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Finding Home: Pre-College Socialization and Anticipatory Belonging on Campus (Fundamental)

Dr. Benjamin Goldschneider, University of Virginia

Benjamin Goldschneider is an Assistant Professor of Engineering Foundations at the University of Virginia. He holds a Ph.D. in Engineering Education from Virginia Tech, as well as a B.S. in Industrial Engineering from Purdue University. His research interests include students' sense of belonging, socialization, program development, and pre-college introductions to STEM material.

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Abstract

Campus tours, admitted student visit days, and open houses are well drilled parts of university recruitment efforts. At the same time, they are resources that not all students – prospective or accepted – can afford. Online alternatives have become more popular but cannot replicate the experience of actually stepping foot on campus and interacting with the community directly. When forming their initial perceptions of the institution they would spend several years living, learning, and participating in, students rely on the information and experiences provided to them by the university and their social networks. Given that these perceptions are what will eventually inform a student's decision on where to enroll, making sure that the students have as much information as possible is paramount so that they can make an informed decision of the environment that will best suit them. Whether students were able to set foot on campus prior to enrolling or not and the accompanying pre-college experiences inform the degree to which students feel like they belong on campus, setting the starting point for their collegiate career. The purpose of this qualitative investigation is to compare the anticipatory socialization experiences of eight students and understand how the experiences differed between those who were able to make it to campus prior to enrolling and those who were not, to better understand how it influenced their sense of belonging on campus. The data for this study are a collection of semi-structured interviews with eight students spanning chemistry, chemical engineering, and biochemistry at a large public Mid-Atlantic university. While the dataset contains thirty-two interviews—one each year for four years across eight participants—the bulk of the discussion of pre-college experiences occurred in the first- and second-year interviews. As noted above, a better understanding of how students pre-emptively form their picture of the university environment and how they fit into it would allow for better design and implementation of support and interventions for students who are struggling to adjust. Addressing the challenges that students face early on can help boost retention and the quality of students' overall experience in the long term.

Background and Objectives

The college enrollment process is a complicated journey for many students, filled with confusion and stress, but also excitement and hope. Some may have known their dream school since they were children, whereas others are only beginning to explore their options as they complete high school. A plethora of factors influence prospective students' enrollment intentions. Rising costs are a concern for many students, either limiting their options to in-state universities or making them feel locked out of a system they are otherwise academically prepared for [1]. The financial challenges are further amplified by mixed opinions and conflicting information about student loans [2] in combination with limited financial literacy among prospective students who tend to overestimate the costs associated with pursuing a degree [3]. Prospective students must try to align their academic credentials with the quality of potential institutions and their eventual peers. Gauging academic fit from outside of the institution can be challenging. When students aim too high, they can end up feeling out of place or insufficient, negatively impacting their academic

performance and self-esteem [4]. When they aim too low, they risk limiting their post-graduate and professional outcomes [5]. Outside of academics, students must make judgements about their perceived fit into the social environment of the university as well [6]–[8]. Underlying many of the challenges associated with enrollment decisions, however, is the availability and accessibility of information.

Information comes to students from a variety of sources. A wide range of socializers help to provide students with information about academic, economic, and social facets of college life. Parental influence can shape students' perceptions of prospective majors [9], [10], their financial options [2], and baseline interest in attending a university [11]. High school teachers often serve as role models, informing students' academic interests [12]. Teachers also run the risk of instilling stereotypes about the subjects they teach into their students, which subsequently affects students' perceptions of self-worth and choice of major [13], [14]. Student-to-student interactions also carry significant power in shaping students' college enrollments, with increased peer-to-peer conversations about college resulting in increased enrollment rates [11]. Peer-led informational programs have also been tied to such increases [15]. College websites and social media platforms serve as an easy-access tool for students to do their own research from home—a tool that became significantly more important when on-campus access was limited during the COVID-19 pandemic [16].

Campus visits and other forms of on-campus interaction have been well studied for their impact on student enrollment decisions. Campus visits are a chance for the university to show off its physical spaces, from lecture halls to recreation centers and residential buildings. Several institutions have found that investing in such infrastructure can provide some return on investment through increased recruitment and retention [17]. Setting foot on campus has been noted to increase the frequency of conversations students have with high school personnel, as well as their self-beliefs in being able to succeed in a university environment [18]. Connection with academic and administrative personnel has been linked to positive influence on students' levels of excitement towards enrolling at an institution [19]. However, even prior to pandemic-era restrictions, campus visits were a luxury that not every prospective student had access to [19]–[21]. Whether limited by geographic proximity, economic means, or schedule availability, many students, particularly those from less privileged socio-economic backgrounds, could not make the trip to visit a college campus. In some other cases, students may simply choose not to, should they find alternative methods of information gathering sufficient [16].

Having established the complexity of the college enrollment decision making process, this study sought to further unpack how pre-college social connections and experiences impact such an important decision. To do so, it frames the experiences of eight undergraduate students through a conceptual framework that synthesizes theories of socialization and sense of belonging (SoB), as posited by Conrad et al. [22] and Strayhorn [23] respectively. Conrad et al. [22] present socialization as a longitudinal process by which students' beliefs, values, identities, and predispositions are challenged, confirmed, and/or reshaped by their experiences within the higher education environment. This transformation—or lack thereof—transpires by way of numerous interactions with communities both within and outside of the institution. Personal networks of

family and friends inform the way students view themselves and their capabilities, while professional associations and employers shape students' career aspirations. At the same time, peers, professors, advisors, and a tangled web of other on-campus personnel guide an individual's journey to begin and complete their undergraduate study. All of these socializing interactions take place against what Conrad et al. dub normative contexts. Defined by the rules, expectations, and norms prevalent in a given space, a normative context informs a socialization experience. For example, a conversation between a student and a professor will have different character when it occurs in a classroom full of other students, privately in the professor's office, and in passing on campus. The normative context in which socialization occurs is critically important to the impact it will have. The original framework traces socialization from the anticipatory stages all the way through students' entrance to the post-graduate world, though the anticipatory and early undergraduate periods are the focus of this work. A visualization of this model is presented below in Figure 1.

Figure 1: Conrad et al.'s (2006, p. 257) Model of Undergraduate Socialization

Strayhorn [23] argues that feelings of belonging are a fundamental human need that are also sufficient to drive behavior. Individuals that feel cared for, supported, and that they matter to those around them in a given environment subsequently feel that they belong in that environment. Belonging takes on heightened importance during uncertain or stressful periods of time, and in contexts where an individual feels like an outsider. For most traditional prospective students, the college application process is stressful and takes place during late adolescence: a critical period of their development during which many students are making discoveries and decisions regarding their futures, identities, and themselves [24], [25]. In such a stressful

position, students seek an environment that they feel will welcome them. As previously noted, Strayhorn [23] argues that a desire to belong is sufficient to drive behavior. As a result, the need to belong can have significant ramifications regarding where students choose to enroll. Therefore, it is of utmost importance that they are made to feel cared about and supported throughout the process and are shown college environments in which they anticipate they could belong. It is this process of demonstrating care to the students that ties the two theories together.

Just as an individual's values and beliefs can be reshaped by their socialization experiences, so can their SoB. A representation of this combination, with a simplified "black box" visualization of socialization, is presented in Figure 2 below. Approaching and working through the college selection process produces a unique set of socializing opportunities for each student. The way in which a prospective student chooses to engage with these opportunities in turn shapes their SoB at a given institution as they get to know college recruiters, visit campus, or read institutional publications and student testimonies. The now altered SoB subsequently informs how the student will be able to engage with the institution as they become more or less comfortable with the information, people, and spaces they've encountered. Furthermore, as a student looks to choose their institution, they must also consider their prospective major. In turn, the major decision can affect a student's perceived fit at an institution based on the availability of said major, relevant faculty, and the quality of the academic programs being offered. As such, this study looks at SoB and its development as a dual outcome: belonging in the major and belonging in the university. Each SoB can develop independently of the other, or they can happen simultaneously. For example, speaking with a professional in the field can impact a prospective student's choice of major, but not their choice of institution, if the professional is not affiliated with any specific university [7].
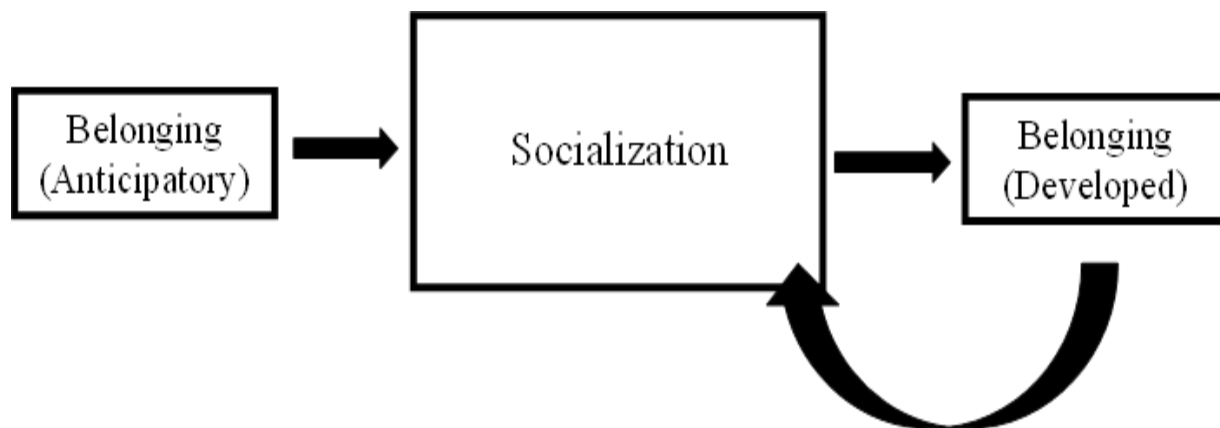

Figure 2: Conceptual Framework, adapted from Goldschneider (2023)

This study seeks to address the following research questions:

1. In what ways, if any, do students' pre-college socialization experiences influence their anticipatory sense of belonging to both their chosen university and their chosen discipline?
2. How do students' anticipatory senses of belonging impact their eventual enrollment decisions?

Broader Project Background

The data used in this study are drawn from a broader pool generated as part of the Understanding Knowledge and Student Agency (UKSA) project, a collaborative effort between six institutions spread evenly between the United States, United Kingdom, and South Africa. Faculty and graduate students representing five of these six institutions conducted the work over the span of 2018-2022. The project's objective was to capture various dimensions of undergraduate students' experiences through repeated interviews during or shortly following the conclusion of each academic year. Only data from one of the US institutions was incorporated for this study. UKSA was followed by a companion project which followed the same participants after the conclusion of their undergraduate studies, though the data from the continuation project was not used in this study. The author of this paper became involved with the UKSA study in 2019 and remains involved with the team as of publication.

Methods

Participants

Eight undergraduate students make up the population for this study, consisting of students who studied Biochemistry, Chemistry, and Chemical Engineering. Seven of the eight participants completed all four years of their studies at a single large, public Mid-Atlantic university. The eighth participant, Catia, completed two years of study at a smaller public Mid-Atlantic university—the other US institution included in the UKSA study—before transferring to the same university as the rest of the participants to complete her third and fourth years. Due to this transfer, her pre-enrollment experiences will be examined both prior to arriving to her initial institution and the primary study institution. Though there are a host of factors that influence transfer students' decisions that do not necessarily factor into the decision making process for new undergraduates [26]–[28], for this work only comparable experiences will be examined. These include exposure to online and print materials from the university, campus visits, and orientation opportunities, among others.

Pseudonyms were assigned to the participants based on the naming scheme used in the broader UKSA project. An individual participant's institution and major—split into chemical engineering and chemistry/biochemistry—determined the first letter of their pseudonym. Self-reported demographic information is provided below in Table 1, in addition to each participant's chosen major in the first year. Chaaya picked up a double major in Chemical Engineering in her second year and transferred fully into it as a solo major in her third.

Table 1: Self-Identified Participant Demographic Information

Pseudonym	Discipline	Race	Gender	Nationality
Annie	Chemical Engineering	White	Woman	United States
Anthony	Chemical Engineering	White	Man	United States
Arun	Chemical Engineering	Indian	Man	United States
Ayame	Chemical Engineering	Asian	Woman	China
Caroline	Biochemistry	White	Woman	United States
Catia	Biochemistry	White	Woman	Russia
Chaaya	Chemistry	Indian	Woman	United States
Chloe	Chemistry	White	Woman	United States

Data Collection

The data for this study is composed of thirty-two semi-structured interviews. Each participant was interviewed once per year, typically in or immediately following the spring semester. The interviews generally lasted between forty-five minutes and one hour and followed a protocol devised for the broader UKSA project. The protocol sought to capture a wide variety of the students' perspectives on the prior academic year, including reflections on their assessments, preferred class style, social engagements, living situation, and place in the university community. Interviews in the first and second years were conducted in person, whereas the majority of the third- and fourth-year interviews were conducted via telephone or video conferencing software due to the COVID-19 pandemic. Interviews were recorded and professionally transcribed.

Though the pool of data for this work spans four years, the bulk of useful information was contained in the first- and second-year interviews due to their proximity to the pre-college period being examined. Participants occasionally alluded to or brought up pre-college experiences in later interviews, but this will be specifically noted in the results and discussion.

Analysis

As the theme of this paper began as a minor finding in the author's dissertation work, the initial analysis that unearthed it is outlined there [7]. In short, each individual participants' interviews were read in chronological order before a first round of descriptive coding. This round of coding produced categories of experiences which were then analyzed using trajectory mapping in order to better understand their evolution year-to-year [29]. Finally, thematic analysis [30] was employed to understand patterns within and between these longitudinal experiences.

Because significant time had passed since the initial analysis of the data, analysis for this work began with refamiliarization. The eight students' interviews were revisited, with a particular focus on the first- and second-year interviews. Pre-college socialization experiences were

descriptively coded into the three primary categories defined by Conrad et al. [22]: university, personal, and professional socialization. Each code identified interactions with socializing agents in their respective contexts. University socialization included experiences like campus visits and conversations with recruiters or professors. Personal socialization encapsulated interactions with family and friends. Lastly, professional socialization involved interactions with current professionals and work experiences. Some overlap occurred, as in the case of a family member also being a current professional in a student's field of interest, and those examples were assigned both codes as a result. Separately, any excerpts that were reflective of the strength of the participants' anticipatory and initial—prior to and following their first year of study, respectively—SoB were captured, often In Vivo to maintain the students' individual voices [31]. In a second round of coding, the socialization experiences were then sorted into two categories capturing the participants' exposure to their university and their planned discipline. Finally, the participants' anticipatory and initial belonging was mapped against their pre-college experiences to find themes across the eight students.

Positionality

The author recognizes his own positionality with respect to the work done in this study. He acknowledges his privilege in having been able to travel for and attend a number of on-campus recruitment and orientation events and programs during his own college search process. While these experiences helped to shape his college enrollment, the mixed quality of campus tours and interaction with university faculty and staff served to guide and inform the initial questions that evolved into this study. The author is well acquainted with the data being analyzed here, having conducted many of the third- and fourth-year interviews, as well as analyzing different portions of the data through a variety of theoretical lenses for previous publications, including his dissertation work. This work evolved from a minor finding in said dissertation which, while not the focus of the thesis analysis, prompted further investigation. The author also adheres to a constructivist view of research. As it applies to this particular study, thick description and substantive quotes provide substance to the claims being made, rather than a specific measure of interrater reliability [32]. The author recognizes and supports that other researchers or the reader may come to alternative conclusions based on the information provided, but also understand how the author came to the findings presented here.

Results

The results of this study will be presented in three sections. The first two are the products of the second cycle of coding, a documentation of students' exposure to their disciplines and university respectively. Subsequently, the rationale each participant provided for their initial enrollment decision—and why Catia chose to transfer—will be explored. In the discussion section that follows, the intersection of students' pre-college socialization experiences and their enrollment rationales will be explored further.

Exposure to Discipline

Unanimously and somewhat unsurprisingly, the participants' initial exposure to chemistry—the common underpinning of the majors represented in this population—was in high school.

Participants did not describe the level of chemistry they took (e.g., Advanced Placement (AP), International Baccalaureate (IB), etc.), so it is not accounted for in this analysis. Annie and Ayame were fond of the field independent of any specific individual interactions; they simply liked it and were good at it. Annie did note that engineers would occasionally come to give presentations to her middle school but did not seem all that influenced by their presence. Others, like Chaaya and Catia, had individuals and groups that guided them towards their choices. In her second year of high school, while taking chemistry, Chaaya noted that, "I was struggling a lot, but my teacher was very patient and helped me through it… then junior year, I improved a lot and then I realized how interesting a subject can be when you actually understand it." Supported in her time of need, her interest was reignited. Catia, on the other hand, found inspiration in connection with a group of college students at a local university. With a newly forming interest in biochemistry research already in mind, Catia found her time working in the university's lab to be "amazing, because we were literally doing all this, and with chemicals and different technologies, and it was really interesting." Such an authentic exposure to the work she hoped to do professionally spurred her on not just to enroll in a biochemistry program, but ultimately prioritize it when transferring as well. Her rationale centered on the prestige of the biochemistry program, noting that, "transfer to [Large Public Mid-Atlantic University] was a good idea, but yeah, and also research and [Large Public Mid-Atlantic University] has higher rankings than my previous university and everything else." There were no specific interactions that resulted in this understanding, she had simply found the information online.

In addition to being connected to the discipline academically, several students shared experiences wherein they got to connect with professionals in their desired fields and learn more about career prospects directly from them. Most notable among these students was Anthony, who leveraged family friends to begin shadowing engineers at a local hospital as early as his first year of high school. Interested in medical school but keen on using chemical engineering as a route to get there, Anthony highly valued his experiences visiting with current professionals, explaining that he:

> Took the opportunity to kind of seek out engineers, talk to them about what they do every day, not a lot of chemical, mostly biomedical or mechanical, but kind of still the same sense, learning about what an engineer does in a hospital.

Anthony also described learning about the chemical engineering field from a cousin that was already working in an industry position, providing a different perspective. Caroline, by contrast, completed a summer program in biomedical engineering which showed her that engineering wasn't the right path for her. She continued to explore the space around biology and chemistry through high school courses, and ultimately settled on biochemistry despite a vague understanding of the major, musing, "before [the first year] I had a vague understanding of 'you know, it's like chemistry in bio right? It's close enough.'"

Chloe's interest in medicine, and subsequently chemistry, stemmed from crossing paths with a doctor while on a mission trip in Africa. While doing some volunteering work, Chloe got to interact with an infectious disease doctor who travelled the world helping children. Chloe describes the impact of the meeting:

She was an infectious disease doctor and her job was literally to travel, or part of her job was that she just traveled and got to interact with kids and help them and I saw that and I decided that want to be able to help kids that way but I want to… I was more attracted to pediatric care rather than infectious disease but, yeah.

Arun did not have any interaction with any specific people connected to his discipline of interest, instead leaning on online resources for that information. He noted that chemical engineering was an employable major that also satisfied his interests in chemistry. When reflecting on his choice in his fourth-year interview, however, he expressed some regrets and feelings that he wasn't properly prepared to make his major decision:

Then, really, I guess, back in high school, the stuff you... There's so many things that you go in to. The whole thing about, the general engineering requirement, and how that affects different majors. You don't know any of these things until it happens. Then by that time, you're just like, "Well, I'm already here."

Exposure to University

The major dichotomy that emerged in the participants regarding pre-college exposure to their eventual university was whether they visited campus or not. Almost all of the participants mentioned online research or written materials as part of their information gathering process, only five students actually visited campus prior to enrolling. Ayame and Catia were both international students who found the geographic distance to be too large of a deterrent to visit. Ayame relied on the advice of a teacher and advisor at her high school, citing that the institution was "a good engineering school." Catia was familiar with the general region of her first institution because she had family there but did not travel to specifically visit the campus. The presence of her family members helped her feel more comfortable studying in the United States, and the academic and research programs she had read about online sealed her decision. Despite newfound geographical proximity, Catia also elected not to visit the campus of the institution she transferred to, once again drawing upon online information about academic rankings and research opportunities. Arun had two basic criteria for his decision: cost and quality engineering programs. When his independent research determined that the study institution was highly ranked and had in-state tuition, his mind was made up. He did note a preference for a different institution in his first-year interview, but the cost factor eliminated that option.

The remaining five students—Annie, Anthony, Caroline, Chaaya, and Chloe—all visited campus prior to enrolling. Caroline was an out of state student, but still made the trip to visit. She had earlier mentioned researching the university online to learn about research and academic opportunities but became enamored with the institution and its student body after visiting. Reflecting upon why she chose her university, Caroline mused, "I looked at a lot of universities, and something about [this university], when I left here, I couldn't get it out of my head. I love how nice everyone is, we've got so many great opportunities." She was similarly attracted by the university's motto and focus on community, reinforced by the students, staff, and faculty she met. Annie and Anthony shared similar experiences, both being very fond of the character of the students they met, and coincidentally both using the phrase "down-to-earth" to describe them.

Chloe and Chaaya focused on the physical campus environment in their comments, with Chloe repeatedly calling it "beautiful" and Chaaya praising its size. To Chaaya, a large campus meant more opportunities, explaining "I wanted something bigger, 'cause I guess I like meeting more people and I guess a small campus would, I would feel restricted." Regardless of which facet of the visit was most impactful to each student, visiting campus ultimately played a role in why they chose to attend the university.

Rationale for Enrollment Decision

Not every student provided an explicit rationale for why they chose to attend the university, but it could generally be pieced together from their interviews and reflections on their undergraduate careers. Ayame's rationale was perhaps the simplest: her advisor recommended it, and she trusted her advisor. In her fourth-year interview, she felt that it had worked out, explaining that "[the university] was a very good choice for me at that time." As noted above, Arun's rationale was not much more complex. He wanted a quality engineering program and in-state tuition, both of which he found. Catia's reasoning for both her initial enrollment and transferring mirror Arun's. High quality research programs at both institutions drew her interest, but a higher-ranked biochemistry department and in-state tuition drove her to transfer. In later years, however, she noted that she liked the path she had taken, and that she wouldn't necessarily want to have initially enrolled at her second university as a first-year student.

Across the remaining participants, enrollment decisions incorporated the experiences they'd had on campus. Chaaya also pointed to in-state tuition as an attractive feature but found the campus to be inviting and was hopeful about the opportunities it would provide. In her third-year interview she also noted that at other universities she just "didn't feel the same academic inclination" among other students, something she was searching for. Annie was given an athletic scholarship and found that her personality aligned better with the students she had met than at other institutions. Caroline liked the policies that the campus community was built upon and found it to be consistent with the people she'd gotten to interact with. Anthony was someone who "really value[d] the culture of a school and kind of the personality of the people there" when he was looking at different universities. When he visited the study institution, he "really kind of felt like… like I belonged, or like the people around me were very similar to who I wanted to be and who I was." He also noted in the same interview that it was a "great engineering school" and that he was setting himself up for a strong education. Chloe's experience was nearly the same, expressing:

> It was really, I just fell in love with the school the first time I came. The campus was so beautiful, and everyone was really happy. Well, there's a good science department which is important also but since [my other top choice] and [this university] both had really similar programs, it was really where I could picture myself best and where I saw myself happiest, and that was here.

Discussion

The discussion section will be broken into several sections in order to address the two research questions the study sought to address. First, pre-college socialization experiences will be

explored for their impact on students' anticipatory SoB to their prospective discipline, followed by SoB to the prospective university. Subsequently, anticipatory belonging's role in the participants' enrollment decisions will be investigated. Finally, the broader significance and implications of the work will be discussed.

Disciplinary SoB – Building on Academic Interests

Across the population of this study, the foundations of and connection to the disciplines they would go on to pursue began in high school. Starting with either an interest in or aptitude for the subject or its parent discipline—in this case, chemistry—these eight students were all reasonably confident in their major selection going into their first year. Within the sphere of high school, however, no clear single socializing agent emerged as particularly important. High quality teachers were important for several students, but as in Chloe's case, low quality instruction could be overcome with an internal love for the discipline itself. Ayame's advisor was pivotal for her choice of both major and institution, but no other student mentioned a similar socializer. Perhaps a greater level of introduction to chemical engineering and its career outcomes would have saved Arun the regrets he expressed in his fourth year.

By far, the most impactful socializing forces for the students were the professional practitioners they were exposed to in their fields of interest. Catia's early work with biochemistry students at the university level sparked a love for research that she carried not just into her first year but across two universities and all the way through graduation. Anthony's family connections allowed him to meet engineers in authentic medical environments to envision his career directly. Chloe's chance meeting with a doctor on a mission trip was enough to drive her choice of biochemistry. Getting to meet current practitioners allowed these three students to get a glimpse of their potential futures and in some cases even try them on for size before they had to decide if they fit or not.

University SoB – Physical Space and Sense of Place

More than any other factor in these eight students' accounts of their pre-college experiences, seeing campus and meeting current students and faculty defined their anticipatory belonging at the university level. The three participants that did not visit campus described their fit at the institution entirely from an academic perspective. Their information was almost entirely gathered online and had to do with the rankings of academic departments and availability of specific programs and opportunities. In a sense, this information provides more of a sense of whether the students feel that they will belong within the discipline at a given institution than whether they will fit in at the institution as a whole. This is not necessarily a negative facet of belonging to develop, but it is far from the holistic view the other five participants were able to gain by direct exposure to the campus environment.

The value of campus visits was twofold for this population. Three students highly prized their interpersonal interactions with students and faculty on campus, while the other two particularly valued getting a feel for the physical space. Though physical space is not what Conrad et al. [22] would include as a socializing agent per se, the campus visit helped all of these students to understand the normative context they were potentially going to enter and whether they were

well suited to it. By understanding the norms, whether in the form of academic inclinations, down-to-earth character, or simply the space they would come to inhabit, the participants increased their capacity to anticipate whether they had a place in the community or not. In the case of these five students, it bolstered their desire to attend, as each found their place in the communities and spaces they intended to become a part of.

Belonging's Role in Enrollment

Anticipatory belonging played a substantial role in the enrollment decisions of all eight students in this study, albeit in two different ways. The dividing line between the two groups was the campus visit, a dichotomy that emerged in the analysis and was previously noted. Stepping foot on campus, whether formally or informally, fundamentally changed the basis for the enrollment decision. Whereas Arun, Catia, and Ayame made their decisions based almost entirely on objective information accessible to everyone—academic rankings, major offerings, and research opportunities—the other five students made their decisions with the addition of a subjective component: the "feel" of campus. While the five that visited campus still noted the importance of academic quality and offerings, they each could point to a specific aspect of the campus population or environment that cemented their selection. Whether the beauty or spaciousness of campus, the friendliness of the campus population, or the openness of faculty to have a casual conversation, on-campus socialization developed a form of anticipatory belonging that was not reflected in the participants who could not or chose not to make the trip.

Significance and Implications

The challenge that the findings with respect to anticipatory disciplinary belonging presents is that not every prospective student has equal access to industry or research professionals. Anthony was privileged enough to have family friends in the medical field that were willing and able to take the time to set him up for shadowing visits. Catia's proximity to a university in her home country and an established collaboration program between the institution and her school set her up for success. Chloe's encounter was one of pure chance, as she described it, and set her on an entirely different path, as up to that point she had considered a career in teaching. This poses the question of how opportunities for authentic engagement can be made more consistently available for all students. While there will always be limitations to accessing professionals due to geographic proximity, a thoroughly online world presents a chance to open up connections even for students who can't easily travel to the nearest hospital, engineering firm, or manufacturing plant. There is also space to consider the relatively weak impact of primary school socializers on this population. Teachers and advisors play a clear role in developing and supporting students' academic interests and capabilities [12], [33], [34], but were largely absent from the perspectives of these participants.

This disparity of access also has ramifications for developing belonging to universities as well. As previously noted, geographic barriers, economic constraints, and scheduling conflicts can make the task of traveling for a single campus visit—let alone the multiple that some students undertake—nigh impossible. Given the ramifications on-campus interactions had for the participants in this study with respect to not only developing their sense of place on campus but

also their subsequent enrollment rationale, this is a concerning barrier for prospective students and colleges alike. If every student is to be given the best chance of choosing a university that is right for them, alternative options must be made available to them.

Even with such options becoming more available, there is always the possibility that students will simply not see the value in experiencing campus in an in-person or online format. Arun, Ayame, and Catia did not regret their enrollment choices after the first year, and Catia did not regret transferring either. In turn, it is important to recognize that different students have different needs with respect to belonging. These three students were among the more academically focused in the population and therefore found comfort in knowing that they would be well served in that domain of their prospective university experience. For some students, university belonging may simply not be an important factor in making the decision to enroll. By extension, it is also reasonable to suggest that academic and disciplinary belonging would be insignificant in some students' enrollment decisions, though that was not demonstrated in this group of students.

Future Work

While this study has evaluated the influence of a variety of experiences—most notably campus visits—on the development of prospective students' SoB to their discipline and university, this list is far from comprehensive. The first means of building on this work would simply be to broaden the sample beyond eight students to capture a wider range of pre-college trajectories. For example, none of the students in this population were first-generation students, who have been noted to lean more heavily on social communities at their institutions for support [6]. Every student has a unique journey to their eventual institution and every story helps to broaden the view and deepen the understanding of the engineering education research community. There is particularly space to further the insight we have into the success of intentionally designed efforts like bridge programs and orientation weeks. While bridge programs have been noted to support student academics and retention [35], more can be done to understand how they socialize students into the university environment, supplementing the work of the likes of Barth et al. [36].

Moving away from on-campus experiences, it is also worth devoting additional work towards developing, supporting, advertising, and evaluating digital alternatives. Not every student is able to make the trip to visit a university, which this work has shown to be a particularly impactful event in shaping students' belonging to their chosen institution. Stemming from the COVID-19 pandemic especially, online tours, social events, and presentations have been growing in popularity, but research is only beginning to emerge about the impacts of this growing sector of recruitment [20], [21].

Finally, to round out the understanding of how and why students make decisions about their college enrollments, there is additional work to be done one step prior to understand why some students—like Arun—simply choose not to visit campus when they are reasonably able to do so. This question calls for an evaluation of how campus visits are perceived by students, what value they hold to those around the student, and how such on-campus events are advertised as well. Even without the specific goal of increasing on-campus attendance of such events, this

knowledge would help to develop recruitment offices' capabilities to give students the information they want and need even in lieu of setting foot on university grounds and feeling the "heartbeat" of campus.

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