

## Improving Faculty Gender Equality as a Strategy of Improving Student Retention and Graduation: A Case Study for Public Higher Education Institutions in Mississippi

**Jae-Young Ko, Ph.D.**

Dept. of Public Policy and Administration,  
Jackson State University  
Jackson, Mississippi  
United States

### Abstract

*High school graduates' demographic trend has shown a stagnant pattern lately, attributable to a lowered birth rate in the household over the years. Recruiting new incoming students and retaining enrolled students have become increasingly challenging and competitive among colleges and universities. As a component of student recruiting efforts, faculty gender equality has become prominent. The paper examined the association between faculty gender equality and student retention for the seven public universities in the State of Mississippi. A statistically significant relationship between the female faculty ratio and first-year student retention was found. Female faculty tend to spend more time than male faculty in service activities of engaging with students, resulting in increased retention and graduation among the undergraduate students. HBCUs show relatively lower ratios of female faculty than them in the PWIs in Mississippi. This paper suggested multiple policy options in increasing the female faculty from recruiting to retention.*

**Keywords:** faculty gender equality, graduation, student retention, student recruitment

### 1. Introduction

High school graduates' demographic trend has shown a stagnant pattern lately, attributable to a lowered birth rate in the household over the years. The ongoing COVID-19 pandemic has also reduced the number of enrolled students in colleges and universities due to public health concerns and economic reasons. The reduced student pool and decreasing revenues have forced some private liberal arts colleges to be closed, including layoffs and furloughs for faculty and staff members (Nietzel, 2020). As a result, recruiting incoming students and retaining enrolled students have become increasingly challenging and competitive among colleges and universities (Snyder, 2019). As a component of student recruiting efforts, faculty gender equality has become prominent (Robst and Russo, 1998).

The number of female faculty has increased in the past years, especially after the faculty members of the baby boom generation have started to retire. However, male faculty still has taken a higher portion of the faculty position in colleges and universities nationwide, even though the percentage of female students is higher than that of male students. (NCES, 2008; Schuster and Finkelstein, 2006).

This paper examined the impact of faculty gender equality on student retention and graduation rate. The faculty gender equality was measured as the female faculty ratio. Statistical associations between the female faculty ratio and first-year undergraduate student retention and between the female faculty ratio and the 6-year graduation rate were examined for the six public universities in Mississippi. This paper concludes with policy options for improving faculty gender equality, focusing on the male-to-female faculty ratio from recruiting and retention.

### 2. Literature Review: Contributions of Female Faculty

Most universities currently show a higher ratio of female students than male students in the enrolled undergraduate student population. As a component of student recruiting efforts and as a strategy of retaining more students, faculty gender equality has become prominent, based on the existing literature on female faculty's contribution in building engaging relationships with students.

#### 2.1. Faculty as Role Model

Research on faculty gender effects in academic research and teaching has been well established. Bettinger and Long (2005) argued for the gender impact between teaching faculty and students because students take the faculty as their role models. They argued that the gender effects are more visible in the introductory classes, which usually first-year college students take. Further, Johnson (2014) showed that female faculty significantly positively affects female student grade performance.

Robst and Russo (1998) also argued for a gender-based program for faculty hiring, based on their findings of a positive relationship between the retention rate of female students and the percentage of classes taught by female faculty in science and mathematics. The existing literature shows that female students tend to prefer female faculty as their instructors and academic advisers.

### *2.2. Engagement with Students*

Eagan and Carvey (2015) found that female faculty adopt student-centered teaching practices and actively participate in civic-minded activities. Further, female faculty tend to spend more time in service activities of engaging students and less time to research than male faculty (Link, Swann, and Bozeman, 2008). They also take a disproportionate amount of advising and mentoring responsibilities than male faculty (Rauhaus and Carr, 2020). The existing literature shows that female faculty have spent a higher portion of their time on student advising than their male counterparts.

### *2.3. Mentoring, Retention, and Graduation*

The importance of proper mentoring for college students at risk and first-year college students cannot be overemphasized in designing strategies for improving student retention and graduation. Campbell and Campbell (1997) found that students with good mentoring services show higher GPAs and lower dropout rates. Strayhorn and Saddler (2009) did not find any positive role of faculty mentoring activities on students' satisfaction with college. However, Santos and Reigadas (2004) found that students with mentors of the same ethnicity meet more frequently and show greater satisfaction. The importance of mentoring was also found by extensive literature (e.g., Bernie, Larose, and Soucy, 2005). Bernie et al. (2005) found that students showed more adaptive behavior and perception when favorable interpersonal relations (e.g., student's sharing of personal concerns) are established through mentoring.

Based on the literature review on the contribution of mentoring, in which more female faculty are involved disproportionately, compared with male faculty, this article proposed two hypotheses and tested statistically:

Hypothesis 1: An institution whose female faculty ratio is higher than other institutions records a higher retention rate.

Hypothesis 2: An institution whose female faculty ratio is higher than other institutions records a higher graduation rate.

## **3. Methods and data**

This study addressed the following questions: Is there any statistical association between the ratio of female faculty and the retention and the graduate rates? If proved, how can we increase the portion of female faculty from recruiting, and how can we do differently from faculty recruitment and career development in colleges and universities.

This study analyzed the gender proportion of faculty in public universities in Mississippi. In addition, it examined the student retention and graduation rates using the data obtained from an online academic search engine, College Factual (<https://www.collegefactual.com>), and a report on higher education in Mississippi, prepared by the American Council of Trustees and Alumni (2020), the Southern Exposure, respectively. Finally, simple regression analyses were employed to test the two proposed hypotheses.

## **4. Results**

### *4.1.A descriptive statistics*

The results of descriptive analyses for the public universities are shown in Table 1. Overall, the female faculty ratios in HBCU (Historically Black College and University) are lower than those of PWI (Predominately White Institution) Institutions) in Mississippi (Table 1). The average female faculty ratio of the three HBCUs is about 55.8%, while that of PWI is 59.6%. Mississippi State University has recorded the lowest female faculty ratios among the universities, primarily due to its most extensive engineering programs in State. Usually, male faculty tends to dominate the engineering programs nationwide. Study for Mississippi University for Women was excluded. Even though the university has been a co-ed public university since 1982, the ratio of male students in the university is still below 20 percent, significantly lower than other public universities in the State.

**Table 1. Female faculty ratio, retention rate, and 6-year graduation rate in public universities in Mississippi**

University	Female faculty ratio (%)	Retention rate (%)	6-year graduation rate (%)
<b>A. HBCU</b>			
Alcorn State Univ.	55.7	73.0	32.0
Jackson State Univ.	54.9	53.0	34.0
Mississippi Valley State Univ.	56.7	62.0	30.0
<b>B. PWI</b>			
Delta State Univ.	59.4	67.0	40.0
Mississippi State Univ.	53.4	80.0	58.0
Univ. of Mississippi	67.6	85.0	60.0
Univ. of Southern Mississippi	58.1	72.0	47.0

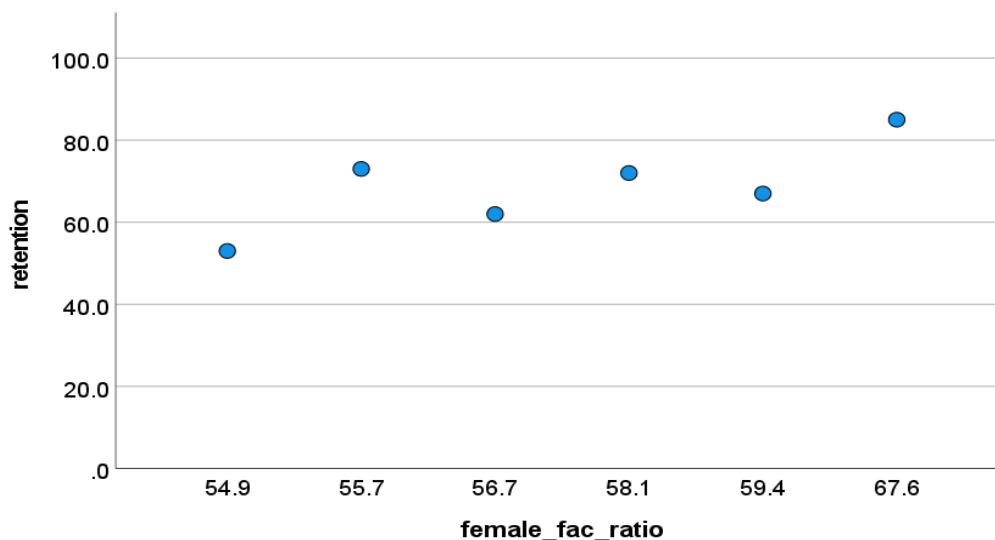
Both retention rate and 6-year graduation rate show higher rates in PWIs than in HBCUs. The University of Mississippi, whose female faculty ratio is the highest as 67.6%, has recorded the highest retention rate (85.0 %) and the highest graduation rate (60.0%).

The University of Mississippi is a flagship university in State. Usually, more prepared students academically and financially are allowed to enroll in their programs. The quality of incoming students can explain the highest levels of retention and graduate rates. However, also we can presume that the outstanding mentoring program and potentially enhanced engagements between students and faculty, coming from a higher portion of female faculty, might have played a role.

Regression analyses were conducted to find any statistical association between the variables. The results are illustrated in Figures 1 & 2 and Table 2 & 3.

#### 4.2. Female faculty ratio and student retention

Figure 1 provides a visual description between the female faculty ratio and student retention rate in public universities in State. Seemingly there is a positive linear relationship between the two variables.

**Figure 1. Scatterplot of female faculty ratio and student retention rate in public universities in Mississippi****Table 2. Regression analysis summary for student retention**

Variable	B	$\beta$	t	p
(constant)	-41.74		-1.02	.37
Female faculty ratio	1.88	0.80	2.70	.05

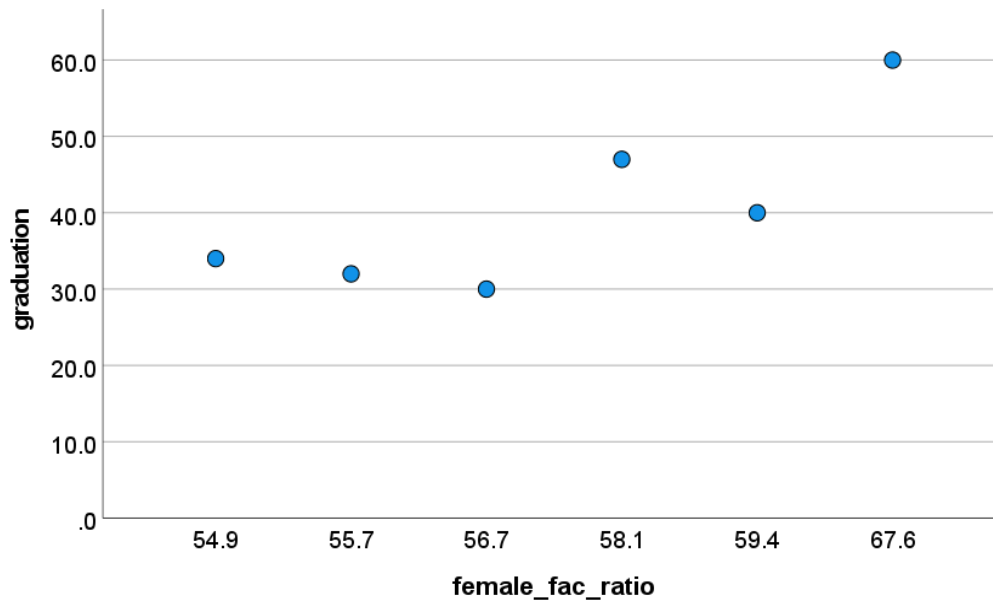
Retention = -41.74 + 1.88\* Female faculty ratio  
(R-square = 0.645, p<0.1)

The coefficient of female faculty ratio is statistically significant ( $p < 0.1$ ), and the research hypothesis in which an institution whose female faculty ratio is higher than other institutions records a higher retention rate is accepted. Female faculty contribute to higher student retention through extensive mentoring and appeals to the growing body of female students in higher education through playing role models.

#### 4.3. Female faculty ratio and student graduation

The increasing student retention would result in a rising graduation rate. Figure 2. provides a visual description of the relationship between the female faculty ratio and the 6-year graduation rate of undergraduate students in public universities in the State. The results illustrate a positive linear relationship between the two variables. A higher female faculty ratio contributes to a higher student graduation rate. The University of Mississippi, whose female faculty ratio is highest, has shown the highest graduation rate among the peer institutions in analysis.

**Figure 2. Scatterplot of female faculty ratio and 6-year graduation rate in public universities in Mississippi**



**Table 3. Regression analysis summary for student graduation**

Variable	B	$\beta$	t	p
(constant)	-90.91		-3.06	.04
Female faculty ratio	2.24	0.91	4.44	.01

Graduation =  $-90.01 + 2.24 * \text{Female faculty ratio}$   
(R-square = 0.831,  $p = 0.011$ )

The result of regression analysis shows that the coefficient of female faculty ratio is slightly not statistically significant ( $p = 0.011$ ). Therefore, the research hypothesis, in which an institution whose female faculty ratio is higher than other institutions records a higher graduation rate, is not accepted in the analysis.

#### 5. Discussion & conclusion

This study found the importance of female faculty in enhancing the retention and graduations in undergraduate students in State. They spend more time in advising and engaging with students and establish an interpersonal relationship with students more easily than male faculty. Also, in the classroom, they are more preferred, along with increasing female students on campus.

However, female faculty have heavier teaching loads than men (Misra et al., 2011; Eagan and Garvey, 2015). Female faculty have experienced higher levels of stress and attrition and slower and differential advancement than male faculty, leading to career dissatisfaction and withdrawal (Hart and Cress, 2008; O'Meara, 2018; Rauhaus and Carr, 2020). Female faculty tend to likely have full-time, non-tenure positions than male faculty, partly attributable to their marital and parental status (Perna, 2001). These consequences of gender inequities can be rooted and reproduced in organizational structures, processes, and work design in the public sector (Bishu and Headley, 2020).

Based on the promising impacts of increasing female faculty in student retention and graduation rates, higher institutions can make changes in establishing a favorable working environment for female faculty, broadly defined in two dimensions: university and department.

### 5.1. At University Level

Universities might emphasize their commitment to diversity, equity, and inclusion at the stage of faculty recruiting. The search committee may ask all applicants to submit a statement on their commitment to diversity, equity, and inclusion (DEI) (Advance in Texas A&M). The requirement of the DEI statement may generate positive impressions to job applicants on the universities' commitment to faculty diversity, including gender disparity. In the following stages of job search: on-campus interview, the committee is expected to ask questions and provide the opportunity for the candidates to demonstrate their commitment to DEI.

### 5.2. At the Dept. Level

Female faculty tend to have higher services in the department, resulting in lower research productivity and slower promotion. O'Meara, K. (2018) proposed three recommendations to fix the unequal treatment toward female faculty and retain the female faculty: transparency, clear standards for faculty evaluation, and an opt-out system for time-intensive and administrative roles.

The study examined the impacts of faculty gender equality on student retention and student graduation rates for the seven public universities in Mississippi. The results clearly showed statistically significant effects of female faculty. However, the female faculty have suffered in their career developments. As a set of remedial measures, universities may introduce programs enhancing faculty gender equality that provide incentives. The DEI statement is another sign showing the university's commitment to faculty diversity and equity. At the department level, the department may introduce new programs for equally distributing teaching loads, transparency, and recognize the importance of engaging with students as equally important as research outputs. Then students may stay longer, and more students may obtain their diplomas through more active female faculty members' contributions.

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