Towards Diverse Workforces:

Transforming the Language of Exclusion and Bias in Recruitment

Introduction

This research has taken place as part of STEMM Change,[1] a consortium-based project funded by the UKRI's Engineering and Physical Sciences Research Council's (EPSRC) *Inclusion Matters*[2] portfolio. This portfolio is a £5.5 million national investment to increase equality, diversity and inclusion (EDI) across industry and academia. It aims to drive a positive change in culture and practices in equality, diversity and inclusion across Science, Technology, Engineering, Mathematics, Medicine and beyond.

Led by a team of linguistics and communication researchers at the University of Nottingham, *Transforming the Language of Exclusion and Bias in Recruitment* is part of a series of packages designed to provide practical solutions to facilitate a step-change in recruitment practices across the widest range of different organisations and industries. Recruitment language has a profound impact on how advertised job roles are perceived and interpreted by prospective employees. Crucially, the language that organisations use to recruit offers a window into their organisational cultures, including their attitudes towards equality, diversity and inclusion (EDI).

Recruitment language has rich potential for conveying inclusiveness and generating interest from diverse and qualified applicant pools. However, it can also frequently and unknowingly encode bias and discrimination, thus excluding prospective candidates from applying in the first place, as they cannot perceive a fit with the organisation as a whole. Collecting an evidence base empirically demonstrating how language is used in recruitment by different organisations and then re-writing this to be more inclusive, sits directly alongside other interventions throughout the recruitment process for unlocking diverse talent, which are part of the broader STEMM Change portfolio. This includes interventions relating to anonymisation of candidates during the initial recruitment process, recruiting via behavioural competencies, communications-based awareness training and time for compulsory EDI reflection at the shortlisting and interview stages.

The broader picture

Exclusion and bias in recruitment processes have become significant concerns for recruiters in industry and higher education globally.

Many organisations and their professional bodies are setting targets to achieve greater diversity at work, but are continually falling short of these targets. Bodies such as Athena Swan and the Race Equality Charter have been set up, and whilst these initiatives take us in the right direction, their implementation is not directly translating into the often seismic shift in recruitment patterns that is required across a number of industries. Linguistics research shows how the language used in job advertisements works to shape mental representations and presents roles through particular lenses, with wording unconsciously stereotyping and conveying bias that perpetuates workforce imbalances regarding gender, sex, ethnicity, sexuality, religion, and disability.

Attention has focused in particular on the bias encoded in adverts within male-dominated occupations[3] as well as upper-management and leadership positions[4]. In these instances, conventional descriptions of candidate attributes and expectations use terms skewing towards representation of men over women. Crucially, this leads to fewer women applying, based on perceived fit. This cultivates male bias in hiring decisions. These effects are structural and systemic, but they are modifiable with greater language awareness of how exclusion is linguistically encoded.

Whilst the creation of marketable toolkits by some recruitment agencies has claimed to allow 'male' and 'female' language to be identified and then made more 'neutral', such models are based on binary stereotypes of language use that are not borne out by scientific evidence from linguistics – these models treat all women and all men as if they are a homogenous mass, who all talk and react the same to language, with no space for any variation amongst groups based on age, race, ethnicity, sexuality, disability, religion etc. When we talk about making our workplaces more diverse, there is a need to see individuals as holistic employees who belong to many different categories and not take a simplistic, reductive approach that often results in little more than box-ticking exercises.

While greater awareness of linguistic positioning and appeal is starting to yield tangible results in inclusive recruitment[5], binary approaches can only go so far towards presenting a complete picture of potential pitfalls in recruitment language. Binaries such as men talk one way, women talk another, lack the flexibility to account for impact on marginalised identities, e.g. transgender and gender-fluid individuals. They also struggle to account for examples of exclusion with intersectional impact. This leaves gaps in current recognition and understanding of how communication in recruitment can be improved against diversification targets beyond gender; there is a particularly pressing need to improve the diversity of workforce composition not just based on gender, but also on race, ethnicity and cultural heritage[6], as well as other protected characteristics.

The STEMM Change team's research instead works to promote a robust, evidence-based approach that takes a holistic view of prospective employees that does not just look at a one-size-first-all, metrics driven model. This does not work long-term and is an over-simplistic way to approach EDI.
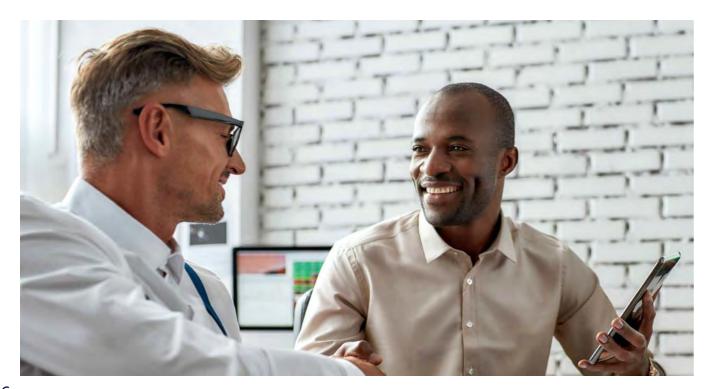
The broader picture

Our approach aims to identify language patterns that can be exclusionary or otherwise contribute to diminished returns on perceived degrees of appeal and belonging across a range of under-represented applicant demographics. Most importantly, this includes viewing individuals holistically as part of cross-sectional groups. This research situates language alongside other psychological factors and external environmental variables influencing recruitment and retention. It is vital to appreciate that language influences perception differently and with varying levels of potential detriment[7], which is factored into our research findings.

This report details key findings from a new and unique 1.4 million-word database of recruitment language. By analysing this dataset both quantitatively and qualitatively, we have highlighted places where linguistic bias and discrimination exert influence, identified overarching trends, and evidenced the prevalence of recurring communicative strategies which are problematic. Many of these language patterns are subtle, though their pervasiveness and negative impacts can be seen as we have investigated at scale.

There are several advantages to this research. For the first time, it provides a large-scale evidence base detailing the subtle and unintended consequences of communication on inclusion and diversity in recruitment. It surveys dominant language patterns used within and across sectors at a scale beyond any previous research in this area, and thus allows for the identification of new and subtle effects that language can have with high confidence. It also allows us to provide organisations with key information to help build on and advance development of best practices and recommendations for improving communications in recruitment materials.

The collected dataset is not intended to be representative of all recruitment language – rather, it presents a sizable sample from which information about the relationship between linguistic presentation, communication and EDI can be meaningfully extrapolated.

Methodology

The 1.4 million-word database of contemporary recruitment advertisements was built from a range of project and industry partners and then analysed using computational methods from an established approach known as corpus linguistics. Corpus linguistics enables large sets of language data to be analysed to establish meaningful language patterns in an objective and systematic manner.

This database of documentation was initially sourced from consortium partners affiliated with the STEMM Change project in first instance, and then grew with data added in from new organisations as our project grew. 91% of the content were used to recruit UK-based roles.

Ethical approval was granted by the University of Nottingham.

A total of 1,055 job advertisements produced within the past 6 years were collected from 90 engineering, legal, technical and medical organisations as well as recruitment firms and higher education institutions.

The following list illustrates the wide range of roles across these specialisms:

- Accounting
- Administration
- Agricultural sciences
- Architecture
- Biological sciences
- Chemistry and material sciences
- Commercial development
- Creative and design
- Engineering and construction
- Finance
- Forensic and archaeological science
- HR
- Information technology and computer sciences
- Law
- Maths and statistics
- Medicine and health sciences
- Physics and astronomy
- Pharmacy
- Psychology
- Sales and marketing
- Sports and exercise sciences
- Veterinary medicine and sciences

Key findings

There are 10 key trends that we identified from our data analysis as having a significant impact on candidate appeal, and thus on diversity and inclusion during recruitment. They are as follows:

1	Diversity and inclusion are rarely salient enough in recruitment materials

2	Diverse and inclusive language needs to go far beyond statements of legal compliance with EDI to be effective

3	Where particular language is positioned in recruitment materials can enforce tokenism of EDI issues

4	Diversity and inclusion are predominately described in ways that are too generic

5	Vague language and hyperbolic language operate as barriers to inclusiveness

6	Using dominant identity labels poses a high risk of exclusion

7	Creativity of expression can be useful, but regularly encodes bias

8	An informed use of pronouns is key to attracting inclusive and diverse applicant pools

9	Inclusion and appeal are directly linked to the formality of language used

10	There are challenges balancing market competitiveness and inclusion

Taken together, these trends reveal overlapping patterns and communicative themes which provide the basis for interventions to reduce exclusion and bias in recruitment language. We will now move on to defining and discussing these overarching patterns in more detail.

Findings in-depth

1. Diversity and inclusion are rarely salient enough in recruitment materials

Our findings consistently reveal that less than 5% of all language used in recruitment communications, inclusive of job advertisements, job descriptions, role profiles and any other text-based recruitment material, relates to EDI. This absence of EDI-related language is also found when examining the words used most frequently by each employer, which showed a perceived lack of commitment to integral values of EDI for both the advertised role and the employer's broader corporate culture and identity.

2. Diverse and inclusive language needs to go far beyond statements of legal compliance with EDI to be effective

Language relating to EDI in recruitment materials can be categorised as operating as one of four different types of 'statement' categories that we have identified in our data:

a) statements of legal compliance

b) statements of affiliation

c) statements of encouragement

d) statements of expectation

Overall, our analysis demonstrates that the most dominant of these categories are **statements of legal compliance** and **statements of affiliation.**

Statements of encouragement and **statements of expectation** are much rarer; on the basis of our findings, we advocate that these latter two categories should be included far more frequently.

Full definitions and illustrations of all 4 categories are now given to expand upon these points.

a) **Statements of legal compliance** acknowledge an organisation's legal obligations that must be included in adverts for them to be compliant as equal opportunity employers. They are the most common types of statements evidenced, especially in organisations heavily reliant on recruitment templates and what we have termed a 'cut and paste' culture. They often appear tokenistic, particularly if used in sentences on their own, and read as if they are only included because they have to be for legal reasons.

Diversity can be integrated into these statements, but as an intervention, statements of legal compliance are unlikely to boost candidate appeal to a diverse range of potential applicants.

Examples of *statements of legal compliance*[8]

> Central Science University is an equal opportunities employer.
>
> Qualified applicants will receive consideration without regard to their race, colour, religion, sex, sexual orientation, gender identity, national origin, disability…

b) **Statements of affiliation** are defined as those that provide evidence of employer commitments to diversity and inclusion which go beyond legal expectation. They can be identified by the use of language which highlights external charters and initiatives (e.g., Athena Swan, diversity awards or particular affiliations) and point towards existing workforce diversity or corporate values as methods of demonstrating inclusiveness. These statements featured in almost every advert processed. They are inclusive, and a step in the right direction; however, they can be tokenistic in expressing 'commitment' without making the distinction between aspiration and existing practice. They also tend to be self-promotional, focusing on organisational accomplishment over clarification of what makes diversity and inclusion valuable. Their effectiveness can be improved by creating versions which convey explicit acknowledgement that workforce diversity brings together a variety of perspectives leading to advantages including more productive and creative environments, greater economic advantages, and improvements in the quality of services offered:

Examples of *statements of affiliation*

> Midtown University is committed to diversity and inclusivity.
>
> Executive Science Consultants Ltd is an Investors in People organisation.
>
> We believe that if we can positively diversify our staff (which currently reflects the traditional imbalances in UK science) we will be able to collaborate more effectively.
>
> We're committed to creating an inclusive and flexible culture - one where everyone can realise their full potential and make a positive contribution to our organisation. This in turn helps us to provide better support to our broad client base.
>
> We want to create teams that combine people who have different personal experiences and backgrounds [which] will enable the team to understand and serve our clients better… We want the team members to combine their individual difference and use their breadth of backgrounds and skills to build trust with, and develop innovative approaches for, the client and sub-contractors.
>
> Teams are stronger when they have a diverse range of people.

> "Any one of these strategies can be dynamically adapted to suit organisational needs on an evolving basis."

c) **Statements of encouragement** are defined as active engagement with and an overt welcoming of prospective candidates to apply for the role being advertised. These statements are inclusive and shift the focus from the organisation to the applicants who are being sought. A range of approaches are evidenced in our dataset, but the most common strategies are either holistically encouraging, target under-represented applicant demographics in specific sectors, or employ 'if/then' constructs, inviting applicants to apply under preset conditions.

Any one of these strategies can be dynamically adapted to suit organisational needs on an evolving basis. Their effectiveness in appealing to a diverse range of candidates can be further improved by demonstrating institutional awareness of recruitment gaps, as well as addressing applicants directly in the advert text. The former is a strategy more common in the dataset's higher education roles, while the latter is characteristic of the language used in industry.

Examples of *statements of encouragement*

> We welcome applications from everyone, regardless of the categories they put themselves in.
>
> We are keen to offer opportunities, where possible, to people from groups who are currently underrepresented in mathematical sciences in the UK, such as women and individuals from black or Asian backgrounds.
>
> If interested in becoming part of something greater, apply today!
>
> If your dream is to join a fun-loving team of professionals, this is the place for you.
>
> We are open to candidates who can meet our requirements at differing levels of seniority.
>
> Veterans are highly encouraged to apply.
>
> Colorful hair? Don't care. Tattoos? Show off your ink. Like polka dots? That's cool. Pop culture geek? Many of us are. Be you, with us!

Findings in-depth

d) Statements of expectation are the rarest type of EDI-related statement found in recruitment language. This is a clear example of good practice, but only a handful of roles in the entire dataset had awareness of, experience with and/or commitment to inclusion and diversity embedded in expectations for the role itself. These were limited to only a very small handful of HR and managerial positions. These statements, typically found in person specifications and role criteria, need to become much more prominent in order to attract and recruit people willing to enact inclusive workplace practices.

3. The textual positioning of language risks enforcing tokenism of EDI issues

Our computational analysis has consistently revealed that statements promoting diversity and inclusion most regularly occur as the final 1-3 sentences at the very end of each document as **combined statements of affiliation, encouragement and legal compliance**. Some texts show additional embedding of diversity statements in earlier positions as **statements of affiliation**, and even rarer as **statements of expectation** within listings of role criteria.

The consistent positioning of EDI language and statements in infrequent and localised parts of advert text presents a tokenistic promotion of these values when viewed by prospective applicants. It reduces the perceived importance of EDI and relegates it to being an afterthought rather than a core value, especially if communicated once at the very end of each document. This tokenism is not unique to any particular field or sector; it exists as a wider feature observable across all organisations in what is a time of significant global transition, as EDI policies start to become more firmly embedded as a core part of business and recruitment practice. Its pervasiveness is also closely linked to the 'cut and paste culture' endemic in current recruitment practices.

Tokenism conveyed by frequency and textual positioning is unlikely to reduce role appeal for specific applicant groups, but risks generating a disfavourable impression of belonging linked to the organisation's perceived sincerity as performative and/or lip service, especially by minoritised applicants. Mitigating this effect requires dynamic and critically reflective approaches that seed diversity and inclusion content throughout job adverts and descriptions, ideally to the degree where pinpointing distributional and positional patterns for EDI communications in recruitment language is no longer possible.

4. Diversity and inclusion are predominantly described in ways that are too generic

The terms most regularly featured in the recruitment dataset are typically generic (*diversity, diverse, equal, inclusive, inclusion, opportunities*); A smaller subset of STEMM job adverts contain patterns which are more holistically inclusive, and we would advocate greater use of these terms e.g., *different, under-represented, minoritised*, particularly as part of **statements of encouragement**.

Our findings reveal a wide variety of labels and characteristics explicitly identifying diverse applicant types and demographics that are being targeted as part of **statements of encouragement** and **statements of legal compliance**. These can be effective, but must be used with great care, sensitivity and cultural awareness.

Examples in our dataset of recruitment language contain references to:

- Disability (*disabilities, braille, audio, disability*)
- Gender (*Athena Swan, women's, female, male*)
- Ethnicity (*ethnic, Asian*)
- Sexuality (*orientation, sexual, heterosexual, lesbian, gay, transsexual*)
- Age
- Civil status (*married, partnership, civil*)
- Race (*race, colour, black*)
- Nationality (*origin, nationality, national*)
- Religion (*faith*)
- Parental status (*pregnant, maternity, flexible, childcare*)

Before

Example of tokenistic EDI statement at the end of job adverts

After

Example of good practice where EDI language is embedded within the entirety of job adverts

Findings in-depth

5. Vague language and hyperbolic language operate as barriers to inclusiveness

Examination of how essential criteria (*experience, skills, work, knowledge, understanding, service*) are linguistically framed has revealed high percentages of hyperbole in our dataset. Hyperbolic language includes exaggerated descriptions, subjective self-assessments or otherwise vague characterisations, often paired with a skill which is presented as being foundational to the role, e.g., *significant teaching and research experience, exceptional customer service skills, proven ability to code at a high level.* They can also describe exclusionary aspects of the work environment which are tangentially related to individual expectations, such as, e.g., *work[ing] with a team of Ivy League-trained colleagues.* Examples of hyperbolic language account for up to 54% of all references to skills expected of prospective candidates and are universally observable in our recruitment dataset at all organisational levels.

Regular use of hyperbole and vagueness interferes with comprehensive candidate appeal and makes it difficult for candidates to conceptualise fit and likelihood of success when determining role eligibility and/or company suitability. While not all hyperbole is exclusionary, its presence is often redundant in adding little new or meaningful value and risks, disproportionately alienating non-traditional and minoritised applicants otherwise qualified for the role being advertised.

Framing of job descriptions and essential criteria can be made far more inclusive by using what we term 'relational' language. Relational language examples offer the space for the candidate to interpret the role fit through the lens of their own experiences, without diminishing the level of skill required to be successful in role.

Examples of exclusionary descriptions of core skills

Type	What it does	Common phrases
Hyperbolic descriptions	Exaggerated candidate profile and/or expectations	*Considerable, extensive, significant experience; excellent service; outstanding, world-class leadership capabilities; extreme attention; highest standard; Ivy-League; exceptionally driven/analytical; intellectually superior to colleagues*
Redundant descriptions	Adds little value, especially when paired with basic skills	*High quality, effective, highly methodical skills*
Ambiguous descriptions	Creates vagueness of measurement and/or perceived fit	*Proven track record; high level of; highly/ fully proficient in; strong practice/history of; solid understanding; deep knowledge of; true leader; compelling personality; successful*
Relational descriptions	Allows candidates to bring own experience to criteria	*Demonstrable ability to; evidence of; familiar(ity) with; equivalent experience; relevant background*

6. Using dominant societal identity labels poses a high risk of exclusion

In some advertisements, we uncovered examples of language encoding dominant identities, especially through distinctive and stereotypical masculinist worldviews. These were predominately found in our industry data and take the form of identity labels for the ideal candidate such as: *a real hunter, a builder, no bullshit types*. The strength of labels stem from established conceptualisations of what constitutes identities such as hunters and builders, based on historical precedents as well as cultural and sector norms. Such labels are problematic because the ideational space they create provides greater opportunity for bias, with candidates perceiving themselves as not belonging to the identity being presented. This language extends to the actions expected of ideal candidates once in role: *asserting your authority over colleagues* and *smashing targets*, and also through the qualities attributed to successful applicants, e.g., *it takes tenacity, bravery, and the ability to see the big opportunities*. These examples are reminiscent of earlier scholarship focusing on gendered language and its negative impact on diverse recruitment outcomes.

Our database also contains an example of dominant labels through a religious lens in being an *evangelist*. Its use in context suggests that the organisation is seeking a candidate with general advocacy skills, and not a candidate from a particular religious background – however, such an example runs the risk of being exclusionary, and appropriate caution is needed with such identity descriptors.

Examples of dominant identity labels

Are you a **no bullshit type**? Ready to meet the challenges of this role and work in a high growth company? We offer highly competitive benefits, so apply here!

We seek entrepreneurial and collaborative **builders** who will work seamlessly with our multi award-winning team

An **evangelist** for the importance of content in driving business…[to] **evangelise** Midtown University's integrated communications proposition internally and externally via proactive networking

Findings in-depth

7. Creativity of expression can be useful, but regularly encodes bias

Statements of encouragement and **expectation**, which we have seen above, are particularly fertile grounds for creative expression via figurative language, which is defined as language use which extends beyond literal meanings to provide new and multi-layered information to readers. Metaphors are common examples of figurative language in advertisements. Figurative language is impactful and has the potential to evoke imagery with a rich appeal factor if deployed inclusively. However, the use of figurative language can serve as obstacles if it exclusively focuses on a traditional or otherwise dominant worldview, such as the dominant masculinist worldview encoded in a range of expressions found in our dataset, for example: *put your boot on the neck of the marketing world.*

The use of abstract language when describing essential criteria can also challenge efforts to be inclusive. Large amounts of meaning and significance can be compressed into a particular word or phrase, but these can be subject to interpretation on an individual basis. In recruitment, overly abstract descriptions of candidate expectations and workplace norms run a strong risk of being biased against applicants from diverse backgrounds. For example, *a pleasant personality* presents appraisal that skews towards a dominant societal stereotype of women. Similarly, reference to *telephone etiquette* is notable in being a skill rarely requested of men in the workplace over more universal alternatives e.g., *good verbal communication skills*. We would argue that these representations are also raced due to dominant Western stereotypes of women from different cultures and heritages, particularly black women, favouring communication styles that are viewed as overly loud and aggressive, and therefore not suitable for particular job roles.

Expectations of being *presentable* and linking physical appearance and attire to *professionalism* can also create space for exclusion disproportionately affecting black women in the workplace, through acceptance of fashions, bodies, and natural hair styles, all topics that have been raised in recent cases of workplace discrimination, bullying and harassment. Language linking communication strategies and performance to professionalism similarly encodes bias inherently prejudiced against 'non-standard' English users in English-speaking workplaces through accentism; this is likely to have intersectional impact on the basis of gender, ethnicity, age, region, educational background and social class.

Examples of figurative language use

Metaphors
If you're ready to **put your boot on the neck of the marketing world**, come join us.

Lead by example, supporting a positive, can-do culture by stepping in and **rolling-up your sleeves** when needed.

Figurative description
Pleasant personality, with excellent interpersonal skills and **telephone etiquette**. Confident and **presentable**.

We are **professional in all aspects of our life, from communications to the way we dress**.

8. Informed use of pronouns is key to attracting inclusive and diverse applicant pools

Our findings show differences in inclusion based on the types of pronouns used to refer to prospective applicants. Under 5% use the impersonal *they* which, while inclusive by gender, does little to establish a rapport and close relationship with candidates. 7% use combined and paired forms of pronouns such as *s(he)* and *his/her*; On the surface, these may appear to be inclusive, but may be exclusionary to transgender and gender-fluid applicants. There were no examples of gender-neutral pronouns created to challenge the binary gender system at all in our corpus[9]. Many examples in our dataset, particularly those from industry, use second person pronouns *(you, your)* to directly engage with prospective applicants without inadvertently excluding select demographics.

On the basis of these findings, we advocate that second person pronouns should be more actively incorporated into recruitment discourse. They contribute to more dialogic communication between employers and prospective employees, while sidestepping risks of exclusion, and further invite applicants to envision themselves in the role prior to applying. This provides a key opportunity for organisations to improve workforce diversity by actively constructing descriptive narratives and scenarios that appeal to target applicants under-represented in the company and/or sector. This approach can be integrated throughout adverts in job descriptions and directly embedded in **statements of encouragement** and **expectation**.

Examples of pronoun usage

They demonstrate strong understanding of marketplace trends and regulatory practices.

(S)he will apply cutting-edge functional skills and world-class leadership capabilities to build a culture of results and accountability and inspire **his/her** team to be the best they can be.

You will use **your** initiative to manage **your** time and work independently.

You will be part of a global team working towards turning Science & Co into a superbrand, improving brand awareness and supporting growth within our divisions though the partnership with the University of Science. Why not come and be part of this unique and exciting opportunity?

If **you're** looking for an opportunity to geek out on tech, internet culture and e-commerce, in a fast-paced, data-driven, results-oriented environment, Executive Science Consultants Ltd is the place for **you**.

If **you** think **you're** the right person for the job even though **you** don't quite fit the role spec, be daring and apply!

Be part of something where **you** feel included, valued and proud.

Findings in-depth

9. Inclusion and appeal are directly linked to the formality of language used

Recruitment language is traditionally a formal register of language characterised by social distance, often conveyed by strategies such as de-personalisation, for example, when referring to the hiring organisation by name (e.g., *Midtown University*) and when referring to prospective applicants (e.g., *the applicant* or *the role holder*). This language practice stems from historical conventions in legal language and the need for compliance in employment practices. However, it creates a distancing effect between employer and prospective employee. Strategies for mitigating this and taking a more contemporary approach include changing pronouns in existing text e.g., *we* for the organisation and *you* for the applicant. This approach of directly addressing candidates in the holistic framing of the advert makes applying a more personalised process and it is much more inclusive. Our research findings show that recruitment language in HEIs is significantly more formal than the language being used in industry, barring roles advertised in the legal sector. The use of formal language also tends to correlate with job level. The more senior the role, the more formal the language, with a handful of notable exceptions of organisations who have been committed to EDI for a longer period of time.

Examples of language formality

Formal instances:
The role holder will curate, review and monitor existing print and online content in order to develop and manage **the School's** profile and increase engagement.

The applicant will be expected to work with **technical colleagues** to produce annual reports and attend meetings with **Science & Co's team**.
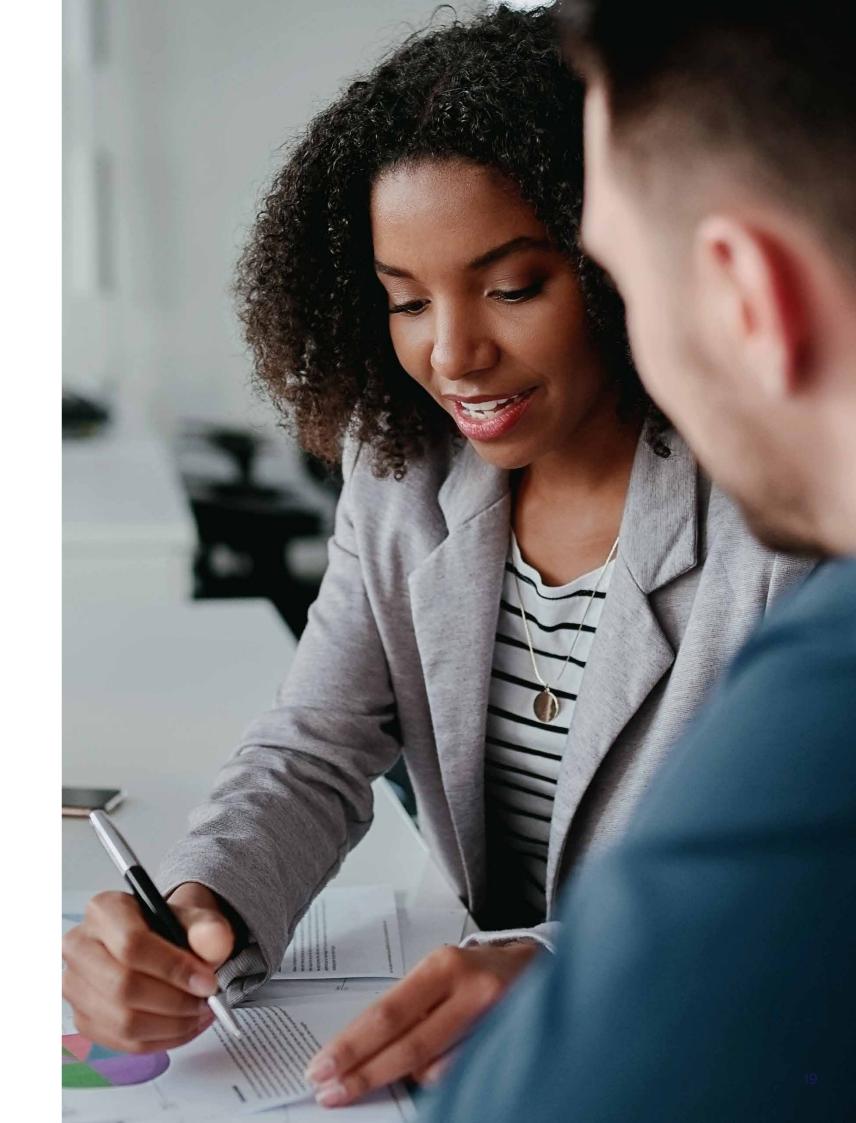
Informal instances:
You'll have experience with a Javascript framework.

You will work with us as part of **our** team to develop a new marketing strategy to present to **our** clients.

10. There are challenges balancing market competitiveness and inclusion

Our analysis has revealed a struggle for organisations between self-presentation as an inclusive workplace and the market-driven imperative to be valued as an exceptional provider. This has been a recurring theme evidenced across our dataset. This typically manifests in language used for both ends simultaneously, such as the term *flexible*. In the majority of instances, flexibility frames the organisation's attitudinal expectations of future employees (*ability to be flexible*) over setting out inclusive working policies (*flexible working*). Balancing such relationships and their portrayal in recruitment language is key to ensuring that success in one area is not inversely proportional in achieving the objectives of the other.

Interventions

On the basis of the in-depth findings based on our corpus linguistics evidence, we then took our research to the next level by directly engaging in a series of interventions involving detailed re-writes of advertisements, HR templates and role profile descriptions, in collaboration with a number of businesses and organisations. The computational packages that inform our corpus linguistic approach enable us to pinpoint the exact places where changes in the text need to take place.

Drawing on the application of specific tools from linguistic science, we then engage in lexico-grammatical substitutions, syntactic revisions, sentence/paragraph restructures, stance shifts, narrative re-framings, critical consideration of figurative language use and adopting different discursive subject positions. Our methodology also directly highlights exactly where textual silences exist and where new text needs to be added in.

We have now completed this work with over 55 companies, enabling organisations both nationally and globally to appeal to a much broader and diverse range of candidates. This is demonstrated below by a working example of the before and after text of a job advert, directly informed by our unique corpus linguistics approach.

Before

Team Leader
North Central Pharmaceutical Solutions

North Central Pharmaceutical Solutions is seeking an outstanding candidate to fill a vacant post in the company's internationally prestigious Asset Development team. Successful candidates will be visionaries at the forefront of nanotechnology innovation for commercial applications evidenced by an outstanding international profile in biomedical research. The successful candidate will lead a cohort of driven and fiercely independent peers to develop new products ensuring North Central's dominance in emerging global markets.

The role holder will be expected to:

- Lead development of new nano-biomaterials for medical use
- Direct colleagues to build and monitor business cases
- Build and maintain networks ensuring approaches remain up to date with cutting-edge methods and in alignment with outstanding commercial opportunities
- Inspire continued excellence in his/her research team

The role holder will:

- Be an effective leader in the fields of biomedical nanotechnology and biomaterials, as evidenced by:
  - a first class degree from an Ivy League or Russell Group university
  - substantive research profile, evidenced through high quality journal publications
  - a significant track record of successful product development
  - previous leadership experience in a pharmaceutical setting
- Be a world-leading expert in nano-biotech tools, methods and approaches, including 3D printing
- Have exceptional oral and verbal communication skills
- Be fully committed to flexible working in accordance with the demands of the role

North Central Science Solutions is an equal opportunities employer and is committed to diversity and inclusion.

After

Team Leader
North Central Pharmaceutical Solutions

Have you ever wanted a career in biomedical nanotechnology?

At North Central Pharmaceutical Solutions we are looking for someone with new insights and fresh perspectives to join our Asset Development team. You will be based in Mountvale and work alongside fellow biomedical enthusiasts to develop commercial applications for nanotechnology in biomedical research. You will spend up to 70% of your time working in the lab with your research team designing and testing new nanomaterials. You will use your skills in leadership and knowledge of research design to guide a team of researchers with diverse abilities and specialisms towards innovation, and use your interpersonal skills to collaboratively engage with other team leaders to promote optimal work conditions and ensure alignment of your team's work with our broader commercial strategies.

For this role we encourage applications from individuals who can complement our existing team – we believe that success is built on having teams whose backgrounds and personal experiences reflect the diversity of our client base. We are particularly interested in the strengths and lived experiences of women and different ethnic groups and cultures to help us avoid perpetuating biases and oversights in medical research.

Our expectations
In this role, you will be able to:

- Lead development of new nano-biomaterials for medical use
- Collaborate with colleagues to build and monitor business cases
- Build and maintain networks ensuring approaches remain up-to-date with cutting-edge methods and in alignment with commercial opportunities
- Exemplify a results-driven approach to research and design

About you

- You have a degree or equivalent in biology, biochemistry, engineering or a related field
- You are familiar with experimental tools, methods and approaches in nano-biotechnical design, and be able to discuss emergent trends in their current use
- You can evidence knowledge of how to build and adhere to business cases in pharmaceutical contexts, or are willing to learn if your experience was acquired in a different setting
- You are able to demontrate an ability to lead diverse teams and serve as a role model in continually striving for fairer and more inclusive workplaces
- You will be able to communicate clearly with colleagues across the organisation
- You are committed to personal development and ensuring that your team receives the assistance needed to develop their individual and collaborative skills in research & design

If it sounds like you would be a good fit, we look forward to hearing from you.

Testimonials

"For businesses today, research and subsequent refreshed practices around the way in which companies use words and structure to attract more diverse talent is becoming an increasingly crucial focus of D&I, HR, Talent Acquisition and founding teams across verticals, industries and regions. Language matters. Changing the way a job ad is phrased, structured and positioned can increase the diversity of applicants by up to 70%. The key is hidden or inherent bias that crops up across gender, culture, ethnicity, age, ability and more in the way a job post is written – we have found that, if you change the perspective, you change the results. We at Diversely are proud to have had access to the phenomenal research that Louise Mullany and her team have carried out in this realm. They have re-written adverts for a large portfolio of organisations to help create and inform bias-free, AI recruitment tools that we are now using to ensure a diverse and inclusive approach to hiring, globally."

Helen McGuire, CEO and Co-founder, Diversely

"The recruitment language project with University of Nottingham has highlighted to us the critical importance and impact of the specific language that is used with our employment advertising and job specifications from a D&I perspective. Working in collaboration with the team at the University has enabled our firm to identify the most critical areas where our advertisements and job specifications can be re-written & enhanced for the greatest effect through new communication strategies and alternative language styles."

Tom Lyas, Recruitment Manager, Browne Jacobson LLP

"The University of Nottingham's Applied Linguistics analysis and job advertisement re-writes have been instrumental in the development of our bias analyser. Recommended alternative phrases speed up the time for our users to write more inclusive job ads that appeal to broader and more diverse applicants by at least 50%. We look forward to continued collaboration with Professor Louise Mullany and Dr Jacqueline Cordell at the University of Nottingham in updating patterns of linguistic bias and providing continued data-driven feedback from our applicant pipeline to demonstrate the successful impact being made in hiring diverse talent across industries and the globe."

Hayley Bakker, Chief Product Officer and Co-founder, Diversely

A communications toolkit for diverse recruitment

In response to our practical experiences of using a corpus linguistics approach to successfully re-write a number of job advertisements and recruitment materials to attract broader demographics of applicants, we have devised a *Communications Toolkit for Diverse Recruitment*.

This toolkit consists of a basic set of recommendations for organisations to initially follow when re-writing job advertisements in response to addressing EDI issues. This toolkit aims to increase role appeal to a much more diverse range of candidates, as well as enabling organisations to reflect upon their overall approach to EDI, and how their organisation can engage prospective employees in genuinely committed ways.

It is recommended that all organisations use the 12 practical communications tools that are outlined below as a bare minimum in order to improve their ability to recruit from diverse groups.

1 Include direct references to diversity and inclusion much more frequently in job advertisements to show a genuine commitment to EDI within workplace cultures.

2 Avoid relying on statements of legal compliance for EDI to avoid tokenism, and instead include more *statements of encouragement* and *statements of expectation*.

3 With *statements of affiliation*, improve their effectiveness by creating versions which convey explicit acknowledgement that workforce diversity leads to more productive environments, has economic advantages, improves quality of service offered.

4 Use *statements of encouragement* to target prospective applicants that would fill diversity gaps in existing workforce. This will likely change over time and be dependent on the type and level of position being recruited, so this approach can be adapted to changing circumstances.

5 Include more *statements of expectation* which clearly include an explicit commitment to EDI as an essential part of the role.

6 Place diversity & inclusion content throughout all parts of recruitment materials, especially in places where these are not seen currently (e.g., essential criteria, person specifications). It is crucial to avoid just putting these in the final lines of any advertisement or recruitment text to avoid tokenism.

7 Ensure that diversity and inclusion are not just signaled by generic references, but instead include more specific descriptors of diversity and inclusion which reflect long-term, non-tokenistic commitments that accurately illustrate an organisation's inclusive culture, or at the very least, a genuine commitment to developing an inclusive culture in future.

8 Build on existing EDI language by including modifications to improve inclusiveness. This can be achieved by engaging directly with applicants through a change in formality. This process reduces the power and social distance between employer and prospective employee and is more likely to appeal to under-represented groups.

9 Engage in informed and reflective use of pronouns in recruitment language e.g., using 'we' as an inclusive pronoun to refer to the organisation and 'you' to address the prospective employee in order to create a sense of organisational inclusiveness. This creates textual space so that prospective employees are able to mentally envisage themselves as working within a prospective organisation.

10 Avoid identity labels that indirectly profile ideal candidates by using dominant worldviews or present standards likely to be harmful and/or disproportionately applied to under-represented demographics. This will be particularly important as recruitment moves away from a 'cut and paste' culture and starts employing a wider range of creative strategies to attract quality applicants.

11 Be cautious and reflective in the use of figurative language in recruitment texts. Ensure that any use of figurative language does not reflect dominant worldviews which may exclude individuals, as well as avoiding over-prioritisation of individuals who would align with dominant worldviews. As with point 10, identity labels, this will be particularly important as recruitment moves towards employing a wider range of creative strategies.

12 Essential criteria lists should be communicated in the most unbiased way, whilst still specifying the key skills needed to perform the role with maximum effect. These criteria should be conveyed as follows:

- Without vagueness
- Without hyperbole
- Without the use of stereotypical metaphors
- Without the inclusion of any dominant worldviews

Conclusion

In this detailed research we have identified a series of systemic barriers to diversity and inclusion in recruitment language that work to exclude prospective employees from diverse groups. These barriers that exclude and encode bias are often subtle and nuanced in their presentation. We have based our findings on the analysis of patterns in language use from a unique 1.4 million dataset of recruitment language. We have identified a set of 10 key trends for recruiters to look out for when reviewing and reflecting upon their own job advertisements, role profile descriptions and any other materials they provide to prospective employees. These key trends should then be read alongside our the detailed recommendations in our Communications Toolkit for Diverse Recruitment, which presents a series of initial practical recommendations for good practice. These recommendations are what we advocate as the bare minimum for organisations who are trying to recruit inclusively and start to diversify their workforces. For organisations who wish to pursue more long-term, sustainable strategies to diversifying their workforce, we recommend getting in touch to discuss a bespoke approach.

Acknowledgements

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Connect with us

We are continuing to develop our research with national and global industries, including the production of reports with bespoke recommendations for organisations. This is alongside our work with higher education institutions in order to bring about a step-change in recruitment so that organisations can finally start to reach their full potential. McKinsey & Co's (2020)[10] latest EDI report demonstrates yet again the key advantages of diverse workforces: they are more financially successful, have greater staff retention rates and score higher for staff well-being.

If you are interested in finding out more about how we can help your organisation achieve its EDI goals, please contact the project lead, Professor Louise Mullany: louise.mullany@nottingham.ac.uk

"Our work with the University of Nottingham has been an extremely engaging and informative process which has added great value with talent attraction being so critical to our Diversity and Inclusion strategy. Highlighting the importance of using the right language and working alongside us to make enhancements has changed the way we write our job adverts and this will now benefit us greatly as the war for talent increases. I can highly recommended getting involved!"

Nicki Burge, HR Manager, Kohler Mira Ltd

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