

Practices to Achieve Gender Balance in Informatics Academia

Carla Teixeira Lopes
ctl@fe.up.pt
Faculty of Engineering of the
University of Porto and INESC TEC
Porto, Portugal

Petroula Mavrikiou
p.mavrikiou@frederick.ac.cy
Frederick University
Nicosia, Cyprus

Lili Nemeč Zlatolas
lili.nemeczlatolas@um.si
University of Maribor, Faculty of
Electrical Engineering and Computer
Science
Maribor, Slovenia

ABSTRACT

This poster presents the preliminary results of a survey about practices implemented by Informatics Higher Education and Research Institutions to promote gender balance in academia. We focus our analysis on practices for recruiting, promoting, and retaining women. The survey was distributed in 2022, receiving 57 valid responses from representatives from different institutions. The results show that the institutions more often use recruiting practices compared to promoting and retaining women at their institutes.

CCS CONCEPTS

• **Social and professional topics;**

KEYWORDS

gender balance, academia, computer science, informatics, stem

ACM Reference Format:

Carla Teixeira Lopes, Petroula Mavrikiou, and Lili Nemeč Zlatolas. 2023. Practices to Achieve Gender Balance in Informatics Academia. In *Proceedings of 10th ACM Celebration of Women in Computing (womENCourage 2023)*. ACM, New York, NY, USA, 2 pages.

1 INTRODUCTION

Even though gender balance awareness is rising, women are still underrepresented in academia. This is even more visible in male-dominated fields such as Computer Science or, more generally, STEM (science, technology, engineering, and mathematics) areas. Women in STEM often face career obstacles that are hard to balance [2]. On the other hand, research shows that diverse groups are better at solving problems, an essential factor in research [3]. The COST Action CA 19122 EUGAIN – European Network for Gender Balance in Informatics – is a European network of colleagues working on efforts for gender balance in Informatics in their countries and research communities. More specifically, the Working Group “From PhD to Professor” addresses the challenges women face in professorship careers starting at their PhD. One of the aims of this working group is to identify and suggest good practices that cover the whole academic career: from hiring to evaluation and promotion. Within the action, a booklet with such practices was already published [1].

Permission to make digital or hard copies of part or all of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for third-party components of this work must be honored. For all other uses, contact the owner/author(s).

womENCourage 2023, September 20–22, 2023, Trondheim, Norway
© 2023 Copyright held by the owner/author(s).

The primary purpose of this work is to present the preliminary results of the data gathered in the online “Survey on best practices in gender balance in Informatics”. The survey was addressed to faculty and staff of Higher Education Institutions (HEI) and Research Organisations (RO) and seeks to collect best practices regarding recruiting, promoting, and retaining women in academia.

The results gained from the answers of the STEM-related HEI or RO members who have knowledge of gender-equality practices inside their departments allow us to come up with proposals, ideas, and actions that HEI could implement.

2 METHODOLOGY AND DATA

The questionnaire was developed in 2022 and is divided into seven sections: the first section is about the information on the HEI the respondent is affiliated with, and the rest are about practices on recruiting women, practices on application and evaluation for hiring and promotion, practices on how to retain female talent and expertise, practices on how to promote women in academia, mentoring practices and finally their expectations from the HEI the respondent is affiliated with. We collected the answers between 31 May 2022 and 3 September 2022.

The survey link was shared with the snowball method from the group participants through emails and social media posts. The average duration of the survey was 17 minutes. Before proceeding with the analysis, we cleaned the data, and in this process, we excluded two cases from the final sample. We ended up having 57 valid responses.

The questionnaire respondents could answer 64 questions, which were not obligatory. After data cleaning, we also computed additional variables for the analysis stage: the number of recruiting, retaining, and promotion practiced by each institution and its total number of practices.

3 RESULTS

We received 57 valid responses. The respondents of the survey were either holding a managing position (21.8%), faculty members (67.3%), or working as temporary staff (10.9%). All participating Higher Education Institutions have Departments of Computer Science, and some also have STEM departments, such as Engineering or Mathematics.

The participants also reported the percentage of female members at their Institutions at different positions. For the group of teaching assistants and PhD students, there was a mean of 25.9% females at 26 different institutions. There was a mean of 25.5% female assistant professors at 37 institutions and a mean of 19.8% associate and 16.8% full professors at 40 institutions. The higher the position at the institution, the lower the mean for female staff.

3.1 Institutions' gender balance awareness

Our questionnaire included five questions that assessed different dimensions (monitoring the % of women, having a Gender Equality Plan - GEP, gender balance figures are made public, gender is a responsibility of management, gender is a concern of HR department) of an institution's awareness of balance representation. For each question, the respondent could answer a Yes, a No, or an "I do not know". Most (65%) of the respondents' institutions have a GEP. On the other hand, most of the respondents (43%) answered that their management team has no members responsible for gender representation. Most respondents (54%) do not know if gender figures are publicly available. We have also analyzed the number of gender representation awareness dimensions selected by each respondent. The majority of the respondents (33%) only reported 1 of these dimensions. Nine respondents (17%) reported none, and the other nine (17%) reported having all five dimensions. The latter are INESC TEC, Portugal; Sapienza Università di Roma, Italy; South East Technological University, Ireland; University of Galway (NUIG), Ireland; the Faculty of Informatics of Technischen Universität Wien (TU Wien), Austria; The French National Centre for Scientific Research (CNRS) - Univ Grenoble Alpes, France.

3.2 Practices to promote gender balance

Based on three lists of good practices for recruiting (25 practices), promoting (18 practices), and retaining women (13 practices), we asked the participants to identify the practices their institutions are using. We found that, from the three groups, recruiting practices are the most widespread, with institutions using, on average, 5.42 recruiting practices against an average of 2.91 promoting practices and 1.91 retaining practices. Two institutions stand out as top outliers in the number of in-use recruitment practices: TU Wien and CNRS. The CNRS is also at the top of the institutions with more promoting practices along with the NUIG, the School of Informatics, University of Edinburgh, UK, and the Computer Science Department, IT University of Copenhagen, Denmark. Regarding retaining practices, the two institutions that stand out are the Faculty of Informatics of TU Wien and the Insight SFI Centre for Data Analytics - Data Science Institute of NUIG. Out of all 56 possible practices, institutions use a mean of 10.25 practices and a maximum of 37 practices.

3.2.1 Recruiting women. When writing the recruitment advertisement, the most frequent practice involves using inclusive language (34 institutions, 59.6%). The most frequently used practice when advertising the position was distributing advertisements across several channels (22 Institutions, 38.6%). More generally, nine institutions (15.8%) re-examine the applications and consider re-advertising if the initial interview list did not include women (9 institutions, 15.8%). When evaluating hiring applications, the two most frequent practices used are the implementation of explicit evaluation criteria (e.g., the Institution has a list of requirements that are evaluated by the hiring committee for hiring and promotion) with 27 HEI (47.4%) and ensuring that the composition of the hiring committee is as balanced as possible (e.g., ensuring that at least 30% of the committee consists of women) with 25 HEI (43.9%).

3.2.2 Promoting women. Regarding promotion, the two most popular practices that HEI follow are firstly to propose suitable women for tasks considered valuable for career advancements, such as prizes, representing the Institution in informal meetings / internationally, and PhD Committees (25 HEI, 75.8%), and secondly, put measures in place to ensure that there is a positive representation of women in Decision Making Positions and Institutional Committees (e.g., above the proportion of women in the Institution) (16 HEI, 48.5%). Although on a smaller scale, when evaluating promotion applications, the two most frequent practices used are the same as the ones for hiring evaluation: the implementation of explicit evaluation criteria with 22 HEI (38.6%) and ensuring that the composition of the hiring committee is as balanced with 16 HEI (28.1%).

3.2.3 Retaining women. Using a Likert scale of 1 ("Strongly disagree") - 5 ("Strongly agree"), participants were asked to state how their institution implements various practices in retaining female talent and expertise. Using the mean to order the responses, the three best practices or policies that dominate are a) policies for disconnection - for example, HEI honour the right to be offline outside the organisation (3.22) and b) gender/family friendly strategies to facilitate female talent (3.10) and c) inclusive working environment (e.g., organises training on unconscious bias or allocates resources to initiatives such as promoting/encouraging women's networks) (2.95).

4 CONCLUSION

Despite the growing awareness, women are still under-represented in STEM higher education institutions, specifically at the highest levels and among management roles. To evaluate the current practices of STEM institutions, members of EUGAIN have developed and disseminated a questionnaire among STEM academics. In this work, we describe the preliminary results of the analysis of this questionnaire. Institutions' gender awareness is still very heterogeneous. Maybe due to European Commission requirements, most of the institutions already have a Gender Equality Plan. Numbers are lower in other awareness dimensions. We have found that most implemented practices are related to recruitment, and retaining practices are the least common. We have identified institutions that stand out as good examples and could be sources of inspiration. We have also listed the most common recruiting, promoting, and retaining practices as an incentive for STEM higher education institutions. In the future, we will deepen our analysis and use the results to update the booklet "From Ph.D. to Professor" produced in EUGAIN.

ACKNOWLEDGMENTS

This work has been partially supported by the COST Action CA19122 - European Network for Gender Balance in Informatics (EUGAIN).

REFERENCES

- [1] EUGAIN. 2022. *Best practices from PhD to Professor*. Informatics Europe, Zurich, Switzerland. https://eugain.eu/wp-content/uploads/2022/05/EUGAIN_booklet_2022-05.pdf
- [2] Christine O'Connell and Merryn McKinnon. 2021. Perceptions of Barriers to Career Progression for Academic Women in STEM. *Societies* 11, 2 (2021). <https://doi.org/10.3390/soc11020027>
- [3] Katherine W Phillips, Douglas Medin, Carol D Lee, Megan Bang, Steven Bishop, and DN Lee. 2014. How diversity works. *Scientific American* 311, 4 (2014), 42–47.