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Experience of Gender Among Professionals in Finnish IT Companies

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Abstract. Issues of equality and fair treatment in the workforce have held a position in professional discourse across fields for decades. Gender equality is particularly relevant in fields such as information technology (IT), where developed products and systems affect all segments of society. The current paper presents a study that probed professional experiences in the field of IT, in Finland, from the perspective of gender. The study was implemented as a questionnaire where $N=93$ individuals participated. Our results show that women paid close attention to how their gender influenced multiple aspects of their professional lives, reporting both negative and positive impacts on several categories. Men generally perceived their gender as irrelevant in most of the categories except salary. Women also highlighted experiences of sexual harassment and biased behavior. These statistically significant results contribute to advancing knowledge on gendered conditions of professionals and how they influence the IT industry.

Keywords: Gender, Professionals, Information Technology, Equality, Industry

1 Introduction

Like all professional fields, including healthcare, education and politics, IT is riddled with gender challenges. Some of the traditional issues arising when considering gender have been [1, 2]: 1) participation; 2) pay levels; 3) workload; 4) task allocations and expectations; 5) sexually-oriented treatment; 6) credibility issues; and 7) psychological obstacles attached to all of the above, including self-doubt ([2, 3]). These are crucial aspects from a professional perspective, none-the-least that of individuals working in the IT field. Greater equality and diversity in professional IT development roles mean more likelihood of the development of systems that are relevant and valuable for diverse user groups [4]. The present study aimed to examine differences of professional experience in the field of IT based on gender. The research furthered this insight by probing the factor of age, and how age has influenced this experience of gender as a professional in IT. In doing so, the authors have additionally been able to gauge minor potential generational changes in the professional climate of IT. The research question was: *How does gender affect the professional experiences of individuals working in IT?*

The study was implemented in questionnaire form, and focused on individuals working in Finland, and/or Finnish companies abroad. The reason for focusing on Finland was two-fold: 1) Finland is known internationally as being a country that values equality and equal opportunities among the genders; and 2) the authors of this paper

both identify as cis-female (born as female and identify as female) and have been working in the IT sector for over two decades. The aim was to capture both the state of professional experience in relation to gender in the Finnish IT field – i.e., opportunities, perceived value and contribution, obstacles and challenges etc. – and probe the less discussed nuances in the industry that inevitably affect the ways in which IT products and services are designed, developed and delivered. The study advances a growing body of work on diversity in the field of IT and related business. The results are a part of a larger research project that examines the relationship between treatment of female IT professionals, cognitive-affective effects resulting from this treatment, and the challenges resulting from biased and distorted representation in design and development processes. The paper begins by describing the method of the empirical study, describing the questionnaire utilized, ethics and data privacy compliance, recruitment and analysis. Due to the concise nature of a short paper, we simply acknowledge that substantial effort (see e.g., [5]) has been undertaken towards understanding gender distributions, roles and conditions in IT. Most of the research has focused on university students. Here, we examine the experiences of actual professionals with varied levels of experience in the field. We then present the results, followed by the conclusion that includes limitations and future research directions.

2 Method

Data were collected through an online mixed-methods questionnaire, incorporating both quantitative and qualitative open-ended questions that was distributed via Webropol from March to June, 2024. All data was collected anonymously, and in accordance with both the General Data Protection Regulation (GDPR) and the research ethics guidelines outlined by the Finnish National Board on Research Integrity, participants were provided with: information about the research and use of data; information on data handling practices; and an informed consent form. This information was already available via links during the recruitment stage of the research. Professional participants were recruited via public social media postings (LinkedIn, Author 1 and 2's combined LinkedIn analytics reports 2279 views) and Author 1's internal business communication channels including 1320 members. Participation was asked from people who work at IT companies in Finland, and/or in Finnish IT companies abroad. Of the 181 respondents who opened the questionnaire, 129 started it, and 93 completed it. It took approximately 20 minutes to complete and was formulated according to the results derived from a written narrative inquiry study undertaken earlier (see e.g., [6]) in 2023 where female IT professionals wrote narratives about their gender-related experiences in work life (positive, neutral, negative).

Questionnaire themes were: career – how gender has affected career choice; types of work and/or tasks applied for; types of work or tasks obtained; the level of pay offered to the respondents or the level paid; experiences of sexual harassment; belittlement or bias when interacting with co-workers and/or clients; the ability to participate in the decision-making processes of technical design; and the ability to express ideas. The data was analyzed in SPSS (quantitative data) for statistics. Qualitative data was collected with open-ended questions, but the current paper focuses only on the statistical reporting of quantitative data. Qualitative results are not reported

in this paper. In total, $N=93$ professionals responded to the questionnaire, of which, $N=54$ were female, $N=37$ male, and $N=2$ identified as ‘other’. Due to the fact that only two participants identified as ‘other’, their responses were excluded from the analysis as they could not be adequately compared to the other two groups. The respondents were divided into the following groups according to age: 1) 21-30 years old (16); 2) 31-40 years old (32); 3) 41-50 years old (33); 5) 51-60 years old (8); and 6) over 61 years old (4). Thus, the largest respondent groups were group 2 and 3.

3 Results

In the first part of the questionnaire the respondents were asked to state why they had chosen to enter the professional field of information technology. Participants were given the selection of career prospects, interest in IT, ending up there, and other. Out of these, $N=27$ stated that their selection was based on career prospects, $N=64$ stated that they had an interest in IT; $N=33$ stated that they had just ended up there, and $N=6$ selected ‘other’. The majority of participants ($N=27$) had between six and ten years of experience, followed by those with less than five years of experience ($N=20$). The other distributions of years worked in the field were 11-15 years, 16-20 years, 21-25 years and over 26 years. Eleven to thirteen participants identified with each of these categories. Data did not follow normal distribution (p-values for both Shapiro-Wilk and Kolmogorov-Smirnov tests are all < 0.001 for each variable), thus non-parametric tests were used. Yes/no questions were also featured regarding participant experience of sexual harassment, belittlement or bias, and if they felt that they had the ability to participate in decision-making of technical designs, and could contribute ideas. Significant gender differences were recognized: reasons for entering IT; perceived career advancement impacts; job application impacts; job attainment impacts; pay and salary impact; experiences of sexual harassment; experiences of condescending behavior; and participation in technical decision-making. Females reported higher positive and negative impacts of gender, yet males only in relation to salary.

The results of how gender affected careers can be seen in Table 1. ‘Reasons for entering the field’ proved to hold significant difference between men and women in regards to ‘interest in IT’. Males were more likely than females to report interest in IT. There were significant differences observed in the impact of gender on professional experiences. Women felt that their gender had a more positive impact on career progression, while men reported fewer positive impacts.

Table 1. Results of the quantitative questions

| Question | Mann-Whitney U | Wilcoxon W | Z | Asymp. Sig. (2-tailed) |
|--|----------------|------------|--------|------------------------|
| Career: Positive | 567.000 | 1270.000 | -3.758 | <.001 |
| Career: Negative | 381.000 | 1084.000 | -5.299 | <.001 |
| Types of work/ tasks applied for: Positive | 742.000 | 1445.000 | -2.621 | .009 |
| Types of work/ tasks applied for: Negative | 648.000 | 1351.000 | -3.370 | <.001 |

| | | | | |
|--|---------|----------|--------|-----------------|
| Types of jobs/tasks obtained: Positive | 573.500 | 1276.500 | -3.915 | <.001 |
| Types of jobs/tasks obtained: Negative | 585.000 | 1288.000 | -3.760 | <.001 |
| Pay level offered or paid: Positive | 821.500 | 1524.500 | -1.761 | .078 |
| Pay level offered or paid: Negative | 391.000 | 1094.000 | -5.304 | <.001 |
| Participation in technical decision-making: Positive | 671.500 | 2156.500 | -3.250 | .001 |
| Participation in technical decision-making: Negative | 527.500 | 2012.500 | -4.498 | <.001 |
| Ability to express own ideas | 671.500 | 2156.500 | -3.250 | .001 |

Women perceived that their gender had a negative impact on career advancement, a trend also reflected in the types of jobs they applied for. While women reported a more positive gender-based influence on job applications, they were also more negative about how gender affected their opportunities. Similarly, in the types of jobs secured, women felt their gender had both a more positive and negative influence compared to men. They also reported a stronger positive influence of gender on participation in technical decision-making, yet they simultaneously felt their gender negatively affected their involvement in such processes. Regarding salary, women experienced significantly more negative impacts related to gender than men, although no significant differences were observed in the positive influence of gender on salary.

Table 2. Results of experiencing harassment or prejudiced behavior.

| Variable | Chi-Square Value | Degrees of Freedom (df) | p-value | Women Reporting (%) | Men Reporting (%) |
|---|------------------|-------------------------|---------|---------------------|-------------------|
| Experienced sexual harassment | 10.874 | 2 | 0.004 | 46.3% | 13.5% |
| Experienced sexist or dismissive behavior | 20.505 | 2 | <0.001 | 79.6% | 32.4% |

Table 2 shows a significant difference emerged in how men and women perceived the impact of gender on sexual harassment, with 46.3% of women and 13.5% of men reporting such experiences. Women also experienced more instances of sexist or dismissive behavior, reporting these at a much higher rate than men. In terms of biased or dismissive behavior, participants could select different types of belittlement and discrimination, including: 1) being referred to as "girl" or "boy"; 2) disregard for skills and capabilities; and 3) being assigned specific roles based on gender (e.g., women as organizers or managers, men as technical professionals). A significant difference in the experience of sexist or dismissive behavior was found between age groups, with younger participants (21-30 and 31-40) reporting more frequent occurrences compared to older groups (51-60 and 61+). However, for other variables, such as belittling terms, skill dismissal, role assignment, and other gender-based issues, no statistically significant differences were observed between age groups.

Table 3. Results of age group differences

| Variable | Chi-Square Value | Degrees of Freedom (df) | p-value |
|--|------------------|-------------------------|---------|
| Experienced sexist or dismissive behavior | 10.523 | 4 | 0.032 |
| Experienced belittling terms (e.g., 'boy' or 'girl') | 6.312 | 4 | 0.177 |
| Experienced belittling of skills | 2.376 | 4 | 0.667 |
| Assigned specific roles based on gender stereotypes | 3.887 | 4 | 0.422 |

4 Conclusion

This paper presents a study examining the experience of gender on professional conditions and opportunities in the IT industry. A questionnaire was designed and implemented to test the validity of findings from a previous qualitative study. The study reveals a series of significant differences indicating not only that gender was perceived as negatively influencing crucial aspects of careers in IT, but that women in gender experienced *gender* consciously. We argue this based on the results that show women also experienced gender positively in many respects. Male participants only demonstrated a significant experience of the positive impact of their gender on salary levels. Moreover, in comparison to women, men were significantly different to women in the reason why they entered the IT field – i.e., out of interest. Moreover, the results are striking in terms of their statistical significance between men and women in the domain of sexual harassment. Women were significantly more likely to report that they had been sexually harassed than men. Women also reported more biased or dismissive behavior. When comparing women across age groups, no statistically significant differences are found except for the experience of "sexist or dismissive behavior", where the age groups (21-30 and 31-40) reported experiencing this behavior more frequently, while older age groups (51-60 and 61+) reported fewer instances.

There are several limitations to the current study. First, less than 100 people responded to the survey. While it is often difficult to recruit professionals from specific sectors, and $N=93$ participants is an adequate sample size for conducting statistical analyses (see e.g., [7, 8]) given the number of people employed in the IT field, a larger sample would have been more representative. Moreover, there was abnormal distribution among the age groups. It would also be apt to recruit participants from more companies and organizations in order to ensure that the results are valid and reliable for the IT industry in Finland, in general. However, the results of the survey should be seen as a reflection of real problems and challenges not only experienced by women, but by IT business in general. This is a question of both employee wellbeing, as well as increasing positive impact through employee-driven value propositions that are not strongly biased. Further, a more thorough analysis of the types of comments, names and changes over the years would be enlightening in terms of understanding how the gendered conditions of workers have evolved. This study is part of a larger project examining how cognitive-emotional effects of gender-based inequities in the IT field influence design processes. We assume that inequality on the basis of gender stifles creative thinking due to environmental stressors (i.e., discrimination, negation and exclusion, see e.g., [9, 10]). Further, there is much talk about cultural differences in

regards to the experiences of gender, and equal treatment. Future research should engage in examining these differences, while questioning why countries known for equality still house bias in the workforce.

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