Commentary

Diversity Initiatives for Women in IT: Friends or Enemies?

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Women are still unrepresented in information technology (IT) jobs, and the overall low number of women in these fields in the United States, Canada, European Union, New Zealand, and Australia has been well documented. The situation is even more grim when focusing on women in computing subfields [1]. As this difference cannot be explained by genetic differences or innate aptitudes [2], there has been an increased interest over the years in looking for solutions to increase women entering the field and retaining them.

Background

There have been many arguments made for why increasing diversity and improving the representation of women in this field is important such as workers shortage [3], estimated increase in countries' gross domestic product (GDP) by including more women in this sector [4], creating software that better represents the needs of women overall—potentially addressing some of the existing biases in algorithms [5], and bringing about a general improvement in society [6].

Even if women enroll in IT degrees, once they join the workforce, it is known that women continue to experience gender-based discrimination in the workplace [7]. This can be further exacerbated when that person is a member of more than one minority group (intersectionality). In addition, women in technical roles are sometimes forced by a hostile working environment or through hiring process, to work in roles that are perceived as being lower status or less technical [1]. At this level, there are several initiatives that are aimed at the retention of women once they have joined the workforce.

All these initiatives are organized with good intentions. They have various aims from making more visible women in the field, mentoring, promoting the field among unrepresented communities, mitigating existing biases, and so on [8], [9], [10], [11]. These initiatives bring both opportunities and challenges [9], [10], [11], and although the opportunities opened by these initiatives are extensively discussed, less attention is given to the latter.

Opportunities

Existing initiatives bring changes [8], [9], [10], [11], even if on a small scale. Molnar et al. [10] show that initiatives aiming to promote IT among secondary school students influence women to enroll in IT degrees. This is true for both initiatives aimed only at secondary school girls, but also those who do not target a specific gender [10]. Bhatia and Amati [8] show that mentoring addresses some of the issues that result from a lack of role models and isolation felt by women in engineering. Advanced placement

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courses, which were introduced to increase the representation of minority students in computer science by increasing interest among high school students from the USA found that one of the courses offered influenced the intention to further pursue a career in computing [12].

The slow progress made by diversity initiatives is likely connected to the complexity of the issue. Gender diversity is intricately connected with social expectations, conscious and unconscious bias, peer pressure, awareness, and visibility of women in the field to name just a few. Initiatives aimed at improving diversity are slowly unraveling some of these issues, allowing access to mentoring and sometimes sponsorship; and training sessions that are aimed at dissipating unconscious bias.

Challenges

Initiatives aiming to promote diversity, although done with good intentions (i.e., aiming to fix a problem), could lead to negative consequences. For example, some diversity initiatives such as short bias training have no evidence of long-term changes of behavior and could lead to participants becoming defensive when learning about their own biases [13] and alienate the people who are in position to make change [14]. Although diversity initiatives can lead to defensiveness from the majority group, this does not mean that they should not be performed, but rather be performed in a way that is effective. For example, to be more effective, unconscious bias training needs to be complemented by other diversity initiatives and should take place over a longer period of time [15].

Even just the presence of diversity initiatives can have unintended consequences. Diversity initiatives lead to the presumption of a fair environment for the unrepresented group which could make discrimination more difficult to identify and address, but also through the perception of unfairness by the majority group [13]. When men perceive antimale bias, research has shown that some men are more likely to engage in discriminatory practices toward women—for example, by providing negative evaluations and less constructive feedback [16]. Grievance procedures introduced to address issues could also lead to negative consequences. For example, women who file harassment complaint can end up with worse career outcomes that those who experience harassment but do not report it [14].

Diversity initiatives can also signal that unrepresented groups need to be helped to succeed [13]. This could result in minority groups being perceived not as competent both by members of the majority group and by their peers [13]. For example, minorities are being told that they receive that job or promotion because they are part of a minority not due to their competence. Another side effect is members of minority groups doubting their own competence. In classrooms, women sometimes receive more help from the teachers with their work; however, the kind of help they receive is more executive (doing the task for the student) as opposed to teaching the student how to progress on their own [17]. This could have short-term benefits but detrimental long-term benefits [11]. Furthermore, this help is often provided without women asking for it [18], further reinforcing the stereotypes that women are not able to perform without help.

The perception of unfairness and less competence toward members of minority groups could lead to less inclusive environments. This could further decrease women's sense of belonging in the field, which could further decrease their resilience in succeeding [19].

Way forward

Without any diversity initiatives, we are running into the risk of maintaining the status quo. This will impede us, as a society, to achieve inclusive innovation and creating software products that meet the needs of and represent all users. To speed up change, we need successful diversity initiatives. Rather than being content with diversity initiatives that are reasonably expected to promote a diverse and inclusive environment but, are not necessarily backed up by evidence, women need initiatives whose success is supported by evidence (e.g., initiatives that improve the number of women (and other minorities) in the field, creating and maintaining a diverse, equitable, and inclusive environment for everyone).

However, change is hard due to the multitude and variety of factors that contribute to inequality and the complexity involved in addressing them. It is unlikely that a single type of intervention carried out over a short period will alter the status quo. Instead, profound changes should be implemented not only by organizations but also by society at large. For example, social identity [20] manifests in boys and girls at an early age, with girls more likely to receive

negative stereotypes about their ability with computers [21]. These stereotypes continue to manifest later on in careers [22]. For example, Kathryn Kun, the director of information security who identifies as a nonbinary mentions an incident in which she was complimented for her baking and the importance of a sponsor who advocated on her behalf [23].

Therefore, initiatives should not be an isolated occurrence or happen just in a particular context. Along the way, there will be mistakes made. To avoid backlash, we need to anticipate the possible negative consequences of these initiatives and explicitly address them, as being diverse should not come at the price of being less inclusive. Programs aiming to increase diversity should not be the responsibility of a small group of people but instead of an organizational aim to which everyone buys subscribes. Diversity initiatives are more effective when participation in them is voluntary rather than obligatory [11]. Empowering participants to take part in these initiatives is more desirable than mandatory training.

These initiatives also have more chances of succeeding if men are also actively involved. Men receive less backlash when challenging sexism in the workplace and their intervention is more likely to be perceived more legitimate than when a woman does it, as they have less perceived vested self-interest [24]. As a result, men lose less social capital when compared with women when challenging sexism [24]. Having male buy-ins, however, requires support from leadership [24] and incentivizing them to be an active participant in initiatives that otherwise do not have an immediate perceived value for them. Men could voice support by proactively challenging gender discrimination, advocating for women, and acknowledging the work done by women [18]. Furthermore, actively involving also white men in diversity recruiting initiatives has shown to help improve the diversity recruitment and reduces the negative feeling that these initiatives are discriminatory [14].

Finally, we should remember that at the core of these initiatives, the focus should be on fixing the system and not on the women [25]. Instead, we must address the underlying issues including why the voices of women are given so little importance [26]. Aiming to change women to fit within the existing structure might actually be counterproductive to diversity, as at the core of diversity is the value of a multitude set of approaches and opinions.

The pandemic has already highlighted that the jobs in which women are traditionally employed were affected by lockdown restrictions. Until the gender representation in IT fields is skewed toward men in most countries, it means women will miss lucrative opportunities. Furthermore, as we more and more rely on technology: we have the technology developed by men who might not accurately represent the needs of women and we risk reinforcing the same stereotypes. Diversity initiatives aiming at improving the number of women in IT have increased over the last couple of years. These initiatives aim to address existing factors that impede women to consider and succeeding in these roles. Despite the progress achieved by some initiatives, it can also happen that these initiatives do not always have the desired effect and could lead to a backlash. The potential negative implications need to be identified and addressed before these initiatives are being deployed. Furthermore, when employing these initiatives there needs to be an evidence-based approach. ■

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