life.*” (B6) He elaborates further, saying that the orientation covered information targeted more toward freshmen, such as “*don't walk around...drunk, or get into trouble.*” However, the same student said the departmental orientation was much more useful, because it was brief and to the point.

Respondents described their frustration at being treated like freshmen during their orientation and not being given credit for their existing knowledge and experiences. In the words of one respondent, they have already “*been on the college scene.*” (C2) Another student described these distinctions between freshmen and transfer student subcultures:

*Well I'm a transfer student. I know what I'm doing. I've been to engineering for like two years, and now I'm transferring to get [a] better education. I don't care about band. I don't care about like, 'Hey, we have two swimming pools.' O.K. fine, I don't care. I'm not a freshman, ya know, I'm not coming from high school...I don't care what freshman people are interested in. I'm caring about the stuff that I'm doing and whatever you have to offer to me about [these] things that I'm interested in.” (A16)*

He elaborated further with specific suggestions for what he needed from the orientation process:

*I just need to know more about projects you're doing. More about...your professors. Where are they coming from? What their projects are. What are they working on? They don't say this stuff to you when you're a transfer student. They just tell the same exact stuff that they tell to the freshman people and I don't like that.” (A16)*

In other words, obtaining information about educational opportunities and about their major department would have been more useful to many students we interviewed, as summarized in the following statement from a mechanical engineering major:

*B6: If you just do the latter [engineering department orientation], it would've been better.*

Interviewer: So you would prefer only mechanical engineering orientation?

*B6: Yeah. Or only the engineering school orientation that... they can take the important points from the...orientation where everyone's there and present it with your department-specific information. Yeah... but that's just me ranting.*

One older student reported that she was sent to the parents' orientation when she went to the transfer student orientation. The exchange below with the interviewer shows her frustration and demonstrates that transfer program planners need to be more aware of their audience.

*A13: [The orientation staff] kept sending me with the parents. So that was... it was really a nightmare.*

Interviewer: Just making assumptions because of your age?

*A13: Yeah.*

Interviewer: Did you bring your 15-year old child with you?

*A13: (Laughs) no, it was like... I'd be there, I'd be trying to join in the students, they're like, "Oh no, no, you go that way!" And I was... I didn't think about it at first, but after the second time they did that, I was like, "No I'm a student." "Oh ok, well yeah, you do go over here." So it was... it was rough."*

Those students who had already conducted their own research on the institution often found the orientation not to be very useful. Several expressed impatience with the process:

*I know what I need. I knew what I was there for...I knew pretty much everything. I had already done all of the work. I was just there for them to, ya know, grant me access so I could sign up and be on my way. (C4)*

Another respondent echoed these comments: *"But I mean, at that point, by, ya know, no fault of theirs, I had already known most of the stuff. Just 'cause I'd looked into it, and read that book and stuff." (C8)*

The knowledge about orientation programs and the levels of participation varied widely across the institutions and student interviews. For example, of the 10 students interviewed at Institution D, nearly half indicated that they had no knowledge about the formal orientation program that was touted by school administrators as being particularly thorough. In response to our questions about this special transfer program, students offered the following comments: *"I didn't even know about this stuff" (D2); "I never heard of it..I've never heard of it" (D3); and "No, I don't recall there being any orientation programs being mentioned or offered" and later saying "I guess I didn't...either got the e-mail or missed it, or something."(D7)*

This theme about communication from the receiving institution was mentioned by several students who suggested a more focused approach for marketing orientation activities. When



students are accepted to an institution, they are often overwhelmed with the information and e-mails they receive upon acceptance.

*Again, I don't know if I got it and just, I mean, 'cause when I got here, my email box was...flooded with all this stuff. And I think I kinda just... [swoosh noise]. It's like I'm not reading all of [this] – 'cause, ya know. It's intimidating enough. So when your inbox is full, you're like, ugh." (D7)*

These sentiments were echoed by another student who said “I got a bunch of emails, but I didn't find them user-friendly...or student-friendly programs. I said, 'Ehh...I don't like this type of e-mail. I don't like these groups.” (A16) He went on to say the e-mails were unclear and that he didn't know what the program had to offer nor what would be particularly appealing for him at the orientation.

It is also important to note that many students reported engaging in their own “personal orientation” whereby they conducted background research on their own, independent of any institutional efforts to introduce them to the campus, their department, and their major.

#### *Obtaining Knowledge about the Transfer Process through Academic Advising*

Formal academic advising for students intending to transfer can take place at the sending institution, the receiving institution, at both institutions, or at neither institution. In many cases, the students we interviewed received all of the advice they got through their own research on line. In these cases, they relied on the websites at the receiving institution for information about the transfer process, course credits, and required prerequisites. Depending on the institution, this information was either satisfactory or sorely lacking.

#### Academic Advising at the Sending Institution

Advice received from faculty and program advisors at the sending institutions ranged from non-existent to extremely valuable. For example, Metropolitan Community College was described as having a particularly good pre-engineering advising system. They made available helpful literature with the requirements for a number of in-state and out-of-state engineering programs to which students could transfer. One advisor at this sending institution was particularly helpful to a student transferring to D-State:

*My advisor was actually very helpful. He explained to me how it would work. He told me when to schedule a tour. He also was friends with the advisor for ME here. So he gave me her number, and he let her know when I was coming up. And I was able to talk to her before coming up. To see if I could come by after the tour. To meet with her. (D7)*

Other advisors at the sending institutions, however, were described as being out of their element:

*So my math major advisor was basically an arts and sciences advisor, so she didn't really even know much about engineering, and she would always forward me to someone*

*else for my questions. So it was pretty pointless going to her anyways. She was a wonderful person, nothing against her. It was just – I feel like what I was trying to do was out of her area of expertise. (B6)*

A positive advising experience at the sending institution was more likely to be found at an institution that had some sort of formal agreement or working relationship with the receiving institution. For instance, a transfer to A-State from a college that is part of a Formal Transfer Program to A-State said *“I had an advisor. At the end of every semester she would tell me where I was at. Just like an advisor here, what I needed to take to graduate on time and whatnot.”* (A14) Similarly, a transfer to C-State from a school with a 3+2 transfer program talked about the integration of her program with that at C-State.

*I had a really good advisor, and he did a really good job of – of making contact with C-State for me, and making sure that I stayed on schedule of like, meeting all my deadlines and he went with me to the dean. He went with me to the registrar, who makes sure all your classes are meeting requirements for [my first school]. And he talked to [an advisor] here.”* (C3)

C-State and D-State both have nearby community colleges that students choose to attend because they see them as a gateway to the engineering college. But the experience of the students at these two schools is markedly different when it comes to advising. A student at Local Tech, near C-State describes the advising received through a special transfer student program there:

*She was part of Local Tech, but she was part of the Transfer Student Program as well. So she knew what credits you had to take, and so she knew what was going on. When I went and talked to her, she definitely helped me a lot. She told me exactly, “O.K. Here’s the catalog. This [are] Local Tech’s classes, which [are] equivalent to these C-State classes.”* (C10)

In contrast, many students interviewed at D-State chose to go to College Town Community College (CTCC) for the reasons described by this student:

*It seems like in CTCC, if you look at their website, it’s always like, oh, this is this thing - the “Gateway to the [D-State mascot],” or something like that. Like, oh, this is where you go to D-State. From here you’ll go to D-State. They don’t have anything that will, like, help you to go to D-State. (D6)*

In spite of its proximity, students did not seem to get the counseling they were looking for from CTCC.

Interviewer: Did any of the advisors [at CTCC] know about the whole process of transferring to D-State?

D3: *[Laughing] no. Absolutely not. So. Which I – I figured CTCC would have some kind of, um, ya know, engineering communication. Or communication with the D-State*

*engineering. They had nothin'. Not – at least not that I could find. And believe me, I searched. And I spent my time tryin' to figure things out. They didn't have anything.*

At CTCC, students who want advising in engineering tended to go to advisors at D-State to get it. On the plus side, these advisors seemed willing to help and open to advising students who were not yet enrolled in D-State and the students appreciated the advice that they received. On the other hand, not one student reported receiving any academic counseling for engineering from CTCC.

Although positive advising from the sending institutions was welcome and generally helpful, more often the students believed that they needed to find out information on their own. For example, one student described himself as a “*lone wolf*” who preferred to research the process and requirements on his own (D1). Another student said: “*I just didn't ask 'em to do anything. I didn't think they were gonna help me. I didn't think of anything I needed help with from them either, though. If I needed something, I would've asked.*” (B3) Students often did not seek help at their sending institution because information provided on the internet seemed to suffice: “*I read pretty much everything I need to do on the Internet. ... It was O.K. and it's written really clear so you can just follow up and just get it done.*” (A16) Institutions should keep this in mind when designing their transfer websites.

#### Academic Advising at the MIDFIELD Institution

Although nearly all students at CTCC seek advice from nearby D-State, seeking advice from the destination institution was very common practice for students going to A-State and B-State as well as from almost any type of sending institution, particularly if that institution was within easy driving distance. As one student put succinctly “*I went to A-State because they were the ones that were accepting me.*” When asked what his first school might have done better, he said: “*I wasn't really sure that there was anything they could have done for me because I was more concerned with coming to A-State than leaving [my last school].*” (A15)

Some students traveled to the receiving school not only to obtain counseling but as a strategy to help them stand out among other transfer student applicants. For example, one student who drove five hours to D-State to meet with a professor said she did so “*because I kinda wanted her to have a face to go with the application, because I know seats are limited. And I wanted to kinda set myself apart from... ya know what I mean? Stack of papers. Who do I know? Ya know?*” (D7)

Another student transferring from CTCC to D-State reported using this same strategy:

*So I'd go to him sometimes and – and he's good too. I just prefer to go to [one particular advisor]. I really don't know why. I know he's the one that whenever I submit my application, I know that he's the one that looks at it. 'Cause I asked him. I asked him “Who puts the check mark on my application to get to D-State?” And he said, “It's me.” And so whenever I learned that, for five months before I got accepted, I would send him an email. Once a month? And I would go visit him in person once a month so whenever that application with my name on it came across his desk, that name would click [snaps*

*fingers]. And that was important to me, because then hopefully I would seem like a nice guy. Hopefully he liked me, and then he would, "Oh I know this kid." Circle it. Check. Whatever. And then send it on its way. (D3)*

Because most transfer students transfer directly into an engineering major, the quality of advising for them often depended on the department to which they were transferring. An electrical engineering student at D-State said *"And when I came here initially during fall, my advisors told me to take, easier classes and take a lighter load. So that's what I did, and the semester seemed a little easy."* When asked why, he replied: *"he told me that most transfer students don't do well their first semester. So I should take a lighter load just to transition easier. And I just followed his advice."* (D2) By contrast, a student transferring into the chemical engineering department at D-State wished for similar advice from her advisor:

*D4: But at the beginning, she wasn't as help – helpful as I would've want her to be. Or – she didn't tell me certain things that I didn't know that I had to figure out myself.*

Interviewer: What do you wish she'd told you?

*D4: Kinda like, O.K. Listen. This is hard. Like, my first semester I took P-chem. Which is, like, one of the hardest classes. Well – not – not as much as the other course, but it's a very hard class compared to the other ones. Ya know, beginning your curriculum. Like, your core classes. Uh, and it was – this class was crazy. And I wasn't expecting it. She never told me, listen. You've gotta be ready for this class, because it's really hard. And you're not used to this, kinda, ya know, learning environment. So she didn't warn me about the things that I was supposed to know.*

The timing of the transfer made a difference as well, even for the same department within an institution. For instance, a student who transferred into mechanical engineering at B-State in the spring semester:

*B-State's advisor was leaving, so he was not very helpful. So my first semester I was sort of just left on my own to try and find what courses I should sign up for, and ya know that was tricky because I didn't really know how the two majors from the different schools would match up. (B2)*

However, another student found the successor advisor in that same department to be more than helpful, even before he applied:

*My advising counselor I think was very, very helpful. And she played a vital role in me successfully transferring. Like, I came to her just one day randomly last spring. And I just knocked on the door. I came to see my girlfriend, and I was like, "I'll check out the department", and I was like, "I've heard you're the mechanical engineering advisor. I want to get into this school, what should I do?" And she like sort of broke it down, she's like, "O.K. this is what you've taken? All right, this is what you need to take." Everything – she charted everything down. She doesn't need to do that, I'm not even in this school. I*

*haven't even applied. And she really helped me out, and she still does, like sending emails about internships and whatnot.(B6)*

## **Discussion and Conclusion**

In this article, we present our initial qualitative analysis of 38 interviews with engineering transfer students from four universities. Our study responds to a call for researchers to expand beyond traditional quantitative approaches for understanding transfer student experiences.<sup>18,19</sup> Study results provide evidence regarding how students use orientation and advising to maneuver through the initial stages of the transfer process. Our findings will be useful to individuals interested in designing programs to improve the transfer process and better understand the factors related to student success.

Students used a combination of social capital (personal networks), cultural capital (knowledge of higher education environments) and transfer student capital (a combination of “agency, knowledge and action”)<sup>10</sup> to get through the early stages of the transfer process. Indeed personal motivation and resourcefulness seemed to be more important for this sample of engineering transfer students than were the more formal institutional orientation and advising processes.

As a whole, significantly more students found that transfer student orientation did not meet their needs for information about the academic requirements, educational opportunities, or sociocultural milieu of the sending institution. These results confirm previous studies on transfer student orientation.<sup>13, 20</sup> Our interviews suggest that the more personalized orientations were most effective for students. Given the diversity of enrollment patterns and student characteristics, it may be impossible to tailor an orientation to each subgroup (e.g., part-time vs. full-time status; by academic year; by major; commuters vs. on-campus students; and working full or part time). However, some of the students’ experiences indicate a need for more proactive advising and orientation on the part of the receiving institutions. Simply inviting students to attend an orientation is not enough – the invitation might get lost in a sea of emails. More personal invitations through phone calls or peer mentors could provide the students with the information they need and stimulate their interest in an event than many may otherwise think is a waste of time.

The overarching theme for advising is that there is not a systematic advising process in place at any of the institutions, perhaps constituting “institutional neglect” on the part of both the sending and the receiving institutions.<sup>21</sup> Many students experienced frustration at receiving inaccurate information and ultimately not being able to get credit for many classes, which leads to inconvenience when planning for graduation.<sup>22</sup> It is essential that transfer students move beyond these initial challenges, as once they do, they are likely to persist to graduation as are native students.<sup>23</sup>

In many cases, students had to be very persistent to obtain the information they needed, being very proactive by making campus visits, calling university personnel and faculty, and utilizing personal networks. This finding supports Ellis’<sup>24</sup> study on transfer students who routinely circumvented the university processes and systems to get what they needed.

Overall, our early results suggest several main themes related to the role of orientation and academic advising in providing students with the information they need to make a smooth transition to their new institution. Students succeed because of, or in some cases, in spite of, broader and more formal institutional efforts to facilitate the transfer process. We would have to presume that university staff and faculty are well-intentioned when designing such systems and processes, but they do not always work as intended. For both orientation and advising, students relied on both personal characteristics and institutional programs to obtain information required for successful transitions. Importantly, the combination of both personal motivation and resiliency and the existence of formal programs characterized the most successful transfer experiences.

Our early findings suggest several avenues that would benefit from more detailed exploration. In future papers, we will explore the differences between lateral and vertical transfer students as our early descriptive research on the MIDFIELD study suggests that the lateral transfer pathway is nearly as common as the vertical transfer pathway.<sup>25</sup> In future analyses, we will explore how the use of transfer student capital may differ based on gender, race/ethnicity, and first generation student status and how some of these factors may be unique to engineering. Research suggests that use of information sources and networks may vary based on whether or not a student has earned an associate's degree prior to transferring to the senior institution.<sup>19</sup> Future analysis will also incorporate institutional level variables, such as the existence of articulation agreements between sending and receiving institutions. The study of community college transfer students by Calcagno et al.<sup>26</sup> found that college or major subculture variables were more important than broader institutional variables, such as expenditure and tuition levels, for predicting successful transfer experiences. Thus, we will also explore how experiences may differ based on one's major.

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