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The Great Gender Rebalance:

Increasing gender diversity in STEM businesses

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Contents

Executive Summary

There are many factors that contribute to a lack of gender diversity within STEM professions, an issue that starts early and continues apace – from the narratives we pass down through generations about gender stereotypes, to subject choices at undergraduate level and then, career choices and opportunities. Investigating all of these facets would require the work of a great number of research projects, ours is intended to consider careers at the attraction stage, specifically – do STEM job adverts use (likely unconsciously) gendered language which may attract or deter female candidates?

Utilising gender analysis technology we are able to see if 'feminine' and 'masculine' coded adverts use a greater or lower number of 'feminine' or 'masculine' words respectively. Overall, we do find that feminine-coded roles use a greater number of 'feminine' ascribed words, and the same is true of masculine-coded adverts, in that they see a greater number of 'masculine' ascribed words.

In addition to the research itself we discuss the issue of gender imbalances in STEM and why working towards eradicating it is needed. Furthermore, we offer tangible steps that businesses may use towards achieving that goal.

Introduction

Context

It is common knowledge that women are under-represented in STEM fields; this disparity in gender representation begins at undergraduate level, while the seeds are likely sown even earlier. This is unlikely to be due to biologically 'inherent' interests and abilities, as has sometimes been mistakenly understood, but instead due to a wide variety of factors that combine to perpetuate under-representation of women in these fields.

It is also widely acknowledged that more balanced representation is both desirable and beneficial, with efforts from both the public and private sectors being made to redress this imbalance, particularly at undergraduate level. While this is showing some signs of success at this stage, with increasing numbers of young women studying natural sciences for example, there is limited progress among other STEM subjects and it remains a persistent problem at postgraduate level and beyond.

While the percentage of women entering STEM subjects at university level is still low (26%) this decreases further still at employment level (22%), and increasingly so at each level of seniority (Source: WISE). Women, already poorly represented within STEM subjects at university, are then leaving the industry before their career begins and then at subsequent stages throughout their careers. Why might this be?

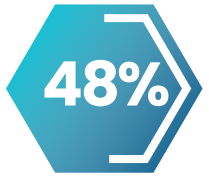
There are a number of possibilities, not limited to the following suggestions:

- Attracting women to jobs in the first instance
- Fostering welcoming attitudes within a predominantly male environment
- Women are having to choose whether to prioritise starting a family or accelerating their career – a decision that most men do not face at the same stage of their careers (This issue is not unique to STEM roles, however, the lack of women in senior positions is likely to have a trickle-down effect on attracting more women to the field)
- Lack of role models
- Unconscious bias within the workplace

While some drop-out rates may be through personal choice regardless of what's happening within the work environment (though for any individual there are any number of work-related and external factors that will influence this), there are barriers within the work environment that are likely to impact the choices that women make, whether consciously or otherwise.

While employers are unable to directly influence the number of women entering the fields at undergraduate level there are a number of ways they can seek to redress the above barriers and to make STEM professions a viable, as well as attractive, career option for women. These must be considered and applied at all stages of employment and their career, from attraction and recruitment to training, development and retention, and to promoting more women to senior positions. As with educational attainment, research tells us it is not through competence or ability that men achieve greater success within STEM professions but a range of other factors that influence or obstruct women.

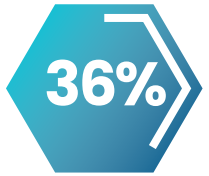
One global study asked women in technology what strong barriers they felt they faced:



found there were a lack of mentors during their professional career

thought there were a lack of female role models

experienced gender bias in the workplace



pointed out that they had unequal growth opportunities compared to men

indicated that there was a gender pay gap for the same skills

(Isaca.org, 2018)

The benefits of a gender-diverse workforce

Several studies reveal multiple benefits to a diverse working environment, including but not limited to gender diversity. Not only does diversity benefit those in groups that have historically been (or are) marginalised, the benefits to the business itself, as well as to the economy and society, are multi-fold.

While gender is not the only difference between people, and obviously there are men and women who share similarities and life experiences, whether to a subtle or greater degree, there will be some differences in lived experiences between men and women – not because of 'intrinsic' (i.e. biological) differences but because of how they move through the world and are treated by it. A variety of perspectives lead to greater innovation, solutions and collaboration. Research also suggests gender diversity (on boards) has tangible financial benefits to businesses through more accurate financial forecasting (Gul, Hutchinson, Lai, 2013) and bottom line.

Furthermore, achieving gender parity within STEM organisations is of benefit more widely, as power balance or imbalances within organisations are both reflective of and influential in the wider society in which they sit – institutions within society have an obligation towards achieving collective aim/s, in this instance gender equality.

What progress are we making in STEM?

As discussed, there are already signs of success at undergraduate level. Statistics to support progress after university are a little harder to find.

Sheryl Sandberg is a famous example of a woman reaching success in the technology sector, although she herself recognised and understood the criticism of her work and best-selling book, *Lean In*, after losing her husband and experiencing the world of work as a woman without the benefit of additional support.

Google, as well as Facebook, have invested in programmes to help improve their gender imbalances though their figures remain low, and have drawn criticism for this from both employees and those outside the organisation (though it must be noted Google has increased the number of its female interns as a result of their drive).

Looking to bridge this gap in the technology sector (one of the weakest STEM areas for gender diversity), CEO, Ashwini Asokan, has mandated a 50/50 gender balance policy for her AI start-up, Mad Street Den, citing the supposed difficulty of this as 'ridiculous' (ft.com).

Gender diversity is one aspect of inclusivity –

while our research doesn't investigate other facets of diversity and inclusion, we recognise it is not the only area of under-representation in STEM

Methodology

Our research was inspired by a 2011 academic study investigating gendered language within job adverts, analysing whether gendered language is used – albeit probably not consciously or deliberately – and therefore likely to signify a role as being more suitable for nor/or attractive to female or male jobseekers[1].

The survey was developed by IntaPeople and executed by Paiger, a content application and social selling platform for the recruitment industry, using their proprietary gender bias technology. We looked at 500 job adverts on the web on 22nd December 2020, including a cross section of STEM roles across technology, engineering and pharmaceuticals.

This technology was used to determine whether an advert was predominantly 'feminine' or 'masculine', by analysing the number of stereotypically feminine and masculine words within those adverts.

We used the same parameters as the aforementioned academic study to ascribe femininity or masculinity to particular words, so:

Feminine words might be considered nurturing, caring and collaborative, for example: 'support/ing', 'together', 'connect/ing'.

Masculine words, on the other hand, are considered to be more assertive, individualistic and ambitious, for example: 'challenge', 'autonomy', 'confident'.

As per the attached research, we were not trying to ascertain whether or not there was intention behind the gendered differences in job adverts, but rather its effect, and whether this meant institutional gender bias exists, either consciously or otherwise.

1. https://paiger.co/wp-content/uploads/2019/10/Gaucher-Friesen-Kay-JPSP-Gendered-Wording-in-Job-ads-1.pdf

ANALYSED

500 JOB ADVERTS

including STEM roles in technology, engineering and pharmaceuticals

Decoding gender in STEM – Key findings

Overall, as we anticipated, feminine-coded job adverts used a larger number of feminine-based words, and masculine-coded job adverts saw the same, with a larger predominance of masculine words within them.

Some key observations:

51% of roles reference 'support', however, this rises to 82% of feminine-coded roles and 41% of masculine-coded roles; this increases to 92% of feminine-classified roles in the pharmaceutical industry

42% of masculine-coded roles reference 'challenge', compared to 14% of feminine-coded roles; this rises to 56% of masculine-coded IT roles (vs 19%)

28% of masculine-coded roles reference 'decision/decisive', compared to 15% of feminine-coded roles

21% of feminine-coded roles reference 'together' compared to 5% of masculine-coded roles

20% of feminine-coded roles reference 'connect', compared to 3% of masculine-coded roles

Interestingly, 'trust'/'trustworthy'/'trusting' is equally used amongst feminine/masculine, with 14% of roles respectively, mentioning it

'Ambition' is not referenced as prominently as expected, with only 8% of roles referencing; this rises to 21% of masculine-coded roles referencing, compared to 7% of feminine-coded roles

While we found this pattern across all STEM sectors, it emerged most strongly from job adverts within the pharmaceutical industry. When looking at specific job titles within the pharmaceutical adverts analysed, greater differences were found than in IT and Engineering adverts, where there was generally less difference between the types of roles across feminine and masculine-coded adverts.

Where 'technician', 'administration' and 'development' featured mostly in feminine-coded pharmaceutical roles, masculine-coded roles were mostly populated with 'scientist' (data, lead, imaging etc) positions, suggesting potential bias towards men in leading or key positions and women in supportive or more junior roles.

What can STEM businesses do to improve the gender gap?

While some factors that contribute to the gender imbalance within STEM are beyond the control of employers there are several steps that can be taken to minimise it, especially at postgraduate level and keeping women within these professions once their careers have begun.

Although our research looks at the attraction stage, employers can contribute towards making change through their:

- Attraction
- Hiring
- Training and development
- Environment and culture
- Promotions and platforms

Below are some tangible suggestions that may help improve how STEM organisations both attract and retain female talent. It's important to understand the distinction between policy as a 'guide' (a tick-boxing exercise, perhaps) and proactive strategies that drive results.

Family-friendly policies

Having children and raising families (and, to a lesser extent, care for older parents) is a life event that impacts women more greatly than it does men. Employers have an obligation to provide family-friendly work policies that allow women to take time off for children where it's needed, and for that not to hamper their career chances when it comes to seeking promotions at work.

This can look like flexible working opportunities, childcare provision, job share and so on.

If they can see someone like them in a senior position they may feel more confident about aspiring to that level.

Provide networking opportunities geared specifically towards women

Organisations with more effective diversity and inclusion policies are those that don't shy away from it but address it head on – tackling it needs an admission that there is a problem that needs proactive solutions. Create networking opportunities specifically for women with the express intention of addressing gender imbalances, both within the business and more broadly where possible.

Mentoring is an opportunity for women entering the professions to access the insights of women in more senior posts, which can be inspirational as well as a useful way to coach those in their early-stage career. Approach this with some caution, however – it may be counterintuitive to overload women with additional (unpaid) work, it also risks further embedding a nurturing/caregiver stereotype within the workplace.

Conference/panel representation and availability

It's well-known that networking and visibility within a field creates better career opportunities – make sure female employees have as much access to these types of events as male employees. If your organisation is responsible for hosting events, arrange these during office hours wherever possible, as this will increase the likelihood that women with caring responsibilities will be able to attend.

Training and development

Make sure that female and male employees have access to the same training and development opportunities, irrespective of whether time has been taken off to raise families. Are there particular stages where women drop out or stagnate in their careers within your organisation? Target opportunities for training and development here.

Promotions

We shouldn't be nervous about positive discrimination, it's vital that more women are offered and take up senior roles within the STEM professions if there is to be meaningful change. The result of ensuring women are promoted wherever possible is two-fold – a) people hire in their own image, so increasing the number of female hiring managers reduces the chance of men being disproportionately hired or promoted as a result of unconscious bias and b) it offers women inspiration via role models; if they can see someone like them in a senior position they may feel more confident about aspiring to that level.

Gender balance on boards

Business critical decisions are best made from a variety of standpoints. Further, visible representation, as discussed above and elsewhere, positively impacts those who are under-represented.

Be transparent about pay scales

While pay imbalances are often the result of the level of seniority (with more men tending to hold senior roles) and those working full time versus part time (with more women working part time than men), imbalances through negotiation throughout the hiring process still exists, and undisclosed salaries on job adverts aids this. This is unlikely to be a deliberate attempt to ensure men are paid more than women, however, that is often the result. Have pay scales throughout the business and advertise salaries on job adverts.

Unconscious bias training

Training needs to cover gender equality as well as diversity more broadly (within HR but also anyone who has or may have any hiring responsibilities) but this will be more effective when coupled with unconscious bias training, so hiring managers can understand it and recognise when it might be happening. It's unlikely employers will be deliberately sexist or biased in favour of recruiting their own gender (in this instance, more men being recruited by other men) but it will be happening. Demonstrating how and why this happens allows progress without blame.

When recruiting:

- Ensure balanced shortlists and interview panels
- Critically assess job adverts for any (unconscious) gendered wording
- Include your family-friendly policies in job adverts
- Include salaries in job adverts

With so few numbers it's vital that organisations aren't afraid to take proactive steps that go over and above a diversity policy with a limited tangible strategy. Policy needs to be operational and made effective at multiple stages in a variety of ways, to attract, retain and promote female talent.

Conclusion

Our research suggests that when it comes to attracting employees, unconscious stereotypes about women do come in to play. Employers have a responsibility to critically assess potential for stereotyping and/or hindering women within STEM professions and to eradicate bias even if it is not intentional, which in the majority of instances it probably isn't.

More widely, there is a lot more to do to achieve gender parity within STEM, much of which starts before a career even really begins. While employers cannot resolve all contributory factors – these begin at secondary level education if not sooner – there is a great deal that can be done to mitigate gender imbalances from the employer's position, and again this comes down to the elements mentioned previously: attraction, retention, promotion.

Maximising career opportunities for women in STEM has a trickle-down effect – when young girls see women visible in positions of seniority within STEM professions it has the power to influence their own choices.

IntaPeople can help support organisations looking to improve their gender representation and help create an effective strategy rather than passive policies that say a lot but do little. We can offer gender-balanced shortlists and work with you to develop gender-neutral advertising.

We're well aware of the lack of diversity in STEM fields when it comes to women in particular, and are committed to helping reduce the severity of the issue wherever we can. At present, one in five roles we place are female, compared to a 13% industry average.

At IntaPeople, we are committed to promoting diversity across all minority groups within STEM and will continue to educate ourselves and the communities we serve to help enable a more equitable industry for the future.

We are IntaPeople. We are more than just a STEM recruitment agency, we are passionate about making a difference. Our desire to create meaningful relationships has allowed us to transform thousands of careers and support the growth of UK businesses for more than 25 years. Based in Cardiff since 1994, we have outlasted multiple recessions and market shifts. This is due to our commitment to excellence and industry knowledge, which flows through everything we do. This sets us apart from our competitors and enables us to offer specific market advice based issues unique to STEM industries and professions.

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