Learning from the Journey: A Decade of Supporting Women in Computing at a Commuter State College

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Abstract— **Farmingdale State College (FSC) is an undergraduate institution within the State University of NY (SUNY) system located in Long Island, serving about 10,000 students where 94% are commuters, 57% are awarded financial aid, 45% are from minority populations, and 43% are women. The Computer Programming and Information Systems (CPIS) program enrollment has doubled in the past ten years reaching about 550 students but the percentage of women in the program has remained flat at 10% during the same period. This paper details the journey of initiatives to engage and retain women in the CPIS program in the past decade, analyzes the high and low periods of such activities, and examines why the high periods were not sustained.**

Keywords— Gender Disparity, Computing Education, Women in Computing, Broadening Participation, Diversity in Computing

Introduction

Farmingdale State College (FSC) is an undergraduate institution under the SUNY umbrella. While FSC can benefit from SUNY's resources, FSC budget is tied to the NY state's overall fiscal climate. The Computer Programming and Information Systems (CPIS) program enrollment has doubled in the last decade, but the percentage of women in the program has remained flat at 10% (Fig. 1). CPIS students choose Farmingdale because of the small class sizes and easy access to and availability of faculty. The majority of CPIS students are employed off-campus and are transfers (52-69%) from the nearby SUNY community colleges (Table I). CPIS program has a dedicated group of faculties (about 50% female) where for the tenure-track position the teaching load is 4:4 (50%) with service (25%) and research (25%) requirements. The CPIS full-time faculty headcount and composition has changed due to various reasons, and a high number of adjunct faculty cover most sections offered per semester (75%).

The long-term plan and strategic vision for the Computer Systems Department is to ultimately close the long-lasting gender gap in the CPIS enrollment. The strategic vision is threefold.

1) to achieve 50/50 female/male enrollment in the program [1-3].

2) to be the college of choice for students due to the focus on Women and Diversity in Computing

3) to have Farmingdale CPIS graduates be candidates of choice by computing technology community.
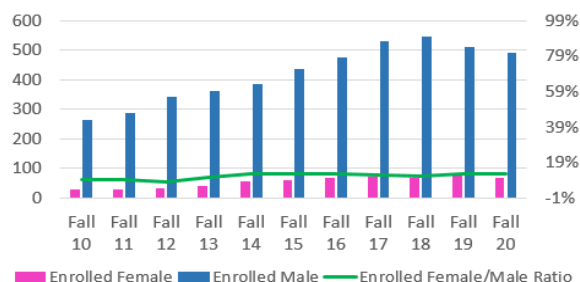

Fig. 1. CPIS Enrollment Data by Gender (includes Transfer, Part-Time and Full-Time students)

This paper reviews initiatives and activities that have been taken over the last decade to address the gender disparity in the CPIS program. Five periods are identified in terms of high vs. low level of activity to support the women in the CPIS program.

A LOOK AT THE PAST DECADE: HIGHS AND LOWS

Some number of actions and initiatives have been taken by the department to address the gender gap over the past decade. However, these actions did not have a great impact, at least on the numbers. In this paper, a more focused analysis of the past decade has been done to understand why the activities were not sustained and why there was little impact on the enrollment numbers.

Period 1 (Spring 2013 – Spring 2014)

This period launched the first concerted effort in recognition of the gender disparity, where two faculty applied for an on campus grant to cover a yearlong set of women centric activities led by faculty and to accompany women students to a field trip. Both the grant and a field trip were a success in this period, however, when funding ran out, activities were not sustained.

Period 2 (Fall 2014 – Fall 2015)

This was a period of low activity with no funding, though towards the end of this period, a female student began to express

Table I. INCOMING STUDENT DATA INCLUDING TRANSFER AND NEW FROSH.

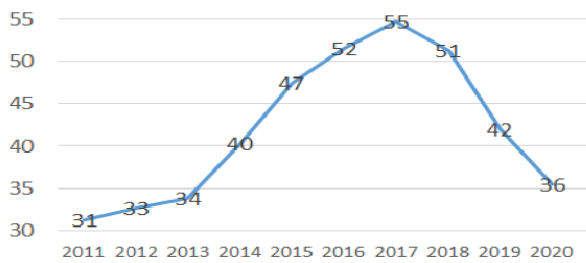|	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020
Incoming New Frosh	22	30	39	26	48	44	69	63	65	59	59
Incoming Transfer	32	37	58	58	47	76	75	86	81	83	63
Total Incoming	54	67	97	84	95	120	144	149	146	142	122
% Transfers	59%	55%	60%	69%	49%	63%	52%	58%	55%	58%	52%

Fig 2. Student to Faculty Ratio over the past decade

great interest in starting a student club. During this period, the enrollment numbers started to climb while the faculty was overburdened with teaching and service. A female student with great interest began to recruit a student leadership team to establish a Women in Computing (WiC) club.

Period 3 (Spring 2016 – Spring 2017)

This was a high period of student driven activity. WiC club got small college funding and raised money of their own to host an active calendar of activities, to attend a field trip, and to present at an off campus ACM NYCWiC conference about their club experience.

Period 4 (Fall 2017 – Spring 2019)

This was another period of low activity. There were no student leaders following the graduation of WiC club officers and no funding. The student/faculty ratio was at all-time high. The department faculty was stretched thin and could not push the high momentum of activities student leaders had accomplished.

Period 5 (Spring 2019 - Present)

This period is where we are now, a good place. A byproduct of faculty initiated meetings to complete Grace Hopper Scholarship applications prompted open discussions amongst the students and an acknowledgement of the gender disparity in their classes. In turn, female students were excited and found a great sense of camaraderie to reinstate the student club despite being remote during the global COVID19 pandemic. Other initiatives led by faculty include NCWIT Academic Alliance membership, ACM NYCWiC virtual attendance with students presenting poster, faculty moderating Birds of a Feather session, and continued search and applying for external funding.

CONCLUSIONS & FUTURE WORK

It is interesting to look back and glean information from past experiences. External factors (college and beyond) that influencing the periods should be acknowledged. There was a climate of uncertainty when the department chair changed twice, at the same time, the college leadership President and Provost were also changing. Another factor is that faculty headcount was not keeping pace with the student enrollment. Hence, full time faculty were burdened with department service which would normally be shared among a larger headcount of faculty.

Another factor is there were years of no salary increases, furloughs, hiring freezes and salary compression issues due to the NY State Budget. This was bad for morale and with 4:4 teaching load, the Women in Computing Club and initiatives took a lower priority. Final factor is that the commuter, high rate of transferring, and off-campus working student population doesn't have as much free time for clubs and campus activities as compared to the residential colleges. Therefore, maintaining a steady pipeline of student leaders is challenging.

The five key takeaways are as follows.

1) Nobody should operate in a vacuum. Efforts should be orchestrated by faculty and students. It should be a partnership where faculty and students work together and share the ownership and responsibility for success, and entire department should be behind the efforts.

2) Nurture the pipeline of upcoming students. The pipeline of under classwomen should be nurtured so they learn from upper classwomen what needs to be done to keep the momentum going.

3) It is hard to make a difference without funding. Funding is necessary and fosters accountability. Figuring out where to apply for funding and how is daunting. It is best to start small (local, campus and seed funds).

4) Learn from the past and modify going forward. Over time, WiC club learned that working with other clubs and cohosting events rather than competing for resources of the department is more effective (inspired by the Male Allies pilot program of AnitaB.org [4]).

5) Address negative influences head on. There are bound to be some bumps along the way. Acknowledging that some may be beyond control of constituents involved, when negative factors are recognized (e.g., hiring freezes, global pandemic), come up with a plan to continue working, and persist in any way possible, while waiting for the climate to change.

The current situation is that with high student leadership, active faculty involvement, awaiting and actively pursuing more funding, with faculty and department support, the momentum is headed in the right direction. Future work is continue working to improve the gender gap in the CPIS program at Farmingdale.

REFERENCES

[1] Anita Borg, "50/50 by 2020".
    https://www.youtube.com/watch?v=3nImg8vPUe4
[2] Telle Whitney, "50/50 by 2020 – Living Anita's vision and the importance of gender equity in technology", Microsoft Research Talk, August 11, 2004.
[3] The BRAID initiative (Building, Recruiting, And Inclusion for Diversity). https://anitab.org/braid
[4] AnitaB.org Allyship Beta Program. https://community.anitab.org/allyship