
AC 2011-788: SATISFACTION OF FEMALE FACULTY AT TWO-YEAR SCHOOLS

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Satisfaction of Female Faculty at Public Two-Year Institutions

Abstract

Public two-year colleges contribute to the nation's STEM capacity by providing a foundation for baccalaureate degree attainment, educating a skilled math and science workforce and supporting local economic development. Their female faculty represent a vital national resource, particularly in STEM fields, where they often serve as role models and mentors for female students. Yet this population continues to be understudied. This paper examines the paths that women take toward employment in STEM at community colleges as well as factors that facilitate and hinder the advancement of women in STEM at community colleges. Data were collected by face-to-face interviews with 29 women faculty at nine community colleges in Ohio. Preliminary results indicate considerable career satisfaction among many female faculty members, but contradict a popular stereotype that "community colleges make life easier for women with families."

1. Introduction

Community colleges are key to the future of the United States, as they help fill the demand for a skilled domestic workforce in science- and technology-related fields. To succeed, workers of today need knowledge provided only by postsecondary education. With open access, flexible schedules and relatively low costs, community colleges are strategic entry points into higher education for women, minorities, and low-income students; in addition, they serve a high percentage of first-generation college students. Public two-year colleges contribute to the nation's STEM capacity by providing an academic foundation for baccalaureate degree attainment, educating a skilled math and science workforce and supporting local economic development. Women are well represented at community colleges. Not only are more than 60 percent of students at community colleges are women, but women also make-up the majority of faculty at community colleges¹. These female faculty represent a vital national resource, particularly in STEM fields, where they often serve as role models and mentors for female students. Recent scholarship provides evidence of the importance of students being taught by women faculty in STEM disciplines. Stout, Dasgupta, Hunsinger, and McMcanus² found that exposure to women STEM faculty promoted positive attitudes, greater self-efficacy, and stronger identification with STEM as well as increased commitment to pursue STEM careers.

Yet, the majority of faculty members at community colleges are employed part-time, suggesting a complex interplay between organizational context and academic careers. This population and the environments in which they work continue to be understudied. Researchers investigating community colleges have faced gaps in the literature across a multitude of areas, from student characteristics and success to faculty employment patterns and motivation. The research presented in this paper is a significant step in filling a gap in the literature on women in STEM academic careers at community colleges and highlights the importance of community colleges in promoting women in science and engineering occupations.

Our focus on women at community colleges is critical to understanding and improving gender equity in science and engineering. A substantial number of women pursue academic careers in community colleges. Understanding the organizational context of community colleges and the academic careers of women in STEM employed by these institutions is necessary to develop systemic approaches to increase representation and advancement of women in STEM careers. Qualitative analysis of interview data indicates considerable career satisfaction among many female faculty members. However, more detailed analyses of employment characteristics and interviewees' experiences suggests a complex interplay of influencing factors including career interests, career paths, gender bias, and gendered institutional policies and structures.

2. Background

The underrepresentation of women in STEM fields has long been considered a critical national issue. The lack of women is not only an issue of gender equity; it also weakens our nation's workforce by under-utilizing the talent and potential of a significant sector of the population. Researchers have written prolifically about gender in science and engineering in terms of students, faculty and, more recently, institutional context. Approaches to understanding women's underrepresentation in STEM fields have evolved since the early 1970s, when the underrepresentation of women in STEM was identified. Cronin and Roger³ have developed a chronological progression of the main approaches to women's underrepresentation in STEM fields using a meta-analysis of feminist theories of gendered politics. Their conceptual framework includes five "positions" or stages characterizing women's representation in science engineering and technology. The first two positions represent individual-based views of women; the last three positions are characterized as structural perspectives that attend to structural obstacles, exclusion, and socially constructed power relations. They acknowledge that the critical analysis required by later stages opens up a "political minefield." However, they are encouraged by the progression of positions. Cronin and Roger³ conclude that initiatives that change the culture of STEM fields to become more inclusive (in contrast to initiatives that seek to change women to fit the current system) represent the best chance for progress.

What role do community colleges play in advancing women in STEM? Findings from research on women in STEM at four-year institutions cannot simply be overlaid onto two-year institutions. For example, unlike four-year institutions, women are well represented at community colleges. Not only are more than 60-percent of students at community colleges women, but women also make-up the majority of faculty at community colleges¹. West and Curtis⁴ (2006) report that in 2005 the percentage of tenured full-time women faculty (62%) was close to men (68%). Our own data analysis suggests the gap is even less today, with women and men tenured at the same rate. In terms of salary, researchers find no gender differences among full-time community college faculty with similar levels of education and experience⁵; this finding is also supported by our preliminary analysis.

Researchers suggest that women do much better in community colleges than in four-year institutions due to the greater percentage of women in the positions of leadership at community colleges⁶ and that community colleges offer a more favorable work environment for women due to their multiple missions and open enrollment⁷. Hagedorn and Laden⁸ conclude from analysis of

the national data set that there is only a slight gender effect on measures pertaining to a workplace climate. The slight effect is due to evidence of different discrimination perceptions, with women of color perceiving a possibly “chillier” climate than white women. They acknowledge that a limitation to their research is that it does not measure the advancement of women to administration or involvement in decision-making.

The fact that secondary data exist minimizing the differences between women and men faculty at two-year institutions should not lead one to conclude that these institutions lack gender bias. Additional research points to structural manifestations that limit women and minorities in community colleges, such as their gender norms regarding “women’s work” and hybrid gender performances in the community college⁹; the lack of women in top leadership positions¹⁰; and the massive reliance on and self-perceived exploitation of part-time and adjunct faculty¹¹.

3. Methodology

The data used for this paper are part of a larger research project that utilizes concurrent mixed methodology, including quantitative modeling of secondary data and qualitative analysis of interview data. The focus of our qualitative data gathering is to investigate career paths and employment outcomes for female faculty in science and engineering at public two-year institutions. Previous research on women in science and engineering has found qualitative data to be crucial in understanding factors that facilitate and impede women’s academic career advancement in academic settings¹².

Faculty interviewees in our sample work in nine community colleges in Ohio. The institutions were identified using the Integrated Postsecondary Education Data System (IPEDS) Data Center to select all public at least two-, but less than four-year institutions in the state of Ohio. Of the 115 public institutions in Ohio, 36 are two-year institutions. We excluded all regional and branch campuses affiliated with the major state universities, leaving 27 community and technical colleges. Next, we used IPEDS’ location variables to break down institutions by degree of urbanization: urban (city large, city midsize, city small), suburban (suburban large suburban midsize, suburban small), and rural (town fringe, town distant, town remote, rural fringe, rural distant, rural remote) containing 8, 10, and 9 potential institutions, respectively. From this list we selected nine institutions that reflect different student and faculty demographics as well as geographic region of the state.

Once institutions were selected, an exhaustive list of all female faculty members, full- and part-time, in STEM disciplines at these nine institutions was obtained using online faculty directories. Where the population was large enough, the interviewees were chosen using a random sampling technique. During the summer and early fall of 2010, we conducted 29 interviews with women faculty at these community colleges. We utilized semi-structured interviewing techniques to examine key dimensions such as decision-making leading to employment in two-year institutions, perceived advantages and disadvantages of such work, job satisfaction, and challenges to balancing career and family. Approved IRB procedures were used for the interview process and to ensure confidentiality. Interviews, averaging one hour in length, were digitally recorded and professionally transcribed. Transcriptions were entered into N-Vivo

qualitative software. Issue focused analysis included (a) coding (linking what the respondent says with concepts and categories), (b) sorting by major themes, and (c) organizing and integrating observations.

4. Findings

The mean age of our sample of 29 community college women faculty in STEM fields was 56; 90% were white. In terms of educational status, 23% had earned doctorate degrees, 65% had at least a master's degree, and 12% had at least a baccalaureate degree. Seventy-nine percent were employed full-time; 21% worked as adjuncts. The number of years employed ranged from 2 to 23 with a mean of 11 years. In terms of discipline, 31% of the women were in science, 31% in technology, 16% in engineering, and 22% in math.

Three themes characterize the data. The first theme regards women faculty's satisfaction with their work environment and support from colleagues. Many women in the study came from industry and four-year institutions and were keenly aware of the differences in terms of gendered climates. The second theme centers around the variety of paths women take toward employment in STEM at community colleges as both conscious as well as serendipitous. While most women in this study made conscious choices to teach at two-year institutions, a significant number were drawn in by mentors. The third theme is about work/life balance and the extent to which community colleges offer alternatives to the fast-paced demands of private industry and four-year institutions. The overwhelming majority of respondents provided evidence that contradicts a popular stereotype that "community colleges make life easier for women with families."

Theme 1: Satisfaction and Support

One purpose of our larger research project is to provide awareness of and explicit attention to circumstances of women in STEM at community colleges. Current literature is unclear about the extent to which community colleges exacerbate and/or erode gender inequalities. Our analysis suggests community colleges offer an agreeable workplace climate for women. In fact, the majority of women shared positive statements about the workplace support and satisfaction. One biology professor stated, "I've got to say that my department is just the greatest bunch of people. I think that we set up kind of a support network for each other." This claim was repeated by others, including an engineering professor who said, "I guess a supportive environment [at the subject's CC] has been very beneficial and influential in terms of not really feeling as if I had been...different because I'm a woman." As the interview goes on, this professor adds "It's a very supportive environment, and I feel very lucky to be in this environment" and "Like I said, it really is a great place to work. And I know that sounds like a pat answer." This sentiment was shared by both full-time and part-time faculty.

While faculty generally indicated a quantity of support, what sacrifices in regards to research did these women make? For the women that had worked in research institutions, feeling of "missing out" on research were mediated by new challenges of teaching a range of students at community colleges. One biology professor, with previous experience at a four year institution stated,

"I think the emphasis is on teaching and I'm probably a little more oriented in that

manner or that direction. I...um...at first missed the opportunity to do research and be involved in that; but I guess as I've gotten older I haven't as much. I think the emphasis on the kind of students we have at an open enrollment institution...that it's a real challenge to teach the diverse...the numbers or kinds of students we have. That was a challenge for me also. I think even as we're considering candidates that are coming from the four year school, we're wondering how they'll adapt to community college students as opposed to those that go to a four year institution. “

It is important to note that faculty at community colleges are not typically expected to do research; however, we found a few faculty with active research agendas. For example, a math professor stated, “I am working with some of my colleagues... We presented this article that we wrote. We're actually meeting this week...It was accepted [for publications] with revisions. Another faculty, from biology, was actively pursuing external grants to support learning labs. Although the majority of respondents did not have active research agendas, they nonetheless felt support for research but not pressure or expectations.

Theme 2: Conscious Choice Mediated by Push / Pull Factors

Another purpose of our research was to better understand the paths that women take toward employment in STEM at community colleges. Our results are complex and suggest that women's conscious choice was influenced by a variety of “push and pull” factors; and for some, their choice was serendipitous.

Several respondents suggested a push away from their original career paths in the form of dissatisfaction with four-year institutions. For example, one biology professor stated, “After four or five years there [teaching at a four-year institution] I decided that it wasn't for me...that I really wanted to go into the community college environment.” Another statement, from an engineering professor, explains “My experiences at [a 4-year institution] were very positive. It just didn't really offer the opportunities for career advancement.” The same professor later adds, “I don't think it's any easier here than it was at [4-year institution]. Or that it's any harder...it's about the same career path, like I said. The decision to move was purely the opportunity to move from an instructor's staff position on a year-to-year contract with a nebulous potential faculty position looming somewhere in the future to a faculty position with a program that was, is very similar.”

Several respondents consciously left careers in industry to work at community colleges. Often they started by teaching one class per semester then moving into full-time positions. One instructor of technology, who left a lucrative position in private industry, commented that despite significantly lower pay at the community college, she found teaching highly rewarding and described it as her “calling.”

Often women were “pulled” into community college positions by external forces, such as mentors, family, and commitment to the vision of community colleges. For some, it was a familiar face who asked them to teach a class. One woman, who retired from K12 education, picked up part-time teaching at the local community college because she was contacted by

someone she knew in her community. She stated, “Well, as I say, I think where it started... the idea to come here...she’s my dean now; she was an associate dean at the time. I had her daughters in high school. And I think that’s why I got the phone call ‘would I like to do this here?’ And of course as I said, it just got into more and more.” This “retired” high school teacher is now a full-time instructor of biology.

This type of response is also not uncommon among adjuncts. One technology faculty said, “I was searching also, because like I said I needed a full-time position and believe it or not, it’s a small world, which I would have never known. One of my neighbors knew the chair of this department and knew that he was looking for part-timer or just thought that maybe, and recommended that I come here and try and I did. And I applied. And they did need an adjunct faculty that quarter. And I got in as an adjunct.”

The above quote indicates that employment at community college is often serendipitous. For example, a technology professor (who is currently chair of her department) recounted her career path from private industry as follows:

“It turned into almost a burnout situation where I was working, you know, 16-, 18-hour days seven days a week. I mean, I got the business where they wanted it to be, but it was at my own, you know, peril that I did that. So, I decided I was going to kind of semi-retire. Went to work in a little business, maybe seven employees, loved it, uh, and somebody came to me and asked me if I would want to teach part time...because they knew I just had this thrilling voice [sarcasm] and, asked me if I would like to teach. You know [laughing], absolutely not. Just not for me...and what I said was, and this is an awful remark to make, and I’m apologizing before I say it, but I said, ‘those that can do, those that can’t teach.’ But I decided to try it and had my interview here at [community college]. I still can’t believe they hired me.”

Thus while many of the women interviewed considered their path to community colleges as an unexpected one, closer examination reveals that someone, perhaps a mentor, a neighbor, or a co-worker, presented the opportunity.

Theme 3: Balance of Personal and Professional

A common perception that appears in both literature and hallway conversations among faculty at four year institutions is that community colleges offer women a reasonable way to balance work and family^{8, 13}. This stereotype not only devalues the teaching mission of community colleges, but also misrepresents the amount of work done by women faculty at two-year institutions. Most women took umbrage at the suggestion that it might be easier to balance demands of family and work at community colleges by describing the significant amount of work they perform. None of the women we interviewed felt work demands at community colleges were less than what they perceived, or in a few cases experienced, at other institutions. As one engineering professor with prior experience at a four-year institution stated, “I really am not putting any less hours in [than a four year institution]; in some cases I am probably [putting in] more hours.”

In addition to any research they accomplish, community college faculty engage in significant amounts of “service” work. These activities range from informal meeting with students, recruitment trips to local high schools, formal student advising, curriculum planning, hiring committees, and many others. As one biology professor stated, “Yeah, that includes service to the college, service to the department, service to the profession, advising...we do it...we have all that.” The majority of respondents indicated that working at a community college was just as demanding as working at a four-year institution or in private industry. “I think the community college work environment is very demanding. I don’t know that you’re able to balance life, family a little better. Maybe in the sense we are given more flexibility in our teaching schedules...but I don’t know that it’s easier.”

However, a few claimed that community colleges might indeed help women balance work and family responsibilities. One math professor clearly stated, “I think [the assumption that women working in community colleges can more easily balance family demands] is valid, yeah. I think it is...I’d be lying if I said that wasn’t part of the, you know, part of the reason for wanting, for teaching being an idea in the first place. Others were more cautious about the interpretation that communities enable women to balance work and family:

“Because you do have some more time in the summer where you can be home with them [e.g., their children]. And at the community college with our schedule being somewhat flexible...I feel like it’s been helpful as well. Um, potentially—and I don’t know if I would do this—potentially with the evening classes and we do have some Friday night and Saturdays (we call it Weekend College Classes) potentially I could teach some evening classes and have my days at home with him. So there is that flexibility.”

The woman quoted above, a technology professor, was careful to clarify that while “flexibility” was present, she was unsure she would take advantage of it.

Finally, one technology professor with prior work experience at a four-year institution raved about working at a community college.

“It truly is what you make of it. It is. You can do...honestly...can do anything you want to do. And I think that teaching at a community college may be [more flexible in terms of balancing work and family]. It’s even more true here because I have the option...if I want to be straighter on research and not do much of anything else except teach what I have to teach, I can do that. I don’t have to. But I can do that. If I want to direct my energies into teaching and instructional design and course development and, I can do that. You can do whatever you want to do.

Although not specifically asked, one of the trends that emerged from the data was the importance of place or region. Unlike women teaching at four-year institutions, many women in our sample return to teach in communities in which they grew up. This afforded the women a built-in support network, including family and friends, to help them balance professional and personal demands.

5. Implications and Conclusion

This paper, co-authored by an interdisciplinary team including engineers, sociologists and educational researchers, provides much needed understanding of the women STEM faculty at community colleges. To an overwhelming degree, respondents were very satisfied with their workplaces. A variety of forces shape the paths the lead women STEM faculty to community college environments, including “pushes” away from industry and four-year institutions as well as “pulls” from mentors, friends, and family. These same forces work to support women in terms of balancing work and family, but do not make the demands of academic careers any less rigorous than women faculty at four-year institutions.

We highlight employment conditions of public two-year institutions and characteristics of women who pursue academic careers in STEM that have not been studied before. Understanding the organizational context of community colleges and the academic careers of women in STEM employed by these institutions is necessary to develop systemic approaches to increase representation and advancement of women in STEM careers.

Women faculty in STEM fields serve as role models and mentors for female students. In 2008, 43% of freshmen were enrolled in public two-year institutions¹⁴. Foundations, government agencies, and higher education organizations have made increasing the nation’s college graduation rate a priority. For example, Complete College America is an alliance of states committed to significantly increasing the number of students successfully completing college and achieving degrees and credentials with value in the labor market. Current economic conditions, state and federal budget deficits, and rising tuition at four-year institutions are bringing increased attention to the role of public two-year institutions. This attention may create opportunities for enhancing female participation in STEM, but more research is needed to inform these discussions and decisions. Initiatives will require increased resources, including instructional capacity. Understanding the role community colleges play in advancing women in STEM fields will help position the nation to improve gender equity in these fields at a critical time in our nation’s history.

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