THESIS

EXPLORING CAMPUS ARCHITECTURE AS A FACTOR OF EXPECTED SENSE OF BELONGING

Submitted by

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ABSTRACT

EXPLORING CAMPUS ARCHITECTURE AS A FACTOR OF EXPECTED SENSE OF BELONGING

Background: The motivation, retention, and wellbeing of the increasingly diverse college student body is related to their sense of belonging at their university. Surroundings, one of Ahn and Davis' domains of university belongingness, remains underexplored, especially its subcomponent physical buildings. Additionally, prospective students name the physical campus as a major influence on their decision regarding which college to attend, and universities utilize campus photographs strategically for recruitment. Signaling theory provides a possible mechanism by which campus physical environments may influence a university's image and sense of belonging. Still, the Greek Revival and Gothic architectural styles, common on U.S. campuses, have historic ties to discrimination and racism.

Purpose: The objective of study 1 is to inspect Ahn and Davis' (2020) surroundings domain and its interaction with the personal space domain, including identity variables such as first-generation status, ethnicity and race. The objective of study 2 is to explore how three architectural styles common on U.S. campuses may affect university image and students' predicted experience, including sense of belonging.

Methods: In the quantitative study 1, over 600 participants answered a belongingness survey in response to a short, standardized university description and a photograph randomized to depict a Greek Revival, Gothic, or International Style (control) university building. In the qualitative study 2, fourteen interviews were conducted with first-year college

students, in which participants were directed to compare three hypothetical universities, each depicted in three photographs of campus buildings in the same architectural style (Greek Revival, Gothic, or International Style). These interviews were analyzed using thematic analysis methods.

Results/Findings: Through regression analyses, study 1 indicated no effects of architectural style on belongingness (p=0.29) nor interaction effects with first generation status (*p*=0.48) and ethnicity (*p*=0.30). Preliminary descriptive analysis suggested possible moderation by race. In study 2, three themes developed. Participants' impressions of the depicted universities were rooted in the buildings' communication of higher education, meaning *university image began with imageability, which in turn, influenced beliefs about students and school climate.* Additionally, participants discussed their *predicted experience as a function of university image.* Lastly, *elements of the designed environment indicated imageability and predicted experience*, meaning participants used environmental factors as signals.

Conclusions: Study 1 addressed a crucial, but largely unexplored, potential inequity in education and experimentally investigated Ahn and Davis' (2020) surroundings domain and its interaction with the personal space domain. Study 2 has practical applications to image-based recruitment as it suggests strategies that may boost predicted experiences and aspects of university image that are communicated through architectural style. Overall, research into the relationship between campus architecture and student outcomes can equip designers and decisionmakers to create higher education environments that empower all current students, visitors, and future students.

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Speaking of kitties, thank you to Little Miss Queenie Palm Palm. You comfort me, love me, and tell me when it is time to close the laptop and play with you. Thank you for finding and taking care of me.

To Trev, I love you, and I love our ridiculously academic and incredibly silly relationship. Thank you so much for comforting me, reassuring me, cheering me up, and keeping me fed. You were there to help develop my ideas and writing. You were there to console and hold me when I couldn't function.

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DEDICATION

To my mom, who knew this book would exist years before I did. I am incredibly grateful for your unwavering support, encouragement, advice, and editing. From picking me up off the ground a hundred times to making a hundred model trees. Thank you does not begin to cover it.

I love you.

P.S. This hood will mean something.

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STUDY 1: EXPLORING CAMPUS ARCHITECTURE AS A FACTOR OF EXPECTED SENSE OF BELONGING

Of the over 18 million students currently enrolled in U.S. colleges and universities, less than two-thirds will graduate (National Center for Education Statistics, 2022; National Student Clearinghouse, n.d.-a). Furthermore, 25% of first year students do not return for their second year of undergraduate education (National Student Clearinghouse, n.d.-c). College campuses are much more diverse today with 13.6% of students identifying as Black and 20.7% identifying as Hispanic (National Student Clearinghouse, n.d.-b) relative to previous generations [e.g., in 1961, the U.S. college student population was 94% White (United States Census Bureau, 1961)]. Moreover, the first higher education institutions in what became the U.S. educated exclusively White students (Bonilla-Silva & Peoples, 2022). In fact, the first Black student likely did not graduate from a U.S. institution until the 1820s, almost 200 years subsequent to the founding of those initial U.S. universities (Slater, 1994).

Today's racially and ethnically diverse students populate these same campuses. Twenty-four percent of current students are first-generation, meaning their parents did not attend higher education (RTI International, 2019). In this way, the current student population and their needs differ substantially from the primarily elite White student bodies of U.S. universities in the past (Turner, 1987). Correspondingly, systems of oppression result in reduced degree completion rates for Black students (45%), Hispanic students (51%), and students whose parents did not complete a Bachelor's degree (46%) relative to the national average (63%) (Center for First-Generation Student Success, 2019; National Student Clearinghouse, n.d.-a).

Therefore, to meet the needs of this sizable and heterogeneous population, it is vital and timely to understand all factors that contribute to academic success.

Sense of belonging

University sense of belonging is used to describe the connection a student feels toward their college and academic community (Gillen-O'Neel, 2021). This construct has important implications for motivation (Pedler et al., 2022), academic behaviors (Pittman & Richmond, 2007; Won et al., 2021), retention (Hausmann et al., 2007; Pedler et al., 2022), and wellbeing (Dutcher et al., 2022; Ndukaihe & Nwafor, 2022; Pittman & Richmond, 2007). Students who feel as though they belong tend to be more motivated and derive more enjoyment from their studies than those who feel less belonging (Pedler et al., 2022). While controlling for motivation, sense of belonging can predict adaptive academic help-seeking behaviors among college students (Won et al., 2021). Also, students who feel as though they belong attain higher academic achievements as measured by self-reported grades and competence (Pittman & Richmond, 2007). Concerning retention, low sense of belonging is associated with contemplating withdrawing from college (Pedler et al., 2022). Lastly, belongingness is positively correlated with self-worth (Pittman & Richmond, 2007) and satisfaction concerning the campus experience, such that those who feel they belong are more satisfied (Fan et al., 2021).

Ahn and Davis' theory

One theory of university sense of belonging was proposed by Ahn and Davis (2020). This theory posits that university belongingness reflects four distinct domains: social engagement, academic engagement, personal space, and surroundings. In contrast to previous conceptualizations of the construct as essentially a function of academic and social

involvement, Ahn and Davis's qualitative analysis, from which their theory emerged, demonstrated that university belongingness did not only reflect these types of involvement. Since most belongingness literature examines involvement components, it is vital that researchers carefully study the other two domains as well.

Over half of the participants in Ahn and Davis' survey (2020) responded with answers concerning personal identities, self-concepts, interests, and qualities of life, comprising the personal space domain. In alignment with this domain, research has identified a number of identity-related constructs that affect sense of belonging on a university campus (Azmitia et al., 2018; Duran et al., 2020; Fan et al., 2021; Hussain & Jones, 2021; Parr, 2022; Pedler et al., 2022; Pittman & Richmond, 2007). Race bears a relationship with belongingness as White students express higher belonging than the mean, and African American/Black students express lower belonging than the mean (Duran et al., 2020). The discrimination that African American/Black students face likely explains this difference in belongingness (Hussain & Jones, 2021). A study completed at a primarily White, American institution observed higher levels of belongingness for "majority" racial and ethnic group members (White) compared to members of "underrepresented" groups (nonWhite) (Fan et al., 2021, p. 22). A similar study provided evidence that 18–21-year-old students who hold racial or ethnic minority identities feel as though they belong less and 24-26-year-old students with racial or ethnic minority identities feel as though they belong more, when compared to their White peers (Parr, 2022). While these studies do not address the complexities of race and ethnicity in the U.S. due to their broad-brush categorizations of these constructs (Fan et al., 2021; Parr, 2022), they support the importance of identities and sociopolitical context to university students' belonging.

Continuing with Ahn and Davis' (2020) personal space domain, there are mixed results concerning how parental higher education intersects with belongingness. Some studies report that students who are continuing-generation express increased sense of belonging compared to those who are first-generation (Duran et al., 2020) though Pittman and Richmond (2007) note that the difference is small. Still, many first-generation students regard belongingness as a challenge (Azmitia et al., 2018). In opposition, Pedler and others (2022) observed no differences in belonging between first-generation students and students with one parent who completed college. Still, both groups reported lower sense of belonging compared to students with two parents who completed college. All in all, Duran and colleagues (2020) summarize previous research on the topic of sense of belonging and identity, noting that belongingness is reduced when students feel the college environment does not welcome diverse identities.

Lastly, Ahn and Davis' (2020) surroundings domain of university belongingness includes natural, cultural, and built environments. Roughly half of the study's respondents indicated that the natural features, geographically-based culture, and physical buildings they inhabit related to their sense of belonging. Yet, investigation into surroundings is largely absent in social psychological literature, and that into physical buildings is even scarcer despite the history of the university campus as a distinct typology of design within the U.S. (Turner, 1987).

Although Ahn and Davis (2020) observed no interrelationships between the four named domains, they allow the possibility that identities interact with the importance of each domain when they encourage future research into the role of demographic factors in the experience of the four domains. This suggests that the personal space domain may interact with other domains, including surroundings.

Higher education architecture

U.S. universities commonly adopted the Greek Revival (Figures 1-3) and Gothic (Figures 4-6) architectural styles during a time in which they educated primarily White male students (Turner, 1987; Ziolkowski, 2018). Both styles clearly reference a European genesis (Turner, 1987; Ziolkowski, 2018). These styles are still present in new construction projects on college campuses in the U.S. (Glavé & Holmes Architecture, n.d.; The American Institute of Architects, 2018). For example, Glavé and Holmes designed Allen Hall for Longwood University (Farmville, VA) in the Greek Revival style (Glavé & Holmes Architecture, n.d.). The building, complete with offices, classrooms, and lab space, finished construction in 2020 (Glavé & Holmes Architecture, n.d.; Longwood University, 2020). At Yale University (New Haven, CT), new Gothic residential halls, Benjamin Franklin and Pauli Murray Colleges, were designed by Robert A.M. Stern Architects and opened to students in 2017 (The American Institute of Architects, 2018; YaleNews, 2017).

Figure 1

Cliosophic Hall

Note. Cliosophic Hall was built from 1837 to 1838 on the Princeton University campus, employing the Greek Revival style (Turner, 1987). From *Clio Hall*, by T. Alastair, 2004, Flickr (https://www.flickr.com/photos/97768382@N00/602599700). CC BY-NC-SA 2.0.

Figure 2

Founder's Hall

Note. Founder's Hall was built from 1833 to 1848 on the Girard College campus, employing the Greek Revival style (Turner, 1987). Adapted from *49. 3/4 view, looking northeast (duplicate of HABS No. PA-1731-10) - Girard College, Founder's Hall, Girard & Corinthian Avenues, Philadelphia, Philadelphia County, PA,* by J. E. B. Elliott, 2000, Library of Congress (https://www.loc.gov/pictures/item/pa0731.color.355405c/). In the public domain.

Figure 3

Washington, Payne, and Tucker Halls

Note. Washington, Payne, and Tucker Halls were built in 1824, 1830, and 1841, respectively, on the Washington College (currently Washington and Lee University) campus, employing the Greek Revival style (Turner, 1987; Washington and Lee University, n.d.). Adapted from *Washington and Lee University*, by J. S. Conn, 2009, Flickr (https://www.flickr.com/photos/83372564@N00/4364339713). CC BY-NC 2.0.

Figure 4

Gasson Hall and Tower

Note. Gasson Hall and Tower was built in 1913 on the Boston College campus, employing the Gothic style (Boston College, 2019; Ziolkowski, 2018). From *Gasson Hall at Boston College*, by CampusGrotto, 2012, Flickr (https://www.flickr.com/photos/61505456@N06/7054683493). CC BY-NC-ND 2.0.

Figure 5

Little Hall

Note. Little Hall a was built in 1901 on the Princeton University campus, employing the Gothic style (Morgan, 1989; Princeton University, n.d.). Adapted from *Little Hall*, by J. Shlabotnik, 2006, Flickr (https://www.flickr.com/photos/40646519@N00/2397054389). CC BY 2.0.

Figure 6

The Michigan Law Quadrangle

Note. The Michigan Law Quadrangle was built in 1933 on the University of Michigan, Ann Arbor campus, employing the Gothic style (Ziolkowski, 2018). Adapted from *The Michigan Law Quadrangle*, by B. Rostad, 2008, Flickr (https://www.flickr.com/photos/67975030@N00/2901638023). CC BY 2.0.

The Greek Revival style

Greek Revival architecture (Figures 1-3) is an architectural style which was commonly employed by U.S. university designers in the 18th and early 19th centuries (Turner, 1987). It is a type of Neoclassical style, meaning that it references characteristics of European antiquity (i.e., ancient Greece and/or Rome). In adopting this style, universities associated themselves with

the Greek Academy (Turner, 1987), and as such Greek Revival architecture is Eurocentric. Additionally, Greek Revival architecture is intimately tied to the architecture of slavery and plantations (Foster, 2004). In fact, enslavers' mansions regularly adopted this style. Historians have labelled the Greek Revival plantation house a symbol of "white superiority and dominance over Blacks" (Mosley, 2021, p. 26).

The Gothic style

In the late 19th and early 20th centuries, U.S. universities adopted the Gothic style (Figures 4-6) (Ziolkowski, 2018). Compared to their European counterparts, U.S. institutions were new and less reputable. To legitimatize their power, some U.S. universities used architecture to instate the history of the monasteries after which Oxford and Cambridge were designed (Ziolkowski, 2018). Additionally, universities adopted the Gothic style to shield students from a modernizing world (Ziolkowski, 2018). Inward-focused Gothic architecture, with its quadrangles, cloisters, and tall hedges, was adopted to protect primarily White high socioeconomic status students from the presumed materialism, industry, and class conflict in cities.

The International Style

In contrast, the International Style (Figures 7-9), popular in the mid-20th century (Khan, 1998) responds to burgeoning mass-production and a new global economy. This style originated in Europe and the U.S., and its champions intended it to be exported and used globally as were the new consumerist products. Its designs are known for their lack of ornamentation; therefore, International Style does not display ornamentation that echoes its Eurocentric history, unlike the Gothic and Greek Revival. For this reason and because it is

prevalent among U.S. universities, the International Style was selected as a comparison style in the current study.

Figure 7

Harkness Commons

Note. Harkness Commons was built from 1948 to 1950 on the Harvard University campus, employing the International Style (Khan, 1998). Adapted from *Harkness Commons*, by E. Kim, 2006, Flickr (https://www.flickr.com/photos/63669472@N00/209282592). CC BY 2.0.

Figure 8

The Swiss Pavilion

Note. The Swiss Pavilion was built from 1930 to 1933 on the University of Paris campus, employing the International Style (Khan, 1998). From *Paris - Pavillon Suisse*, by A. Priestly, 2017, Flickr (https://www.flickr.com/photos/60687057@N02/32146495721). CC BY-NC-SA 2.0.

Figure 9

Technology Park – South

Note. Technology Park – South was designed by Mies van der Rohe and built on the Illinois Institute of Technology (IIT) campus (Illinois Institute of Technology, n.d.). Van der Rohe's IIT buildings were built in 1939-1956, employing the International Style (Khan, 1998). From *Technology Park South, IIT*, by E. A. Rogers, 2013, Flickr (https://www.flickr.com/photos/26582481@N08/10793173083). CC BY-NC-ND 2.0.

Signaling theory

The built environment remains underexplored as an influence on sense of belonging, despite being pervasive. Due to a history of racism and discrimination (Foster, 2004; Turner, 1987; Ziolkowski, 2018), some architectural styles may diminish sense of belonging at universities, especially among groups that have been historically underrepresented on college campuses or have been targeted by the adoption of such styles in the past. This possible

relationship is supported by Ahn and Davis' (2020) belongingness theory, which names surroundings as one of the 4 key contributors to belongingness, and its mechanism is based in signaling theory (Spence, 1974), which suggests that architecture may signal which students are welcomed by the university.

Signaling theory states that when individuals do not have access to all available data in making a decision, they seek out additional information by inferring from present signals (Radermacher et al., 2017; Spence, 1974). By extension, architecture can serve as a signal affecting recruitment. For example, individuals show more interest in working at organizations with offices designed to establish creative workspaces than those that have more traditional office spaces (Maier et al., 2022). The authors explain this preference for creative workspaces, stating that individuals used the workspace as a signal of the organization's creativity. In other words, the design of the physical environment signaled attributes of the organization.

Moreover, signaling theory dictates that individuals who have the least amount of experience or information will weigh signals more heavily than their peers (Falk et al., 2013). Within higher education, this subgroup may be first-generation college students, who are less familiar with the higher education environment, including the "hidden curriculum" (i.e., the unspoken codes of navigating higher education) (Gable, 2021).

Campus architecture and student outcomes

Although research into the academic effects of architectural style is scarce, one published dissertation (Bennett, 1995; Bennett & Benton, 2001) asked college students to rate pictures of institutions of varying architectural styles using a semantic differential measure. Included among others were the Gothic, Greco-Roman (an overarching style enveloping Greek

Revival), and Modern [of which the International Style is a part (Khan, 1998)]. Factor analysis uncovered a difference in a factor identified as “Evaluation of Individual Success” between a group of styles named by the author as “old architecture” and a group named “new architecture” (Bennett & Benton, 2001, pp. 166, 171). The “old architecture” group enveloped the Gothic and Greco-Roman styles while the “new” group contained the Modern. The author concluded that students expect to be more successful at Modern and Postmodern universities than at universities featuring more traditional styles.

The current study

The current study experimentally investigates how individuals' sense of belonging at a hypothetical university may vary with architectural style via survey. Investigated styles include three architectural styles commonly used by U.S. higher education institutions: Greek Revival, Gothic, and International Style. The purpose of this study is to inspect Ahn and Davis’ (2020) surroundings domain and its interaction with the personal space domain through formal moderation analyses with identity variables, including first-generation status and ethnicity. Additionally, exploratory descriptive analyses begin to investigate racial identity as a moderator. To achieve this goal, participants read a short, fixed description of a university and viewed a randomized photograph of a university building in an investigated architectural style.

Positionality statement

Research is integrally influenced by the background of the researcher (Hernández, 2015; López et al., 2018). Hernández (2015) encourages authors to examine and report their positionality and how it has affected the research process. I am a nonHispanic White continuing-generation cisgender woman in graduate school within the U.S. I studied

architecture in my undergraduate studies during which I was primarily educated within the European cannon. My positionality has indubitably molded the research questions, hypotheses, designs, analyses, and conclusions of this work. Specifically, my identities as a nonHispanic White continuing-generation student mean that I can never fully understand, thus never comprehensively research, the experiences of students that are Hispanic/Latino/a/x, a different race than me, and/or first-generation. My identities and experiences of belonging in higher education directly affected the survey study design, sampling plan, selected measures, data cleaning, stratified analyses, and conclusions of this project. My identities as well as my particular architectural education shaped how I formulated my research questions, the directionality of my hypotheses, my interpretation of results, and my selection of architectural styles as well as specific buildings and photographs.

Hypotheses

Because the International Style lacks the visible historical ties to oppression (Khan, 1998) that the Greek Revival (Foster, 2004) and Gothic (Ziolkowski, 2018) styles hold, I hypothesize that participants who view universities of International Style will report a higher sense of belonging, on average, than those who view universities of the latter styles. Concerning moderation by personal identities, I predict that first-generation status will moderate this relationship, such that in response to Greek Revival and Gothic relative to International Style universities, participants who report that neither of their parents attended higher education will report a disproportionately lower sense of belonging than participants who report that at least one of their parents attended higher education. This prediction was made based on research indicating that individuals with little experience in a sector weigh

signals more heavily (Falk et al., 2013). Due to the connections of Greek Revival and Gothic ornamentation to non-Hispanic White hegemony (Foster, 2004; Ziolkowski, 2018), I predict that ethnicity will moderate the relationship as well, meaning that in response to Greek Revival and Gothic relative to International Style universities, participants who self-identify as Hispanic or Latino/a/x will report a disproportionately lower sense of belonging than participants who self-identify as not Hispanic or Latino/a/x.

I chose to conduct an exploratory investigation into a race by architectural style interaction via two separate comparisons between mutually exclusive groups: First, I compared respondents who endorsed only a White identity with those who endorsed at least one nonWhite identity. This comparison was selected because the former group holds solely the racial identity that universities of Greek Revival and Gothic styles served when adopting the styles (Foster, 2004; Ziolkowski, 2018), leading to the expectation that any differences between architectural styles will be minimized among respondents who endorsed only a White identity. Additionally, I compared how architectural style influenced the belongingness of those who endorse African American/Black identities and those who did not due to the relationship between the Greek Revival and U.S. slavery (Foster, 2004).

METHOD

Participants

Participants were a convenience sample, accessed in 2022 primarily through a Research Pool at a large public university in the U.S. West. In addition, snowball sampling techniques were used through university clubs, personal contacts, and social media. Participants were required to be over 18 years of age. Participants were compensated with the opportunity to enter their email into a raffle for a $50 Amazon gift card. Those recruited from the Research Pool were provided course credit.

Power analyses

A G*Power analysis (Faul et al., 2007) (version 3.1.9.6) determined that 476 participants are necessary to detect a small (R^2=0.02) effect using multiple linear regression with 2 predictors (2 architectural style variables) at a power level of 0.8 and an alpha level of 0.05. For moderation predictions, a G*Power analysis determined that 635 participants are necessary to detect a small (R^2=0.02) effect using multiple linear regression with 5 predictors (2 architectural style variables, 1 moderator, & 2 interaction terms) at a power level of 0.8 and an alpha level of 0.05. While intersectional approaches to identity factors have been encouraged by researchers (Duran et al., 2020), the current study does not use this method as it requires additional intersectional variables be created and, consequently, substantially larger sample sizes.

Materials development

As mentioned previously, three architectural styles that are popular on university campuses were examined in the present study: Greek Revival, Gothic, and International Style (Khan, 1998; Turner, 1987; Ziolkowski, 2018).

Identifying specific schools and photographs

Architectural history and theory books (Khan, 1998; Morgan, 1989; Turner, 1987; Ziolkowski, 2018) were used to identify buildings and campuses designed in each style. Researcher judgement was used to filter out iconic buildings and those that can be used to name the university where the building is located. I searched for the remaining buildings and campuses using Creative Commons and Google Images (with the Creative Commons license filter) to find color photographs that depicted most of the building, fit a 2:3 or 3:4 landscape dimension ratio, and depicted no humans, construction, nor words/illustrations that could be used to identify the university. If the photograph was physically and legally able to be edited to meet these requirements, it was retained. Once photographs were identified, I matched them for ratio, seasonality, green space, sky area, weather, and camera angle to create a series of nine matched photos, three of each architectural style. Lastly, I used Adobe Creative Cloud Photoshop to bring the photographs into compliance with the requirements outlined above. This process resulted in the photographs depicted in figures 1-9.

Measures

The University Belongingness Questionnaire (UBQ) (Slaten et al., 2018) measured university sense of belonging (α = 0.93). The 24-item UBQ reflects three components of university belongingness: university support and acceptance, faculty and staff relations, and

university affiliation. An example item is “I feel like I belong to my university when I represent my school off campus” (Slaten et al., 2018, p. 640). Participants responded to the UBQ using a seven-point Likert scale annotated at the endpoints as “strongly disagree” (scored as 1) and “strongly agree” (scored as 7) with a neutral point of “neither agree nor disagree.” Items and instructions were altered slightly to clarify that they were querying the described university rather than the university that the participants attend(ed). The mean of each participant’s responses was calculated as their UBQ score.

Demographics were measured via self-report. Specifically, generation status was measured with a yes/no question querying if at least one of the participant’s parents attended college. The item inquiring about ethnicity provided the answers “Hispanic/Latino/a/x” and “Not Hispanic/Latino/a/x.” The item that asked race allowed multiple categories to be selected and provided the following: “African American/Black,” “Asian/Asian American/Pacific Islander,” “Native American,” “White,” and “Other” with the option to self-identify. Additional demographics questions concerned student status (e.g., currently attending undergraduate education), age, gender [measure from Cameron and Stinson (2019)], religion, and working in/studying architecture, architectural history, or a related field. For all questions, a “Prefer not to answer” option was displayed.

Procedure

Participants completed a 41-item survey online via Qualtrics from any location. The survey was comprised of the UBQ (Slaten et al., 2018), demographics questions, and additional measures that will not be analyzed in this study. After consenting, participants were instructed to read a short description of a hypothetical higher education institution named University M.

This description was identical across conditions and identified various characteristics about the university, such as mean GPA, [which was based on the national university average (Teachers College Record, 2010)]. It also specified that University M is located in the U.S. Midwest. Below this description was a photograph of an existing university building in one of the three architectural styles; Qualtrics randomly assigned participants to see only one of these photographs. Next, participants were instructed to complete the UBQ (Slaten et al., 2018) as well as demographics items.

Missing data

Observations missing more than 10% of the UBQ data (>2 items) were excluded from all analyses. For each participant missing 1 or 2 items (<10%), their UBQ score was calculated as the mean of their completed items. Demographic questions were composed of single-item measures, so participants with missing demographics data were excluded only from analyses employing the missing values.

RESULTS

All analyses were conducted using RStudio Statistical Software version 2023.03.0+386 (RStudio Team, Boston, MA, USA) and R Statistical Software version 4.1.1 (R Core Team, Vienna, Austria). Alpha was set at 0.05.

The survey was started by 664 participants with 645 completing at least 90% of UBQ items. Additionally, one participant had to be excluded because they did not meet the age inclusion criterion, leaving data from 644 participants (mean age=19.89) to be analyzed. Distributions of gender, ethnicity, generation status, race, and student status can be found in Table 1. A Shapiro test of normality indicated that UBQ scores were not normally distributed (p=0.0001); that is, scores were negatively skewed. Still, multiple linear regression (MLR) is robust against non-normality; thus, I conducted MLR analyses and supplemented with bootstrapped confidence intervals.

Table 1

Demographics of sample

		Count	**Proportion**
Gender	Woman	425	66%
	Man	203	31%
	Transgender or nonbinary	8	1%
	Prefer not to answer	7	1%
Ethnicity	Hispanic or Latino/a/x	106	16%
	Not Hispanic or Latino/a/x	518	80%
	Prefer not to answer	19	3%
Generation status	At least 1 parent attended college	507	79%
	No parents attended college	127	20%

	Prefer not to answer	9	1%
Race	African American/Black	34	5%
	Asian/Asian American/Pacific Islander	46	7%
	Native American	9	1%
	White	554	86%
	Other/self-identified another race	12	2%
	Prefer not to answer	21	3%
Student status	Currently attending college	605	94%
	Previously attended college	22	3%
	Has not attended college	8	1%
	Prefer not to answer	8	1%

To address main effects of architectural style collapsed across demographic groups, I regressed UBQ score on a dummy-coded variable of architectural style with the International Style as the reference category. This indicated no evidence of an architectural style effect (F=1.24, *p*=0.29, Table 2, Figure 10).

Table 2

Linear model results regressing UBQ score on architectural style

Note. LL and *UL* indicate the lower and upper limits of a confidence interval, respectively.
* indicates *p* < .05. ** indicates *p* < .01. International Style is the reference category.

Predictor	Estimate	95% CI [LL, UL]	df	*F* value	*p* value
(Intercept)	4.88	[4.75, 5.00]			
Greek Revival	0.06	[-0.12, 0.24]	2	1.24	0.29
Gothic	0.15	[-0.04, 0.33]			

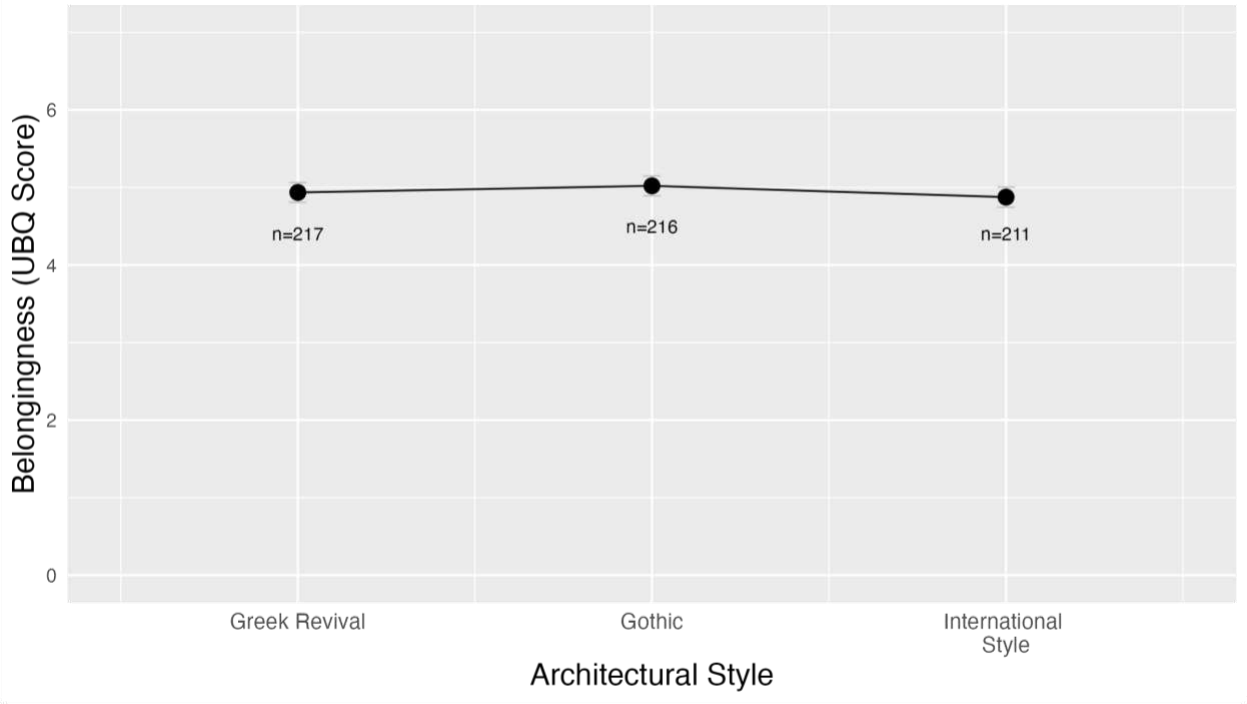

Figure 10

Belongingness by architectural style

Note. Error bars reflect 95% confidence intervals.

This trend was confirmed by bootstrapped confidence intervals. The mean UBQ scores of those who viewed Greek Revival style buildings and of those who viewed Gothic style buildings were 4.94 [SD=1.00] and 5.02 [0.94], respectively. This was compared to 4.88 [0.92], the mean UBQ score of those who viewed International Style buildings.

I examined moderation by first-generation status and ethnicity using two separate models. For generation status, I regressed UBQ scores on the architectural style dummy-coded variables, generation status indicator (1 = no parents attended college, 0 = at least 1 parent attended college), and their interaction. I observed no evidence of interaction by generation status. (F= 0.74, *p*=0.48, Table 3, Figure 11).

Table 3

Linear model results regressing UBQ score on architectural style-generation status interaction

Note. LL and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates $p < .05$. ** indicates $p < .01$. International Style and continuing generation are the reference categories.

Predictor	Estimate	95% CI [LL, UL]	df	*F* value	*p* value
(Intercept)	4.88	[4.74, 5.03]			
Greek Revival	0.10	[-0.11, 0.30]			
Gothic	0.15	[-0.05, 0.36]			
Generation status	-0.005	[-0.33, 0.32]			
Greek X Generation	-0.19	[-0.64, 0.25]	2	0.74	0.48
Gothic X Generation	0.07	[-0.40, 0.55]			

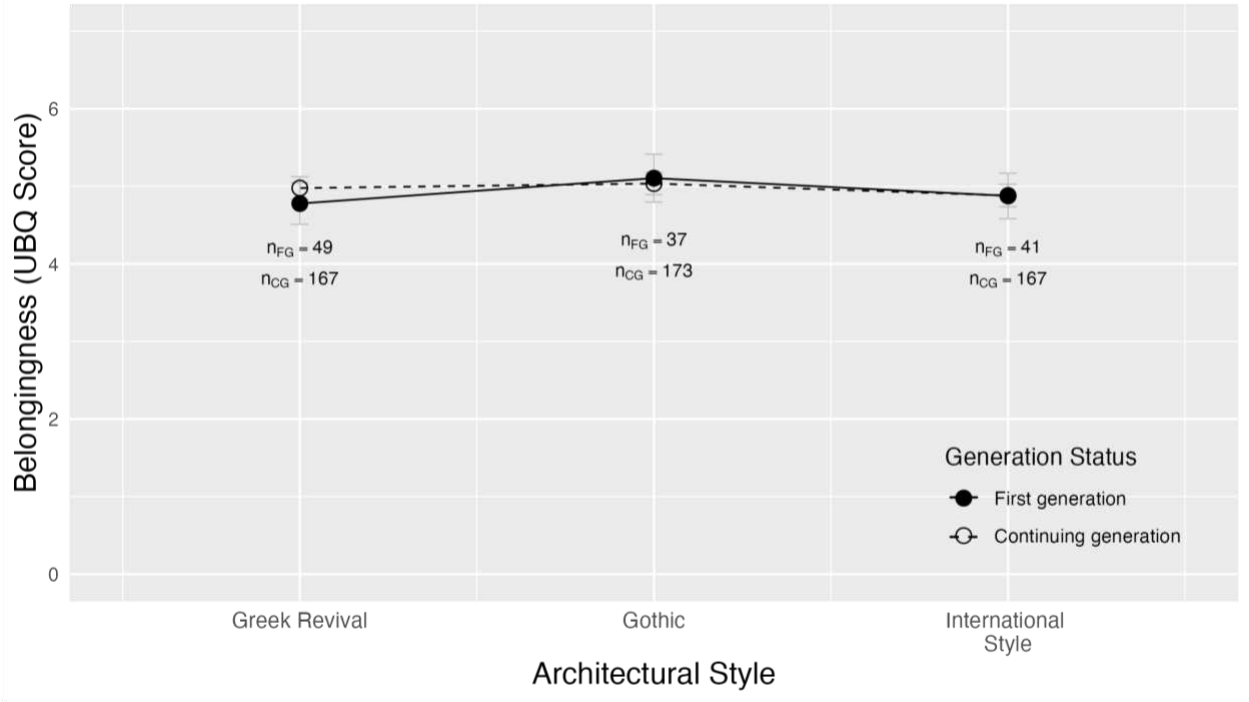

Figure 11

Belongingness by architectural style and generation status

Note. Error bars reflect 95% confidence intervals.

Concerning ethnicity, a model regressing UBQ scores on dummy-coded architectural style, binary ethnicity variable (1 = Hispanic/Latino/a/x, 0 = Not Hispanic/Latino/a/x), and their interaction indicated no moderation ($F_{ethnicity}$=1.19, $p_{ethnicity}$=0.30, Table 4, Figure 12). Bootstrapped confidence intervals corroborated results concerning moderation by both ethnicity and generation status.

Table 4

Linear model results regressing UBQ score on architectural style-ethnicity interaction

Note. LL and *UL* indicate the lower and upper limits of a confidence interval, respectively. * indicates $p < .05$. ** indicates $p < .01$. International Style and Not Hispanic/Latino/a/x are the reference categories.

Predictor	Estimate	95% CI [LL, UL]	df	*F* value	*p* value
(Intercept)	4.89	[4.75, 5.03]			
Greek Revival	0.07	[-0.14, 0.27]			
Gothic	0.11	[-0.09, 0.31]			
Ethnicity	-0.10	[-0.46, 0.26]			
Greek X Ethnicity	0.01	[-0.47, 0.49]	2	1.20	0.30
Gothic X Ethnicity	0.36	[-0.17, 0.88]			

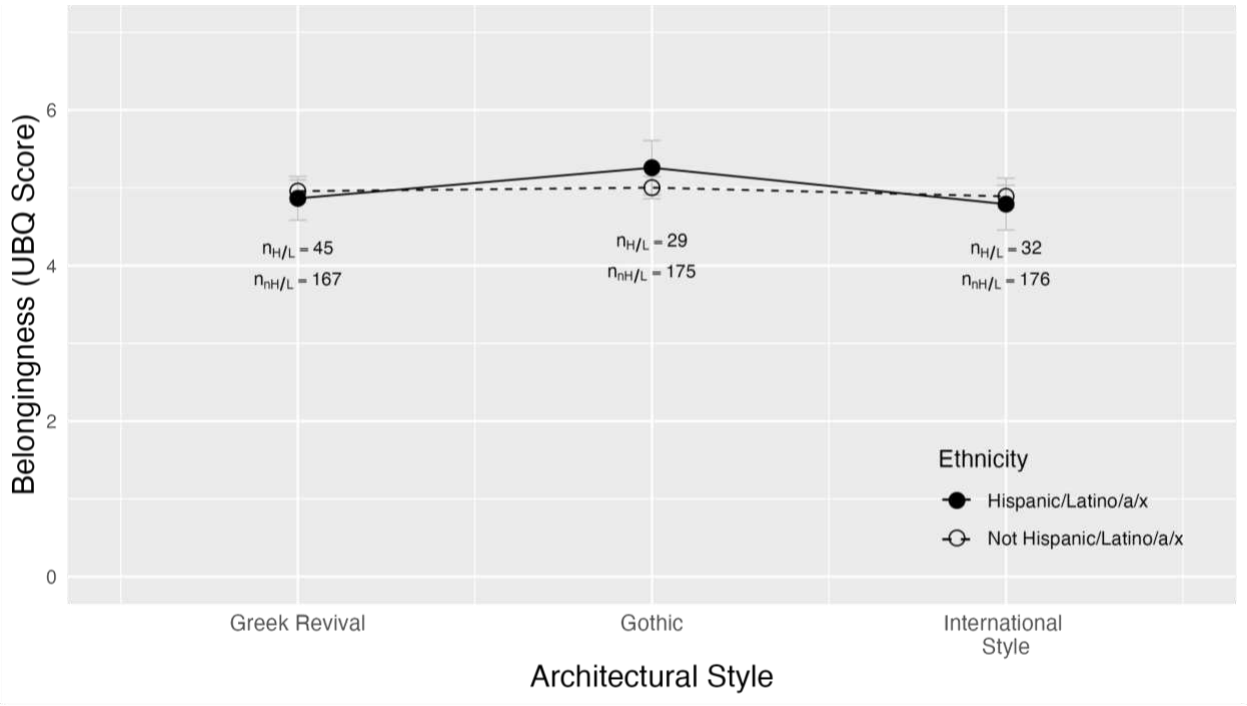

Figure 12

Belongingness by architectural style and ethnicity

Note. Error bars reflect 95% confidence intervals.

Lastly, I conducted exploratory descriptive analysis into racial identity as a moderator of the relationship between architectural styles and belongingness. Running inferential statistics is inappropriate to address this research question due to small subgroup sample size as my sample was predominately racially homogeneous. Respondents who endorsed only a White identity scored 0.34 standard deviations higher on average than respondents who endorsed at least one nonWhite identity as calculated by Cohen's d. Regarding group means and distributions, mean style differences and variations in style distributions were marginally larger among participants who endorsed a nonWhite identity than among those who endorsed only a White identity (Table 5, Figure 13). Among participants who endorsed only a White identity, those who responded to Greek Revival campuses scored 0.09 standard deviations higher on the

UBQ than those who responded to International Style campuses. Among participants who endorsed a nonWhite identity, this difference was a decrease of 0.16 standard deviations. Respondents who endorsed only a White identity and saw a Gothic university building scored 0.13 standard deviations higher than those who saw an International Style building. For participants who endorsed a nonWhite identity, this value was 0.20 (Figure 14).

Table 5

Group means of architectural style by endorsement of only White identity

Note. Standard deviations are in parentheses.

	Greek Revival	Gothic	International Style
Endorsed only White identity	5.02 (0.97) n = 178	5.05 (0.93) n = 172	4.93 (0.92) n = 172
Endorsed another identity	4.50 (1.08) n = 30	4.85 (0.97) n = 37	4.66 (0.96) n = 33

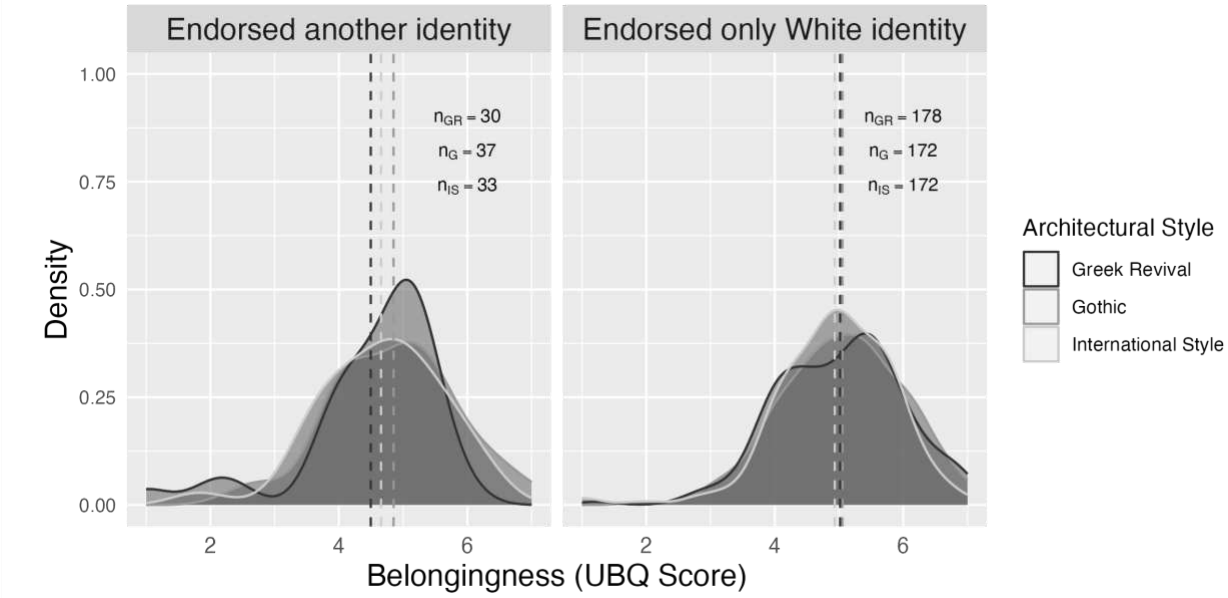

Figure 13

Density of belongingness scores by architectural style stratified by endorsement of only White racial identity

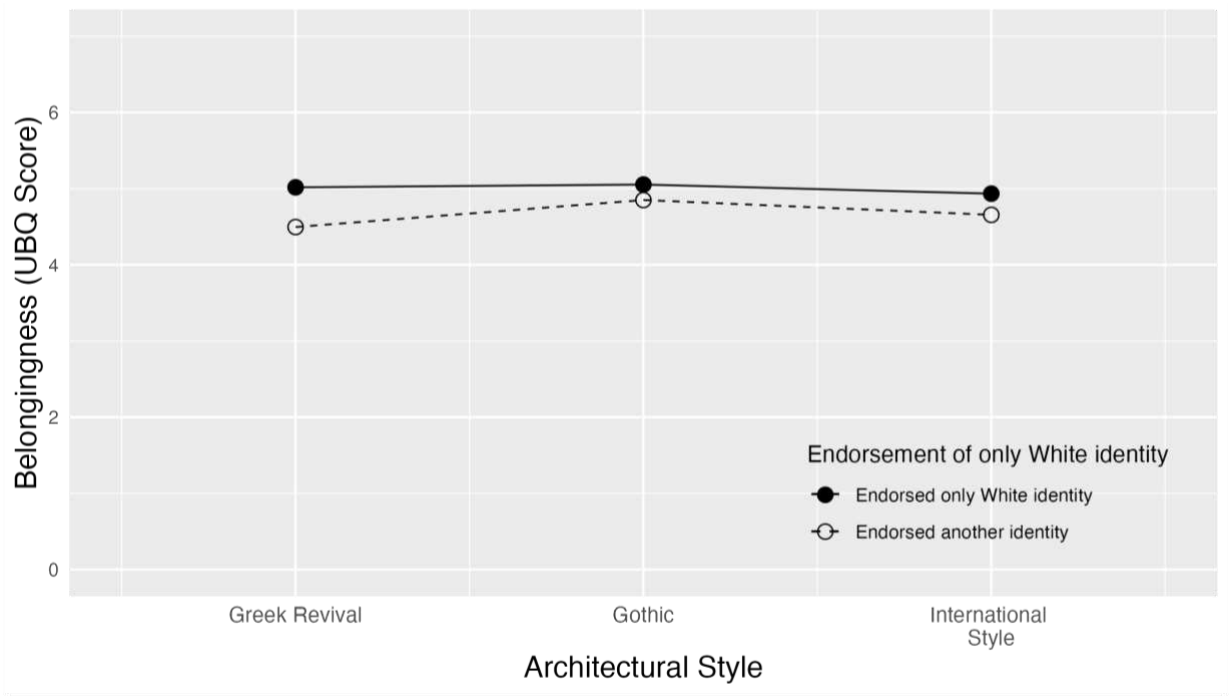

Figure 14

Belongingness by architectural style and endorsement of only White racial identity

Respondents who endorsed an African American/Black identity scored 0.57 standard deviations lower on the UBQ on average than respondents who did not endorse this identity. Concerning group means by architectural style, participants who endorsed African American/Black scored lower on the UBQ in response to Greek Revival, compared to Gothic, or International Style (Table 6, Figure 15). In other words, African American/Black respondents who viewed Gothic buildings scored 0.06 standard deviations higher than African American/Black respondents who viewed International Style buildings, as calculated by Hedge's g due to small sample sizes. This value was 0.15 (Hedge's g) among participants who did not endorse African American/Black. However, larger differences are observed when comparing the Greek Revival to the International Style. Among those who endorsed African American/Black, participants who responded to Greek Revival buildings scored 0.48 (Hedge's g) standard deviations lower than those responding to the International Style (Figure 16). This trend was reversed among participants who did not endorse African American/Black with those viewing Greek Revival buildings scoring 0.11 (Hedge's g) standard deviations higher than those viewing the International Style.

Table 6

Group means of architectural style by endorsement of African American/Black identity

Note. Standard deviations are in parentheses.

	Greek Revival	Gothic	International Style
Endorsed African American/Black identity	3.99 (1.39) n = 13	4.75 (0.92) n = 12	4.68 (1.30) n = 9
Did not endorse African American/Black identity	5.00 (0.94) n = 195	5.03 (0.94) n = 197	4.90 (0.91) n = 196

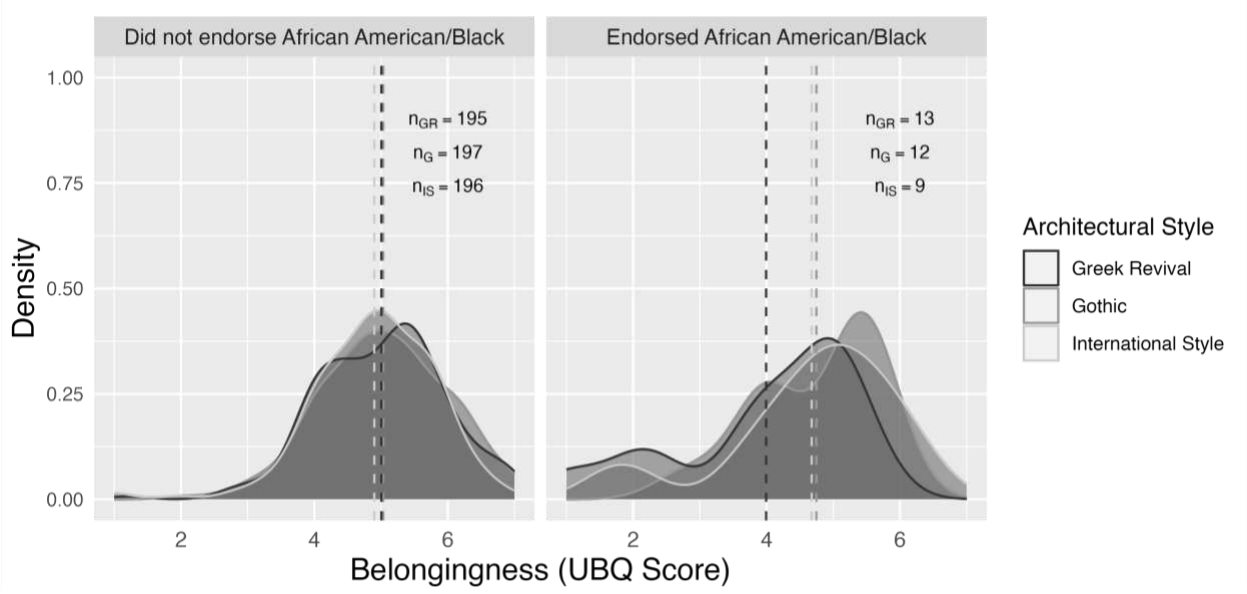

Figure 15

Density of belongingness scores by architectural style stratified by endorsement of African American/Black racial identity

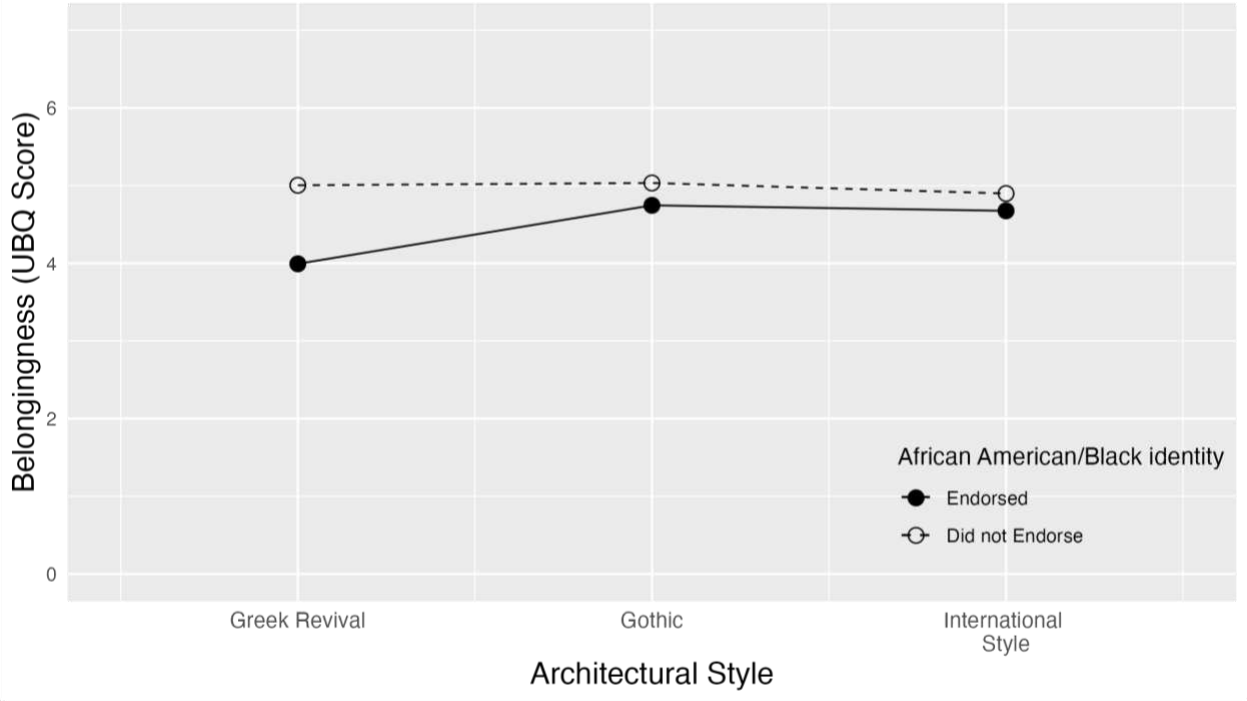

Figure 16

Belongingness by architectural style and endorsement of African American/Black racial identity

DISCUSSION

University belonging is associated with important student outcomes such as retention (Hausmann et al., 2007; Pedler et al., 2022), and wellbeing (Dutcher et al., 2022; Ndukaihe & Nwafor, 2022; Pittman & Richmond, 2007). The current study experimentally investigated the role of architectural style in expectations of belonging on a college campus using survey methods. Analyses using multiple linear regression and bootstrapped confidence intervals indicated no relationship between architectural style and expected sense of belonging in the aggregate.

The observed results conflict with the surroundings domain of university belongingness, proposed by Ahn and Davis (2020). The surroundings domain is posited to reflect built environments together with natural and cultural environments; however, in this study, characteristics of the built environment, namely architectural style, did not alter judgements of belongingness. Ahn and Davis developed their four-domain model by asking participants for 10 words/phrases in response to the concept of university sense of belonging. These qualitative responses were coded, in isolation from existing theory of university belongingness. The methodological differences between Ahn and Davis and the current study may explain their differing conclusions. Individuals may associate their belongingness with physical buildings, but this relationship may not be causal. Thus, varying architectural styles may not elicit disparate expectations of belonging though current students perceive that their belongingness is grounded in the designed environment.

Furthermore, the current study did not provide evidence for an interaction between the surroundings and personal space domains. Ethnicity and generation status are encompassed within Ahn and Davis' (2020) personal space domain as they each are personal identities. This investigation of interaction addressed Ahn and Davis's calls for clarity in how personal identities affect the importance of their identified domains. Still, the lack of evidence for interaction in the current study is consistent with Ahn and Davis's observation of no relationships between domains.

Signaling theory provides several explanations for this lack of relationship between architectural style and sense of belonging (Spence, 1974). First, respondents may have judged that they had adequate information about University M from the description to predict their level of belongingness; thus, they did not need to employ signals like architecture to answer the survey. Second, respondents may have looked for signals due to inadequate information provided by the written description, but architectural styles do not signal university characteristics relevant to belongingness judgements. Respondents may be unaware of the historic ties of certain architectural styles to discrimination, leading to the styles' low utility as a signal. Alternatively, respondents may be aware of these ties, but these ties may not be informative to judgements concerning belongingness.

Overall, participants' lack of reliance on architecture as a signal can also explain the observed results concerning moderation by first-generation status, namely that no interaction was observed. Signaling theory argues that signals are weighed most heavily by individuals with the least amount of information regarding the judgement in question (Falk et al., 2013). Research indicates that on average, first-generation students may be less exposed to insider

information regarding universities (termed “hidden curriculum”) (Gable, 2021); therefore, signaling theory suggests that first-generation students would weigh signals more heavily than continuing generation students. Still, if architecture is an uninformative signal or if a signal is unnecessary, no interaction between generation status and architectural style is expected.

Preliminary visual analysis suggested the presence of moderation by race. The UBQ score distributions by architectural style generally overlapped among participants who endorsed only a White identity; however, these distributions differed slightly for participants who endorsed a nonWhite identity. Among those who endorsed a nonWhite identity, participants who viewed the Gothic style expected to feel the highest sense of belonging, followed by those who viewed International Style buildings; those who viewed Greek Revival buildings expected to feel the least belongingness. This possible interaction between race and architectural style may be driven by a disproportionately negative influence of the Greek Revival style on the belongingness of participants who endorsed African American/Black identities. The mean UBQ score of this subgroup aligned with the midpoint of the scale indicating expected “neutral” belongingness while the mean of all other investigated subgroups, including participants who endorsed African American Black and viewed Gothic or International Style buildings, sat on the upper half of the UBQ scale. This difference may demonstrate salience or knowledge of the ties between the Greek Revival architectural style and U.S. slavery among individuals who identify as African American/Black.

Strengths

This research offers several strengths. Its controlled experimental design permitted causal claims in contrast to existing sparse belongingness and built environmental literature

that allows predicted university characteristics to vary with architectural style (Bennett, 1995; Bennett & Benton, 2001). To my knowledge, it is the first experimental examination of the surroundings domain of Ahn and Davis's belongingness theory (2020). The components of this domain are the least researched of all four domains, so this study provides much-needed investigation. Also, several recruitment pathways resulted in a substantially large sample adequate to address the research questions.

Finally, this research has practical applications for designers of university buildings and recruitment materials which commonly feature campus buildings. Though this study does not provide support for their influence on student belongingness en masse, it does offer preliminary support for their potential relationship with the belongingness of African American/Black students. Due to the relationship between university belongingness and retention (Hausmann et al., 2007; Pedler et al., 2022), further research in this line of work may have implications for the retention of a racially diverse student body.

Limitations

Still, this study presents relevant limitations. Recruitment chiefly from a primarily-White university resulted in unequal samples of moderating variables. Unequal subgroup sizes can reduce power. With oversampling methods, observed differences may have provided sufficient evidence to reject the null hypothesis of no differences between groups.

Additionally, this study did not account for intersectionality as previous researchers have encouraged (Duran et al., 2020; López et al., 2018) due to logistical constraints. To investigate the intersection between ethnicity and generation status within the current study, a sample size of 911 would be required to detect a small effect with adequate power. It is

possible that by taking a non-intersectional approach, differences between architectural style were missed among intersectional groups. Despite the limitations of not using an intersectional approach, the present moderation analyses are still informative. They indicate that further investigation into the relationship between ethnicity, generation, architectural style, and belongingness from an intersectional lens may not be worthwhile. No trends were observed in the current study regarding these variables and architectural style; thus, an intersectional approach may not be fruitful.

Lastly, it is imperative that no strong claims are made regarding the relationships between race, architectural style, and expected sense of belonging due to small sample sizes. Although descriptive analysis suggests that race may moderate a relationship between architectural style and predicted belongingness, the observed subgroup sample sizes are insufficient to perform inferential statistics, and any conclusions would be inappropriate.

Future directions

Next steps are to conduct qualitative research to examine how architectural style affects the schemas of U.S. universities. Signaling theory (Spence, 1974) provided one potential explanation of the observed results which was discussed earlier: that individuals do not associate the investigated architectural styles with historic discrimination. Qualitative research querying individuals' associations, assumptions, and expectations at universities of different architectural styles can answer this question.

Additionally, future confirmatory studies are necessary to investigate the potential moderating role of race in the effect of architectural style on university sense of belonging. These studies may benefit from oversampling to address loss in power due to unequal

subgroup sample sizes and an intersectional lens to inspect the complex intricacies of race in U.S. society. Virtual reality methods may also result in more accurate predictions of belonging on a college campus as virtual reality has been found to elicit perceptions of environments that are more similar to those made in real life than those based on two-dimensional images (Rossetti & Hurtubia, 2020).

CONCLUSION

No support for the effect of architectural style on university belongingness overall, nor stratified by ethnicity or generation status, was observed. Still, descriptive trends suggesting moderation of race were explored. The current work addressed a crucial, but largely unexplored, potential inequity in education and experimentally investigated Ahn and Davis' (2020) surroundings domain and its interaction with the personal space domain. I provide several future directions that may further this line of work, thereby equipping designers and decisionmakers to create higher education environments that empower all current students, visitors, and future students.

STUDY 2: EXAMINING RELATIONSHIPS BETWEEN CAMPUS ARCHITECTURE PHOTOS AND STUDENTS' PREDICTED EXPERIENCE: AN EXPLORATORY THEMATIC ANALYSIS

The campus physical environment influences which university students choose to attend and whether they persist in their college education (A. Hajrasouliha, 2017; McDonald, 2019; Pampaloni, 2010). Visiting the campus was named by prospective students as one of the most influential factors when choosing a college (Pampaloni, 2010). Moreover, students report holistic impressions of a college's designed environment as one of the top five factors in their college decision (McDonald, 2019). Regarding the college experience, physical characteristics of the university independently predict first-year retention when controlling for relevant factors such as student resources and test scores (A. Hajrasouliha, 2017; A. H. Hajrasouliha & Ewing, 2016). Concerning degree completion, campus attributes explain variance in 6-year graduation rates above and beyond traditional factors.

The practice of predicting recruitment, enrollment, and retention was formalized by Boston College in the 1970s when they used survey data to discover that students were attracted to their campus and geographic location (Hill, 2018). With this information, Boston College turned to photographs of these places to successfully boost interest in their school. This tradition of "enrollment management" (Hill, 2018, p. 7) persists as third-party companies now aid universities in recruitment (CampusWorks, n.d.; Capture Higher Ed, n.d.; EducationDynamics, n.d.; waybetter, n.d.). Within this framework, higher education is seen as a market for the product of a college "experience" (Hill, 2018, p. 11), and disseminating photographs and visuals is a meaningful strategy for product advertising (Rutledge, 2020). This

practice also provides prospective students who cannot physically visit the university access to the campus. Through advertising and marketing, universities attempt to manage their image (Hill, 2018).

University image

University image—which is sometimes conflated with university reputation—represents the holistic impressions individuals hold toward an institution (Lafuente-Ruiz-de-Sabando et al., 2018; Sung & Yang, 2008). These impressions encompass assumptions, stereotypes, and attitudes. University image can predict current student satisfaction (Alves & Raposo, 2010; Irfan & Sulaiman, 2020; Lafuente-Ruiz-de-Sabando et al., 2018; Manzoor et al., 2021), loyalty (Alves & Raposo, 2010; Nguyen & LeBlanc, 2001), and supportive attitudes (Sung & Yang, 2008).

There are numerous models proposing university image as a higher-order construct containing differing lower-order factors (Lafuente-Ruiz-de-Sabando et al., 2018; Manzoor et al., 2021). The 4Q model avers four factors: quality of education, academics, research, and physical conditions, the latter of which concerns the campus social climate and available facilities, such as buildings (Erkan et al., 2021). Another four-factor model includes a facilities factor (Alcaide-Pulido et al., 2017), and still a third model posits six factors, two of which are campus features and heritage (Wilkins & Huisman, 2015). The features factor of Wilkins and Huisman's model indicates how attractive the campus is, where it is located, and what facilities are present. Campus heritage in this model reflects any noteworthy place-based history, indirectly capturing perceived age of a campus. Lastly, one theory-focused paper explicitly names architecture as an input of image (Nguyen & LeBlanc, 2001). While there is obviously debate concerning the

number and content of lower-order factors in university image, the physical environment seems to be an important consideration (Lafuente-Ruiz-de-Sabando et al., 2018).

Sense of belonging

The campus environment can provide insight into whether students would belong at a specific university, which affects their college decision (Pampaloni, 2010). Gillien-O'Neel (2021, p. 46) defines students' sense of belonging as how attached they feel to their school and the associated community. This construct is theorized to encompass satisfaction, loyalty, and pride (Slaten et al., 2018). University belongingness may relate to university image as the latter construct is similarly associated with satisfaction, (Alves & Raposo, 2010; Irfan & Sulaiman, 2020; Lafuente-Ruiz-de-Sabando et al., 2018; Manzoor et al., 2021), loyalty (Alves & Raposo, 2010; Nguyen & LeBlanc, 2001), and a multi-component variable comprised of trust, interest, pride, and belonging (Sung & Yang, 2008).

Ahn and Davis (2020) posited a 4-domain model of university belongingness composed of surroundings, personal space, academic engagement, and social engagement. These domains were derived by asking students to list 10 words that they associated with belongingness at their college. Academic and social engagement are the most researched domains. The personal space domain encompasses characteristics about the individual, including their identities, as race, ethnicity, and generation status bear a complex relationship with feeling as though one belongs (Azmitia et al., 2018; Duran et al., 2020; Fan et al., 2021). Some studies have found that students with marginalized racial and ethnic identities report lower belonging (Duran et al., 2020; Fan et al., 2021; Hussain & Jones, 2021) while Parr (2022) finds that these identities interact with age. Concerning generation status, several studies note

belongingness is a challenge among first-generation students (Azmitia et al., 2018; Duran et al., 2020); still others observe very small (Pittman & Richmond, 2007) or no differences (Pedler et al., 2022) between first-generation and continuing generation students.

In their qualitative responses to the concept of university belongingness, roughly half of Ahn and Davis' (2020) participants described environments, such as cultural locations, nature, and facilities as contributing to their sense of belonging. Respondents indicated that the natural features, geographically-based culture, and physical buildings they inhabit related to their belongingness. These concepts condensed into the domain of surroundings. Most research into university belongingness ignores this domain; thus, there is scant existing literature into architecture's influence on belongingness.

Sense of belonging is connected to school climate (Raisa, 2022). As defined in Thapa et al. (2013), school climate includes the organization's ideals, norms, and protocols. The dimensions of school climate are widely debated and, in some models, overlap with sense of belonging (Grazia & Molinari, 2021; Lewno-Dumdie et al., 2020). In searching for commonality regarding theorized dimensions of school climate, Lewno-Dumdie et al. (2020) reported that school climate from the student perspective is typically discussed as comprised of institutional environment (including facilities), safety, and social interactions.

Signaling theory

Signaling theory (Spence, 1974) provides a basis for connections between designed environments, university image, and campus experiences, such as sense of belonging. Based on this theory, individuals utilize concrete traits of an entity to draw conclusions about indiscernible ones when faced with a judgement they feel ill-equipped to make. In other words,

signals communicate information regarding unknowns. Within an organizational setting, individuals may use the design of workspaces as a signal from which they conclude attributes of the organization, like it is creative (Maier et al., 2022). The concept of signaling has implications for design. Secore (2018) describes how campus design can communicate university characteristics such as unity and academic standards. More broadly, May (2017) specifies signalization as a means of communicating information via visual image. He argues that architects are no longer working within static, mechanical, rule-bound drawing, but they use the medium of (visual) image, which carries political and cultural meaning.

A designed environment's ability to communicate is explicated by Lynch's theory of imageability (1996). Imageability refers to the degree to which a designed environment is associated with a comprehensive schema of the environment. Imageable environments are identifiable as carrying meaning, such as communicating program (i.e., intended use) of space. Imageability is discussed by Lynch as a product of the designed environment's "legibility" and the user's ability to understand it (Lynch, 1996, p. 2). Inherent in this theory is the concept that designed environments contain elements of meaning: that they are full of "signifiers" (Donetti & Phillip, 2021, p. 286).

Higher education architecture

As Turner (1987) argues, the university campus' designed environment holds a singular place within U.S. architectural history. Three common architectural styles Turner discusses are the Greek Revival, Gothic, and International Style.

The Greek Revival style

Adopted on U.S. university campuses in the 18th and early 19th centuries, the Greek Revival style (Fig. 1-3) uses motifs and ornamentation from the ancient Greeks (Turner, 1987). Specifically, many buildings were erected using a Greek Temple form, complete with a pediment and colonnade. In adopting this style, universities accentuated the idea of ancient Greek greatness and eminence (Turner, 1987, p. 90). They emphasized a link between their institutions and what they viewed as Greek excellence. Within the U.S., this style is also strongly associated with slavery (Foster, 2004) as enslavers used this style for the "Big House" on their plantations (Mosley, 2021, p. 26). Citing the way in which this Greek Revival mansion lorded over the rest of the land, Mosley labels it a symbol of White supremacy (Mosley, 2021, p. 26).

The Gothic style

Universities in the U.S. faced resistance establishing themselves as prestigious because they were viewed as fledgling when contrasted with Oxford and Cambridge Universities, which had been founded over 600 years prior (University of Cambridge, 2022; University of Oxford, n.d.; Ziolkowski, 2018). In the late 19th and early 20th centuries, some universities turned to Gothic architecture as a method of justifying their authority (Ziolkowski, 2018). This architectural style provided a tie to European history as it is the style of Oxford and Cambridge, which in turn borrowed it from the medieval monasteries.

American universities were also drawn to this style due to its interiority (Ziolkowski, 2018). As monks sought solitude and refuge from the outside world in monasteries, so did the sons of the American top socioeconomic class in Gothic universities. During this time, universities aimed to impart the ideas and civic duties of this elite class, and diversity was

unwelcome. In this way, the American Gothic movement was a flight from emerging modernism. These campuses sheltered students within their primarily Protestant and elite environments.

The International Style

In the mid-20th century, many European and American architects employed newly available mass-produced building materials (such as steel and glass) to develop designs which emphasized flexibility of program (i.e., intended use of space) (Khan, 1998). These architects termed this movement the International Style. Reflecting upon emerging worldwide commerce and products, these designers anticipated that this style would be adopted globally. They positioned their style as a product to be shipped throughout the world. While the labelling of this primarily European and American style as "international" is Eurocentric, the style itself shies away from ornamentation and regional motifs. This results in structures that do not mimic European history via ornament, thereby contrasting with campus adaptations of the Greek Revival (e.g., Corinthian columns) and Gothic (e.g., flying buttresses) (Turner, 1987; Ziolkowski, 2018).

In sum, U.S. campuses initially adopted the Greek Revival, Gothic, and International Styles during distinct historical periods for disparate objectives (Khan, 1998; Turner, 1987; Ziolkowski, 2018). The Greek Revival and Gothic were selected for campuses on which primarily White high-socioeconomic-status male student bodies resided (Turner, 1987; Ziolkowski, 2018). These two styles have historic ties to systemic discrimination and racism both within U.S. university practices and outside of the Academy (the formal community of scholars and the institutions that support them). These ties and Eurocentric ornamentation may have

implications for the over 15 million diverse undergraduate students who attend U.S. higher education institutions in the present day (National Center for Education Statistics, 2022).

Assumptions about campus architecture

Signaling theory (Spence, 1974) provides conceptual support for the potential influence of architecture on student belongingness and university image. Moreover, architectural history indicates that the Greek Revival and Gothic architectural styles display ornamentation associated with systemic oppression (Foster, 2004; Ziolkowski, 2018). The possibility of a link between architecture and belongingness is also outlined by architectural theorist Weisman (1992), who predicts that physical environments fortify societal systems of discrimination.

Still, very little psychological research has connected campus architectural styles to student experience and image. Bennett and Benton (2001) conducted exploratory factor analysis on semantic differential responses to photographs of university buildings of varying architectural styles. Pictured styles included Romanesque, Postmodern, Greco-Roman, Gothic, and Modern. The Greek Revival and the International Style were indirectly included in this study as Greek Revival is encapsulated within the umbrella style of Greco-Roman, and the International Style is within the Modern (Khan, 1998). Each first-year university student participant viewed one picture (Bennett & Benton, 2001). No directional hypotheses were presented due to the paucity of existing research.

Four factors were revealed: “Evaluation of Individual Success,” “Potency of the Campus Environment,” “Stimulation of the Campus,” and “Status of the Physical Environment” (Bennett & Benton, 2001, pp. 166–167). The first factor conveyed whether participants predict high grades and success for themselves at that university. An omnibus comparison revealed ratings

of the factor for Gothic, Romanesque, and Greco-Roman universities (named by the author as "old architecture") differed from those of Modern and Postmodern universities (named "new architecture") (Bennett & Benton, 2001, p. 171). However, when comparing individual "old" styles to all "new" styles, only ratings of Greco-Roman universities were significantly lower. The second factor, "Potency of the Campus Environment," represented participants' judgements related to academic level and social environment. The third factor, "Stimulation of the Campus," portrayed if the university was interesting and if it caused "tension" (Bennett & Benton, 2001, p. 167). These second and third factors did not vary with architectural style. "Status of the Physical Environment," the fourth factor, reflected only public/private status of the university and if the university was old or new. Not only did the omnibus comparison of architectural styles on this factor illustrate differences, but every "old" architectural style independently differed from the two "new" styles.

From this study, Bennett and Benton (2001) make several conclusions about students' reactions to architectural styles. First, students believe that they will succeed less at universities of Gothic, Romanesque, and Greco-Roman styles ("old") than those of the Modern or Postmodern ("new"). Second, students expect that the education they would receive at the "old" styles will be of a lower quality and less enjoyable. Lastly, participants reported that universities of the Gothic, Romanesque, and Greco-Roman styles are more likely private and small.

The objective of the current study is to explore how three architectural styles common on U.S. campuses may affect university image and students' predicted experience. Through semi-structured interviews and thematic analysis, this study aims to clarify the physical

environment factor of current models of university image (Alcaide-Pulido et al., 2017; Erkan et al., 2021; Lafuente-Ruiz-de-Sabando et al., 2018; Wilkins & Huisman, 2015) and the potential signaling role of architectural style in recruiting prospective students.

Research questions

My research questions are as follows:

1. What is the relationship between architectural style and students' perceived university image?
2. What roles (if any) do architectural style and university image play in perceived sense of belonging?
3. What is the relationship between architectural style and assumptions about students and faculty of a university?

METHOD

Participants

I recruited first-year university students using a research pool at a large state university in the U.S. West. This university does not display a single unified architectural style throughout its campus (Colorado State University, 1995; Delgado & Axtell, 2021). Students can fulfill the research requirement of certain courses through participation in the research pool. Inclusion criteria required that participants be at least 18 years of age and first-year students. Following the culmination of the study, participants were invited to enter a drawing for a $50 Amazon gift card. Ten to fifteen interviews are commonly accepted as sufficient in exploratory qualitative research. With this number of interviews, the researcher can identify common themes connecting responses. An a priori count of 15 interviews was conservatively chosen.

After conducting interviews, I discovered that one participant did not meet the age-related inclusion criteria. They were excluded from reported analyses. The remaining 14 participants were assigned pseudonyms by the researcher. Participants' pseudonyms, gender, ethnicity, and race can be found in Table 7 as well as whether at least one of their parents attended college and whether they attended high school the same state in which they now attend college. Three participants reported that they did not view campus photographs when choosing which college to attend, while ten reported that they did. Seven participants expressed that they physically visited campuses.

Table 7

Demographics of participants

Note. Acronyms are as follows: PNTA: Prefer not to answer; AAPI: Asian/Asian American/Pacific Islander

Pseudonym	Age	Gender	Race	Hispanic or Latino/a/x	Parental college experience	Attended Colorado High School
Ash	18	Woman	White	Yes	No	Yes
Aspen	19	Woman	White	Yes	Yes	No
Birch	19	Woman	White	No	Yes	Yes
Cedar	18	Nonbinary / Genderqueer	White	No	Yes	No
Elm	18	Woman	African American/Black	No	No	Yes
Fir	18	Woman	White	No	Yes	No
Maple	18	Man	White	No	Yes	Yes
Oak	18	PNTA	White	No	Yes	Yes
Pine	PNTA	Man	AAPI	Yes	Yes	Yes
Redwood	18	Man	White	No	Yes	Yes
Sequoia	18	PNTA	White	Yes	No	Yes
Spruce	19	Man	White	PNTA	Yes	Yes
Sycamore	20	Man	White	Yes	Yes	Yes
Willow	18	Woman	White	No	Yes	No

Materials development

Architectural styles and photographs

The Greek Revival, Gothic, and International Style were selected. To investigate whether architecture with historic ties to discrimination influences perceptions of universities that display that architecture, I chose the Greek Revival and Gothic styles (Foster, 2004; Turner, 1987; Ziolkowski, 2018). Specifically, these styles fabricate and emphasize a continuity with European history of Greek empires and Medieval monasteries, respectively (Turner, 1987). I identified the International Style as a comparison style because it is prevalent among U.S.

universities and lacks ornamentation that ties it to Eurocentrism (Khan, 1998). All three styles are popular on university campuses (Khan, 1998; Turner, 1987)

The process of identifying specific schools and photographs proceeded as follows.[1] Specific buildings of each style were determined using architectural history books (Khan, 1998; Morgan, 1989; Turner, 1987; Ziolkowski, 2018) and the following two criteria: buildings and/or campuses must be identified as representative of the style within a scholarly source, and they may not be iconic buildings (e.g., Pittsburg University's Cathedral of Learning). I searched Google Images and Creative Commons for photographs of the identified buildings and universities. Building photographs were required to meet seven criteria: to hold a Creative Commons license (Creative Commons, n.d.), be in color, fit certain dimensions, illustrate all or nearly all the building, contain no people, be difficult to identify, and contain no extraneous activities, such as construction. I Photoshopped several of the photographs in order to meet these criteria. Final selection of photographs was conducted by matching the available photographs on relevant features such as greenery, season, and sky condition. The final photographs are illustrated in figures 1-9.

Interview questions

I developed a preliminary list of questions and probes to capture participants' assumptions about, perceived image of, and expected belonging at hypothetical universities. For the latter, I adapted items from the University Belongingness Questionnaire (Slaten et al., 2018) to be open-ended questions. Next, I collected pilot data from three university students.

[1] The process of identifying universities and photographs is described in more detail in study 1.

Pilot data and expert input informed the final selection of 9 interview questions and their corresponding prompts.

In the final list (see Appendix A), questions about image and assumptions probe general thoughts about the university as well as how participants would describe the university, its students, and its faculty. Questions also address expectations of belongingness, architectural associations with oppression, and personal experiences with architectural style. One question asked participants to reflect on their own consumption of campus photographs before choosing a college.

Procedure

I conducted interviews during the Fall semester of 2023. Procedures were approved by an institutional review board before data collection commenced. Prior to the start of the interview, participants were directed to complete an informed consent form, which also asked for their permission to record the interview. I communicated that consent to record was not required for participation in the study. Still, all participants gave their consent to be recorded. Next, participants completed a six-item demographics survey querying age, gender [measured using Cameron and Stinson's guidelines (2019)], ethnicity, race, religion, and if either of the participant's parents attended college. Names were not recorded; instead, participants were given subject IDs.

The approximately 50-minute interview (Range: 30:31-58:55) preceded as follows: I presented three photographs of one style in a set. These photographs were printed in color on standard printer paper. Participants were asked to imagine the set was a higher education campus in the U.S. (i.e., one Greek Revival campus, one Gothic campus, and one International

Style campus). I asked participants to discuss their initial reactions to the campus. After, I removed the photographs. I repeated this process for the remaining two hypothetical campuses. The order of these campuses was randomized. For the second stage, I laid out all nine photographs in a 3x3 grid in which columns represented campuses. The campus that the participant had viewed first was aligned to the left while the one viewed last was positioned on the right. Next, I asked questions requesting participants to compare the universities, students, faculty, and their own predicted experience, including belonging, at each of the depicted campuses. For the third stage, I directed participants to metaphorically "step away" from the photographs and reflect on their own college decision-making process. When we returned to the photographs for the fourth stage, I queried participants' experiences with the depicted types of buildings. Lastly, I asked them about their relationship to architecture as a field and if they could identify any of the depicted universities. No photographed institution was correctly identified.

For the entire interview, I asked probing and follow up questions as necessary. Following the culmination of the interview, I thanked the participant, provided them a debriefing page, and provided them with the opportunity to enter the compensation raffle.

Analytic approach

Otter.ai, a free resource that records and transcribes voice audio, was used as a first pass at transcription. A research assistant completed and verified the transcriptions. Exploratory thematic analysis was inductively completed in NVivo version 12.6.1.970 Plus, a qualitative data analysis software (Lumivero, Denver, CO, USA) using Miles et al.'s analytic approach (2020). This approach to thematic analysis was selected because the study is

exploratory in nature. At a broad level, Miles et al. endorses three intertwining actions of thematic analysis: “data condensation, data display, and conclusion drawing/verification” (2020, p. 8).

First, I read all transcriptions and completed jottings for each. A preliminary codebook was created based on existing theory and patterns noted in jottings, including notes and memos taken during and immediately after the interviews. I “first-cycle” coded all transcripts using a priori codes, concept codes, emotion codes, and In Vivo codes, revising the codebook, and iteratively working through cases, as necessary (2020, p. 62). Next, I performed “pattern-coding” by examining code frequency tables and grouping codes by categories and concepts (2020, p. 79). Cross-case analysis was conducted from a primarily variable-oriented perspective, working iteratively and nonlinearly through a series of meta-matrices and networks, while returning to the original transcripts and codes. In doing so, I clustered, compared, and differentiated variables as well as examined relationships between them to develop themes.

Quality of data and accuracy of researcher interpretation was verified through member checking during data collection (Miles et al., 2020, p. 303), in which I asked participants for feedback on my understanding of their reported experience. Additionally, thematic analysis was reviewed by a senior researcher to achieve agreement on themes and relationships.

FINDINGS

As Figure 17 depicts, my analysis developed three major themes. First, participants' impressions of the depicted universities were rooted in the buildings' communication of higher education, meaning *university image began with imageability, which in turn, influenced beliefs about students and school climate (theme 1).* Second, participants discussed their *predicted experience as a function of university image (theme 2).* Third, *elements of the designed environment indicated imageability and predicted experience (theme 3)*, meaning participants used environmental factors as signals.

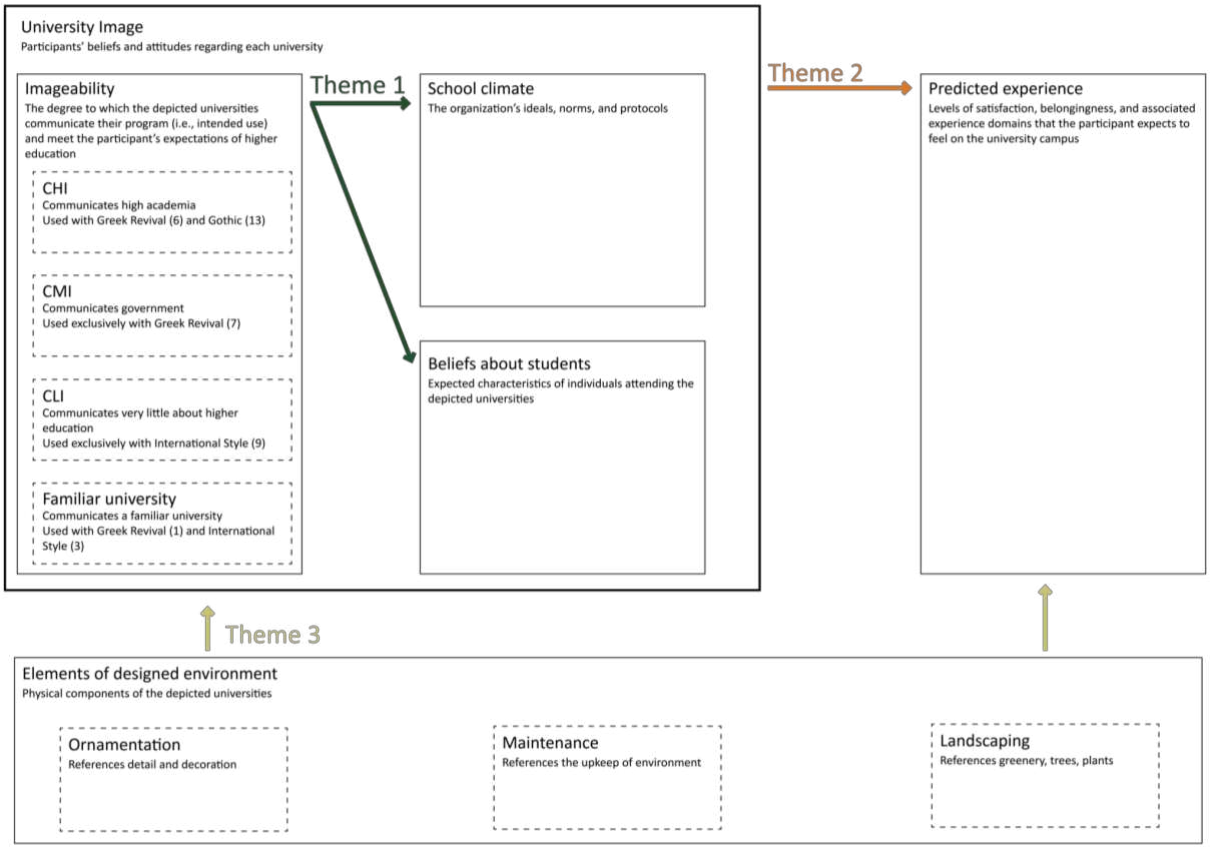

Figure 17

Visual display of themes

Theme 1: University image began with imageability, which in turn, influenced beliefs about students and school climate.

Imageability and architectural style

Participants discussed the degree to which the depicted universities communicate their program (i.e., intended use) and meet the participant's expectations of higher education, essentially their imageability. Participants delineated between four distinct levels of imageability that were differentially discussed in relationship to architectural style: high imageability, moderate imageability, low imageability, and familiar universities (Table 8).

Table 8

Imageability of architectural styles

Note. Acronyms are as follows: CHI: Campus of high imageability; CMI: Campus of moderate imageability; CLI: Campus of low imageability

	Greek Revival	**Gothic**	**International Style**
CHI	Ash, Cedar, Elm, Redwood, Sequoia, Sycamore	Ash, Aspen, Birch, Cedar, Fir, Maple, Oak, Pine, Redwood, Sequoia, Spruce, Sycamore, Willow	∅
CMI	Aspen, Fir, Maple, Oak., Pine, Spruce, Willow	∅	∅
CLI	∅	∅	Ash, Birch, Elm, Maple, Oak, Pine, Sequoia, Spruce, Sycamore
Familiar university	University of Alabama: Birch	∅	Attended university: Cedar Mines: Aspen Attended university/University in Texas: Willow

Does not fit within imageability framework	∅	Small liberal arts school: Elm	STEM university: Fir, Redwood

Gothic and Greek Revival styles associated with high imageability. All participants identified Gothic (13) and/or Greek Revival (6) campuses as being campuses of high imageability (CHIs): that is, they strongly communicated academia, "like as high as it gets academic" (see table 8). All participants referenced these campuses as "prestigious," "esteemed" and "top" universities. Sixty-four percent of participants (9) labelled CHIs as "Ivy League" universities:

> *Birch: It looks like an Ivy League school. It looks like just a stereotypical... Not stereotypical buildings, but I feel like at an Ivy League.*

The campuses of CHIs were referenced as exemplar to college environments by six participants because "when [they] think of … a … university, [they] think of this building," and the buildings held "an actual library."

> *Pine: It's probably a college that's … been built for the purpose of being a college since the beginning.*

No participant discussed the International Style as a CHI. Ninety-three percent of participants (13) described the Gothic campus as a CHI, over two times as many participants as identified the Greek Revival university as a CHI (43%, 6). Participants cited popular media, including movies (3) for the association between these architectural styles and academia.

> *Spruce: This feels like something you'd see in a movie for … a college …I feel like it's something you might see in … Harry Potter or in … a high school or college movie.*

Nine participants believed these universities were "old," meaning they were founded far

in the past and possibly were even one of "the first colleges" in the U.S. Identity as an old campus commonly indicated that Gothic and Greek Revival campuses were CHIs to participants.

> *Cedar: [It looks] kind of … like prestigious schools like Harvard among those that are … older and … Ivy League.*

These universities were also seen as "expensive schools" by seven participants. For three, expense was associated with prestige.

> *Sequoia: It's just the more prestigious school. … you have to pay more to get in.*

Five participants also discussed feeling connected to history as well as previous students and affiliates of CHIs as they "[walk] through history."

> *Pine: You'd be living or working or being around a place that had a history and that adds value … it's been around for a long time and influenced many people's lives.*

Greek Revival style associated with moderate imageability. Rather than communicating the Academy (CHI), seven participants expressed that Greek Revival universities communicated "politics" and "government" because "these buildings … have… a legal political feeling to them" (see table 8).

> *Maple: It looks like a bunch of … legislative type of stuff with government's going down there.*

In this way, participants viewed these as campuses of moderate imageability (CMIs) as they looked like higher education institutions where "you'd have to be involved in law and politics." All participants who identified the Greek Revival campus as a CMI labelled the Gothic campus as a CHI and drew distinctions between them.

> *Pine: It's... hard to explain the difference … in the feel of it, but it definitely has a difference to it.*

In contrast to CHIs where participants believed students became "researchers and scientists

and … writers, this place (CMI) would lead out lawyers and judges … a different demographic of people." CMIs were viewed as "lawful regal world[s] whereas [CHIs were] scholarly worlds with scientists and writers."

CMIs were believed to be "esteemed" by five participants, but less so than CHIs.

Spruce: This one reminds me … more of … a middle to upper type college.

Participants believed students at CMIs were "not at the most esteemed expensive university (CHI)." CMIs were perceived to be "old" universities that "[have] been around for a little longer" by five participants. Three participants discussed the "distinguished alumni" of CMIs.

> *Aspen: Whenever you … look or … searching up "Oh, who are the people who went to this college?" it's probably someone who was… in early government.*

International Style associated with low imageability. In response to exclusively International Style campuses, nine participants struggled to describe or conceptualize characteristics of the university. Participants "didn't really know" how to describe the university because the buildings "[didn't] scream any [thing]… specific." In other words, the campus buildings did not communicate information regarding higher education; they were campuses of low imageability (CLIs) (see table 8).

Birch: Doesn't really look like school or classes.

Buildings on CLIs were compared to "average city buildings," such as "doctor's office[s]" or "office buildings" by four participants.

When probed for detailed information regarding CLIs, participants applied characteristics of one of three options to the depicted universities. First, three participants spoke about the campus as a "typical university" and applied characteristics of their "typical university" schema to the depicted university.

Spruce: I feel like this one is more of just … the typical college campus where you might... yes, you go to class and you study, but then you also can still have fun with your friends and go out and do stuff, and you have free time.

Second, three participants applied attributes of less-esteemed universities to CLIs.

Birch: Here kind of looks like a... I don't know. It could look like a... community college.

Third, three participants assigned characteristics of the university they attend onto the depicted university.

Pine: So, when I think of these, … I don't actually think much about the students that would be attending them because I think of … these in the more average kind of way. Like when I think of the students that attend these, I can imagine the same crowd of the faces that I see around [the university I attend].

Seven participants expressed that CLIs were less-esteemed and "not a lot of people know about it." CLIs were seen by three participants as "the least expensive" and "cheaper," where one could "save a bit more money."

Campuses associated with familiar universities. Lastly, the depicted campus directly communicated a familiar university to four participants. This occurred for one Greek Revival Campus and three International Style campuses (see table 8).

Aspen: That's how I imagined [Colorado School of] Mines.

For these four participants, attributes of the familiar university were assumed to be true of the depicted university.

Cedar: I'm kind of extrapolating the stuff that I've experienced here onto this one.

Attributes applied to campuses that reminded participants of familiar universities were varied. Due to this inconsistency, all outcomes of imageability, including school climate and beliefs about students, were also heterogeneous. For this reason, findings related to depicted

universities that reminded participants of familiar universities will not be presented further; interested readers may refer to appendix B.

School climate according to imageability

Participants shared how imageability influenced their perceptions of school climate.

> *Willow: That's kind of what Ivies remind me of … you kind of have to act and think and do things a certain way.*

Specifically, seven participants believed CHIs had judgmental climates, where there may be "discrimination," and certain individuals may be "excluded" or "not be welcome."

> *Ash: There may be … more discrimination going on. If someone like me would be in an institution like this.*

Six participants talked about "restriction" at CHIs, which led to students needing "to behave a certain way."

> *Ash: I would imagine that … there would be more restriction … or not a restriction but more awareness on … what type of … speech to use, like the vocabulary.*

These perceived norms extended into clothing. Three participants predicted students at CHIs wore "business suit[s]."

> *Aspen: They're all just … in business wear all the time … they're all just dressed to impress.*

Additionally, five participants thought CHIs were "competitive atmosphere[s]" where students would "be competing against each other."

> *Aspen: Very competitive, but in the way I feel like you have to be smart to go there. So … you're competing with people that are smart, to be the smartest almost.*

The students at CHIs were expected to have "a lot of … academic things going on" and a norm of being "involved in a lot of clubs and stuff or athletics" by five participants. Three participants also talked about "a friendly community" where people "hang out," "play, or eat, or study"

outside. Two participants expressed that CHIs endorsed a single "standard," but the same number thought the university "value[d] individuality." Regarding procedures of engaging with faculty, six participants expected professors at CHIs to be instrumentally supportive and to "[want] to make you succeed academically."

> *Spruce: They connect more in … a … work or a future level. Setting … them up for opportunities and stuff with companies.*

Still, four participants expected "hard-core" faculty, who are "hard to talk to … about … personal problems" "because it looks too prestigious."

The school climate of CMIs were generally perceived to be similar to that of CHIs with some subtle differences. For instance, two participants viewed students at CMIs as somewhat social as shown by the belief that students would "[sit] on the lawn having a picnic" though no people were depicted in the photos. No participant mentioned involvement in formal clubs, which differed strongly from participants' views of a norm of involvement at CHIs. Two participants viewed CMIs as "competitive" though not to the degree of CHIs.

> *Spruce: [The CHI] feels almost like … everyone would be competing against each other ... Whereas … this one (CMI), I feel like you're gonna want to compete to be at more the top, but then you're gonna still … be able to find friends … there.*

Three participants perceived that CMIs endorsed a single "golden standard" of success rather than a place where you could pursue different forms of success.

> *Pine: There is such high standard and if you don't fit perfectly into it, if you don't conform to it, you will not be welcome.*

As shown in this last quotation, judgement was also associated with CMIs for three participants due to their link to history.

> *Oak: This [campus] kind of … makes me feel like I'm going back in time a bit to the different ... more oppressive eras of society… For some reason, I feel like maybe especially a place like this would have Black people segregated off from it.*

This connection to history also dictated strict rules to "act a certain way" at CMIs for four participants.

> *Oak: It would feel a bit restrictive. … it would kind of feel like time-traveling back a bit. And … I'm the sort of person who could never handle … the different social expectations in … the 1950s let alone as far back as these buildings go. … There're just social conventions that buildings like that are associated with for me. … When I think of buildings like this … I think of lots of the different struggles that have happened just due to that. … Things of like, how we used to run mental health institutions, how we used to treat LGBT people or Black people.*

Like at CHIs, three participants believed there was a norm of being "in suits for some reason" at CMIs. Participants did not have much to say regarding protocols of engaging with faculty at CMIs. Only two mentioned that these faculty would "connect with students… on a personal level" or "would be … a little more lenient towards… mental health." No participants mentioned faculty being unsupportive nor instrumentally supportive. This perceived protocol of engaging with somewhat personally-supportive faculty at CMIs contrasted with the expected instrumentally-supportive or unsupportive faculty at CHIs.

Regarding CLIs, participants had less to say about the school climate. Two participants expressed that students "socialize" and "go to class and … study but then … also can still have fun with [their] friends and go out." The same number (2) thought that "not a lot goes on" at this university.

> *Birch: I wouldn't see people here like super involved. In either… athletics at the school or… clubs, or social gatherings.*

Faculty at CLIs were also seen as personally supportive and as "car[ing] about their students" by four participants.

Ash: I think faculty would [be] more, … willing to … not only … educate you but also … be involved in … how you're feeling, what you're thinking. Be able to … communicate … certain things with them. Like … be able to vent, I guess. I feel like faculty here would be more … willing to have … a stronger and … deeper connection with their students. Like they would want to … be involved in … their lives and stuff even after … graduating or even after … passing their courses. … I feel like they would enjoy that. If and when the student permits.

Three participants expected faculty to be "a lot more attentive to their students." They "would be motivating" and "more engaged with the students." Two participants discussed faculty "understand[ing] who [they're] trying to help."

Supplementary to school climate, I directly asked participants whether they associated the depicted buildings with oppression. Three participants replied that they did not. Three reported a connection between oppression and the International Style because "it just doesn't look like it would be a great place" to be. Six participants expressed a connection with the Greek Revival buildings: two because of a tie to wealth. Three participants detailed a connection with the Gothic style. Two participants explained the connection was due to an association with history (1 Greek Revival, 1 Gothic). All other explanations were specific to the individual and did not provide shared meaning.

Beliefs about students according to imageability

Participants used the imageability level of a campus to determine their beliefs about students.

Birch: I would say … probably people who have higher economical status would be here…because it does look … like an Ivy League.

Regarding CHIs, eighty-six percent of participants (12) perceived these campuses to be inhabited by "really smart" people. Participants described CHIs as having "rigorous academics," and "high GPAs."

Aspen: In my brain everyone that goes to an Ivy League, … they're already … a genius … They might as well be the next Albert Einstein… I feel like a lot of … older schools tend to be Ivy Leagues. And a lot of … older schools tend to look like this.

Participants additionally stated that the students were of a "higher socioeconomic" status (SES) and were "wealthier" (2 of 6 Greek Revival, 12 of 13 Gothic). Four participants additionally talked about students of the elite class who not only were very wealthy but also were continuing a cycle of power and priviledge.

Aspen: Just because I feel like at … this school, everyone would … have a lot of … connections … this is kind of … an Ivy in my brain. So … they did really great [in] other classes. They went to private high schools. They have really excellent … resumes already. And …if you put them out into the world… they'd already be … a CEO.

Four participants referenced that these students were continuing generation which provided them additional resources.

Ash: People that … already … come from … a family with … higher education. With … a base already set for them where … they have … academic supports … outside of school.

Participants disagreed regarding student diversity at CHIs. Six participants believed that CHIs had "a lot of diversity."

Ash: Because of the variety of people I feel like, there would be … a lot of … different behaviors, different … personalities.

Five participants believed students of CHIs were widely-recruited.

Birch: It looks like a[n] Ivy League which people from all over the world can come to.

Still, seven participants described the students as "predominantly White people" where "there's not that many other, it's not super diverse."

Cedar: I feel like this one probably would … have … a … higher percentage … men and … White people … I just feel like those kinds of colleges are a little bit more ... not gonna say … racist but kind of and misogynist.

Two other participants agreed that CHIs were “male-dominated.” Students of CHIs were perceived to be “very driven … mentally and physically” by two participants.

Participants associated more economic diversity with CMIs than CHIs. The students at CMIs were seen as “wealthier” by five participants and of “medium socioeconomic status” by two. Two participants also categorized these students as elite class.

> *Pine: The same life that probably— these people already have been living already, and as they move forward, it'll probably be the same life they live in their career.*

Students at CMIs were expected to be continuing generation by two participants.

> *Pine: There is this standard of if I went to this college, my children will go to this college, and their children will go to this college.*

Four participants believed students at CMIs were “smarter” with “perfect grades.” CMIs were conceptualized as academically-demanding but not as much as CHIs.

> *Aspen: I could excel in the classes to where I feel challenged, but not to where I feel like I can't keep up.*

A majority of participants (4/7) who identified the Greek Revival campus as a CMI believed that the school was a “very … White school."

> *Oak: I do associate them a lot with … White men. … It could maybe sort of tie into that thing I was talking about how this kind of … makes me feel like I'm going back in time a bit to the different kind of more oppressive eras of society.*

Only two participants believed that these students were racially and ethnically diverse.

> *Aspen: I feel like [it] wouldn't be even but would probably be the closest to get to [racial and ethnic diversity]. … It's a little bit more diverse.*

No participants mentioned students traveling far to attend a CMI. In this way, primarily White CMIs differed from the simultaneously diverse and primarily White CHIs, which recruited from

around the world. In another contrast between CHIs and CMIs, students at CMIs were more frequently associated with “more women” (2) than men (1).

Participants beliefs about students of CLIs were quite different than those of CHIs and CMIs. For instance, five participants expected students of CLIs to be less wealthy and “from a lower economical situation.”

> *Spruce: It would still be middle class … middle or … a little lower than that … just based on the campus … It just doesn't seem like it has as much money going to it as some of these other ones.*

Specifically, students of CLIs were seen as “diverse” and of “all ethnicities” by five participants.

> *Ash: It looks … like a large diversity of students would come to this institution. … I can imagine more colored people, like Hispanic, come to this institution.*

Two participants described “local” students “from the same area… [who] maybe even know each other” at CLIs.

Theme 2: Predicted experience as a function of university image

The predicted experiences of participants differed with architectural style by way of university image.

Belongingness, beliefs about students, and school climate

Belongingness at universities was based on beliefs about students. Participants expected to feel as though they belong at a university with student diversity, so they predominately expected to belong at CLIs (5 participants) where there were “just regular people,” and they could “fit in.”

> *Ash: I also feel like … there would be a diversity of students … which I always appreciate from … an institution. … because of that diversity, I would feel more of a sense of … belonging. … Just because … I'm Hispanic, so … I think I would feel … open to … be myself and … speak Spanish or whatever … in this institution. I feel like there's more freedom to … be able to … be who you are [at] an institution like this.*

Also, two students talked about finding connection because they "also [have] been through a lot" like the other students at CLIs. Regarding CHIs, well-roundedness of students who both have experience with "good grades" and being "a big athlete" was discussed as a reason two participants expected to find people who "would understand" them. Only two participants expressed that they would feel the most belongingness at CMIs. Both explained this belongingness by expressing that they would not fit in at the other depicted universities. They saw the CMI as a middle ground because they would feel "feel out of place" at CHIs but also would be less satisfied at CLIs.

> *Aspen after identifying the CMI as where they would feel the most belonging: Because … this [International Style] campus is the most … math-centered. … I'd be too challenged with the math to feel like I could ever … relax. … With this [Gothic] campus, I would just think that everyone's … smarter than me and also better than me.*

Lack of belonging was commonly attributed to school climate, namely perceived judgmental competitive climates with many rules that were "not … a match" with participants. This resulted in participants perceiving they would not belong at CHIs (4) because the architecture differed from "modern architecture … [which] feels more fitting for how [they] live [their] life." In fact, over twice as many participants felt "out of place" at CHIs (7) as those who felt they could belong there (3).

> *Ash: I think that I would be a student out of their normality... Or … what they're used to seeing or hearing. … I can imagine everyone in this school speaks... perfect English … and I would probably … not fit … into … what they're used to hearing. I don't think I could be able to fit in … a private school where... a lot of restrictions and formality are … expected.*

Lack of belonging at universities was also attributed to beliefs about students. Participants "[thought] about the people that go there, and [they] don't know if [they'd] really fit in there."

Specifically, participants expected not to belong due to perceived students of the elite class at CHIs (2) and CMIs (2) which led them to "feel like [they] wouldn't belong in those places."

> *Pine discussing a CMI: I don't feel particularly connected with a wealthier, more generational background.*

These participants talked about feeling "judged all the time," "excluded," or "like an outsider" in relationship to elite class students.

Enjoyment and imageability

Participants talked about "enjoy[ing] their time," "feel[ing] happy," and "[there being] a pleasantness" on CHIs (5 participants) and CMIs (2) because of the "history of" the university and feeling satisfied with the design.

> *Sycamore discussing a CHI: I think it would be cool walking through [the columns] … like walking through the array I'm not sure if that's what you'd call it… maybe even just being inside it…*

Regarding CLIs, two participants thought that they would "probably enjoy being" there but did not agree on their rationale for enjoyment.

Dissatisfaction on a campus was attributed to different sources depending on level of imageability. For CMIs, two participants expected to be dissatisfied due to their distaste for the "social expectations in … the 1950s, let alone as far back as these buildings go" or the university's perceived "one standard" of success. Concerning CLIs, six participants expected to be dissatisfied on campus, which was seen as "boring," "uninteresting," and "depressing."

> *Spruce: I'm not as impressed with some of the design. Some of these buildings just don't look like they would be fun to look at every day … or attend class.*

No participants discussed being dissatisfied on a CHI.

Motivation and imageability

Five participants discussed desire for and enjoyment of their academic pursuits, such as "want[ing] to go in and do a class" at CHIs.

> *Birch: I feel like I'd be very focused on my studies but also … really enjoy the … buildings around the campus.*

This motivation at CHIs was attributed to believed academic challenge by two participants.

> *Fir: I have high standards for myself. So, I think that kind of transfers I guess. … If your environment kind of reflects … what you want, then I feel like that kind of helps me get to where I want to be. So … if … academically there's high standards, then I feel like … it helps me to reach those higher standards because I'm surrounded by other people who also have those high standards. So, kind of like, group dynamic.*

The remaining participants expressed that their motivation at CHIs was due to "the pretty architecture." For CMIs, two participants explained that they would be "excited to go class;" Spruce rationalized "because I like how much grass… there is."

Pride and imageability

CHIs' believed status as a highly-academic and esteemed university was cited by five participants as a reason to feel pride in the university.

> *Ash: It looks … more academic-based … more of a rigorous program of academics. … I never really grew up around … a lot of knowledge on … universities overall … So … I think school is very important to me and being in a school like this one would … make me feel very proud. I feel like it would be … something my parents would be very proud of. Knowing that I go to … a school like this. That just looks very ... professional.*

Participants reported that they would feel proud "because it's the most difficult," "because … [it is] what [they] see when [they] think of a college," and because it is an "Ivy League." The uniqueness of architecture also provided three participants with a source of pride at CHIs.

> *Spruce: This would be a campus that I would like to brag to my friends about, about the buildings specifically. I'd be like, "Oh, yeah, well … I go to class in a castle. So, you're just going to a regular old building. No, I'm in a castle."*

Two participants thought that they would feel proud at CMIs but did not agree on the reasons for pride. No participants discussed feeling pride at CLIs.

Conflict between predicted experiences

Three participants simultaneously predicted that they would feel proud at CHIs and not belong there. One of those participants and two others discussed CHIs as being places they "want to be" and also they "would not … belong" in conjunction.

> *Cedar: I know this one (CHI) is my favorite looking, but … I feel more like I belong there with this one (International Style). I don't know because I also just … I love the architecture of these (CHI), and I love … how it looks. But I'm also thinking about [how] it looks like one of those … Ivy League schools, and I think about the people that go there and I don't know if I'd really fit in there.*

Only two participants discussed feeling proud and fitting in at the same university: Both involved CHIs.

Little to no effect on experience

Three participants predicted they would "be kind of indifferent" and "feel fine" on the depicted campuses. This happened once in response to a CMI and twice in response to both CHIs and CLIs, respectively.

> *Maple discussing a CMI: I don't think I would change as much how I feel. [I'd] just like look at and be like "Oh that's cool."*

Theme 3: Elements of the designed environment indicated imageability and predicted experience.

Elements of the designed environment refer to the physical components of the depicted universities; these influenced imageability and predicted experience.

Landscaping, enjoyment, and tranquility

Regardless of architectural style and level of imageability, twelve participants referenced "greenery," "grass," "trees," and "flowers." Five participants specifically predicted enjoyment based on these landscaping elements such as finding "walk[ing] through … trees" "kind of cool" and enjoying "being outside a lot … do[ing] my normal … outdoor activities."

> *Birch: It looks … really green like the grass around here and the flowers and the trees … that would add to my experience … so, I think I'd be pretty happy here.*

Additionally, green landscaping was perceived as creating a calming "cozy" environment by five participants.

> *Sycamore: It looks like there's a bunch of trees surrounding it... so it kind of makes you feel safe because of all the trees.*

Maintenance and imageability

Participants referenced the upkeep of the designed environment. Well-maintained grounds and buildings were discussed more commonly with CHIs (3) and CMIs (3). Three participants viewed proper maintenance as "a good sign of a school, of a prestigious … academic school."

> *Elm: I feel like there's some sort of schools that are harder to get into and have harder academics look like this so that's why I would say more … academic prestigious… [The aspect that I remember seeing in other prestigious schools is] the structure they look … well-managed.*

"Pristine" campuses were seen as "more expensive … because of … the architecture and … how it looks managed" by two participants. Only one participant referenced the good maintenance of a CLI, noting that the buildings were "a lot more well-kept than … a parking garage" when discussing "brutalist buildings."

Each style was commented on as poorly-managed once. For CHIs and CMIs, participants took inadequate maintenance to indicate that the building was "old" and "so historic," thereby signaling level of imageability. On the other hand, Pine understood the poor maintenance of a CLI as a signal of the college's apathy.

> *Pine: I would focus on large open spaces that may be unoccupied like this area here that might look less appealing almost like … there was no effort put into making it look more interesting.*

Ornamentation, imageability, and predicted experience

Eight participants positively referenced the detail and decoration of Gothic and Greek Revival architecture as "fancy," meaning they were "detailed and kind of fancy-looking." Six participants took "fancy architecture" as linked to age, which was, in turn, associated with CHIs and CMIs.

> *Cedar: [It looks like] before we got into … the modernism kind of architecture … where people were wanting to do … frilly … trusses and frilly windows and cool stuff like that.*

Specifically, for the Gothic campus, participants associated the style with "European architecture" (10), "castles" (9), and "fancy churches" (7) because "there's so much detail in it."

> *Sycamore: I think they all look like castles actually... like palaces. … [The aspects of the photos that remind me of castles are] these pointy things, spikes … and then over here the same thing … and then the dome on this one (pointing to Gasson Hall's spires, Little Hall's crenelation, and Michigan Law Quadrangle's pointed dome, respectively).*

Ornamentation, churches, castles, and connection to Europe were understood to be indicative of a CHI and academia.

> *Sequoia: It looks super old and … has …the fancy architecture … it's … giving … Harvard.*

For the Greek Revival campus, ten participants discussed the ornamented columns.

> *Sycamore: There's probably a lot of detail … on each column and on the building itself.*

Columns were associated with esteem and government to five of the seven participants who talked about CMIs because they had "seen… these types of pillars [on] … government buildings."

> *Oak: This sort of building style with a lot of columns and a big door and a triangular roof… That's … one of the first things I think of when I think of city hall or … other places of political importance.*

Conversely, seven participants mentioned lack of ornamentation, usually responding negatively.

> *Cedar: If it's just … a square building. I'm like, "I guess I'll go to class in there."*

Lack of ornamentation was exclusively discussed in response to the International Style campus. Participants referenced lack of ornamentation as "flat," "uninteresting," "depressing" and comprised of "simple cubes and rectangular prisms." Five participants talked about lack of ornamentation in relationship to the "sheer concrete" "cut and square" building of the Swiss Pavilion (Figure 8).

> *Pine: I think places that are big and blocky … [are] almost reminisce of … high school in a way, kind of very stuffy.*

Eight participants also perceived this building to be "scary" and "like a psych ward" or "a prison."

> *Cedar: It looks like … the quintessential … dystopian … concrete buildings just designed for efficiency, just to fit as many people and as much stuff in there as possible without really thinking about how it looks. And that is not a future I want to live in. And so, when I see buildings like that, … it kind of freaks me out a little bit or … doesn't scare me necessarily, but it just kind of makes me sad.*

DISCUSSION

This study explored first-year college students' perceived imageability and school climate as well as beliefs about students and predicted experience at higher education institutions based on architectural style. Participants viewed nine photographs of university buildings organized in sets of three according to architectural style and imagined each set as a single university campus. Participants were asked to share and compare their beliefs about the three universities, their students and faculty, and how the participants would feel on each campus.

University image, elements of the designed environment, and architectural style interacted with each other in important ways. See figures 18-20 for a comprehensive review of findings for the depicted universities. Practitioners may find returning to these figures beneficial as a quick reference of perceptions of universities based on architectural style as well as actionable recommendations for photograph-based recruitment (discussed later). In summary, Gothic campuses were exclusively named as CHIs (Figure 18) while participants were split between CHI and CMI labels for Greek Revival campuses (Figure 19). CHIs and CMIs were seen as old, esteemed, and academically-rigorous, which was attributed to the campus' ornamentation and maintenance although CMIs were viewed as less so. Students of CHIs were perceived to be of a high SES class, possibly of the elite class and very competitive. The school climate of CHIs and CMIs were expected to be judgmental with many rules around behavior. These perceptions led participants to believe they would not belong at these universities though they would be proud to attend them. In contrast, participants discussed International

Style universities as CLIs (Figure 20), which were less esteemed. Participants agreed less and had fewer predictions to share concerning the school climate of these universities. Students at CLIs were perceived to be diverse and not of a high SES class. Participants expected to belong at CLIs; however, they predicted they would be dissatisfied with their experience due to the lack of ornamentation.

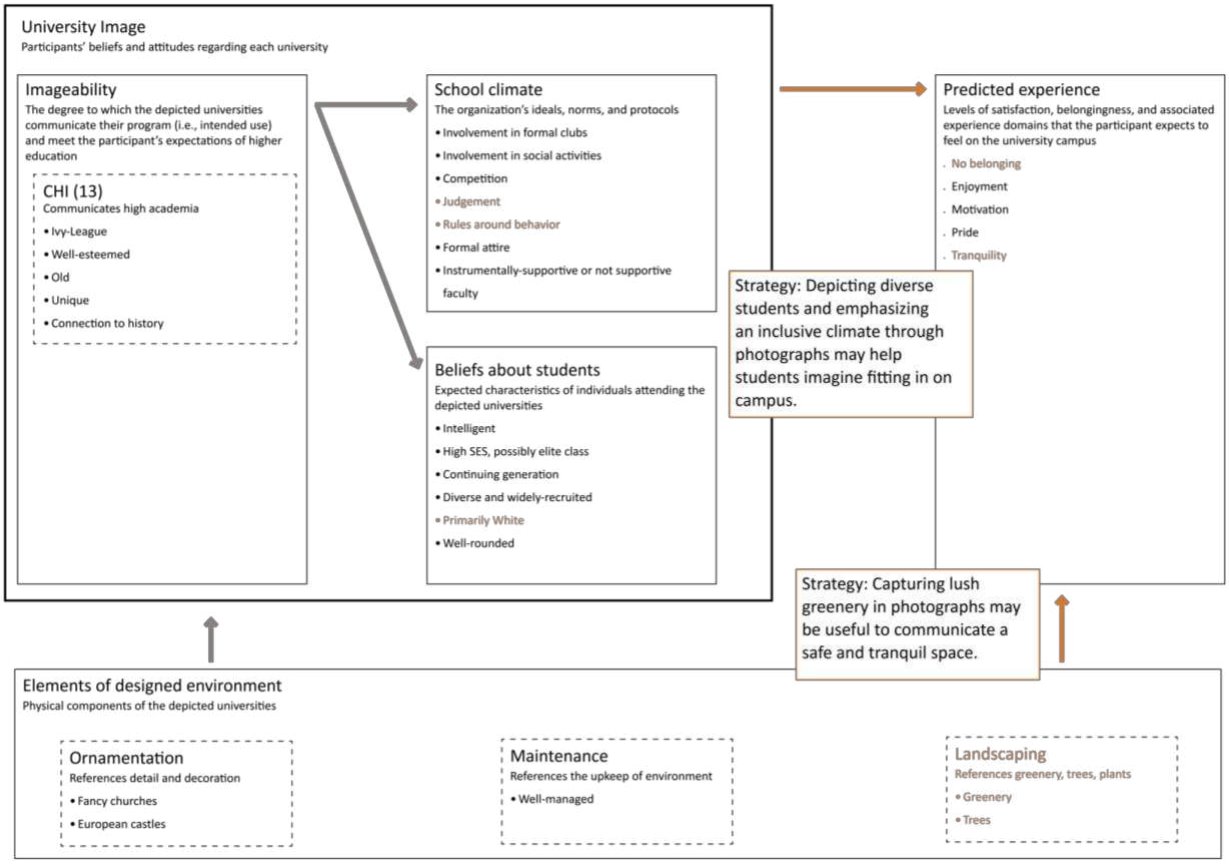

Figure 18

Perceptions of Gothic campuses and recommended strategies for recruitment

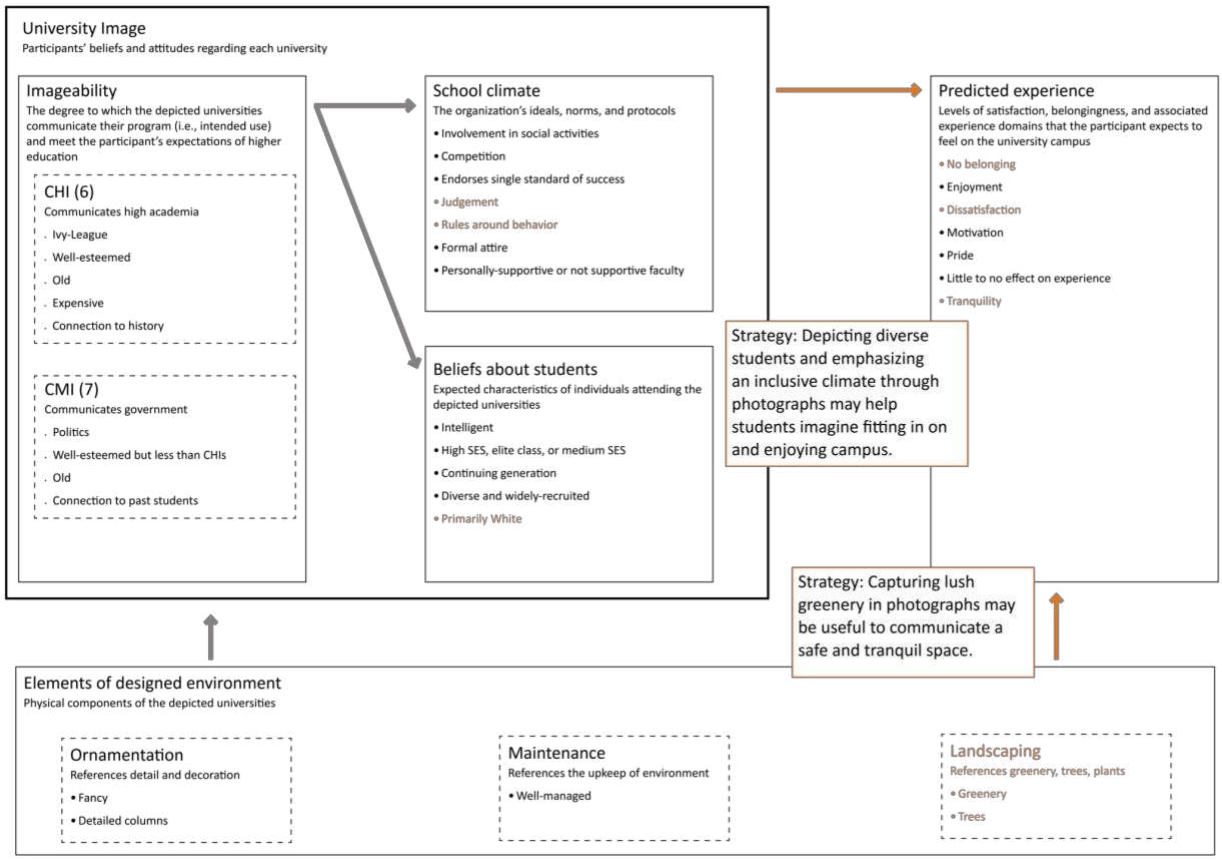

Figure 19

Perceptions of Greek Revival campuses and recommended strategies for recruitment

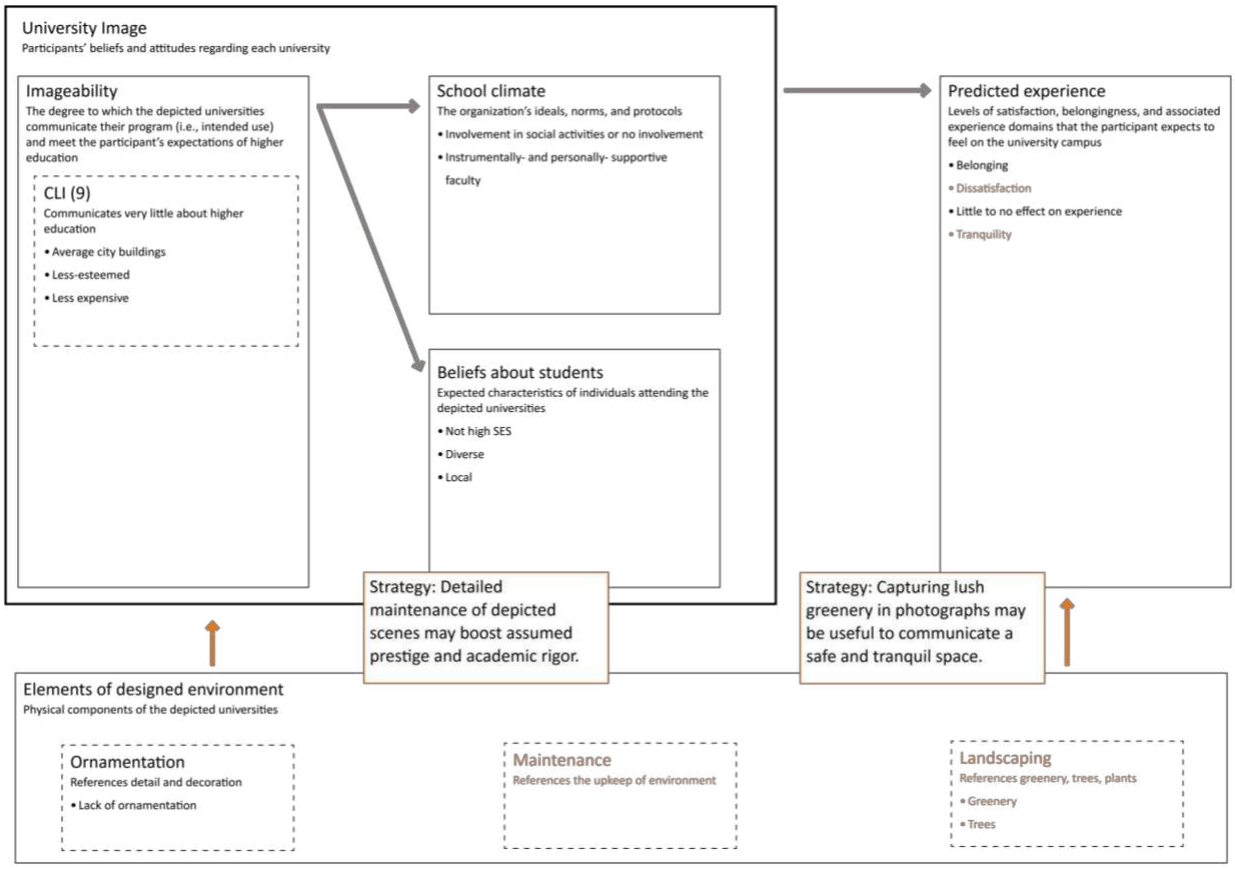

Figure 20

Perceptions of International Style campuses and recommended strategies for recruitment

Importantly, motivation and pride were functions of imageability. Participants felt motivated at schools that communicated academia, primarily Gothic universities. Pride was also a function of imageability such that participants cited high imageability, difficult academics, and prestige as reasons they would be proud to attend primarily Gothic and some Greek Revival universities. Where participants felt they would be proudest was not necessarily associated with where they felt belongingness; sometimes, these conflicted. Lastly, regardless of architectural style and imageability, participants viewed green landscaping as calming.

As noted, pride and belonging did not relate to one another, and sometimes conflicted. This contrasts with some models of university belongingness, such as that measured by the UBQ (Slaten et al., 2018). One of the four factors of this questionnaire is named "university affiliation" and captures variability relating to "pride about demonstrating that one is a part of a large group" (Slaten et al., 2018, p. 647). This difference may be due to the hypothetical nature of the current study: Individuals may expect to feel pride and belonging separately, but when immersed into a higher education context, students may experience pride as a facet of belonging. However, it is also possible that these constructs are not experienced as nested; instead, they may be experienced as two constructs that are correlated to varying degrees among individuals.

A few participants associated the depicted universities as familiar universities, but they did not agree on which familiar universities. This process differed fundamentally from participants who perceived CLIs and applied a familiar university schema: Campuses that reminded participants of a familiar university *communicated* information linking it to that particular university. Campuses that *did not communicate* programmatic information (CLIs) resulted in the participant substituting information regarding a university with which they have extensive experience.

Notably, when participants were reminded of specific familiar universities, their subsequent perceived university attributes, school climate, beliefs about students, and predicted experience were not consistent with each other. In fact, the qualities associated with familiar universities differed by participant. This means that participants were not identifying

various familiar universities that had similar climates and students (i.e., they were reminded of different universities with disparate characteristics).

Most domains, including school climate and imageability, did not differ by demographic variables with the following exceptions. Of the six participants who reported that the students at a depicted university were primarily men, zero identified as men. Future research should investigate how the gender of an individual influences their sensitivity to male-dominated academic spaces. Also, of those who referenced an elite class, seventy-five percent (3/4) self-identified as Hispanic/Latino/a/x; however, predicted experience did not differ based on ethnicity. More research is needed to investigate how gender and ethnicity influence perceptions of higher education environments.

Interestingly, participants were asked to discuss their beliefs about the faculty of the depicted universities, but these beliefs were never referenced as a factor in predicted experience. As individuals determine how they would feel as an undergraduate student at a particular university, characteristics of faculty do not seem to matter.

The current findings conflict with Bennett and Benton's (2001) previous findings with the exception that Greek Revival and Gothic campuses were more often labeled as private institutions, which is consistent with their results. My finding that International Style campuses were dissatisfying, specifically boring, does not align with Bennett and Benton's result that "new" architecture was "stimulat[ing]" and "pleasant" (2001, p. 172). Additionally, I found that individuals labelled Greek Revival and Gothic campuses as esteemed and academically-demanding; however, Bennett and Benton conclude that participants predicted that "new" architecture provided a "superior education" (2001, p. 172). These discrepancies may be

explained by differences in the investigated architectural styles, in the building photographs, or in culture over time.

Limitations and Future Directions

The present study carries several limitations. Its sample was recruited from a single large public university in the U.S. West and was not racially diverse, which limits the study's generalizability. The campus of this university contains buildings that most closely resemble International Style and Greek Revival architecture. It is unknown if. implicitly, the architecture of the campus as well as its eclecticism contributed to the participants' decisions to attend the university. Additionally, sampling from a single university has the inherent limitation that the participants have experience with a particular school climate and student body as well as certain university characteristics (e.g., public R01 research institution). Also, half of participants reported that they visited campuses when deciding which college to attend, meaning their experiences on those visits may have influenced their responses to the depicted universities. Future work should focus on recruiting racially diverse high school students who are in the process of identifying colleges to which they are interested in applying but have not visited prospective campuses yet. This population would not share experience at a single higher education institution.

In addition, I chose to use photographs of university buildings as stimuli of varying architectural types because many college recruitment materials use similar photographs. Because of this decision, it was necessary to identify matched university buildings and photographs. Though I utilized a detailed process to do so, it is possible that some unknown characteristic differed between photographs and influenced participants' responses. In

addition, the generalizability of the current study is limited by the photographs' and the buildings' representativeness of the architectural styles. To attune this, I included three photographs of each architectural style, thereby providing more representativeness of the style. Still, the specific buildings and photographs affected participants responses as demonstrated by negative reactions to the Swiss Pavilion (Figure 8), such as describing it as "scary." Further work replicating the current study with different photographs and university buildings would provide support for the present findings' robustness and assuage concerns that the findings hinge on specific photographs.

Lastly, future qualitative work should be completed to clarify the relationship between pride and belongingness at universities as the current study provides support that they are independent constructs though they have previously been theorized to be nested (Slaten et al., 2018). Widely, more research should be completed to determine the degree to which these predicted experience domains relate to the college decision-making process. One main implication of the current work is that individuals expect to belong less at Gothic and Greek Revival campuses that they believe are judgmental spaces governed by rules. To the degree that predicted experience of belongingness affects application behavior, some students may apply less to these universities.

This study also has implications for image-based recruitment strategies. For Greek Revival and Gothic universities, depicting diverse students and emphasizing an inclusive climate through photographs may be actionable approaches to help students imagine fitting in on campus (See figures 18 and 19). For International Style campuses that were assumed to be less-esteemed, fastidious maintenance of depicted environments may boost assumed prestige and

academic rigor (See figure 20). For all campuses, capturing lush greenery in photographs may be useful to communicate a safe and tranquil space.

CONCLUSION

The current study found that Greek Revival, Gothic, and International Style campuses differ in the degree to which they communicate academia. This difference, in turn, affects how individuals describe them, their students, and their climates; moreover, it influences their university image. Individuals expect to have different experiences at universities whose images vary, which has implications for recruitment. As universities explore alternative approaches to online recruitment, including virtual reality and web-based interactive 3D models, further research is needed to understand how the current findings regarding 2D campus images relate to experiencing 3D virtual environments.

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APPENDIX A: INTERVIEW QUESTIONS AND PROMPTS

Note. Numbered bullets are questions. Lettered bullets are probes. Italics are actions.

Present three photographs in counterbalanced order.

1. Imagine these three photographs are from one university campus in the U.S. What do you think when you see this campus?
    a. How do you think you would feel on this campus?

Present next three photographs in counterbalanced order. Repeat above question.

Present final three photographs in counterbalanced order. Repeat above question.

Now, we are going to talk about all three of these universities.

2. On which of these campuses do you think you would feel the highest sense of belonging?
    a. Which campus do you think you would feel the most comfortable, and which one would you feel the least comfortable?
    b. Which campus do you think you would feel the most accepted at?
3. Which do you think is the most academically prestigious?
    a. Which of these universities do you think you would feel the proudest to attend?
    b. Which campus do you expect your contributions would be most valued at?
    c. Do you think these universities differ in their focus on application vs. theory, and STEM vs. humanities?
4. Tell me about the students that attend each of these universities.
    a. Which campus do you think you would have the easiest time making friends at?

b. Do you think these universities' student populations differ from one another with respect to things like socioeconomic status, gender diversity, ethnic diversity, and racial diversity? How so?

c. Which university do you think would have the most students who have had similar life experiences as you that could relate to you?

5. Tell me about the faculty that teach at each of these universities.

    a. Which university do you think would have the most faculty who have had similar life experiences as you that could relate to you?

    b. Do you think these universities' faculty differ from one another with respect to things like socioeconomic status, age, gender diversity, ethnic diversity, and racial diversity? How so?

    c. Which do you think supports its students the most?

If participant has not addressed these yet…

a. Tell me more about this university

b. What adjectives would you use to describe this campus?

c. How central do you think sports are to the university?

d. Do you think the financial aid at each of these universities differ? How so?

e. Where in the U.S. do you think these universities are located?

f. Do you think any of these are religious universities?

Stepping away from the photographs for a second…

6. When you were deciding which university to attend, did you look at photographs of campus buildings?

a. Describe them

b. Where did you find them? (e.g., mail, email, official social media accounts, social media of current students/organizations)

g. Did they influence your decision to go to CSU?

h. What about those images made certain campuses look attractive to you?

Returning to the photographs again…

7. Tell me where have you seen buildings like this?

    i. Examples: in movies, in photos, on vacation, in my hometown…

    j. What do these buildings remind you of?

    k. Do you associate the way any of these buildings look with oppression?

        i. Please explain.

I have two final questions.

8. What is your relationship with architecture, architectural history, or a related field? Do you have any experience or interest?
9. Do you recognize any of the universities depicted in the photographs? If so, what university is it?

APPENDIX B: STUDY 2 SUPPLEMENTAL TABLES

Table 1B

Imageability of architectural styles

Note. Cell number reflects the number of participants that identified the column style as the row level of imageability. Acronyms are as follows: CHI: Campus of high imageability; CMI: Campus of moderate imageability; CLI: Campus of low imageability

	Greek Revival	**Gothic**	**International Style**
CHI	(6) *Sequoia: This building [is] what I see when I think of a college.*	(13) *Birch: It looks like an Ivy League school. It looks like just a stereotypical…*	∅
CMI	(7) *Maple: It looks like a bunch of like legislative type of stuff with government.*	∅	∅
CLI	∅	∅	(9) *Spruce: Just doesn't scream any … specific, … like nothing stood out to me really on it.*
Familiar university	(1) *Birch: [It] makes me think of Alabama's University of Alabama for some reason.*	∅	(1) *Cedar: It also just looks like CSU.* (1) *Aspen: That's how I imagined [Colorado School of] Mines.* (1) *Willow: This reminds me… of one of the universities where I'm from… I'm from … North Texas / It reminds me of … going here.*

Does not fit within imageability framework	∅	(1) Small liberal arts school: Elm	(2) STEM university: Fir, Redwood

Table 2B

Imageability and school climate

Note. Cell number reflects the number of participants that discussed the row code in the context of the column level of imageability. Acronyms are as follows: CHI: Campus of high imageability; CMI: Campus of moderate imageability; CLI: Campus of low imageability; GR: Greek Revival, G: Gothic, and IS: International Style.

	CHI (GR-6, G-13)	**CMI (GR-7)**	**CLI (IS-9)**	**Familiar university (GR-1, IS-3)**
Involvement in formal clubs	(GR-1, G-4) *Birch: People who are involved in a lot of clubs and stuff or athletics.*	∅	∅	(IS-1, GR-1) *Birch: It looks like people who… have … a tight schedule of classes and stuff.*
Involvement in social activities	(GR-1, G-2) *Spruce: Kind of reminds me of where … students might … meet in the courtyard to … play or eat or study… It just feels like it'd be a place that more students would hang out.*	(GR-2) *Spruce: You'll see like people… girls sitting on the lawn having a picnic.*	(IS-2) *Spruce: This one could be more of … a party school almost.*	(GR-1, IS-1) *Birch: Looks… like it could be a party school.*
No involvement	∅	∅	(IS-2) *Birch: I wouldn't see people here like super involved. In either… athletics at the school or… clubs, or social gatherings.*	∅
Competition	(GR-2, G-4) *Aspen: Very competitive, but in the way I feel like you have to be smart to go there. So … you're competing with people that are*	(GR-2) *Aspen: I would feel … really competitive… there's less people, more competition in a way where … it's less people but they're smarter. So, you're … competing*	∅	(IS-1) *Aspen: Still competitive, but in... a more math focused way.*

	smart, to be the smartest almost.	*for more things, more opportunities, and better grades.*		
Single mold of success	(G-2) *Willow: I feel like these two you kind of have to fit a standard.*	(GR-3) *Fir: They have … a golden standard, … they put … one specific kind of success or personality … on a pedestal.*	∅	(IS-1) *Aspen: [Faculty are] thinking, "Oh you are an engineer. That's all you are. That's all you want to be. That's all you should be."*
Many forms of success	(G-2) *Fir: I think they value individuality… here. I feel like as long as it's success, it's kind of fine… I think they just value success and not necessarily … the model that gets you there.*	(GR-1) *Aspen: I think you could go to this college for … just about anything.*	(IS-1) *Pine: This one would have a mixture [of faculty] … of all abilities and professions.*	(IS-1) *Willow: I feel like there's … would just be … different majors and … different stuff for you to .. pursue.*
Judgement	(GR-2, G-6) *Ash: There may be … more discrimination going on. If someone like me, would be in an institution like this.*	(GR-3) *Pine: There is such high standard and if you don't fit perfectly into it, if you don't conform to it, you will not be welcome.*	∅	∅
Inclusion	∅	(GR-1) *Aspen: I think students here would be a lot more accepting to … more personalities so … I could find people who were … just as odd as me and just as weird as me.*	(IS-1) *Ash: I feel like there's more freedom to … be who you are an institution like this.*	(IS-1) *Cedar: It also just looks like CSU which is also just more accepting.*
Rules around behavior	(GR-2, G-4) *Willow: That's kind of what Ivies remind*	(GR-4) *Oak: I'm the sort of person who could*	∅	∅

	me of … you kind of have to act and think and do things a certain way.	*never handle…the different social expectations in … the 1950s, let alone as far back as these buildings go…. There're just social conventions that buildings like that are associated with for me.*		
Formal attire	(GR-1, G-2) *Aspen: They're all just … in business wear all the time … they're all just dressed to impress.*	(GR-3) *Oak: When I think of these, … honestly, I kind of imagine a lot of men in suits for some reason.*	∅	∅
Instrumentally supportive faculty	(G-6) *Aspen: The professors would … get you really good internships if they liked you.*	∅	(IS-3) *Sycamore: Cause there's … a lot less people going there, so I feel like they're a lot more attentive to their students.*	∅
Personally supportive faculty	(GR-1) *Sequoia: I feel like this [one's faculty] might value you, yourself as a being more maybe.*	(GR-2) *Spruce: I would say this faculty is probably more likely to connect with students… on a personal level.*	(IS-4) *Oak: I feel like faculty here would be more… willing to have … a stronger and … deeper connection with their students.*	(IS-2, GR-1) *Ash: I feel like it'd be people (faculty) you could really easily relate to and form a really easy connection with that kind of make class a little bit more personal.*
Not supportive	(GR-2, G-3) *Cedar: I feel like they would just be … kind of more … hard-core. Like "Hey, it's a deadline if you don't make it you're screwed" or like "It's not my fault."*	∅	(IS-1) *Sequoia: All you're getting is an education.*	(IS-1) *Aspen: I feel like they don't super care… because it's so many engineers they just kinda forget mental health exists, and they're like "Oh you're … feeling bad. Sorry." I don't*

	think they'd know how to handle it.

Table 3B

Imageability and beliefs about students

Note. Cell number reflects the number of participants that discussed the row code in the context of the column level of imageability. Acronyms are as follows: CHI: Campus of high imageability; CMI: Campus of moderate imageability; CLI: Campus of low imageability; GR: Greek Revival, G: Gothic, and IS: International Style.

	CHI (GR-6, G-13)	**CMI (GR-7)**	**CLI (IS-9)**	**Familiar university (GR-1, IS-3)**
Intelligent	(GR-5, G-11) *Aspen: In my brain everyone that goes to an Ivy League … they're already … a genius … they might as well be the next Albert Einstein… I feel like a lot of … older schools tend to be Ivy Leagues. And a lot of … older schools tend to look like this.*	(GR-4) *Spruce: I think this university … is … where I could find someone who's smart and academically inclined and wants to do well in their future.*	∅	(IS-1) *I'm not great at math … I'd feel like I'm behind these people.*
Elite class	(GR-1, G-3) *Aspen: Everyone would just have a lot of … connections… this is kind of … an Ivy in my brain. So … they did really great [in] other classes. They went to private high schools. They have really excellent … resumes already. And … if you put them out into the world…they'd already be … a CEO.*	(GR-2) *Pine: The same life that probably—these people already have been living already, and as they move forward it'll probably be the same life they live in their career.*	∅	∅
High SES	(GR-2, G-12) *Cedar: I would say … probably people who have higher economical status would be here…*	(GR-5) *Maple: Definitely a little bit more wealthier here.*	∅	(GR-1, IS-1) *Aspen: I'd say relatively high socioeconomic status.*

	Because it does look … like an Ivy League so probably have to be like that unless you're on a full ride.			
Not high SES	(GR-1) *Cedar: And I think a good portion of the students at this one [are using financial aid].*	(GR-2) *Aspen: Going to go with medium socioeconomic status.*	(IS-5) *Birch: This school looks like people… maybe come from a lower economical situation.*	(IS-1) *Cedar: They would be using more financial aid more students would be benefiting from it.*
Continuing generation	(GR-1, G-3) *Ash: People that already … come from … a family with … higher education. With … a base already set for them where … they have … academic supports… outside of school.*	(GR-2) *Pine: I think it's because there is this standard of if I went to this college, my children will go to this college, and their children will go to this college.*	∅	∅
Diverse	(GR-1, G-5) *Ash: Because of the variety of people I feel like, there would be like a lot of … different behaviors, different … personalities.*	(GR-1) *Aspen: It's a little bit more diverse.*	(IS-2) *Ash: Like a large diversity of students would come to this institution.*	(IS-2) *Cedar: There would be more students there that are more diverse.*
Wide recruitment	(GR-2, G-4) *Birch: It looks like a[n] Ivy League which people from all over the world can come to.*	∅	∅	∅
Racially and ethnically diverse	(GR-1, G-3) *Sequoia: Since I said these two could probably be somewhere in the east, probably more*	(GR-2) *Aspen: I feel like wouldn't be even but would probably be the closest to get*	(IS-4) *Ash: I can imagine more colored people, like Hispanic, come to this institution.*	∅

	diverse. I feel like it's just more densely populated.	*to [racial and ethnic diversity].*		
Local	(GR-1) *Cedar: I just feel like it's just students that are kids, people that are around … the area like … Middle East coast … just because it would be more convenient and that's where … that college looks like it's from.*	∅	(IS-2) *Sycamore: This just very local, so I feel like… it [would] kind of be … just the local community… everyone would be from the same area.*	∅
Primarily White	(GR-1, G-7) *Ash: I can imagine there's a lot of … White people in this institution.*	(GR-4) *Ash: There would also be aspects that are … predominantly White people going to these two schools.*	∅	(GR-1, IS-1) *Aspen: This one I do think could potentially be pretty diverse but would still be a majority of … White students.*
Well-rounded	(G-2) *Birch: I've always been brought up trying to have good grades. And I was always like a big athlete in school, so I feel like these people would understand that.*	(GR-1) *Spruce: I think this university … is the most like that where I could find someone who's smart and academically inclined and wants to do well in their future but then also knows when to … step back and take a break and just enjoy some time.*	∅	(IS-1) *Cedar: They want a well-rounded person rather than just … an academic weapon.*
Primarily men	(GR-1, G-2) *Elm: I would say maybe more male-dominated.*	(GR-1) *Oak: I do associate them a lot with … White men.*	(IS-1) *Birch: For some reason, I see like, less females here.*	(IS-1) *Aspen: This one, for sure, is mostly men.*

Primarily women	∅	(GR-2) *Aspen: I'm gonna say mostly women, but like 60/40 so it's not … a ton a ton of women.*	(IS-1) *Maple: Probably more women on this one.*	∅

Table 4B

Imageability and predicted experience

Note. Cell number reflects the number of participants that discussed the row code in the context of the column level of imageability. Acronyms are as follows: CHI: Campus of high imageability; CMI: Campus of moderate imageability; CLI: Campus of low imageability; GR: Greek Revival, G: Gothic, and IS: International Style.

	CHI (GR-6, G-13)	**CMI (GR-7)**	**CLI (IS-9)**	**Familiar university (GR-1, IS-3)**
Belongingness	(G-3) *Fir: I think I would find … the most connection on this one… I think that one's more … varied. And so, I think that might be a little bit more difficult, but I think within the population, I would find the most people I feel like relate.*	(GR-2) *Aspen: I could fit in. I wouldn't feel like everyone was my competition as much so … I could make more friends, I could excel in the classes to where I feel challenged, but not to where I feel like I can't keep up.*	(IS-5) *Ash: I think I would find more people like me at this one.*	(GR-1, IS-2) *Birch: It feels like there would just be a lot of interaction at the school … a lot of … social… events especially … next to these buildings, which would be kind of easier to feel belonging at.*
No belongingness	(GR-3, G-5) *Ash: You would feel more of … an outsider, at least, me ... I would.*	(GR-2) *Pine: I feel like [I] wouldn't belong in those places.*	(IS-1) *Birch: If everyone just looks sad and is just not talking to anyone. There's not really a good sense of belonging.*	∅
Enjoyment	(GR-2, G-4) *Ash: I think I would enjoy it... I think I'd feel happy … being on a campus like this.*	(GR-2) *Pine: I think there would be a pleasantness.*	(IS-2) *Spruce: I would probably enjoy being here.*	∅
Dissatisfaction	∅	(GR-2) *Oak: In that way, it would be depressing.*	(IS-6) *Spruce: Some of these buildings just don't look like they would be fun to look at every day … or attend class.*	(IS-1) *Cedar: When I see buildings like that, … it kind of freaks me out a little bit.*

Motivation	(G-5) *Birch: I feel like I'd be very focused on my studies.*	(GR-2) *Spruce: I'd be excited to go [to] class.*	∅	(GR-1) *Birch: I'd be motivated to go to school here.*
Calmness	(GR-1, G-1) *Birch: I feel like I['d] have a slower pace … I don't know if something about it looks peaceful and enjoyable.*	(GR-1) *Aspen: I feel like it would be a place where women were more comfortable, and … feel safer.*	∅	(IS-2) *Cedar: I'm … comparing it to … the Lory Student Center and … I'm really comfortable in there.*
Pride	(GR-2, G-9) *Ash: Being in a school like this one would … make me feel very proud. I feel like it would be … something my parents would be very proud of. Knowing that I go to … a school like this.*	(GR-2) *Willow: I feel like … there'd be … news articles written about here about… new innovations or … stuff they're coming up with and I'd be like, "Oh, that's my school."*	∅	∅
Little to no effect on experience	(GR-2) *Cedar: I think I'd also be kind of indifferent about it.*	(GR-1) *Maple: I don't think I would change as much how I feel, just … look at and be like, "Oh that's cool."*	(IS-2) *Maple: [I would feel] probably just normal yeah nothing, nothing unique.*	∅