Participation of Women in the Information Technology Sector in South Africa

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Staff in the department of Computer Science embarked on a research study to investigate the participation of women in the IT sector and their roles in order to propose possible interventions.

Enrolment figures of female students majoring in Computer Science (CS) at third year level has been on the rise in recent years at Sefako Makgatho Health Sciences University (SMU). In year 2015, departmental records show that 45% of the final year students who graduated from the program were female. That number improved in the year 2016, with 57% of the graduates being female. It is clear that there is a growing trend in female graduates with a qualification in CS, but where do these female CS graduates end up in their post-graduation stages in South Africa?

LITERATURE REVIEW

The field of Computer Science has grown into different specialties (Glass, 2012) such as Computer Engineering, Information Systems Management, Information Technology, Computer Technology, to name a few, making it more of a challenge in determining women's participation. Several studies on the same subject have been done in other countries with interesting results. A study in the USA shows that there is a drop in female students majoring in Computer Science and other related IT programmes (Coder et al., 2009; Redmond et al., 2013; McKinney et al., 2008; Khan & Luxton-reilly, 2016). An international study made similar observations in the drop of female students taking up Computer Science as a major at undergraduate level in New Zealand and Iceland (Adams et al., 2003). In Israel, where the study had a focus on High School level, it was found that there was a decrease in female learners taking up Computer Science as a subject (Adams et al., 2003). However, a study done in India was quite the opposite. The study found that there has been an increase of female students taking up Computer Science at Universities in India (Kakkar & Bhandari, 2016).

The reasons for the decline in female students taking up Computer Science varied from country to country. These ranged from job insecurity (de Palma 2001), lack of mentors for female students or learners (Adams et al., 2003; Khan & Luxton-reilly, 2016; Ross et al., 2012; Vardi, 2015;) to perceptions that IT was only for males (Khan & Luxton-reilly, 2016). The reasons for an uptake by female students in India was that there were good career prospects with high salary as well as favourable working conditions. (Kakkar & Bhandari, 2016; Varma et al., 2015).

Certainly, the low numbers taking up Computer Science at universities have a direct impact on women's participation in the corporate world. The gender disparities will remain if no intervention is made (Ross et al., 2012; Coder et al., 2009; Baroudi, 2016; McKinney et al., 2008). Such interventions might include examining existing organisational structures, practices, and policies at governmental level which seek to attract women into the profession (Quesenberry & Trauth, 2012), and undertaking awareness campaigns (Ross et al., 2012). However, it would be wise to mention that such interventions would differ from country to country. Accordingly, this study sought to understand the level of participation of women in IT in South Africa.

METHODOLOGY

A questionnaire was designed and emailed to female candidates in the Gauteng province, to get answers based on the following themes: company size, demographic profile, employment type, job role, job role challenges, motivation, reasons for female underrepresentation, and suggestions for attracting females into the IT sector.

FINDINGS

The findings of the 19 responses received for each theme are discussed below.

Company size

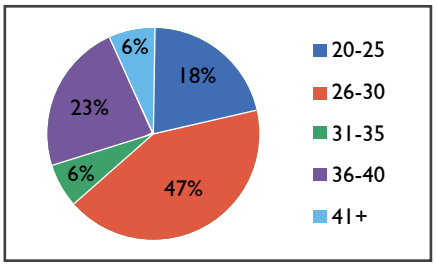
67% of the respondents work for large organisations, while 33% of the respondents work for small companies, 56% of which were IT companies. The remaining 44% was split evenly among these sectors: government, telecoms, finance, and education.

Demographics

The majority of the respondents were between the ages of 26 and 30 followed by those between 36 and 40 years of age. Those older than 41 years of age amounted to only 6%.

Age range

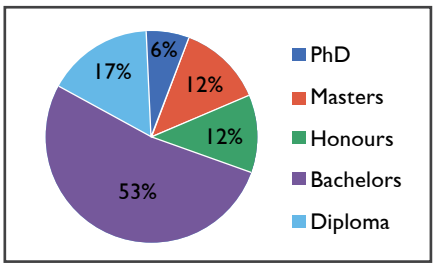
The majority of the respondents were black Africans (76%). Whites made up 12%,



and the remaining 12% were split evenly between Indians and Coloureds. It is interesting to note that those respondents older than 41 years were white, indicating that they have been involved in the IT industry longer than any other race group.

65% of the respondents were single while 29% were married and 6% divorced. 50% of the respondents do not have children, while 38% of the respondents had one or two children and 13% have more than three children.

Qualifications



All the respondents indicated that they have at least one or more qualification. The majority (53%) of the respondents hold a university bachelor's degree. Those with a PhD were over the age of 41 and have been in the IT industry longer than other age groups.

Employment

Eighty two percent of the respondents indicated that they are in permanent employment with the organisation they currently work for, while 18% indicated they work on a contract basis. The majority of respondents (29%) were employed as Systems or Business Analysts with only 6% employed as Project Managers who happen also to be in the 41 plus age group. The Systems or Business Analysts were in the 20 to 35 age band. Results show that females do not feature highly as developers (17%) among respondents, which is almost half of the 29% of those who are Business or Systems Analysts. There was an even spread among those who are testers, educators, and developers and these happen to be in the 30 to 35 age group showing that these occupations require more experienced people.

Duration of employment

The majority of respondents were in employment for between 2 to 5 years in their current position.

On the issue of travel, all the respondents (100%) indicated that their current position does not require them to travel overseas.

Job role challenges

26% of respondents indicated that the work environment and resources remain their biggest challenge.

Salary was the second biggest challenge (24%). Many felt that male counterparts get paid more.

Eighteen percent of the respondents feel the industry is still dominated by males. However, they feel the tide is turning slowly in their favour despite the lower pay they receive.

Sixteen percent see the industry as offering good opportunities for work in IT. Five percent indicated that the industry is evolving at a rapid rate which makes it difficult to cope.

There was an even split of three percent among respondents on the issues related to; strained relationship with manager, lack of respect, and recognition of female potential.

Only two percent of the respondents indicated that females are still discriminated against.

Motivation

The theme on motivation had diverse opinions from the respondents. A majority of the respondents (35%) indicated that they are very passionate about being in the industry and that it is a scarce skill that offers excellent career prospects.

Interestingly, 4% of the respondents indicated that their parents had a role in making them follow a career in IT.

Reasons for under representation of women

The reasons given for under representation were diverse. A majority of respondents (26%) pointed to stereotyping as a major reason.

Eighteen percent cited the domination of men in the industry while 13% felt they are discriminated against. Family responsibility came in fourth at 10%, while 8% feel there is a lack of succession plans earmarking women for promotion into higher posts within organisations. There was an even split of 5% on lack of career guidance in schools, lack of females supporting one another in the profession, and long working hours. Three percent felt that women lack self-confidence and 2% felt that the traditional roles like motherhood and being a wife plays a role.

Suggestions to attract females in IT

Several suggestions were made with the majority (26%) expressing a need for mentorship or coaching as well as career guidance. Exposing women to the IT field at an early age was a second major suggestion. Eleven percent felt that there should be flexible working hours in the IT industry as they have other family responsibilities. There was an even split of 8% of respondents saying women must be given an equal opportunity as their male counterparts rather than patronising them. Another 6% felt that women are not being recognised for their achievements and that there are currently no support structures for women in the workplace. There was an even split of 3% on issues of having day-care facilities at places of work, giving bursaries to women attending university, admitting more women into IT at university, recruiting more women for IT as a form of redress, and making the IT working environment more stimulating. Some respondents feel that promotion must be based on merit.

RECOMMENDATIONS

The IT sector in South Africa is growing. Government should therefore consider policies to attract more women. Among the recommendations to be considered are:

- introduce IT as a compulsory module in all public schools in order to create awareness early in the educational careers of learners
- offer bursaries to women taking IT as a major at public universities
- introduce a quota system in the industry to address the gender imbalance
- make it compulsory for the industry to groom women into management positions
- criminalise any form of discrimination against women in the IT workforce

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CONCLUSION

Through this short survey we hope that government and private industry will make appropriate interventions to address the issue of under representation of women.

A good starting point would be to adopt some of the recommendations made here.

More survey research should also be undertaken to gain a deeper understanding of the reasons why larger numbers of women don't enter the industry and why fewer women occupy positions in software programming and development.

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