Umbrella White Paper

Quantifying the impact of new knowledge on diversifying recruitment

At Umbrella we are passionate about using data to improve diversity and inclusion. We are proud to have collaborated with TechWolf, another data-driven business, to produce this important, original research into the ways in which new insights are being put into practice, and where opportunities exist for all businesses to make quick and simple changes that will improve their ability to reach a more diverse talent pool. We strongly urge companies to review their recruitment in light of these findings, and to be part of making recruitment a more inclusive activity in the future.

Umbrella CEO Nancy Roberts

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Introduction

The struggle to achieve diversity in major companies – at all job levels – has numerous challenges. Among those most frequently cited are building a diverse leadership pipeline, creating an inclusive culture and, increasingly, rethinking the language and informational design of job adverts.

Previous work in this area has often focused on selection processes, but there is a growing recognition of the vital importance of both the design and vocabulary of recruitment: we know that current practice plays a significant role in causing candidates to self-select out of the recruitment process before application, thus never making it to the selection phase. However, this gathering body of evidence, whilst widely discussed, has not as yet been subject to the sort of statistical analysis that can quantify the extent to which the implementation of new protocols is underway, or the repercussions of this new body of knowledge.

To address this, Umbrella, a data-driven diversity and inclusion platform, worked together with TechWolf, an artificial intelligence startup guiding workers through the employee lifecycle, to investigate how well the recruitment industry is doing in its quest to diversify recruitment. Looking at a representative sample of 15 million job postings from the main English-speaking markets, hard evidence emerges that reveals the urgent need for companies to radically revise their recruitment practices if they are serious about increasing diversity.

15 million job adverts =	**61,000 copies of the Quran** **6,000 copies of the Bible** **4,400 copies of entire Harry Potter series**

Umbrella and TechWolf undertook this research with the belief that the rigour of academia and the scale achievable by technology can be combined to provide a new route to delivering unique, actionable insights into employer behaviour, which can then be translated into a roadmap for change. This approach reflects a wider recognition in both academia and industry that the landscape of knowledge-creation is shifting. Traditional social-research methods are now being supplemented by the fresh potential that technology gives us to analyse big datasets at speed to achieve greater accuracy and insight.

Backed by TechWolf's extensive data resource, we took the opportunity to apply these recent academic insights to look at three key areas:

- **The influence of job advert design on the applicant pool**
- **The impact of language use on candidate attraction**
- **The importance of pay transparency in diversifying the talent pool**

As a result of this research, we are able to point to specific changes that companies can make that will enable them to dramatically increase the range of candidates they are able to attract, and thus the diversity of their talent pool.

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Literature Review: Existing research

The influence of job advert design on applicant pools

Social research over the past two decades has proved that the way in which job adverts are designed has a critical impact on recruitment outcomes.

Writing in the *Journal of Organizational and Occupational Psychology* in 2008, Walker et al. point out the critical importance of job advertisements on corporate websites: "Job seekers often use job advertisements presented during the early stages of recruitment to gather important information about potential employers. Content of these advertisements as well as associated peripheral cues have the potential to influence job seekers' organizational attitudes." (Walker, et al., 2008, p. 619).

The content of job adverts can therefore be seen as a key factor in influencing candidate behaviour, and a greater understanding of the impact of both their content and the peripheral cues they contain can allow us to optimize job adverts for wider appeal.

Gendered language and applicant pools

There is already a large body of research that explores how language and gender are interrelated, including a subset that interrogates how the specific application of gendered language in recruitment can create or remove barriers to attracting a gender-balanced talent pool. The most significant piece of research in this area is the study by Gaucher, Freisen and Kay in which they persuasively argue that "gendered language used in job advertisements likely serves as a covert institutional practice – one that is very subtle – that ultimately serves to reinforce existing gender inequality, keeping women out of areas that men (the dominant group) typically occupy." (Gaucher, et al., 2011, p. 111).

To test this theory, they then designed an exercise in which a range of job adverts was analysed for masculine-coded and feminine-coded language. Drawing on existing research, they identified words as masculine or feminine thus:

> *As a measure of gendered wording, lists of masculine and feminine words were created with published lists of agentic and communal words (e.g., individualistic, competitive, committed, supportive; Bartz & Lydon, 2004; Rudman & Kilianski, 2000) and masculine and feminine trait words (e.g., ambitious, assertive, compassionate, understanding; Bern, 1974; Hoffman & Hurst, 1990; Schullo & Alperson, 1984).* (Gaucher, et al., 2011)

Ultimately, the authors found that "subtle variations in the gendered wording used in advertisements may affect people's perception of jobs, such that men and women will find jobs described in language consistent with their own gender most appealing precisely because it signals they belong in that occupation." (Gaucher, et al., 2011, p. 111).

Similar research from the Technical University of Munich further supports this theory. In this instance, job adverts were designed using both masculine and feminine words, and the attractiveness of these adverts was then tested on both male and female applicants. The results demonstrated that increasing masculine-coded words reduced the appeal rating of the role to female candidates. Researchers found that the use of traits associated with men, such as "assertiveness" and "independence", had the effect of making women less inclined to apply, whereas words such as "responsible" and "dedicated" increased the likelihood of female candidates applying. (Welpe & Peus, 2011–2016)

The findings of these two studies are highly significant; they demonstrate that it is possible to intentionally design job adverts that are more likely to appeal to female candidates. Their lessons can help corporates to more accurately target women, in particular for senior roles.

But what of the risk? Does designing your recruitment to appeal to women risk alienating men? Gaucher et al. did foresee this problem, so they analysed their data with this in mind. They found that "gendered wording had the largest effect on women. Men were only slightly more likely to find the masculinely worded jobs more appealing than femininely worded jobs, and there was no effect of gendered wording on men's feelings of belongingness within the occupation." (Gaucher, et al., 2011, p. 117). In other words, women are more sensitised to masculine-coded words than men are to feminine-coded words, so adjusting the language to be more balanced should not deter male candidates, while significantly increasing the appeal of adverts to female candidates.

Pay transparency and pay inequality

One of the biggest practical challenges organizations face in improving inclusion is addressing pay inequality. Considerable light has been thrown on this issue by the introduction of the Gender Pay Reporting legislation in the UK in 2017. Before this legislation was introduced, the true extent of the pay gap was more or less unknown (although estimates existed). A report from the think tank The Institute for Public Policy Research has demonstrated that, until the legislation came into effect, three quarters of employers had never looked at their pay data to identify if inequality existed. Thanks to the new transparency imposed on employers, we now have firm evidence not only of the existence of the pay gap but of its extent. Added to this, we have seen the negative PR impacts of pay inequity, with large corporations such as the BBC facing legal action by employees as a result of their failure to address unequal pay.

We also know that UK employees are broadly in favour of pay transparency. A YouGov survey from June 2019 showed that 56% of polled workers would be happy for their salary level to be freely available if this helped to tackle economic inequality within their company.

There is also research that demonstrates that, in terms of closing the pay gap, transparency works. In the US, those states that have laws enforcing pay transparency have seen their gender pay gap reduce, while research published this year by Bennedsen et al. shows that legislation introduced in Denmark in 2014 requiring companies to publish gender-disaggregated pay data has reduced the gender pay gap by around two percentage points.

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Practitioner insights

Supporting these insights from social research, there is also a growing body of practitioner data that can throw light on how to optimize recruitment for diversity.

Networking platform LinkedIn has published evidence based on its own data about optimizing recruitment for gender equity. Its Gender Insights Report, released in 2019, highlights the importance of gender-neutral language in converting female candidates from viewing a role to applying for it. In addition, US company ZipRecruiter has generated research based on its own databases that proves that gender-neutral job adverts receive up to 42% more applications than those that use more biased language.

LinkedIn's Gender Insights Report also notes the beneficial impact of pay transparency on achieving gender-balanced recruitment. During its research, the platform found that "knowing how much a job pays is considerably more important for women. When an employer shares salary ranges in their job postings, this could be seen as a signal that they are committed to transparency and fair pay regardless of the candidate's gender or background." We have found additional evidence of the impact of pay transparency in both closing the gender pay gap and increasing employer appeal to a wider range of candidates.

A relevant case study can be seen in the actions taken by social-media management company Buffer, and the impact these have had. Buffer openly publishes salaries for all its staff and is explicit about how these are calculated. After making this information public, it received 2,000 job applications, a significant outcome for a company that at the time had only 80 staff.

Summary

Looking at both the academic-research and the practitioner-experience perspectives, the following key conclusions can be reached:

- **Job advert design** can be optimized to maximize the appeal of roles to a gender-diverse talent pool

- **The language used in job adverts** to describe a role is a significant factor in attracting more women

- **Pay transparency** is a key driver of gender-balanced applications

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Our findings

With these findings in mind, then, Umbrella and TechWolf analysed a database of approximately 15 million job adverts, in order to understand whether these tactics are being applied in practice, and to identify actions companies can take.

Gendered language use

Top five masculine-coded words	Top five feminine-coded words
▪ **Lead** ▪ **Leadership** ▪ **Analytical** ▪ **Individual** ▪ **Independently**	▪ **Understand** ▪ **Interpersonal** ▪ **Committed** ▪ **Community** ▪ **Share**

Making use of Umbrella's proprietary dictionary of gendered language, we discovered that the ratio of masculine-coded words to feminine-coded words in the database was 1.68:1. In other words, there were 168% as many masculine-coded words as there were feminine-coded words in our corpus.

- The word **"co-operate"** is used roughly half as often as the word **"dominate"**.
- The word **"aggressive"** is used roughly twice as often as the word **"empathetic"**.
- Only **two of the top ten words** in the lexicon were feminine-coded.
- Encouragingly the word **"inclusive"** was in the top 20 feminine-coded words, but only made it to 43rd in the overall ranking.

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Pay Transparency

The stats on this are equally startling. Of the nearly 15 million job adverts that Umbrella and TechWolf analysed, the salary appeared in only 5%, meaning 95% of all adverts, or approximately 14,250,000 of the adverts in our corpus, were not conforming to this important diversity marker. This remarkable statistic demonstrates that there is major resistance from many employers to stating salary. However, there are still things these employers can do. We know that explicitly stating that a salary is negotiable will have a beneficial impact: Harvard research from 2014 found that "wage negotiations were initiated almost three times more often by those who received job descriptions that mentioned wages were negotiable (21%) compared to those who received job descriptions that did not mention it (7%)."

In addition, the Harvard report found that "when there was no explicit statement that wages are negotiable, men were more likely to negotiate than women." So, by being explicit about negotiability upfront, firms can help to redress the unconscious favouring of men and the perpetuation of the gender clustering that we found to be a persistent issue in our research.

Artificial Intelligence in Recruitment

People are not alone in having their judgement influenced by gendered language: machine learning applications have also been found to adopt and even amplify underlying biases (Zhao et al., 2017). Notably, in October 2018, Amazon discontinued its deep-learning-based recruitment tool after it was found to consistently discriminate against women. Looking at a set of 2,000 anonymised resumes, we found that even without any names or explicit gender pointers (such as the mention of a girls' school), it is still possible to detect the gender of an applicant with over 80% accuracy, even accounting for imbalances in the gender distribution per profession. This finding indicates that traditional deep-learning systems can easily access gender information while making their decisions, substantially raising the risk for biased decisions. Conversely, the skills framework used in TechWolf's Skill Engine reduces the available gender information by more than 50%, promoting fairness in results. Using recent advances in natural language processing, the further debiasing of these systems will become increasingly possible in future.

Actionable Conclusions

With all the above in mind, what can employers practically do to reduce gender bias in both their recruitment and their employee demographic? There are two clear actions that all employers can take that will have a demonstrable impact.

Practise pay transparency
Clearly state the pay for the role, as this will encourage both gender-balanced applications and greater gender pay parity. If, for internal reasons, you feel unable to do so, instead be explicit about the potential for negotiation to encourage female candidates who do apply to feel empowered to discuss the initial salary offer.

Analyse and be intentional about language
As well as free open tools that can help in achieving this, Umbrella offers a job advert language analysis tool that will not only identify gendered language but will also seek out linguistic markers that may be creating barriers for other under-represented groups. This tool also leverages more of our proprietary research on optimizing job adverts for diversity. Some examples of how to approach changing the language of adverts are provided below.

Instead of …	Use …
Analyze	Interpret
Challenge	Question
Champion	Promote
Competitive	Aspirational
Dynamic	Energetic
Lead	Guide
Supervise	Support
Teamwork	Collaboration

The growing body of evidence about the impact of language use and pay transparency in promoting diversity in recruitment is compelling.

However, as this new research demonstrates, employers are still lagging far beyond employee expectations in implementing the required changes, many of which can be done inexpensively as long as the education and intention are present.

We therefore hope that this report will encourage more employers to be intentional about embedding diversity and inclusion into their recruitment planning.

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Participating companies

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At Umbrella, we use data intelligence to radically accelerate the progress of diversity and inclusion in the workplace. Through technology-enabled tools and services, we give employers and employees the support they need to leverage the enormous benefits of diversity and assure their place in a fairer world.

TechWolf

TechWolf is a machine-learning startup based in Belgium. It aspires to lead individuals to professional success and help organizations build their workforce of tomorrow by guiding them at every step of the employee life cycle. All of this is powered by the Skill Engine, an explainable, multilingual matchmaking engine that addresses a wide range of skill-based problems.