

Ambient Identity Cues Within Digital Spaces: How Institutional Identities Influence Text and Image Selection

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Introduction

- Belonging is a basic human need with substantial impact on overall health and well-being (e.g., Baumeister & Leary, 1995). The presence of ambient identity cues, socially symbolic objects that communicate stereotypes about group members inhabiting a given environment, can powerfully impact perceptions of belonging and interest (Cheryan et al., 2009).
- Our previous work examined the presence of identity cues in academic digital spaces regarding text analyses. Through examining college website pages, we conducted a qualitative assessment of identity cues, such as diversity and community, via Linguistic Inquiry and Word Count (Pennebaker et al., 2001), finding that Belonging Words appeared most frequently in All Female and Minority-Serving institutions.
- Past research has determined both images and text are capable of eliciting stereotype activation, passive and active (Yang et al., 2019; Casper, Rothermund & Wentura, 2010). Given the importance of images and text, the current work seeks to analyze the websites we had previously examined, specifically their "About" and "Welcome" sections, to understand the types of emotions and sense of belongingness evoked by the images.

Hypotheses

Institutions will utilize greater numbers of ambient cues that cater to the student identities primarily served by that institution. While largely exploratory regarding themes, it was expected that:

- Minority-serving institutions' websites will include more images celebrating diversity
- Majority-serving institutions' websites will overrepresent diversity compared to the actual student population

Table 1.

College Gender	Majority Race of Institution	N
All Gender	PWI	10
	HBCU	9
	TRIBAL	7
	TOTAL	26
All Female	PWI	5
	HBCU	1
	TRIBAL	0
	TOTAL	6
All Male	PWI	3
	HBCU	1
	TRIBAL	0
	TOTAL	4
Total	PWI	18
	HBCU	11
	TRIBAL	7
	TOTAL	36

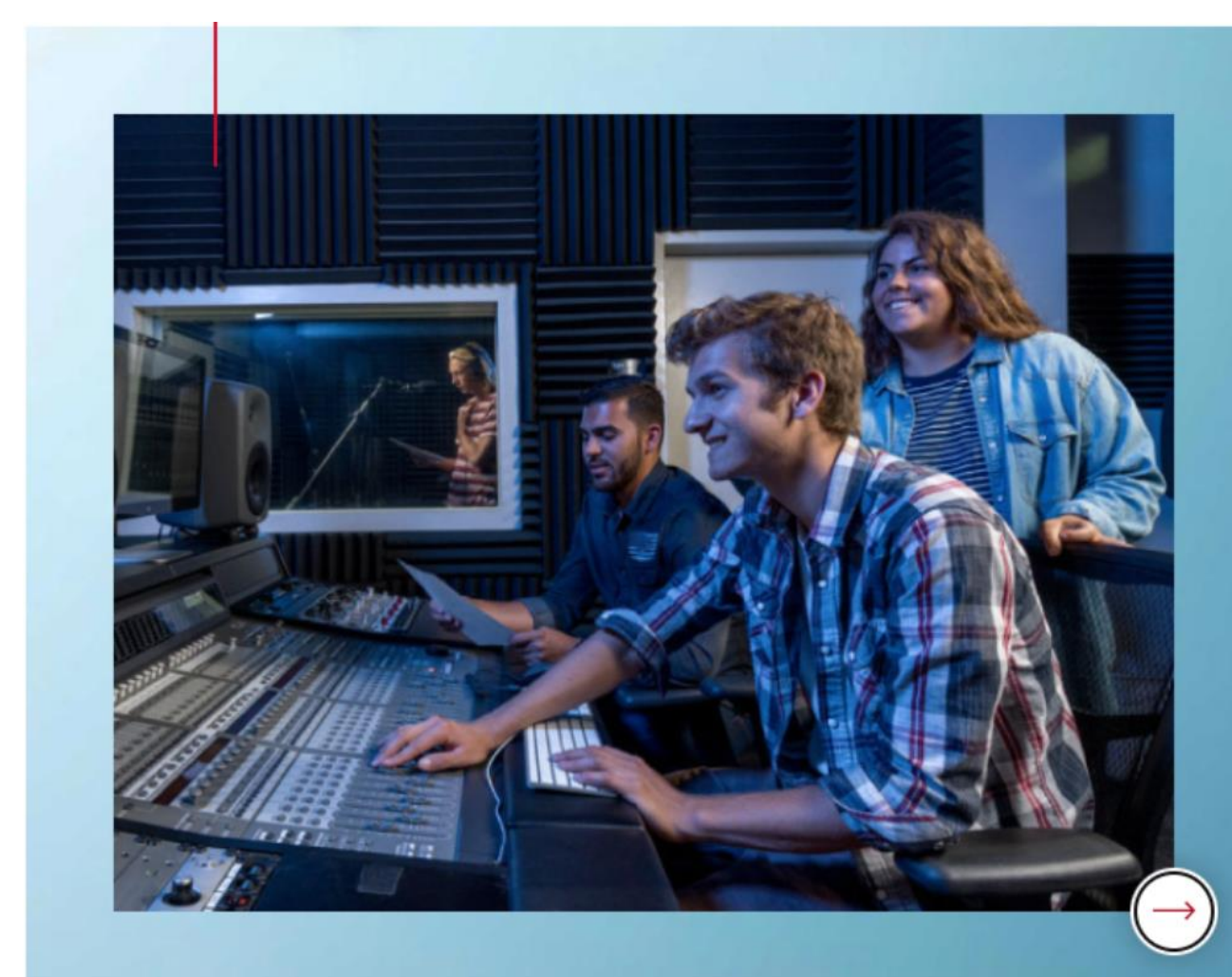


Figure 1. Biola University Image Example

Gender Category Text Examples
"Bond with other women of color working to become phenomenal scholars and global leaders" (All Female, HBCU)

"Get ready to join the sisterhood" (All Female, HBCU)

Methods

- A stratified random sample of 36 institutions were drawn from a list of 1799 four-year degree-granting institutions in the US (NCES, 2018) according to our categories of interest (College Gender and Race/Ethnicity served, see Table 1)
- Predominantly relying on an inductive thematic approach, the text and images on "welcome" and "about" pages of the selected institutions were captured for analysis
 - **Text Analysis** - Researcher-generated themes were supplemented with analyses generated from the standard LIWC dictionary (Pennebaker et al., 2001) resulting in the following themes of interest: Athletics, Gender, People, People Type, STEM, Arts, Social, Academia, Collaboration/Isolation, Research, and Diversity. Text was assessed based on the frequency of words pertaining to each theme across the web pages by institution.
 - **Image Analysis**- All imagery found on the web pages were captured and individually assessed according to the aforementioned researcher-generated themes of interest. Images were independently assessed by two trained researchers. Coding discrepancies were discussed to reach a consensus for final coding for analyses.

Results

- First, an inductive thematic analysis was conducted to generate themes for further review (See Table 2):

			Mean (SD)
College Gender	College Race	Belonging*	Diversity**
All Gender	Majority Serving	3.70 (1.77)	0.44 (0.38)
	Minority Serving	3.30 (1.08)	0.70 (0.51)
	Total	3.51 (1.46)	0.56 (0.45)
All Male	Majority Serving	3.55 (0.96)	0.09 (0.15)
	Minority Serving	5.28 (-)	0.00 (-)
	Total	3.98 (1.17)	0.07 (0.13)
All Female	Majority Serving	3.95 (1.35)	0.44 (0.32)
	Minority Serving	5.37 (-)	0.11 (-)
	Total	4.19 (1.34)	0.38 (0.32)
Total	Majority Serving	3.74 (1.49)	0.38 (0.35)
	Minority Serving	3.66(1.26)	.58 (.52)

- **Identity-Matched Cues:** As anticipated, both text and image analyses suggest a tendency for gender-specific institutions to feature more **gender-matched language and images**. Similarly, Minority-Serving (HBCU/Tribal) institutions used more **diversity-related** cues in language and images were more likely to feature **racially and gender diverse people**.

- **Misrepresentation:** Interestingly, however, while the frequency of **racially diverse** images were lower at PWI's overall, chi-square analyses indicate that PWIs are over-representing diversity relative to conservative estimates of expectedness (50-50 probability for diversity)

- **Cues of Support:** **Belonging** words were more frequent in All-Female & Minority-Serving institutions. Relatedly, images featuring **collaboration** were slightly more frequent at minority-serving institutions. Counter to expectations, this theme and related themes of **social interaction** were most frequent in all-male institutions, but particularly true among minority-serving institutions.

- **Perpetuating Stereotypical Expectations:** **Achievement** words and **Academic**-related images were more frequent among PWIs. While achievement was featured more for both all-male and all-female institutions compared to all-gender institutions, academic images were more common in all-male institutions. Images highlighting **athletics** similarly were least frequently present in all-female institutions, but also more common in PWIs compared to HBCU/Tribal institutions

Discussion and Future Directions

- An expected effect of gendered words on websites of gendered colleges was found. When thematically looking at belongingness words from our own dictionary the larger mean for majority serving institutions could be explained by wanting to increase the amount of perceived diversity at the institution. In contrast, minority serving institutions (HBCU/Tribal) did not feel the need to use belonging words because their student body is primarily made up of minority students. In this case, belongingness may be assumed since those students are in the majority.
- It is possible that intersectionality is at play as well seeing how All Male and All Female Minority Serving Institutions put a higher emphasis on Gender Diversity than PWIs.
- All Male Colleges show high levels of collaboration and social behavior which goes against the masculine stereotype of the "lone wolf"; however, it is possible that these colleges are simply communicating a different type of masculinity than what is associated with that stereotype.
- In a future study, we will be creating our own website based on findings regarding text and image analyses regarding identity cues and emotions evoked dependent on the selected image and text. Participants will then answer questions regarding our college website to evaluate belonging. This may indicate what students like and dislike when viewing institutional websites. Thus, emphasizing the importance of implementing these themes in order to increase the student population and increase feelings of belongingness, overall increasing GPA, happiness, and overall mental health (Baumeister & Leary, 1995; Cheryan et al., 2009).

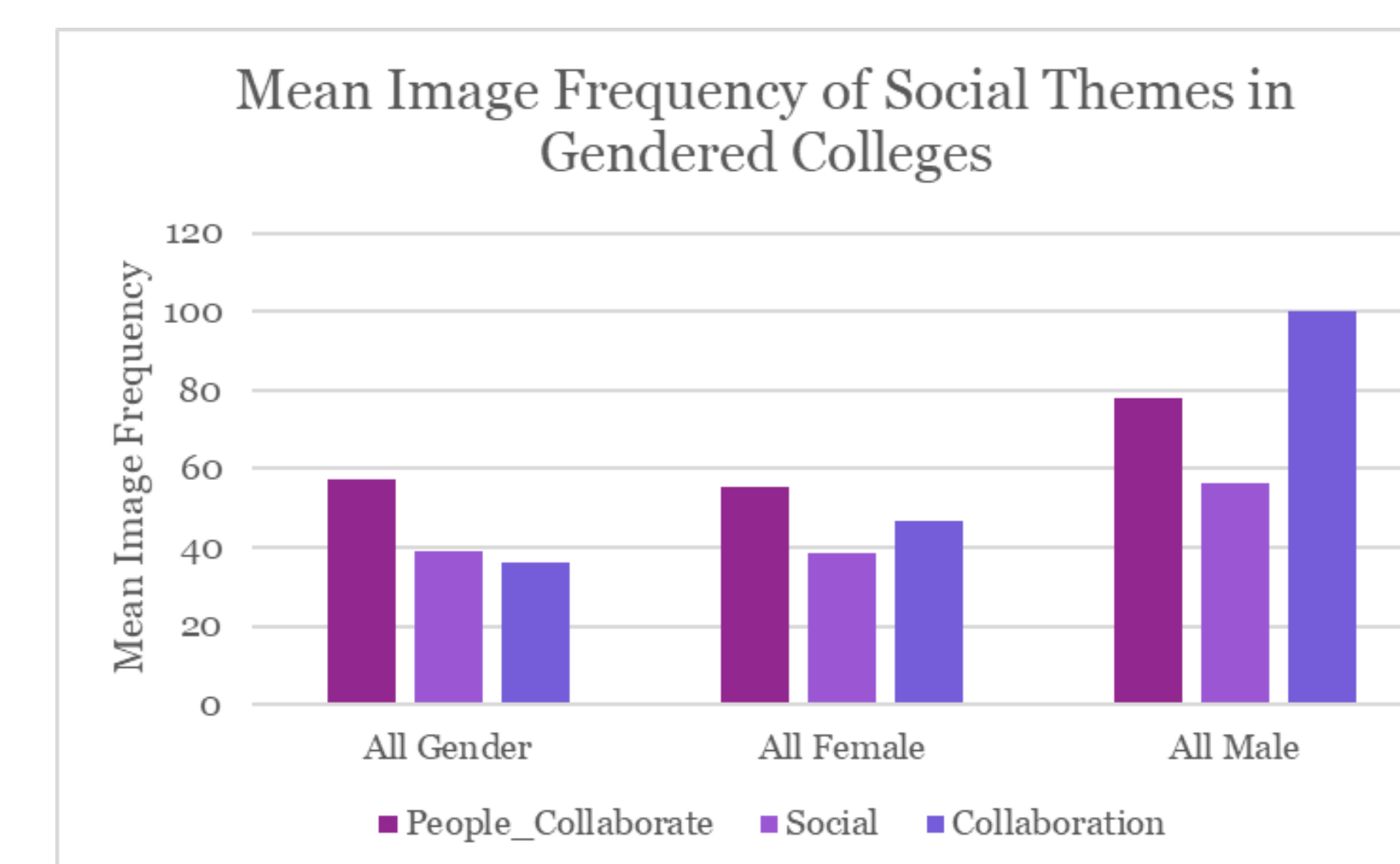


Figure 2: Frequency of Gender and Racial Diversity for Majority Serving and Minority Serving Institutions

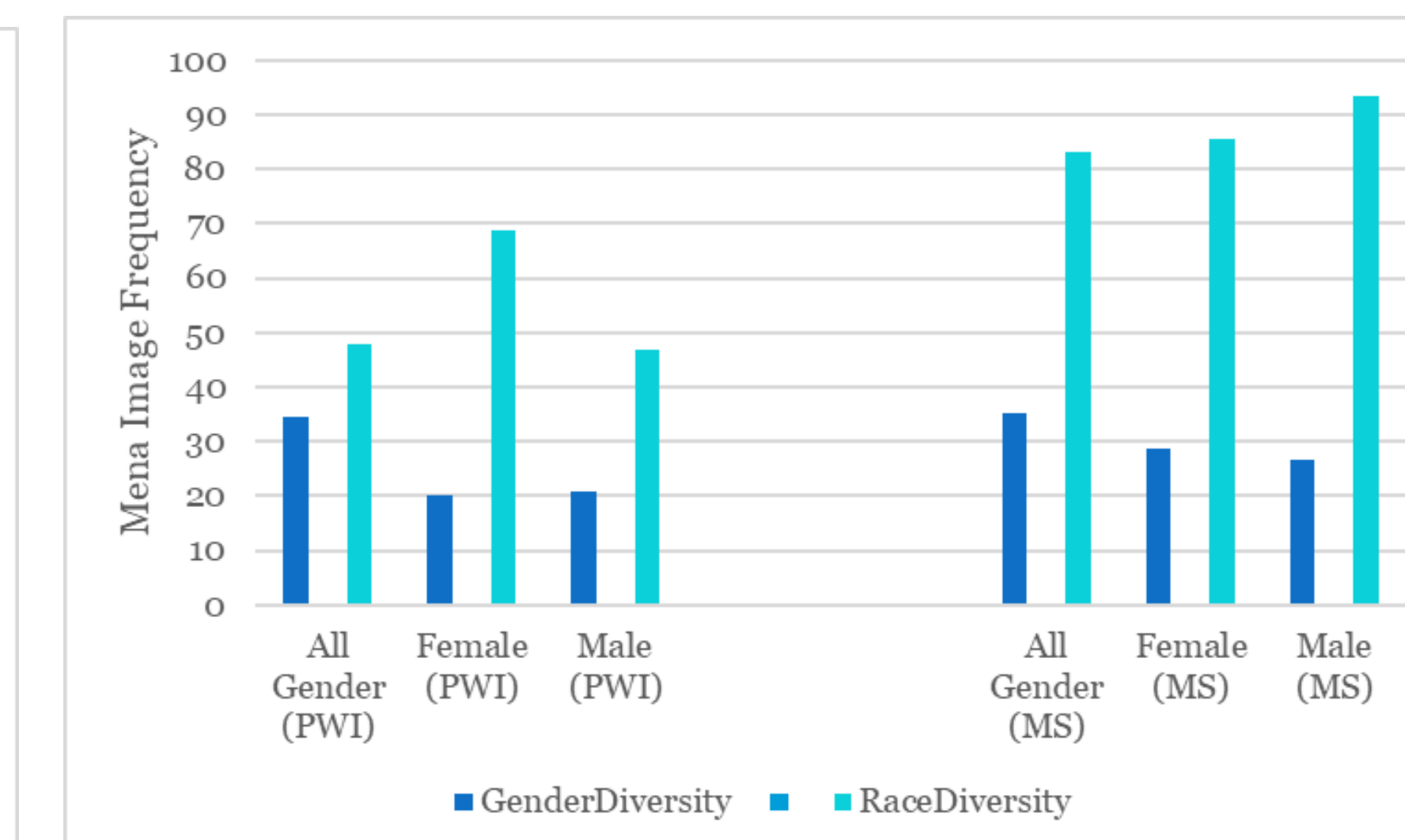


Figure 3: Frequency of Social Interaction for Majority Serving and Minority Serving Institutions

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