



# Should We Shush about the Stereotype? Examining Student-Generated Images of Librarians

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## **Abstract**

Library and information science (LIS) literature has long been concerned with the stereotype of librarians as spinsters. This concern is often based on analysis of media portrayals without investigation of actual patron perceptions. In this article, we examine the way students visualize librarians and how that visualization compares to similar professions. By analyzing student-created digital avatars of librarians, nurses, and software engineers, we find that while some aspects of the spinster stereotype are slightly more prominent for librarians than for the other professions, they only appear in a minority of student images of librarians. We conclude that the spinster stereotype of librarians is not dominant among contemporary undergraduate students and is unlikely to be a factor in library anxiety or usage patterns.

**Keywords:** librarian stereotypes; academic libraries; student perception

## Introduction

Librarians have always been interested in how users perceive our work and ourselves. The library and information science (LIS) literature is still very much concerned with physical stereotyping in libraries. Outside of academic literature, there have been and continue to be concerted efforts to combat various librarian stereotypes, including websites like *The Bellydancing Librarian* (whose web presence dates back to 1999) and more current efforts like the *Lipstick Librarian*, *Librarian Wardrobe*, *Modified Librarian*, *Librarian Avengers*, *Librarian Problems*, and the *BadAss Librarian Day Facebook Community*. These have all had a role in subverting the common depiction of librarians. Stereotyping of any kind is never positive; in a library setting stereotypes can affect the way users interact with librarians as well as determine whether they will seek out help from a librarian.

The environment in academic libraries is constantly changing and the work of librarians is always evolving to provide better services to students and faculty. Academic libraries have embraced technology and support collaborative learning environments. This has resulted in more interactive, technologically enhanced (and sometimes louder) learning spaces in the library. As Kevin L. Smith states, “people will use our library spaces in new ways, and often ways that are disturbing to more traditional notions of the ‘hushed and shushed’ library” (Smith, 2014, p. ix). The work of academic librarians today increasingly focuses on technology, user behavior, and pedagogy. The skill set of today’s academic librarian goes beyond reference, instruction, and collection development to include more technical skills. Job trends include expertise relating to instructional technology and design, systems and web development, data management, and digital preservation (Fidgeon & Borchard, 2014).

Despite these changes, the LIS literature is still concerned with the old stereotypes, including the shushing librarian, the crabby librarian, or even the superhero librarian. These inaccuracies may be important if they shape the public’s expectations of librarians. If patrons imagine librarians as the stereotypes portrayed in the media, they may be less likely to seek our assistance. If users perceive librarians as women over age 60, they may also assume additional characteristics, such as ineptitude with technology or inability to relate to a younger generation. This could result in the underutilization of library services and librarian expertise. Additionally, patrons who themselves are unlike the stereotype may be less likely to consider a career in librarianship. Concerns about these possible negative outcomes hinge on the presumption that our service population has absorbed the mass media portrayals of librarians.

The purpose of this study is to investigate whether our students hold the same

stereotypes of librarians that prevail in literature. Do they view librarians as frumpy, grumpy spinsters wearing buns and glasses? This article reports on the findings of a study in which undergraduate students were asked to create avatars of librarians, nurses, and software developers in order to compare and contrast possible stereotypes.

## Literature Review

In general, research on stereotypes has shown they are usually negative and “often predict, and serve as a rationalization for, both prejudice and discrimination” (Stangor & O’Brien, 2010, p. 857). The image of the librarian as an elderly woman shushing patrons is long standing. Two historical studies of Britain in the 1950s focusing on career literature and the feminization of librarianship discovered that even though the career literature was written to encourage girls to become librarians, it still perpetuated the archetype of the old, unattractive “library spinster,” the stereotype about which library science literature is still deeply concerned (Liladhar & Kerslake, 1999; Kerslake & Liladhar, 1999).

In 2010, Shaw examined the coverage of librarians in British newspapers and suggested news media portrayals of librarians are positive. Shaw (2010) performed a content analysis of 264 articles in two British newspapers between 1998 and 2008 and found that newspaper coverage did not reflect negative stereotypes of librarians.

Seale’s (2008) literature review identifies five categories of library stereotypes in the mass media (i.e., films, ads, novels, comics, action figures, and websites): old maid, policeman, inept librarian, librarian as parody, and heroine. These mass media portrayals tend to focus more on the character or personality of the librarian rather than the abilities, duties, or nature of the profession. In film, librarians are often reduced to a few essential simplified characteristics and are thus seen putting books away, shushing patrons, being impatient, etc. The public perception of librarians is slightly different in that they perceive librarians as positive and helpful, yet they are still unaware of the duties, skills, and education required of librarians. Seale (2008) concludes that although media representations and public perceptions have not been systematically researched, due to the lack of representations of librarians that highlight their professionalism, the public perception draws heavily on stereotypical representations. “Ultimately, librarians and libraries tend to not be effectively utilized, as users remain unaware of librarians’ abilities and responsibilities” (Seale, 2008, conclusion, para 2).

While depictions in mass media are not always stereotypical, they may still be somewhat negative. Luthmann (2007) finds that in popular culture the stereotypes are mixed: spinster, hero, Luddite, and/or dowdy. The representation is mostly positive (helpful, heroic), but not necessarily accurate (shelving books). On the contrary, within the professional literature there tends to be a reinforcement of stereotypes. In the public sector there appears to be a younger generation of LIS professionals combatting the aging stereotype with outreach initiatives for younger patrons. With the field constantly evolving, it's important now more than ever that people are aware of our services and what we actually do.

However, if these stereotypes persist in the minds of our patrons, they may impact their ability to seek out information. The concept of library anxiety was first developed by Mellon (1986) who found between 75% and 85% of undergraduate students experienced anxiety during initial library research experiments. Later, Bostick (1992) measured levels of library anxiety; her "antecedents of library anxiety" included "barriers with staff," wherein students perceived librarians as being too intimidating to approach or too busy to help. Jiao and Onwuegbuzie (1997) suggest, "librarians should acknowledge that [library] anxiety exists and should provide students with positive library experiences" (p. 372). Van Scoyoc (2003) found that personal contact from face-to-face library instruction sessions helps to alleviate some library anxiety. If students perceive librarians as hostile, unapproachable, or out of touch with technology (prominent stereotypes in the media), appearing this way will only reinforce the stereotypes students hold (Van Scoyoc, 2003). Mellon (1986) also notes that library anxiety can hinder information-seeking behavior. These stereotypes, if held by students, might be a source of this library anxiety.

Furthermore, Pagowski and DeFrain (2014) investigated how "student impressions and expectations of instruction librarians impact successful teaching and student learning, and likewise, how faculty impressions of us impact our interactions with faculty and resulting effects in the classroom." They ask to what extent stereotypes of librarians, in particular those related to gender roles, actually affect library instruction and student learning.

While many studies about stereotypes of librarianship focus on depictions of librarians in the mass media, only a handful of dated studies have investigated the stereotypes held by non-librarians. In 1966, Ulrich, Hechlik, and Roeber surveyed 260 high school students on their stereotypes of various careers, including librarians. Another study examined whether participants were more likely to remember details that conformed to or cut against stereotypes, by asking participants what they remembered about a woman in a video (Cohen, 1981). Given the same video, participants who were told the woman was a waitress were more likely to remember her

beer and television, while those who were told she was a librarian were more likely to remember her glasses and lack of affection toward her husband, suggesting that people are more likely to retain information that conforms to stereotypes. Fagan (2003) studied student perceptions of librarians' education, skills, role in education, and attitude. The results indicate that although students had an overall positive impression of librarians' attitudes towards them, they are unaware of the education or professional character and they associate many clerical tasks with librarians.

De Guzman, Custodio, and Garcia (2007) asked 258 children, aged 9 to 13 years, to "doodle" an image of a librarian, and give comments on what they love and hate about librarians. The authors categorized the results into two main portrayals: the "desirable" and the "undesirable" librarian. The desirable librarian, emphasized as pretty and cheerful among other traits, encourages students to visit the library. The undesirable librarian, grumpy and unapproachable, hinders student access to the library.

Bonnet and McAlexander (2012) studied whether physical appearance and attributes can contribute to someone's initial impression of librarians. They found that "patrons do consider demographic categories such as gender, age, and race when assessing the approachability of reference librarians" (Bonnet & McAlexander, 2012, p. 284). Having a diverse staff that represents the community it serves is crucial in order to be more inclusive to all patrons.

Vassilakaki and Moniarou-Papaconstantinou (2014) have recently undertaken an exhaustive review of the LIS literature from 1999 to 2013, examining portrayals of librarianship as a profession as well as stereotypes of individual librarians. In general they found that librarians and the roles they play tend to be misunderstood by the general public; that librarians' status, education, and technological skills aren't recognized; and that the idea of the "old maid" librarian tends to persist. Most media, with the exception of children's books and newspapers, tend to display a negative image of librarians and their work. Vassilakaki and Moniarou-Papaconstantinou (2014) recognized the dearth of studies regarding students' perceptions of librarians and suggested student perceptions as an area for future research and investigation. Pagowsky and DeFrain (2014) also concluded that more empirical research needs to be done, and in particular it would be helpful to study student impressions of librarians through the lens of alternative subject areas, such as psychology or sociology.

An important recent example of this empirical research is an investigation of whether childhood television viewing, a primary vehicle for stereotype transmission, actually translates into student reluctance to use the library or interact with librarians (Langridge, Riggi, &

Schultz, 2014). Results indicated that while the majority of students were familiar with the media image of the mean, old, shushing woman, this had no measurable impact on their interactions with librarians. The study also asked students to choose a librarian from a panel of photographs for assistance with a variety of tasks. The photograph most like the stereotype was the middle of the pack: some students preferred a librarian who conformed to their expectations, while others preferred someone closer to their own age. The most preferred librarian was, in fact, a woman with her hair in a bun in buttoned-up clothes but who was also the youngest and without glasses (Langridge et al., 2014).

As interesting and creative as the Langridge, Riggi, and Schultz (2014) study was, there are some specific limitations to the methodology. The student responses included a disconcerting level of frank gender and racial stereotyping, which may have been in part due to the structure of the study. Students were asked about their recollections of media images of librarians and their opinions about librarian attire, which may have primed them to think in terms of stereotypes. The disadvantages of using photographs of actual librarians are that students are choosing from a very small range of images--only nine, which does not allow for independent comparison of all of the aspects of the stereotype. None of the photographs fully corresponded to all the features of the stereotype although one came close. All of the librarians shown were smiling, which did not permit for examination of the grumpy or forbidding aspect of the stereotype. Moreover, the study did not compare student expectations of librarians with any other profession. We do not know whether the results indicate anything specific to librarianship or a general, overall preference to interact with others who are most similar to one's self.

A continued interest in investigating stereotypes and the "conditions that perpetuate them" make it ever more crucial to examine the underlying assumption that our students do indeed cling to the image of the stereotypical librarian (Pagowsky & Rigby, 2014).

## **Methodology**

In this study, by creating online avatars, we sought to analyze how undergraduates at California State University Northridge (CSUN) imagine librarians in comparison to nurses and software engineers. We chose this method in order to garner student perceptions of these occupations from their own minds and creativity rather than requiring participants to choose from pre-selected images. This novel approach was found only in De Guzman et al. (2007), where school children were asked to draw pictures of a librarian to determine perceptions.

Similar to librarians, nurses and software engineers face their own gendered stereotypes (Landivar, 2013; Adams, 2000; Laplante, 2010) as well as stereotypes having to do with perceived interpersonal skills (McKay & Narasimhan, 2012; Williams, 2006; Carson & Little, 2014). A literature search for nurses and stereotypes turns up nearly as many articles as one for librarians, indicating a similar professional preoccupation with perception and image. Research is focused on the media's portrayal of nurses, patients' perceptions of nurses, and males in the profession, as well as perceptions of potential nursing students, to gauge whether these stereotypes affect the recruitment of future nursing personnel (Bridges, 1990; Ferns & Chojnacka, 2005; Kelly, Fealy, & Watson, 2012; Rezaei-Adaryani, Salsali, & Mohammadi, 2012; Thompson & Vertein, 2010; Whittock & Leonard, 2003; St. Rose, 2010).

These issues are closely related to the issues faced by librarians. By comparing student-created avatars made to represent these three occupations, we intend to show whether undergraduate students at CSUN imagine librarians as the commonly held stereotype of an elderly, unapproachable female with glasses and little sense of style or if these aspects are common across occupations. To assess if there were differences between female and male dominated careers, we chose software engineering to represent the opposite side of the gendered occupational spectrum. Traditionally, women are underrepresented in science, technology, engineering, and mathematics (STEM) fields, which would allow for the comparison of perceptions held by students responding to people working in male versus female dominated fields.

After testing a number of avatar generator websites and mobile applications, we selected the online avatar generator PickaFace (<http://pickaface.net/>) for its ease of use. PickaFace is a free website that does not require users to sign up with an account in order to create avatars and allows users to download a PNG file of their avatar. A pilot study was conducted with five of the library's student employees. Participation in the pilot study was optional and was meant to test the structure of the study. Pilot study participants were composed of a convenience sample and not representative of those we expected to participate in the final study.

As a result of the pilot study, we chose to create a "course" for the study in the campus course management system (Moodle) for a number of reasons. First, this would eliminate any non-CSUN students from participating as a CSUN sign-in is required. This is provided to students upon matriculation. Second, Moodle gave us control over how the students uploaded their avatars, eliminating the confusion of naming a file correctly in an email. Finally, it is much easier in Moodle to view completed studies. The downside of using Moodle was that the identifying information of participants was attached to their submissions. The authors decided

this was a worthwhile workaround due to Moodle's ease of use. Identifying information located in submitted files was deleted upon completion of data analysis, and the Moodle course will be deleted upon publication of this article.

CSUN's Institutional Review Board approved the study on August 14, 2013. The study was advertised on a banner ad on the library's home page during the length of the study and posted on the library's blog. Additional advertising was through word-of-mouth by the authors and library colleagues in library instruction sessions. We offered a drawing for one \$100 Visa gift card as an incentive for participants to finish the study.

The study's Moodle page was open during the first half of the spring 2014 semester. At the close of the study, there were 120 finished studies by CSUN students, with an additional 134 students who enrolled in the study but did not finish all components, making our completion rate 47.2%. Only avatars created by participants who completed the entire study were analyzed. Upon enrollment in the Moodle "course," students had to complete one step before they were able to continue. First, participants read and filled out the informed consent form. Next, they were able to access directions for using PickaFace and were able to upload their avatars for each occupation. Finally, participants had access to the final survey.

As an Hispanic-Serving Institution (HSI), CSUN is a particularly diverse campus. In the Fall semester of 2013, the ethnic makeup of CSUN undergraduate students consisted of 40.4% Latina/o, 25.5% White, 11.1% Asian, 7.4% international, 6.2% African American, 3.3% multi-race/other, .3% Native American/Pacific Islander, .2% American Indian/Alaskan Native, and 5.6% unknown, totaling 33,398 students (CSUN College Portrait, 2014). Participants in this study were similarly representative, with 39% identifying as Hispanic or Latino, 25% White, 23% Asian or Pacific Islander, 6% each Black and other, and 1% Native American.

In the fall 2013 semester, female students made up 54.5% of undergraduates and male students made up 45.5% (CSUN College Portrait, 2014). In this study, female students made up 77% of participants and male students made up 20%, with the remaining 2% identifying their gender as other.

Fifty-seven percent of participants fell into the 18 to 22 age bracket, 33% reported their age as 23 to 29, 7% were 30 to 39, 2% were 50 and older, and 1% were between the ages of 40 and 49. Half of the participants were in their senior year, 21% were juniors, 18% were freshmen, and 11% were sophomores.

## Results

We identified the librarian stereotype as having six aspects: unsmiling, female, wearing glasses, gray-haired, hair in a bun, and wearing frumpy clothes. Figure 1 and Figure 2 are examples of avatars created with the PickaFace software that include all aspects of the stereotype.

**Figure 1: Example avatar with all “stereotypical” librarian features (female, unsmiling, glasses, gray hair in bun, frumpy clothes)**



**Figure 2: Example avatar with all “stereotypical” librarian features (female, unsmiling, glasses, gray hair in bun, frumpy clothes)**



We operationalized each of the aspects of the librarian stereotype as a binary variable. We examined each of the submitted avatars for all three professions and recorded a yes or no (1 or 0) response for the presence of each of those features.

Our null hypotheses were that there would be no relationship between the frequency of the stereotypical features and the occupation of the avatars. Our alternative hypotheses were that librarian avatars are more likely than the nurse or computer software engineers to have each of the stereotypical features.

Each avatar was independently examined and coded by at least three researchers. The standard statistical evaluation method for inter-rater reliability for three or more raters is Fleiss's Kappa, but our data did not permit this evaluation. For a number of our variables, such as glasses, all coders were in perfect agreement for all observations, resulting in an undefined value for Fleiss's Kappa. Instead, we were obligated to calculate the percentage of cases in which the coders agreed or disagreed.

As a result of the check for inter-coder reliability, we chose not to analyze a variable on race or ethnicity. We initially expected that the librarian avatars would be significantly more likely to be white/Anglo than the nurse avatars (although we did not have a specific expectation of any difference between librarian avatars and computer software engineer avatars). However, we were unable to come to a consensus on the race or ethnicity portrayed in a full 23% of responses, a level of ambiguity too high for meaningful analysis. All other variables had over 97% agreement among the coders.

The reason for this inter-coder variability on race/ethnicity has multiple potential explanations. The PickaFace website we used for the study may not have offered enough options to accurately portray racial or ethnic variation; this is a common shortcoming of avatar creation software (Nakamura, 2002). Some participants may have deliberately created racially or ethnically ambiguous avatars for the exact purpose of avoiding stereotypes. The student body at CSUN includes many more students of color than the average US university. Latinos and Latinas are particularly well represented (40% of the student population and 44% of our respondents), so we might expect a large number of avatars intended to be Latino/a. However, Latino/a is an ethnic or cultural category, not a racial one, so it is not clearly signaled in an unlabeled cartoon. For all of these reasons, we were unable to analyze racial stereotyping in this study.

In this analysis, the independent variable is the profession the survey asked the participant to represent (librarian, nurse, or computer software engineer), and the dependent

variables are the facets of the librarian stereotype. The percentage of avatars with that characteristic is the same as the mean value of the variable. Thus comparing the percentages is the same as comparing mean values across groups, which calls for analysis of variance (ANOVA) when we compared three groups or Student's t test when we compared only two groups.

*H<sub>0</sub>1: All avatars are equally likely to be wearing glasses.*

*H<sub>a</sub>1: The librarian avatar is significantly more likely to be wearing glasses than the nurse avatar.*

For this variable, we looked for avatars wearing eyeglasses with transparent lenses. The software offered participants eight choices of regular glasses for their avatars, or they could choose from seven sunglasses options, 3D viewing glasses, or no glasses at all.

While 91 participants depicted librarians in glasses and 78 depicted computer software engineers in glasses, only 35 portrayed nurses as wearing glasses. This difference is highly significant across the three groups. As Table 1 shows, the p value, or probability of this result occurring by chance, is 0.0000000000002, which is far below the standard 0.05. The alternative hypothesis is strongly supported by the data.

**Table 1: One-Way ANOVA of Glasses by Occupation of Avatar**

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	14.31667	2	7.158333	34.49528	2.01E-14	3.021012
Within Groups	74.08333	357	0.207516			
Total	88.4	359				

For this variable, we also compared only the librarians to the nurses. The stereotypical computer software engineer (the “nerd” image), like the stereotypical librarian, wears glasses, and so we did not expect any difference between those two groups. However, the stereotypical nurse does not wear glasses, so we expected to see a difference in glasses depictions between the

librarian avatars and nurse avatars. This expectation was confirmed. The t-tests shown in Table 2 and Table 3 indicate that this difference is statistically significant between librarians and nurses but not between librarians and computer software engineers.

The *p* value, or the probability of this similarity between librarians and computer software engineers happening by chance, is 0.06, greater than the standard criterion of 0.05. We can conclude that there is no meaningful difference in frequency of glasses in the librarian and computer software engineer avatars.

**Table 2: t-test of Difference in Frequency of Glasses in Librarian and Computer Software Engineer Avatars**

	<i>LibGlasses</i>	<i>CSGlasses</i>
Mean	0.758333	0.65
Variance	0.184804	0.229412
Observations	120	120
t Stat	1.876553	
P(T<=t) two-tail	0.063029	

The *p* value, or the probability of this difference between librarians and nurses happening by chance, is less than 0.000001, much smaller than the standard criterion of 0.05. Thus the alternative hypothesis is supported: librarian avatars are significantly more likely to wear glasses than nurse avatars.

**Table 3 : t-test of Difference in Frequency of Glasses in Librarian and Nurse Avatars**

	<i>LibGlasses</i>	<i>NurseGlasses</i>
Mean	0.758333	0.291666667
Variance	0.184804	0.208333333
Observations	120	120
t Stat	8.419835	
P(T<=t) two-tail	9.89E-14	

*H<sub>0</sub>*: All avatars are equally likely to have gray hair.

*H<sub>a</sub>*: The librarian avatar is significantly more likely to have gray hair than any of the other avatars.

The stereotypical librarian is elderly, unlike the stereotypical nurse or computer software engineer. For this variable, we looked for avatars where the participant chose the white, light gray (as in Figure 1), or dark gray hair (as in Figure 2) color option instead of any of the 24 other choices of black, brown, blond, red, blue, or green.

Because this hypothesis compares all three groups, we tested it with analysis of variance (ANOVA) to see if the mean values were significantly different among the three groups.

Out of the 120 responses, 28 portrayed librarians with gray hair, but only three portrayed nurses with gray hair and only four showed gray-haired computer software engineers. This difference is highly statistically significant. As Table 4 shows, the p value, or probability of this result occurring by chance, is 0.000000022, which is far below the standard 0.05. The alternative hypothesis is strongly supported by the data: students are much more likely to portray librarians as gray-haired than they are other comparable professionals.

**Table 4: One-Way ANOVA of Gray Hair by Occupation of Avatar**

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	3.338889	2	1.669444	21.09083	2.2E-09	3.021012
Within Groups	28.25833	357	0.079155			
Total	31.59722	359				

$H_0$ : All of the avatars are equally likely to be female.

$H_a$ : The librarian avatar is significantly more likely to be female than the software engineer avatar.

The avatar creation software forced a binary gender choice as the first step. Eighty-eight participants depicted female librarians and 85 depicted female nurses, but only 47 portrayed female computer software engineers. This difference is highly statistically significant. As results from the ANOVA in Table 5 show, the p value, or probability of this result occurring by chance, is 0.00000004, which is far below the standard 0.05. The alternative hypothesis is strongly supported by the data.

**Table 5: One-Way ANOVA of Gender by Occupation of Avatar**

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	8.705556	2	4.352778	20.22045	4.8E-09	3.021012
Within Groups	76.85	357	0.215266			
Total	85.55556	359				

For this variable, we chose only to compare the librarians to the computer software engineers. The stereotypical nurse, like the stereotypical librarian, is female, and so we did not expect any difference between those two groups. However, the stereotypical computer science engineer is male, and so we did expect to see a gender difference between the librarian avatars and computer science engineer avatars.

This expectation was born out. The t-test results shown in Table 6 indicate that this difference is statistically significant between librarians and computer software engineers but not between librarians and nurses, as shown in Table 7.

**Table 6: t-test of Difference in Frequency of Women among Librarian and Computer Software Engineer Avatars**

	<i>LibFem</i>	<i>CSFem</i>
Mean	0.733333	0.391667
Variance	0.197199	0.240266
Observations	120	120
t Stat	5.658764	
P(T<=t) two-tail	4.36E-08	

**Table 7: t-test of Difference in Frequency of Women among Librarian and Nurse Avatars**

	<i>LibFem</i>	<i>LibNurse</i>
Mean	0.733333	0.708333333
Variance	0.197199	0.208333333
Observations	120	120
t Stat	0.430049	
P(T<=t) two-tail	0.667549	

The alternative hypothesis is supported by the evidence.

*H<sub>0</sub>4: All of the avatars are equally likely to have their hair in a bun.*

*H<sub>a</sub>4: The librarian avatar is significantly more likely to have a bun hairstyle than any of the other avatars.*

Participants who began the avatar creation process with a female avatar were offered 31 choices of hairstyles, including the two bun options depicted in Figures 1 and 2. Participants who began their avatar creation process with a male avatar were offered 26 hairstyle choices, which did not include a bun.

Out of the 120 responses, 16 portrayed librarians with their hair in a bun, while eleven portrayed nurses with buns and only four showed buns on computer software engineers. This difference is statistically significant. As Table 8 shows, the p-value, or probability of this result occurring by chance, is 0.021, which is below the standard 0.05. The alternative hypothesis is supported by the data: students are more likely to portray librarians as having their hair in a bun than they are other comparable professionals.

**Table 8: One-Way ANOVA of Bun Hairstyle by Occupation of Avatar**

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	0.605556	2	0.302778	3.898708	0.021137	3.021012
Within Groups	27.725	357	0.077661			
Total	28.33056	359				

$H_0$ : All of the avatars are equally likely to be smiling.

$H_a$ : The librarian avatar is significantly less likely to be smiling than any of the other avatars.

The software offered 20 choices for the avatars' mouths, six of which were clearly smiles. Out of the 120 responses, 55 portrayed librarians as unsmiling, 48 showed unsmiling nurses, and 40 showed unsmiling computer software engineers. In other words, a majority of all avatars depicted smiles. The variation between the groups is not significant. As Table 9 shows, the p value, or probability of this result occurring by chance, is 0.14, well above the standard 0.05. The alternative hypothesis is not supported by the data. Students are no more or less likely to portray librarians as unsmiling than other comparable professionals.

**Table 9: One-Way ANOVA of Facial Expression by Occupation of Avatar**

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	0.938889	2	0.469444	1.965693	0.141572	3.021012
Within Groups	85.25833	357	0.238819			
Total	86.19722	359				

$H_0$ : All of the avatars are equally likely to be wearing frumpy clothing.

*Ha6: The librarian avatar is significantly more likely to be wearing frumpy clothing than any of the other avatars.*

While “frumpy” is a key part of the librarian stereotype (Adams, 2000), the word “frumpy” is vague. The Oxford English Dictionary defines a frump as “a cross, old-fashioned, dowdily-dressed woman” and the closely-related dowdy as “woman or girl shabbily or unattractively dressed, without smartness or brightness.”

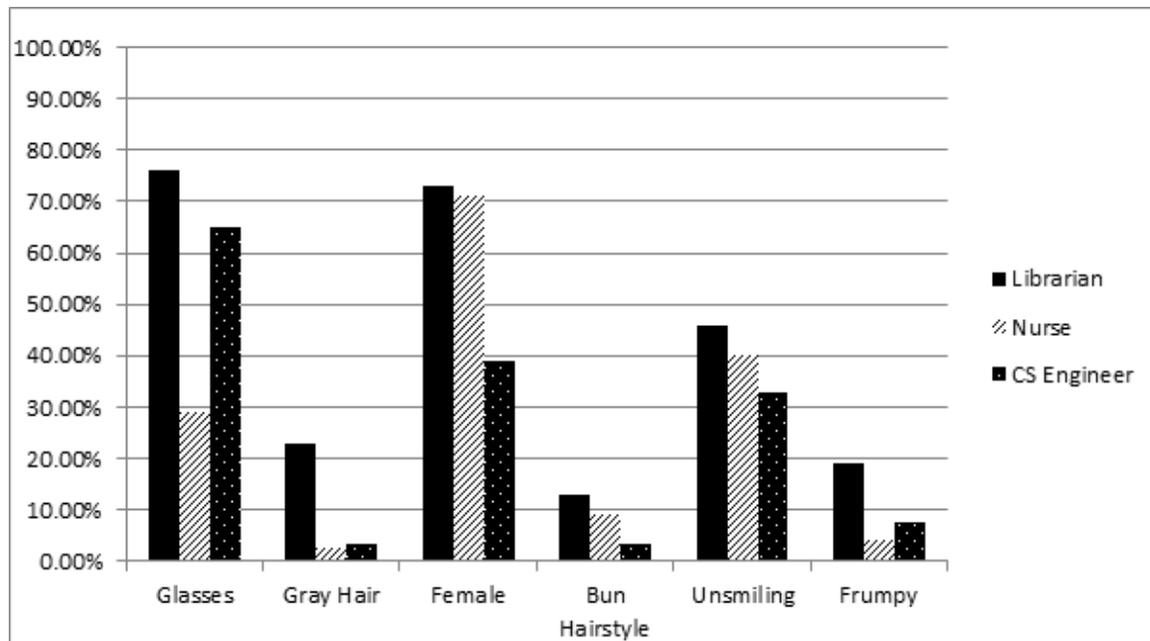
The PickAFace software offered 20 choices of clothing for male avatars. For female avatars, all 20 of those were available plus an additional 14 more feminine choices. We identified one unisex clothing option—an oxford shirt buttoned to the chin with an argyle sweater vest, as seen in Figure 1—and one feminine clothing option—a turtleneck under a cardigan, as seen in Figures 2 and 4—as frumpy. The turtleneck and cardigan option is very similar to the clothing on the Nancy Pearl Librarian Action Figure (Krug, 2012), a tangible representation of the librarian stereotype. These options were the most covered or modest on offer, creating a shapeless, old-fashioned look, especially in contrast to the other feminine clothing options, which all showed the collarbones or shoulders.

Out of the 120 responses, 23 portrayed librarians in frumpy clothing, but only five portrayed frumpy nurses and only nine showed frumpy computer software engineers. This difference is highly statistically significant. As Table 10 shows, the p-value, or probability of this result occurring by chance, is 0.000277, which is far below the standard 0.05. The alternative hypothesis is strongly supported by the data: students are much more likely to portray librarians as frumpy than they are other comparable professionals.

**Table 10: One-Way ANOVA of Frumpy Clothing by Occupation of Avatar**

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	1.488889	2	0.744444	8.381603	0.000277	3.021012
Within Groups	31.70833	357	0.088819			
Total	33.19722	359				

**Figure 3: Percentage of Avatars with Each Trait by Profession**



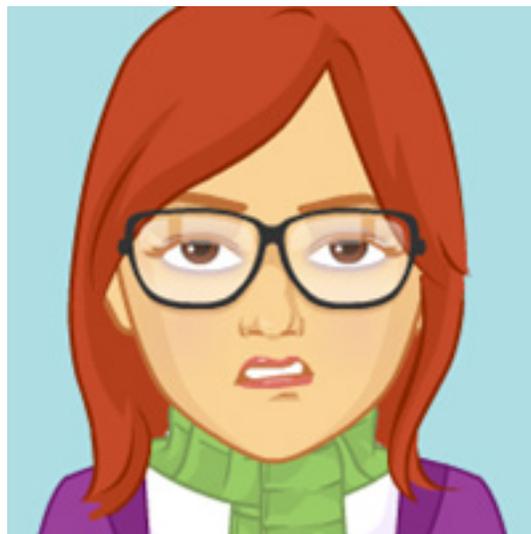
As Figure 3 above shows, the only stereotypes of librarians that were reproduced by most participants are the librarian as a woman with glasses. The other stereotypical traits—old, unsmiling, and frumpy with hair in a bun—were absent in a majority of the created avatars. In fact, not a single participant created a librarian avatar with all six stereotypical features, and only two created avatars with five out of six of the stereotypical features. The average number of stereotypical features present was 2.3.

Figures 4, 5, 6, and 7 are all examples of librarian avatars created by our study participants. Two of them have two of the stereotypical features, and the other two have three. The figures illustrate the average image of a librarian generated by our students. They are quite dissimilar from the expected stereotype shown in Figures 1 and 2.

**Figure 4: Student-Created Avatar with Three Stereotypical Features (Female, Glasses, Frumpy Clothes)**



**Figure 5: Student-Created Avatar with Three Stereotypical Features (Female, Glasses, Unsmiling)**



**Figure 6: Student-Created Avatar with Two Stereotypical Features (Female, Glasses)**



**Figure 7: Student-Created Avatar with Two Stereotypical Features (Unsmiling, Gray Hair)**



*H<sub>0</sub>7: A student's frequency of interaction with librarians has no relationship to how stereotypically they portray a librarian.*

*H<sub>a</sub>7: The more often a student interacts with librarians, the fewer stereotypical features his or her portrayal of a librarian will include.*

We asked our participants how frequently they interact with librarians and they chose from the answers “1 : Every day; 2 : At least once per week; 3 : Every once in a while; 4 : Only once or twice in my life; 5 : Never.” This categorical variable is the independent variable for this hypothesis. For each participant, we used the sum of the number of stereotypical traits in their librarian avatar as the dependent variable. To determine if there was any difference between the students at different levels of interaction with librarians, we used another ANOVA test to compare the mean number of stereotypical features in the librarian avatars in each group.

**Table 11: One-Way ANOVA of Frequency of Interaction with Librarian by Number of Stereotypical Traits in Avatar**

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	11.1089	4	2.777224	1.536409	0.196086	2.448536
Within Groups	213.2976	118	1.807607			
Total	224.4065	122				

As Table 11 shows, the p value, or probability of this result occurring by chance, is 0.197, which is far above the standard 0.05. In other words, there is nearly a one in five chance that any relationship between frequency of interaction and level of stereotyping is due to random chance. The alternative hypothesis is not supported by the data: the frequency with which students interact with librarians has no effect on how stereotypically they portray librarians.

## Conclusion

As academic librarians, we are confronted with librarian stereotypes in the mass media and in our own library science professional literature. As service providers, we worry about how these perceived stereotypes affect our patrons and their use of our services. Our study sought to

investigate whether our students view librarians with stereotypical traits.

We were unable to draw conclusions about our students' perceptions of race in librarianship. Moving forward, further investigation is needed into student perception of librarians' racial background because of the importance of diversity to the profession. Currently, membership in the American Library Association (ALA) is 87.1% white, 3.9% Hispanic or Latino, 4.3% Black or African American, and 3.5% Asian (American Library Association, 2014). According to the US Census, 77.4% of Americans identify as "white alone," 13.2% as Black or African American alone, 17.4% Hispanic or Latino, and 5.4% Asian alone (United States Census Bureau, 2014). Until the membership of ALA becomes more representative of the population at large, it is imperative that the profession continue to question this disparity.

It does appear that students are more likely to perceive librarians as having stereotypical traits such as being female, older, frumpy, and wearing glasses. Students are significantly more likely to imagine librarians as gray-haired and frumpy than they are comparable professionals. Librarians are more likely to be stereotyped as female than computer software engineers are and are more likely to be stereotyped as wearing glasses than nurses are. Despite some of the stereotypical traits appearing in the responses, most students do not imagine librarians as elderly, frumpy, or unapproachable. Even students who depict librarians with stereotypical features only show, on average, two or three of them.

Most students perceive librarians as female and wearing glasses. However, given that the membership of ALA is 81% female (American Library Association, 2014), the assumption that librarians are women is closer to an empirical observation than a stereotype. Similarly, while students are more likely to depict librarians as gray-haired than they are other professionals, they still depict gray hair at a lower rate (23%) than the 34% of librarians who are actually over the age of 55 (American Library Association, 2014).

Glasses, moreover, "have gone from nerd necessity to chic accessory" (Tschorn, 2012). The changing popular perception of glasses renders concern about the aspect of the stereotypes moot. Glasses no longer mark librarians as old-fashioned or out of style.

These findings are only now emerging in the library science literature. Our findings indicate that, as suggested by recent research (Langridge, Riggi, & Schultz, 2014), there is no discernible impact of the common pop culture portrayal of librarians on students' images of librarians.

Based on the results of this research, it is time for the profession to stop worrying about media portrayals of librarians. Regardless of whether mass media depict librarians as harsh spinsters, our data shows that these images are only absorbed by a small minority

of undergraduate students and even then only partially. Even when students create a more stereotypical image of librarians, that image appears to have no correlation with how frequently they interact with librarians. Other factors, such as class assignments, library anxiety, or need for other library services such as computers or study space, appear more likely to drive or inhibit student interactions with librarians than any negative stereotypes they might hold.

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