



Government
Equalities Office



THE
BEHAVIOURAL
INSIGHTS
TEAM

Gender differences in response to requirements in job adverts

Research report

March 2022

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Acknowledgements

We wish to acknowledge the roles that the following individuals had in this project:

- Ed Whincup for writing up the trial into this report.
- Floor Rink at the University of Groningen for supporting the survey design.
- Chris Larkin, Hannah Burd, James Lawrence, Ariella Kristal and Tom O'Keefe for their quality assurance input.



Executive summary

Executive Summary

“Men apply for a job when they meet only 60% of the qualifications, but women apply only if they meet 100%.” This frequently cited yet unsubstantiated claim suggests that gender differences in job application behaviour are due to differences in how men and women perceive job requirements. This trial experimentally tests the above claim and improves upon similar research by taking directly relevant qualifications into account.

We ran an online experiment with three conditions (n = 10,468) to test, firstly, whether there is a gender difference in willingness to apply for similarly qualified men and women, and, secondly, whether framing job requirements in a less ambiguous way would reduce this potential difference. Our three conditions included:

- **Specific behaviours:** the requirements in the job advert provided a specific and detailed description of the behaviours and experiences necessary for the role, reducing the ambiguity of the job requirements.
- **High-level skills:** the requirements were framed in terms of vague high-level skills, e.g. ‘leadership skills’. This more ambiguous framing reflects common practice in job adverts.
- **Masculine identities:** the requirements were identity-based with stereotypically masculine words.

Across conditions, we found that men were more willing to apply than similarly qualified women. This gender difference emerged among participants who were less qualified for the role, with no difference among more qualified participants. According to our study, men apply for a job when they meet 52.1% of the qualifications, where women apply if they meet 55.7%. The gender difference was explained by less qualified men’s greater self-perceptions in meeting the overall requirements than similarly qualified women. This is supported by wider research that finds that men are more likely to overestimate their capabilities in stereotypically masculine domains. These findings ‘bust the myth’ that the gender difference is so large and highlight that it depends on how well qualified a potential applicant is.

We were unable to understand whether reducing the ambiguity of job requirements would reduce the gender difference. Our ‘specific behaviours’ condition was not perceived as less ambiguous than the other conditions by participants. However, we found that **women had higher self-perceptions of meeting individual requirements than their overall impression of the job requirements as a whole.** This suggests that nudging women applicants to consider the individual requirements of a role could be a promising way to reduce the gender difference.

These findings suggest that across the labour market, **men may be more likely to enter into more senior and better paid positions earlier in their career.** Hidden biases in recruitment may go undetected if women appear to be more likely to be hired, but differences in qualifications among applicants have not been adequately accounted for.

Further research should replicate these findings in real-world settings and test the impact of making role requirements less ambiguous.



Introduction

Introduction

“Men apply for a job when they meet only 60% of the qualifications, but women apply only if they meet 100%.”

This claim has been circulated by several media outlets¹ and cited in Sheryl Sandberg’s *Lean In* and Kay & Shipman’s *The Confidence Code*. However, an investigative journalist discovered the Hewlett Packard internal report from which it is derived provides no quantitative data to support it.²

Its success in capturing the imagination of so many is likely because it feels intuitively true. There is some evidence to support the idea that women are more selective when applying to jobs. A *LinkedIn* study found that despite men and women viewing similar numbers of advertised jobs on the platform in a given period, women were less likely than men to apply. More worryingly, women were also less likely to apply for positions that were more senior than their current position, defined by *LinkedIn* as ‘stretch roles’.³ At the same time, women were more likely to succeed in getting hired into the roles they applied for.

In our own analysis across our partner employers, we also found that, more often than not, women are more likely to be hired than men when applying to the same positions. However, since the data is not routinely collected, we have not been able to account for how qualified those men and women are. It is plausible that women’s higher success rate in hiring is explained by women only applying to roles for which they are fully qualified or overqualified. If women perceive they have to meet a greater number of job requirements, particularly for higher paid senior positions, and this leads to them applying to roles below their qualifications, this may represent a significant barrier to increasing women’s pay and progression, thus contributing to the gender pay gap.

If these gender differences in application behaviour are true, one explanation for this is that women carry out a disproportionate share of unpaid care work.⁴ This means that women are more time-poor than men, so they may need to be more strategic when spending time applying for roles.⁵ This also means that women are more likely to work in roles significantly closer to home, greatly reducing the range of roles they have access to.⁶ In addition, we know that a lack of flexible working availability, especially in senior roles,⁷ creates a barrier for women who are more likely to need them in order to provide care.⁸ However, in this research, we wanted to focus on the

¹ For example, Harvard Business Review (2014) [Why Women Don't Apply for Jobs Unless They're 100% Qualified](#); Forbes (2014) [Act Now To Shrink The Confidence Gap](#)

² Huffington Post (2014) [How McKinsey's Story Became Sheryl Sandberg's Statistic - and Why It Didn't Deserve To](#)

³ LinkedIn (2019) [Gender Insights Report: How women find jobs differently](#)

⁴ ONS (2016) [Women shoulder the responsibility of 'unpaid work'](#)

⁵ ONS (2017) [Leisure time in the UK: 2015](#)

⁶ ONS (2019) [Gender differences in commute time and pay](#)

⁷ [The Timewise Flexible Jobs Index 2020](#)

⁸ Chung, H., & Van der Lippe, T. (2018). Flexible working, work–life balance, and gender equality: Introduction. *Social Indicators Research*, 1-17.

question of whether the difference in application behaviour is due to the way men and women assess job requirements, as per the opening claim.

There are two ways in which perceptions of job requirements may lead to gender differences in application behaviour. First, there may be gender differences in expectations for how necessary it is to meet all the listed requirements. Second, there may be gender differences in self-perceptions of meeting the requirements. Women may perceive their capabilities more harshly than men in stereotypically masculine domains due to preconceived social expectations and stereotypes, for example, in self-assessed leadership, which is generally stereotyped as masculine.⁹ Harsher self-perceptions are likely the result of setting higher standards due to experiences of and in order to avoid the backlash that follows counter-stereotypical behaviour.¹⁰ Both men and women in gender-stereotype-incongruent roles are more harshly evaluated by others if they make a mistake than those in stereotype-congruent roles.¹¹ This could explain why similarly qualified women may be more likely to discount themselves from more senior or leadership roles.

If such a gender gap exists, we wanted to test whether different ways of framing the requirements would reduce it. Two ways of framing requirements that may increase the gender difference include an ambiguous framing and using masculine stereotyped identity-based language.

We hypothesised that reducing the ambiguity of job requirements would increase the accuracy of self-perceptions for both men and women, thereby reducing the gender difference. Research suggests that women may be slightly more ambiguity-averse than men, however, differences are small and disappear in less stereotypically masculine contexts.¹² This suggests that in the context of a leadership role, ambiguity may disproportionately put off women.

Another framing that may contribute to gender differences in applying to roles is stereotypically masculine identity-based language. Gender stereotypes have an adverse effect on gender equality in applications, both in terms of gendered language in the job advert¹³ and gender stereotypes associated with the role.¹⁴ This particularly applies to more senior positions, if leadership is associated with masculine role stereotypes.¹⁵ Evidence from Science, Technology, Engineering, and Maths (STEM) suggests that framing STEM activities in terms of identity as opposed to behaviours, for example, 'be a scientist' vs. 'do science', can create an irreconcilable

⁹ Eagly, A. H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological bulletin*, 111(1), 3.

¹⁰ Rudman, L. A., & Fairchild, K. (2004). Reactions to counterstereotypic behavior: the role of backlash in cultural stereotype maintenance. *Journal of personality and social psychology*, 87(2), 157.

¹¹ Brescoll, V. L., Dawson, E., & Uhlmann, E. L. (2010). Hard won and easily lost: The fragile status of leaders in gender-stereotype-incongruent occupations. *Psychological Science*, 21(11), 1640-1642.

¹² Schubert, R., Gysler, M., Brown, M., & Brachinger, H. W. (2000). Gender specific attitudes towards risk and ambiguity: An experimental investigation (No. 00/17). *Economics Working Paper Series*.

¹³ Gaucher, D., Friesen, J., & Kay, A. C. (2011). Evidence that gendered wording in job advertisements exists and sustains gender inequality. *Journal of personality and social psychology*, 101(1), 109.

¹⁴ García-Ael, C., Cuadrado, I., & Molero, F. (2018). The effects of occupational status and sex-typed jobs on the evaluation of men and women. *Frontiers in psychology*, 9, 1170.

¹⁵ Koenig, A. M., Eagly, A. H., Mitchell, A. A., & Ristikari, T. (2011). Are leader stereotypes masculine? A meta-analysis of three research paradigms. *Psychological bulletin*, 137(4), 616.

identity gap for young women, deterring them from careers in STEM.¹⁶ We suspect that identity-based framing is also more ambiguous as it is open to interpretation how those identities are defined. Moreover, stereotypically masculine identity-based framing is common and likely to pose a greater conflict for women.

This research aims to investigate gender differences between similarly qualified men and women in willingness to apply to a job. We want to understand how framing job requirements in terms of ambiguity and masculine identities compare with unambiguous behaviour-based requirements and if this could reduce a potential gender difference.

This research was part of the Gender and Behavioural Insights (GABI) programme, which is a research programme funded by, and run in collaboration with, the Government Equalities Office (GEO). The purpose of the GABI programme is to build the evidence base on what works to improve gender equality.

Intervention development

Since leadership roles are stereotyped as masculine and the underrepresentation of women in senior leadership roles is a major contributor to the gender pay gap, we wanted to test a role that required leadership skills. To make the role as widely applicable as possible and because most jobs require many of these skills in some form, we focused our requirements on five 'soft skills': leadership, communication, teamwork, problem-solving and time management. If there is a gender difference due to requirements, we felt it is more likely because of 'soft skills' requirements since they are more open to interpretation than inherently specific 'hard' qualifications, e.g. A Level Maths.

The job requirements used in this trial were developed by reviewing a selection of 32 real-world job adverts across a range of industries (accountant, call centre worker, electrician, nurse, finance manager, marketing director, LGV driver, receptionist, retail assistant, sales manager, software engineer, taxi driver, teacher, warehouse operative).

The vast majority of the jobs (78%) we reviewed asked for at least one of the five soft skills despite coming from such a wide range of industries. Most of these job adverts (80%) framed at least one of these soft skills in a broad, high-level and ambiguous way, for example, "You will need to display excellent communication skills" or "Good team work skills". From this we developed the requirements for the 'high-level skills' condition.

We also found that a surprising number of job adverts positioned requirements in terms of identity - who you *are* rather than skills or experiences you have - e.g. "You will be dynamic, innovative and hardworking" or "Be a good and positive communicator". Around 30% of the requirements we reviewed were framed in terms of identity to some extent and around 75% of the job adverts had at least one requirement framed in terms of identity. This alerted us to the importance of identity-based framings for job requirements and led to the inclusion of a masculine identity-based

¹⁶ Archer, L., DeWitt, J., Osborne, J., Dillon, J., Willis, B., & Wong, B. (2010). "Doing" science versus "being" a scientist: Examining 10/11-year-old schoolchildren's constructions of science through the lens of identity. *Science Education*, 94(4), 617-639.

condition. The final requirements took into account typical language used in job adverts from this selection of job adverts as well as the specific framing we sought to test.

In addition to investigating the claim that “Men apply for a job when they meet only 60% of the qualifications, but women apply only if they meet 100%”, we also wanted to understand whether there is a way to better present the same job requirements to reduce the potential gap. We tested three different framings:

- **Specific behaviours** (less ambiguous): To reduce ambiguity, this condition ensured that job requirements provided a specific and detailed description of the behaviours and experiences necessary to meet that requirement.
- **High-level skills** (more ambiguous): To understand the role of increased ambiguity, job requirements were framed in terms of general, vague skills (instead of more concrete, specific skills). This reflects common practice in real job adverts.
- **Masculine identities** (more ambiguous): To understand the role of identity-based language, this condition used job requirements framed in terms of identity described using stereotypically masculine adjectives, which we felt would both increase ambiguity and create an identity conflict for women.



Research aims and trial methodology

Research aims and trial methodology

Using the online experiment platform, Predicitv, we ran a three-condition randomised controlled trial (RCT) to test three ways of framing job requirements on gender differences in willingness to apply. The trial design was approved by GEO's Research Board on 5 August 2020, and [pre-registered](#).

We tested two hypotheses:

1. Women will only be willing to apply to a position if they meet a greater percentage of requirements than men.
2. The gender difference in willingness to apply will increase if job requirements are ambiguous, whether framed in terms of high-level skills or stereotypically masculine identities, compared with less ambiguous requirements referring to specific behaviours.

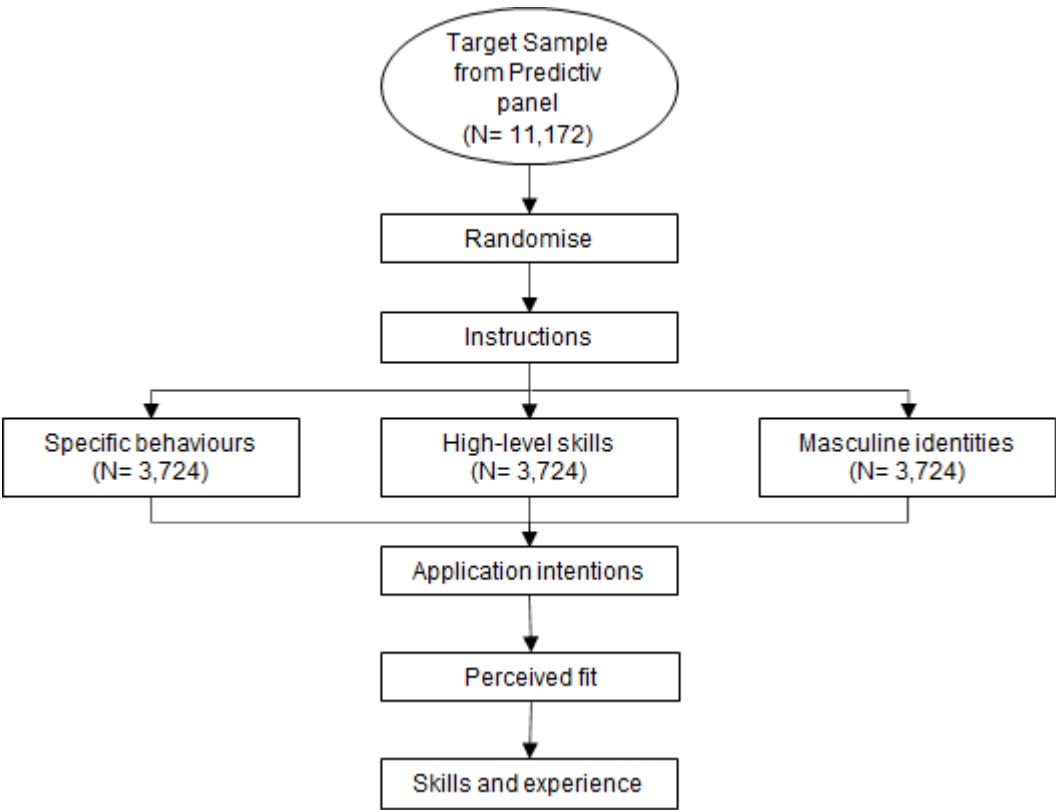
Participant journey

The participant journey (Figure 1) was as follows:

1. Eligibility: Participants were eligible for the trial if they were currently looking for a job, had looked for a job in the past year, or were intending to look for a job within the next two years and had at least one year of work experience.
2. Randomisation: Participants were randomly allocated into one of the three conditions.
3. Job advert: Each condition showed participants a different version of a generic job advert. Participants were able to spend as much time as they wanted viewing the material.
4. Application intentions: Participants were then asked to state the likelihood they would apply to the job.
5. Perceived fit with requirements: Participants were asked to state how far they felt they met the requirements.
6. Skills and experience: Participants were asked to provide their education, skill level and relevant experience.

Participants took a median average of 7 minutes to complete the survey, with an interquartile range from 5 minutes to 11 minutes.

Figure 1: The participant journey



Experimental Conditions

Table 1 details the job requirement framings used in each condition for the five soft skills: leadership, communication, problem-solving, time management and teamwork. Words formatted in red indicate stereotypically masculine words and words formatted in orange indicate stereotypically feminine words as identified in Gaucher et al. (2011). We ensured that the ‘specific behaviours’ condition was neutral by having the same number of ‘masculine’ and ‘feminine’ words. We could not avoid using the stereotypically masculine word ‘leadership’ in the ‘high-level skills’ condition, but there are no other stereotyped words. Finally, we ensured that every job requirement had a masculine stereotyped word in the ‘masculine identities’ condition. The order of the job requirements was randomised for each participant.

Table 1: The content used for the experimental treatment conditions

Condition	Requirements
Specific behaviours	<ul style="list-style-type: none"> You have managed a team of at least two other people or taken on a leadership role that involved effectively engaging and coordinating others to achieve a goal You have had regular contact with colleagues, clients or customers to understand their needs, and experience presenting your work and writing structured and formal text You have experience identifying issues or opportunities for improvement at work, gathering information from multiple sources, and reviewing or analysing it in order to resolve an issue or find a solution to a problem You have previously planned and managed projects or work to achieve objectives or targets within agreed timelines You have worked with others as part of a team to successfully achieve shared goals
High-level skills	<ul style="list-style-type: none"> Good leadership skills Great communication skills Strong problem-solving skills Exceptional organisational and time management skills Works well in a team
Masculine identities	<ul style="list-style-type: none"> Natural leader Very confident communicator Strong logical problem solver Exceptionally organised and decisive planner Active team player
<p>Note: Words in red are stereotypically masculine whereas the words in orange are stereotypically feminine.¹⁷ We ensured that, in the unambiguous condition, the wording is gender neutral by including the same number of feminine and masculine words.</p>	

In addition to the requirements, we also wanted to ensure that we controlled for potential gender differences in flexibility preferences by selecting a flexible working phrase that has the same effect (in this case similarly less attractive) on application rates for men and women according to another BIT study: 'Happy to talk flexible working'.¹⁸ We also tried to minimise potential gender differences in commute time with the phrase 'Commute in line with expectations'. We kept the description of the role fairly generic in order not to favour certain industries over others and to account for participants' personal preferences. The job adverts as viewed by participants are in Figures 2, 3 and 4.

¹⁷ Gaucher, D., Friesen, J., & Kay, A. C. (2011). Evidence that gendered wording in job advertisements exists and sustains gender inequality. *Journal of personality and social psychology*, 101(1), 109.

¹⁸ Londakova, K., Roy-Chowdhury, V., Gesiarz, F., Burd, H., Hacohen, R., Mottershaw, A., Ter Meer, J. and Likki, T. (2021) [Encouraging employers to advertise jobs as flexible](#)

Figure 2: Screenshot of the hypothetical job advert containing the ‘specific behaviours’ job requirements. Note that requirements were displayed in a randomised order.

We are hiring! - United Kingdom

Salary slightly below your expectations
25 days of holiday plus 8 public and bank holidays
Commute in line with your expectations
Happy to talk flexible working

We are recruiting a capable applicant to be part of our workforce. This is a great opportunity to join a company offering fantastic benefits and the chance to work in a stimulating environment.

This is a role that you are interested in at a company that is your preferred size.

What are we looking for?

- You have managed a team of at least two other people or taken on a leadership role that involved effectively engaging and coordinating others to achieve a goal
- You have previously planned and managed projects to achieve objectives or targets within agreed timelines
- You have had regular contact with colleagues, clients or customers to understand their needs, and experience presenting your work and writing structured and formal text
- You have experience identifying issues or opportunities for improvement at work, gathering information from multiple sources, and reviewing or analysing it in order to resolve an issue or find a solution to a problem
- You have worked with others as part of a team to successfully achieve shared goals

Figure 3: Screenshot of the hypothetical job advert containing the 'high-level skills' job requirements. Note that requirements were displayed in a randomised order.

We are hiring! - United Kingdom

Salary slightly below your expectations
25 days of holiday plus 8 public and bank holidays
Commute in line with your expectations
Happy to talk flexible working

We are recruiting a capable applicant to be part of our workforce. This is a great opportunity to join a company offering fantastic benefits and the chance to work in a stimulating environment.

This is a role that you are interested in at a company that is your preferred size.

What are we looking for?

- Exceptional organisational and time management skills
- Good leadership skills
- Strong problem-solving skills
- Works well in a team
- Great communication skills

Figure 4: Screenshot of the hypothetical job advert containing the ‘masculine identities’ job requirements. Note that requirements were displayed in a randomised order.

We are hiring! - United Kingdom

Salary slightly below your expectations
25 days of holiday plus 8 public and bank holidays
Commute in line with your expectations
Happy to talk flexible working

We are recruiting a capable applicant to be part of our workforce. This is a great opportunity to join a company offering fantastic benefits and the chance to work in a stimulating environment.

This is a role that you are interested in at a company that is your preferred size.

What are we looking for?

- Exceptionally organised and decisive planner
- Natural leader
- Very confident communicator
- Strong logical problem solver
- Active team player

Description of data and sample

We recruited 11,172 participants through the online experiments platform Predictiv: 3,724 participants per condition. We stratified the sample so that half the participants in each condition were women and half were men. The sample was also representative of age and household income for the working population. We applied the following eligibility criteria to our sample (for survey questions see Appendix 1.1):

- Aged 18-65
- Male or female
- Currently looking for a job, likely to look for a job within the next two years, or looked for a job within the last year
- At least 1 year of work experience

We found that a significant number of respondents indicated that they had more years of experience than if they had started working full-time at 13 years old, calling into question the reliability of the data. As a result, we excluded these participants from the analysis (704). This left us with a final sample size of 10,468.

Balance Checks

There was no differential attrition between trial conditions (Chi-square[2] = 0.0001, $p = 0.99$). There was an imbalance between treatment groups on the number of children reported by participants (Chi-squared[6] = 13.62, $p = 0.03$). As a result of this, we included the number of children as a covariate in all of our analyses to mitigate this imbalance.

We observed that the 'high-level skills' condition had a slightly higher quality of participants than the 'specific behaviours' condition as measured by soft skills experiences. However, this difference disappeared when controlling for other variables. Given that this difference was small and not significant when controlling for other factors, and the fact that we used covariates in our primary and secondary analyses, we determined that this did not require any additional steps in the primary and secondary analyses.

Outcome measures

Primary outcome measure

We had one primary outcome measure:

- **Gender difference in willingness to apply:** difference in the likelihood that similarly qualified men and women would apply to the job.

Our primary analysis examined this outcome measure across all job adverts. In our secondary analysis we interacted 'gender difference in willingness to apply' with the experimental condition to understand if the gender difference was greater or smaller by condition.

Manipulation checks

We included two manipulation checks to measure whether the job adverts were perceived as ambiguous and masculine as intended.

- **Ambiguity check:** how far participants felt they had a clear understanding of what the job advert was looking for in a candidate.
- **Masculinity check:** how far participants felt the job advert targeted men or women.

Exploratory outcome measure

We had the following exploratory measure:

- **Self-perception of meeting the requirements:** how far participants felt they met the requirements for the job overall and for each requirement. Table 2 summarises the outcome measures and how they were coded

Table 2: Summary of outcome measures

Outcome Measure	Definition	Coding
Primary: Willingness to apply	“How likely are you to apply for this job?”	Continuous variable measured on a 7-point Likert scale ranging from 1 (very unlikely) to 7 (very likely)
Manipulation check: Ambiguity	“How far do you agree with the following statement? I have a clear understanding of what they are looking for in a candidate for this job”	Continuous variable measured on a 7-point Likert scale ranging from 1 (strongly agree) to 7 (strongly disagree)
Manipulation check: Masculinity	“Do you think this job advert is targeted at male or female applicants?”	Continuous variable measured on a 7-point Likert scale ranging from 1 (strongly targets men) to 7 (strongly targets women)
Exploratory: Overall self-perception of meeting the requirements	“Overall, how well do you think you meet the requirements for this job?”	Continuous variable measured on a 5-point Likert scale ranging from 1 (I do not meet the requirements at all) to 5 (I significantly exceed the requirements)
Exploratory: Self-perception aggregated across judgements for each individual requirement	The participant is asked “to what extent do you think you fulfil each of the job requirements?” about each of the job requirements.	Continuous variable on a 7-point Likert scale from 1 (extremely poorly) to 7 (extremely well). Perceived proportion of job requirements met defined as a score of 5-7 as meeting each individual criterion.

Covariates

In addition, we collected a number of covariates:

- **Demographic:** gender, age, ethnicity, disability status, number of children and employment status. We encountered a challenge in measuring one of our covariates, desired working pattern (see Appendix 1.2 for more details).
- **‘Hard’ skills and experience:** total years of work experience, highest level of education and skill level of current or most recent role according to standard occupational classifications.¹⁹

¹⁹ ONS (2020) [SOC 2020 Volume 1: structure and descriptions of unit groups](#)

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- **‘Soft’ skills experience:** number of experiences across 70 items representing 14-item lists for the five key soft skills: teamwork, leadership, communication, time management and problem-solving. This is the measure we used to understand participants’ relevant qualifications.

Development of the soft skills experiences measure

We wanted to use a more ‘objective’ measure of soft skills in order to overcome any potential biases or inaccuracies in self-perceptions. We could not find an adequate existing measure that measured soft skills using survey items. As a result, we developed 14-item lists of specific experiences for each soft skill designed to cover a range of experiences (from basic to intermediate to expert) in each skill to ensure sufficient variance in the sample.

In addition, we used frequency to create variance by specifying how often they had performed these specific behaviours. Each item was asked in terms of Never / Rarely / [Frequency] and only coded as having ‘met’ the experience requirement if they had performed the action more than rarely. This was in order to elicit more honest answers if individuals had the option to indicate ‘Rarely’ rather than only ‘Never’ alongside the relevant frequency. Frequencies varied by experience type. For the full list of items please see Appendix 1.3.

We found that our soft skills experiences measure performed well in terms of having a reasonable range and variance across participants. The distribution of all skill categories was uniform with no ceiling or floor problems except teamwork (25.9% of the sample had more than 90% of the teamwork experiences) and problem-solving (22.0% of the sample had more than 90% of the problem-solving experiences). That may be expected since teamwork and problem-solving are more likely to be required in entry-level roles.

All skills significantly positively correlated with total years of work experience, occupational skill level of current or most recent role and highest education, but not to the extent of redundancy. Correlations ranged from $r = 0.07$ for communication to $r = 0.25$ for teamwork with total years of work experience, $r = 0.26$ for teamwork to $r = 0.35$ for communication for occupational skill level and $r = 0.11$ for teamwork and $r = 0.20$ for communication for highest education.

All skills had a good average inter-item correlation (ranging from $r = 0.30$ for communication to $r = 0.41$ for leadership), suggesting that while the items were reasonable homogenous and measure a similar construct, they do not contain sufficiently unique variance so as not to be isomorphic with each other.

We also did not find a gender difference in the measure, suggesting that it was not biased towards men or women.

Analytical strategy

Our full analytical strategy is available in Appendix 2.2.



Trial results

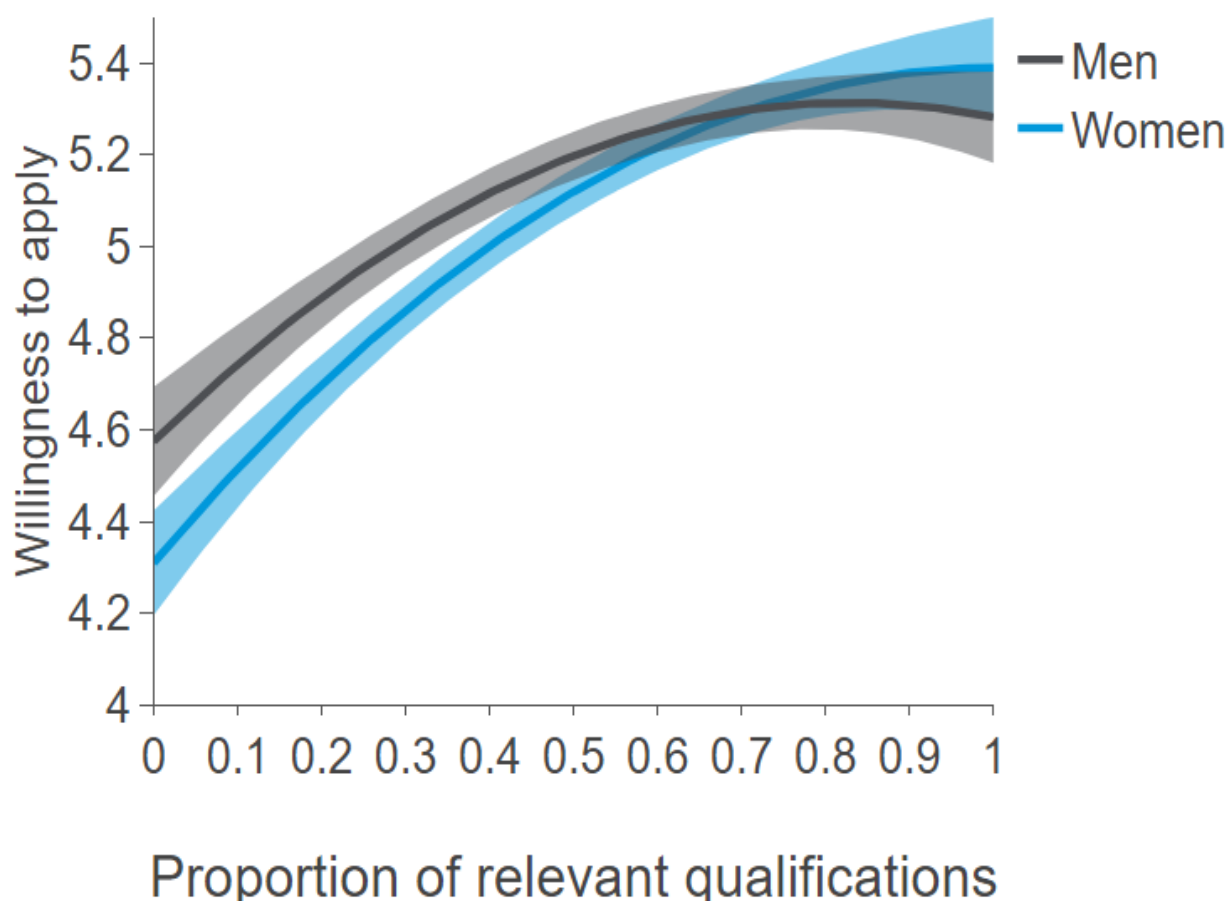
Trial results

Overall, we found that similarly qualified men were more willing to apply to the role than women. When we talk about relevant qualifications, we are specifically referring to the soft skills experiences measure. This gender difference emerged among less qualified participants, with no gender difference among more qualified participants. This finding is partially explained by differences in self-perceptions of meeting the overall requirements as men perceived that they met the overall requirements to a greater extent than women. We did not find evidence for a better framing of requirements to reduce the gender gap.

Primary analysis: Gender differences in willingness to apply

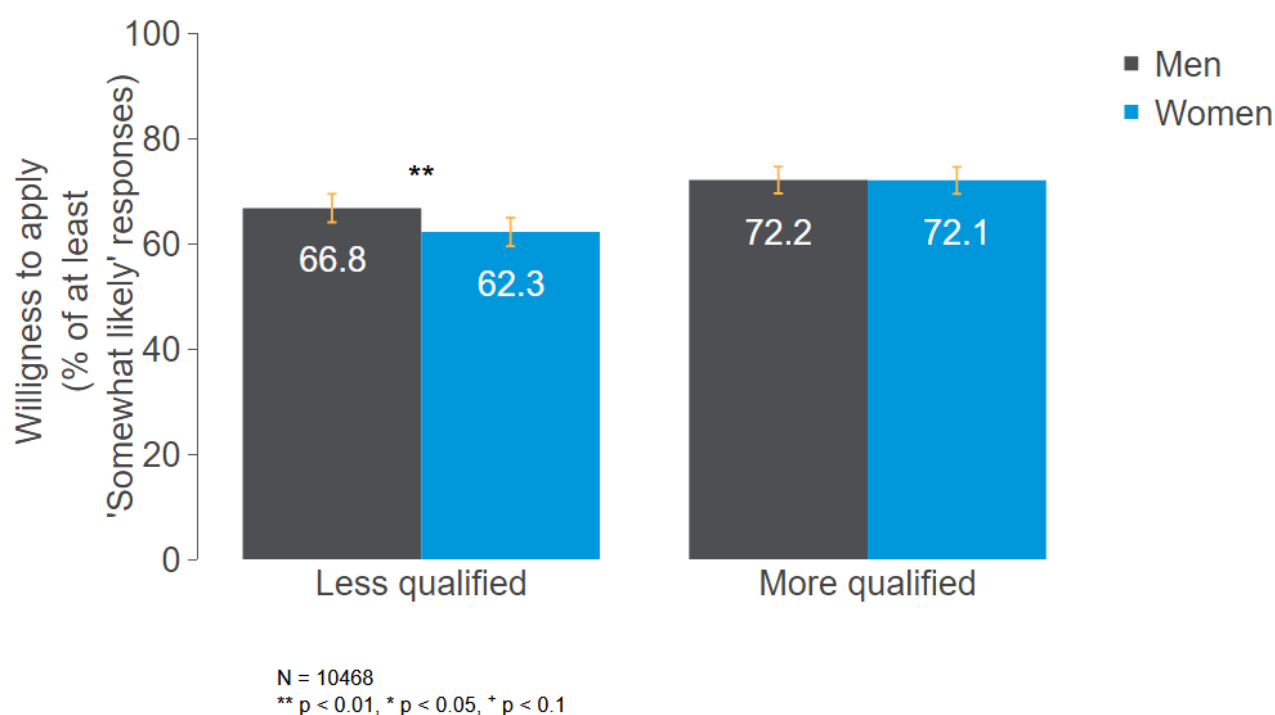
We found support for our first hypothesis: similarly qualified men were significantly more willing to apply to the job than women ($p < 0.01$) (Figure 5). Proportion of relevant qualifications refers to the proportion of relevant soft skills experiences. See Appendix 2.3 for full table of coefficients.

Figure 5. Relationship between gender, proportion of relevant qualifications and willingness to apply.



Separating the sample into above and below the median for proportion of relevant qualifications demonstrated that the gender difference emerged for less qualified participants (Figure 6). The graph illustrates the results by defining willingness in a binary way at five or more on a seven-point Likert scale.²⁰

Figure 6. Willingness to apply for more vs. less qualified participants by gender. More vs. less qualified was defined by above and below the median score for proportion of relevant qualifications.

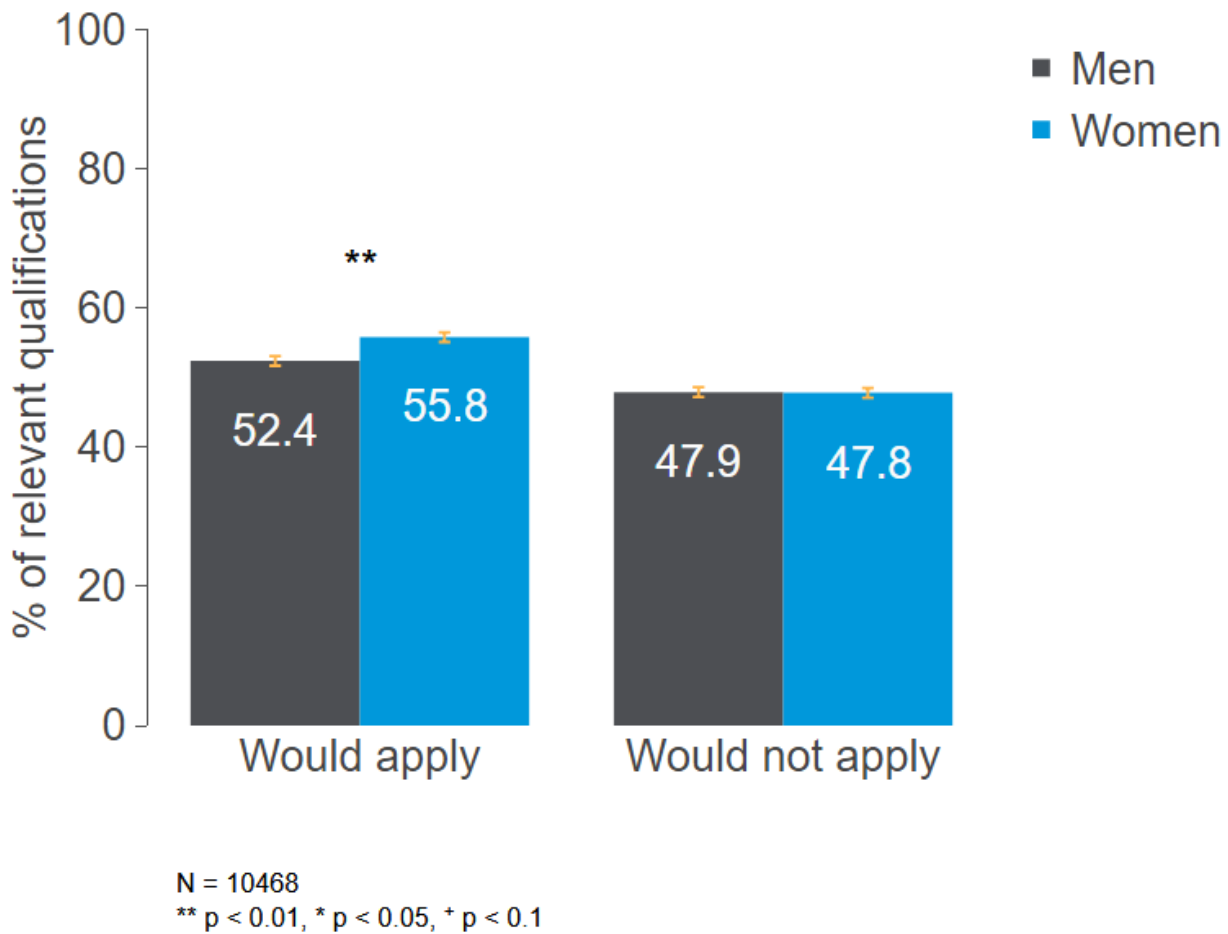


Men and women in our sample did not differ in their proportion of relevant qualifications. Defining 'would apply' as indicating six or higher on the seven-point Likert scale,²¹ women needed to meet 55.7% of the requirements before they were willing to apply, where men only needed to meet 52.1%.

²⁰ The median response for willingness to apply was 5.

²¹ While the median response for willingness to apply 5, 68.7% of the sample indicated 5 or more where 43.1% of the sample indicated 6 or more. We felt to make a more appropriate comparison with the statement at the beginning of the report, 6 would be a more discerning cut-off point.

Figure 7. Proportion of relevant qualifications for those who would apply vs. would not apply by gender. 'Would apply' is defined as responding 6 or more on the 7-point Likert scale for willingness to apply.

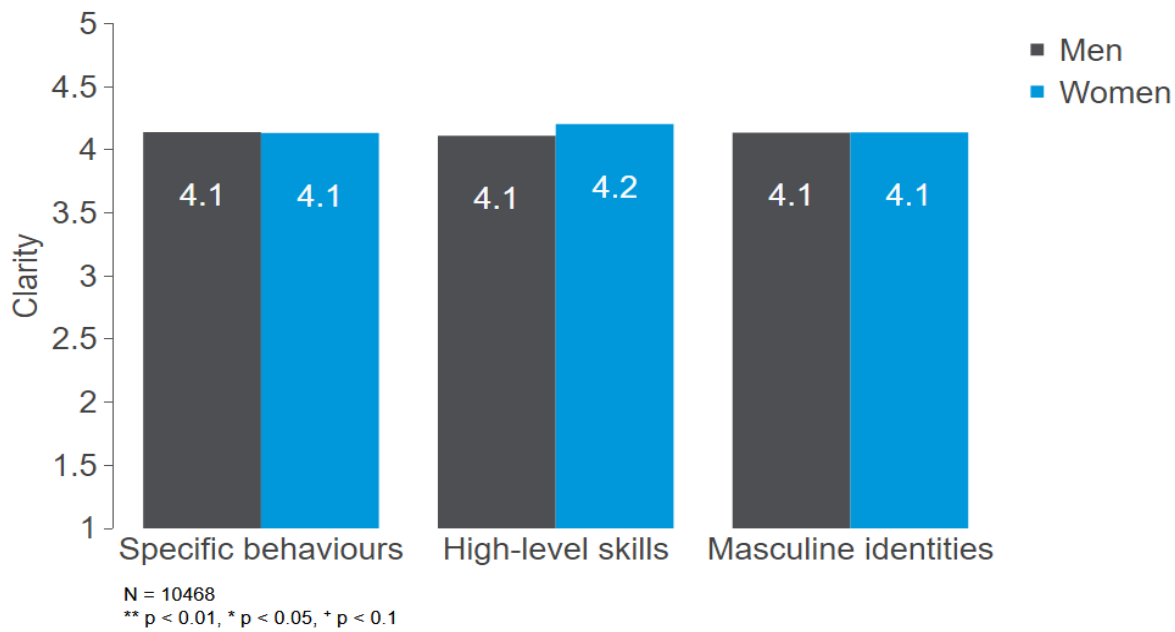


Manipulation checks

We find the following (see Appendix 2.4 for regression results):

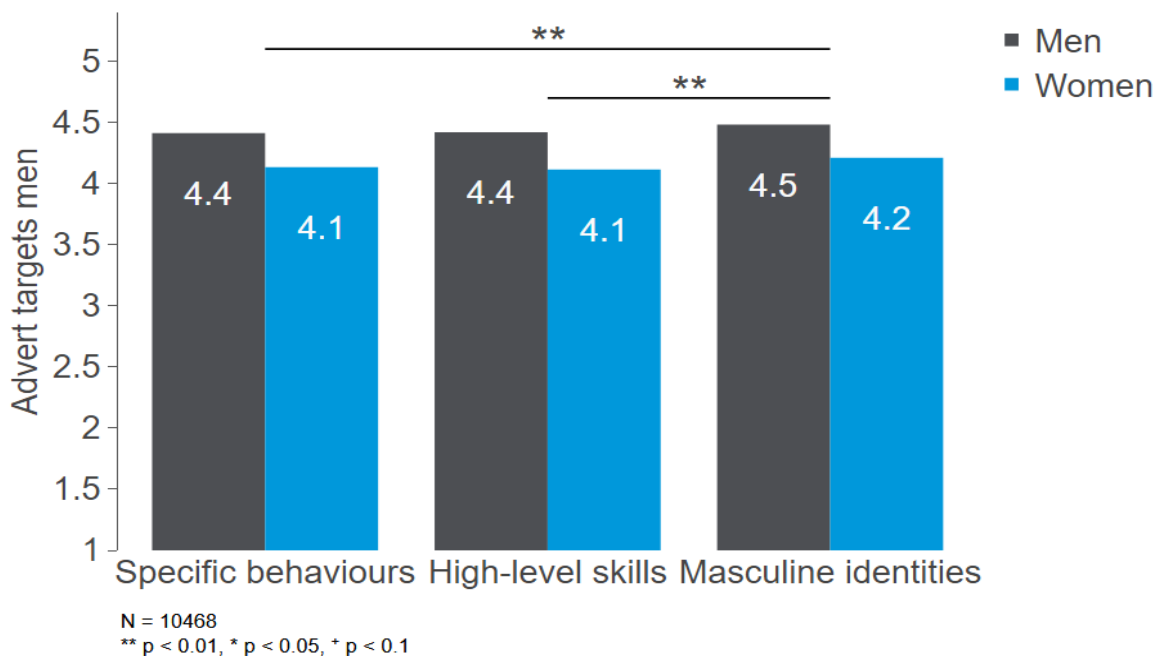
- **Failed ambiguity manipulation:** There was no difference in the perceived clarity of the job advert across conditions for both men and women, despite our deliberate attempt to make the 'specific behaviours' conditions less ambiguous than the 'high-level skills' and 'masculine identities' condition (Figure 8).

Figure 8. Perceptions of clarity of the job advert by gender and condition.



- Successful masculinity manipulation:** Both men and women perceived that the 'masculine identities' condition targeted men to a significantly greater extent than the 'specific behaviours' condition (men: 0.07, $p < 0.05$; women: 0.08, $p < 0.01$) and 'high-level skills' condition (men: 0.06, $p < 0.05$; women: 0.09, $p < 0.01$) (Figure 9).

Figure 9. Perceptions of how far the job advert targets men by gender and condition.



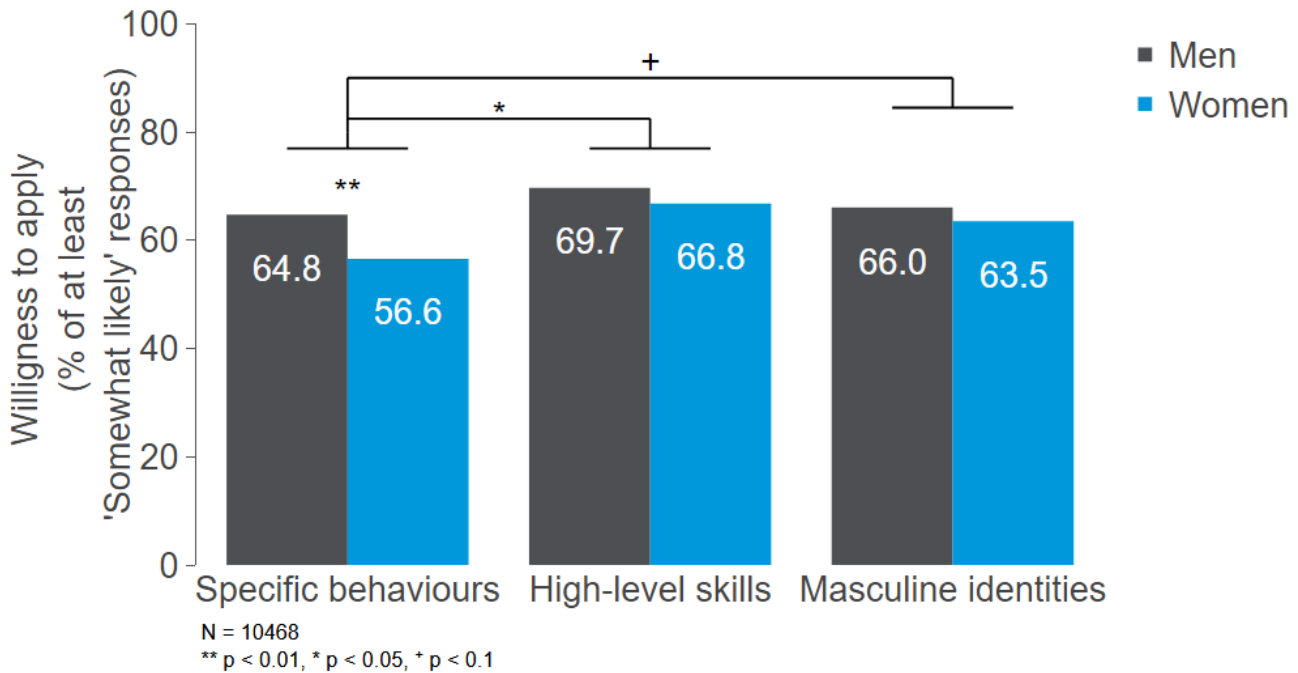
Secondary analysis: Gender differences in willingness to apply by condition

We find the following (see Appendix 2.5 for regression results):

- Willingness to apply was significantly greater in the 'high-level skills' and 'masculine identities' conditions compared with the 'specific behaviours' condition.
- There is weak evidence for gender differences by condition. In contrast to our hypothesis, the gender difference was marginally significantly greater in the 'specific behaviours' condition than the other conditions.

The secondary analysis defined willingness to apply as a continuous measure. However, Figure 10 illustrates the findings by looking only at less qualified participants where gender differences emerge and by defining willingness in a binary way at five or more on a seven-point Likert scale.

Figure 10. Comparison of binary willingness to apply between conditions for less qualified participants. More vs. less qualified was defined by above and below the median score for proportion of relevant qualifications.



Using the ambiguity manipulation check outcome measure, we found across conditions, the clearer participants found the job advert in terms of the candidate it was looking for, the more willing they were to apply (0.45, $p < 0.001$). There was not a significant gender interaction effect.

Across conditions, both men and women were more willing to apply to the job if they perceived it as targeting men (0.147, $p < 0.001$), but to a greater extent for men (0.22, $p < 0.001$). Men perceived all job adverts as more strongly targeting men than women did (0.28, $p < 0.001$). As per the manipulation check findings, both men and women found the 'masculine identities' condition to target men to a greater extent than the other conditions, and there was no gender difference in this. Therefore, as per the secondary analysis, there was no greater gender difference in

willingness to apply among men and women who viewed the 'masculine identities' job advert than the other conditions.

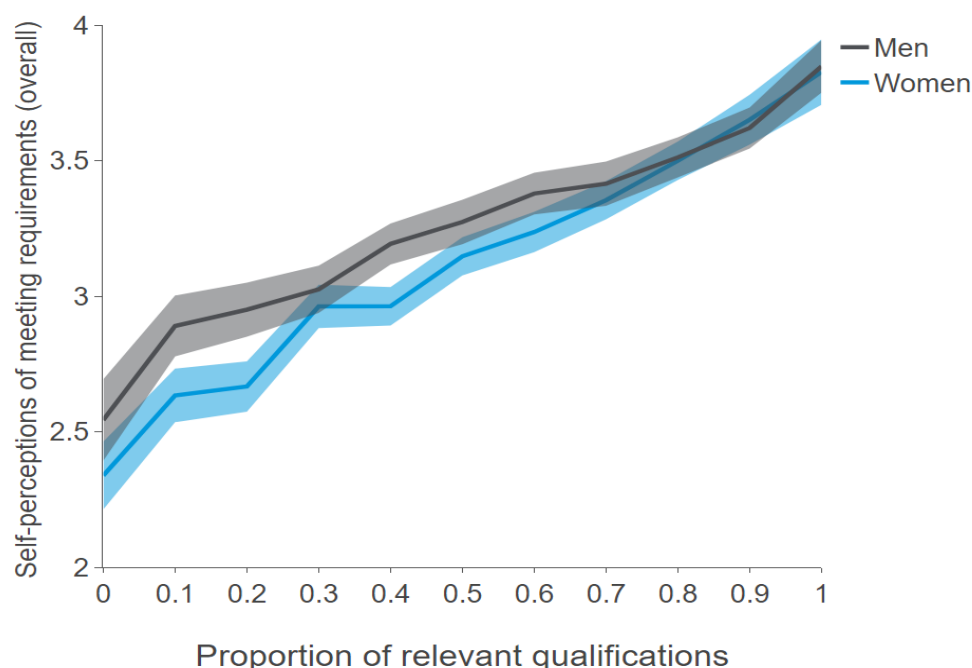
Exploratory analysis

Self-perception of meeting the requirements

We found the following:

- **Self-perception for meeting overall requirements:** We asked participants how well they thought they met the overall requirements for the job. Men had significantly greater self-perceptions of meeting the overall requirements than women ($\beta = 0.14$, $p < 0.001$). As with the main finding, the gender difference emerged for less qualified participants (i.e. those below the median in 'soft skills experiences' based on the 70-item questionnaire). For more qualified participants, there was no gender difference in self-perceptions.
- **Self-perception for meeting individual requirements:** We asked participants how well they thought they met each individual requirement. When aggregating self-perceptions for meeting individual requirements, women perceived they met the requirements individually to a significantly greater extent than men ($\beta = -0.07$, $p = 0.033$).
- **Self-perception by condition:** Self-perceptions for meeting the requirements were significantly greater in the 'high-level skills' ($\beta = 0.31$, $p = 0.03$) and 'masculine identities' ($\beta = 0.16$, $p = 0.03$) conditions compared with the 'specific behaviours' condition for both men and women.

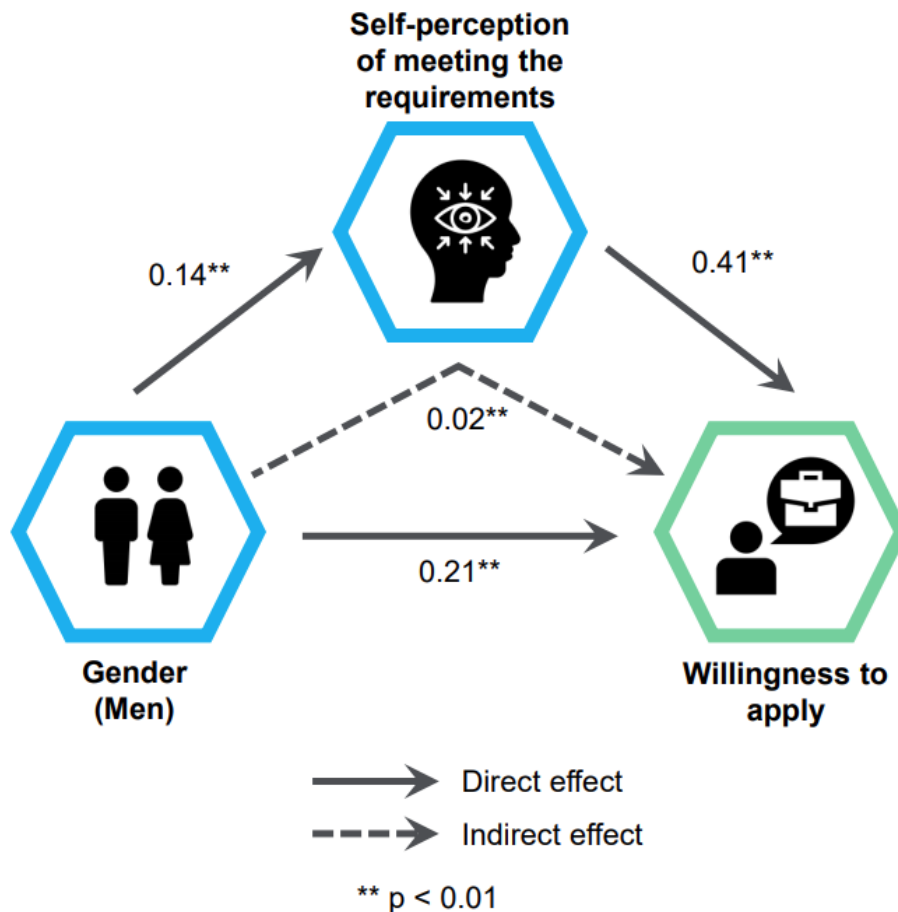
Figure 11. Relationship between overall self-perception and proportion of relevant qualifications. The graph represents raw averages for each proportion.



Mediation analysis for self-perceptions

The primary finding, that similarly qualified men were more willing to apply than women, was significantly mediated by self-perceptions of meeting the overall requirements (indirect effect: 0.018, $p < 0.05$). Figure 12 demonstrates the mediation relationship.

Figure 12. Illustration of the mediating role of self-perceptions in willingness to apply



Soft skills experiences as a predictor for willingness to apply

To get closer to understanding how far self-perceptions were accurate for men compared to women, we looked at gender differences in how far relevant qualifications predicted willingness to apply. Soft skills experiences was a stronger predictor for willingness to apply among women than men (-0.07 , $p < 0.05$).

Note that because our measure was continuous and we did not have a binary cut-off point for 'meeting' the requirements, we cannot know for sure whether the gender difference in self-perceptions represents an underestimate by women or an overestimate by men.



Discussion

Discussion

This trial empirically tested for gender differences in job application behaviour accounting for qualifications directly relevant to the job requirements. We found that a gender difference in willingness to apply emerged among participants who were less qualified for the role, with less qualified men more willing to apply than similarly 'less qualified' women. This finding was explained by differences in self-perceptions of meeting the overall requirements as men perceived they met the overall requirements to a greater extent than women. At the same time, there was no gender difference among more qualified participants. We did not find evidence that different kinds of framing reduced this gender difference, but our 'specific behaviours' framing failed to be less ambiguous than the other framings.

In support of the claim that "Men apply for a job when they meet only 60% of the qualifications, but women apply only if they meet 100%", we found evidence that similarly qualified women are less willing to apply to a job than men. This gender difference emerged among less qualified participants, with no gender difference among more qualified participants. The difference is not nearly as dramatic as the claim suggests, with women needing to meet about 55.7% of the requirements compared to 52.1% for men.

We found that the main finding was explained by gender differences in self-perceptions of meeting the overall requirements. Again, this gender difference emerged among less qualified participants. Less qualified men perceived they met the overall requirements to a greater extent than similarly qualified women, with no gender difference among more qualified participants. We were unable to identify whether this was due to an overestimation among men or an underestimation among women, however, we found that our measure for meeting the requirements (soft skills experiences) was a stronger predictor for willingness to apply among women than men.

The gender difference in willingness to apply is important, even if it only emerges among less qualified applicants. Recruitment processes have many biases and are not perfect at identifying the best candidate.²² Meanwhile, talent pools often do not always have obviously qualified candidates. If women are less likely to apply to 'stretch' roles in more senior positions, across the entire labour market this will lead to men entering into better paid and more senior positions earlier in their career and skills development. This finding is consistent with previous research examining gender differences in overconfidence. While overconfidence is not a gender-specific characteristic, men are more likely to be overconfident in their abilities, particularly when it comes to tasks in stereotypically masculine domains.²³ For example, in the context of stock trading, overconfidence in men has been found to account for men trading 45% more than women, which in turn can negatively affect the performance of their portfolio.²⁴ A further study found that the same risky decision positioned in a less stereotypically masculine setting reduces the gender difference in

²² Isaac, C., Lee, B., & Carnes, M. (2009). Interventions that affect gender bias in hiring: A systematic review. *Academic medicine: journal of the Association of American Medical Colleges*, 84(10), 1440.

²³ Beyer, S., & Bowden, E. M. (1997). Gender differences in self-perceptions: Convergent evidence from three measures of accuracy and bias. *Personality and Social Psychology Bulletin*, 23(2), 157-172.

²⁴ Barber, Brad M., Odean, Terrance, 2001. Boys will be boys: gender, overconfidence, and common stock investment. *Quarterly Journal of Economics* 116, 261–292

response to ambiguity.²⁵ The gender difference in overconfidence has been attributed to a number of factors such as socially reinforced gender role stereotypes and gender-differentiated parental beliefs.²⁶ While we were not able to identify whether the gender differences in self-perceptions indicated that men overestimated their abilities or women underestimated them, the finding that relevant qualifications were a stronger predictor of willingness to apply for women than for men and this wider research suggest that this difference may be due to men's overconfidence. In the context of senior leadership roles, which are stereotyped as masculine, this creates the need to find ways to counterbalance the masculine framing to balance the field.

Notably, we also found gender differences in the way men and women appraised job requirements in relation to their own skills. While men had greater self-perceptions of meeting the job requirements overall, women perceived they met the individual requirements on aggregate to a greater extent than men. This suggests that participants based their decision to apply more on their overall impression of the job requirements than on their perceptions of meeting the requirements individually. This creates the opportunity for an intervention to close the gender gap. Such an intervention could involve nudging applicants to consider to what extent they meet job requirements individually within job descriptions and to explicitly indicate that they expect applicants not to fully meet at least one, two or whatever the realistic tolerance threshold is for that role. Alternatively, an intervention could nudge organisations to only include requirements in their job adverts that would rule out a candidate if they do not meet it.

We were unable to understand whether decreasing ambiguity would reduce the gender gap as the 'specific behaviours' condition failed to be less ambiguous than the other conditions. If anything, our results suggest that this condition increased the gender difference. One explanation for this is that the necessarily generic nature of the job role in the trial made it difficult to create job requirements that were truly unambiguous. To create clear job requirements requires situating the experiences that would be considered evidence for them in the context of the role in question. Another explanation is that the 'specific behaviours' condition was significantly wordier compared to the other two conditions, which may have placed greater cognitive load on participants which has been shown to lead to task disengagement.²⁷ Increased cognitive load has been shown to increase performance gaps for groups in stereotype-incongruent contexts, which could explain the increase in the gender gap.²⁸ However, since the experiment was based on hypothetical application decisions, participants are unlikely to have interrogated the requirements as they would have done for a real-life job application. This suggests that making requirements as succinct as possible may help to reduce the gender gap in the context of a stereotypically masculine role, but further research is needed to establish this in real-world contexts.

We did find some evidence that reduced ambiguity is generally more appealing to potential applicants, but not necessarily more so for women. Using our ambiguity check measure,

²⁵ Schubert, R., Gysler, M., Brown, M., & Brachinger, H. W. (2000). Gender specific attitudes towards risk and ambiguity: An experimental investigation (No. 00/17). *Economics Working Paper Series*.

²⁶ Eccles, J. S., Jacobs, J. E., & Harold, R. D. (1990). Gender role stereotypes, expectancy effects, and parents' socialization of gender differences. *Journal of social issues*, 46(2), 183-201.

²⁷ Hopstaken, J. F., Van Der Linden, D., Bakker, A. B., & Kompier, M. A. (2015). A multifaceted investigation of the link between mental fatigue and task disengagement. *Psychophysiology*, 52(3), 305-315.

²⁸ Spencer, S. J., Logel, C., & Davies, P. G. (2016). Stereotype threat. *Annual review of psychology*, 67, 415-437.

across job adverts where participants perceived the advert as clearer this appealed equally to men and women and they were both more willing to apply to a similar extent when they felt the requirements were clearer. However, it is unclear whether reduced ambiguity could reduce the gender gap in self-perceptions. Further work is needed to understand whether reducing ambiguity would close the gender gap working with real-world job adverts in order to develop truly unambiguous requirements.

We found some interesting findings regarding the use of stereotypically masculine identity-based language in job adverts. While both men and women were more willing to apply the more they perceived any of the job adverts to target men, this effect was stronger for men, suggesting that women were less influenced by how far the job advert targeted men. Both men and women, to a similar extent, found the 'masculine identities' condition targeted men more strongly than the other conditions. Therefore, the 'masculine identities' condition did not result in a greater gender difference in willingness to apply than the other conditions. This highlights the importance of testing theoretical concepts on behaviour. It may be that in the context of a leadership role, the use of masculine stereotyped words make little difference,²⁹ that masculinity signals higher status, or that women are more desensitised to masculine stereotypes. Further research should investigate whether this finding applies in real-world settings. Additional research should also examine the effect of feminine-stereotyped language and whether there is a critical mass of masculine-stereotyped wording required before it creates a gender differences in willingness to apply.

The findings from this trial suggest that among less qualified applicants, men are more willing to apply to a leadership role than women. This suggests that across the labour market, men may be more likely to enter into more senior and better paid positions earlier in their career. This also alerts us to the potential for hidden biases in recruitment processes to go undetected where it appears that women are more likely to be hired: women may be more likely to be hired because they are overqualified for the levels they are applying for and they may be less likely to apply for 'stretch' roles that would advance their careers. Most employers do not currently record or collect adequate applicant data on qualifications directly relevant to requirements in their job adverts. With this data, employers would be able to better understand how far their job requirements drive gender differences in similarly qualified applicants.

Limitations

There are three key limitations to this research:

- As it was an online experiment, we did not measure actual application behaviour, but rather behavioural intentions in a hypothetical scenario. While in many ways, the online simulation was similar to how many people may approach job hunting in that the job advert display was similar to how it looks in online job sites and people often make snap judgements about whether a job appeals based on the advert, the decision had no cost for participants (e.g. time spent applying) and so it is likely that application behaviour would be different in real-world contexts.
- We chose not to assess hard qualifications and focused our job requirements on soft skills. This was because we found the soft skills we chose to be fairly universal in

²⁹ Gaucher, D., Friesen, J., & Kay, A. C. (2011). Evidence that gendered wording in job advertisements exists and sustains gender inequality. *Journal of personality and social psychology*, 101(1), 109.

requirements across different industries and so we could create a job advert that would be relevant to a wide range of potential participants. This was also because we felt that there is more room for interpretation when it comes to soft skills and it is much harder to have an 'objective' measure of these skills. However, it is plausible that there are gender differences in response even to requirements for hard qualifications. This would only be possible to explore in job adverts that are role-specific, but it would be worthwhile for further research to explore this.

- There is no 'objective' measure of soft skills, but our soft skills experiences measure comes as close as possible from what we could find. There is still a chance that this measure masks other gender differences in terms of self-perceptions of having had each of the individual experiences and in exposure to and opportunities for having these different kinds of experiences. Both of these factors suggest that our findings may underestimate gender differences.



Conclusion

Conclusion

We sought to understand how the framing of job requirements contribute to differences in job application behaviour while accounting for levels of qualification.

This research experimentally tested gender differences in job application behaviours accounting for qualifications directly relevant to the job requirements. We found that similarly qualified men were more willing to apply to a job than women. This gender difference emerged among less qualified participants, with no gender difference among more qualified participants. This was partially explained by gender differences in self-perceptions as men perceived that they met the overall requirements to a greater extent than women.

Our findings suggest there is potential for effective interventions that nudge applicants to consider how well they meet individual requirements rather than relying on their overall impression. Another potential intervention could nudge organisations to only include requirements in job adverts that would rule out candidates if they did not meet them. Making job requirements as succinct as possible, while reducing ambiguity, could avoid aggravating gender differences for stereotypically masculine roles.

We still suspect that reducing ambiguity would have a positive effect on the gender difference, but this has to be tested in relation to a real-world job where it is more feasible to make requirements less ambiguous as they can be made context-specific.



Appendices

Appendix 1: Further information on trial design

1.1 Survey questions

Eligibility

1. What is your current employment status? *Note that if you are on parental leave you are considered employed.*
 - a. On furlough; Employed full-time (and not on furlough); Employed part-time (and not on furlough); Unemployed (and looking for work); Not in work (e.g. retired, full-time parent)
2. When will you start looking for your next job / work?
 - a. I am currently looking for a job; Within the next year; After one year, but before two years; It will be at least two years before I start looking for my next job; I do not plan to look for another job
3. In the last year, have you engaged in any of the following job-related activities? Select all that apply.
 - a. Looked for a job; Searched online job listings with a view to applying; Asked for and/or provided career advice; Had direct responsibility for recruiting candidates for open positions; Helped define recruiting processes or policies for a company; None of the above
4. Please provide the total number of years of work experience you have:
 - a. Years []

Job advert (random allocation to condition)

As per Figures 2, 3 and 4 in the 'Experimental conditions' section

Dependent variables

5. How likely are you to apply for this job?
 - a. Very likely; Likely; Somewhat likely; Neutral; Somewhat unlikely; Unlikely; Very unlikely
6. Overall, how well do you think you meet the requirements for this job?
 - a. I significantly exceed the requirements; I exceed the requirements; I meet all the requirements; I meet some but not all of the requirements; I do not meet the requirements at all
7. To what extent do you think you fulfil each of the job requirements? [Requirements displayed in the same order as the job advert, where order of requirements was randomised for each participant]
 - a. {Requirement 1} Extremely well; Very well; Well; Neither well nor poorly; Poorly; Very poorly; Extremely poorly
 - b. {Requirement 2} Extremely well; Very well; Well; Neither well nor poorly; Poorly; Very poorly; Extremely poorly

- c. {Requirement 3} Extremely well; Very well; Well; Neither well nor poorly; Poorly; Very poorly; Extremely poorly
- d. {Requirement 4} Extremely well; Very well; Well; Neither well nor poorly; Poorly; Very poorly; Extremely poorly
- e. {Requirement 5} Extremely well; Very well; Well; Neither well nor poorly; Poorly; Very poorly; Extremely poorly

How far do you agree with the following statements?

- 8. Generally, I think I'll 'fit in' with the people in this organisation
 - a. Strongly agree; Agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Disagree; Strongly disagree
- 9. I have a clear understanding of what they are looking for in a candidate for this job
 - a. Strongly agree; Agree; Somewhat agree; Neither agree nor disagree; Somewhat disagree; Disagree; Strongly disagree
- 10. Do you think this job advert is targeted at male or female applicants? The job advert...
 - a. Strongly targets men; Targets men; Slightly targets men; Targets neither men nor women; Slightly targets women; Targets women; Strongly targets women

Education and industry

- 11. Please provide your highest level of education:
 - a. Postgraduate degree; Undergraduate degree or professional qualification; A-levels or equivalent (at school until aged 18); Post-16 vocational course; GCSEs or equivalent (at school until aged 16); No qualifications
- 12. What is the industry that you currently work in, or most recently worked in?
 - a. Accommodation and food services**
 - i. Hotel and accommodation services
 - ii. Food and hospitality services
 - b. Agriculture, forestry and fishing**
 - i. Agriculture, forestry and fishing
 - c. Arts, entertainment and recreation**
 - i. Arts, entertainment and recreation
 - d. Construction**
 - i. Construction
 - e. Education**
 - i. College, university, and adult education
 - ii. Primary/secondary (K-12) education
 - iii. Other education industry
 - f. Electricity, gas, steam and conditioning supply**
 - i. Electricity, gas, steam and conditioning supply
 - g. Human health and social work**
 - i. Medical and healthcare

- ii. Residential care and social work
- h. Information and communication**
 - i. Broadcasting
 - ii. Information services and data processing
 - iii. Publishing
 - iv. Telecommunications
 - v. Other information industry
- i. Manufacturing**
 - i. Computer and electronics manufacturing
 - ii. Food manufacturing
 - iii. Other manufacturing
- j. Mining and quarrying**
 - i. Mining and quarrying
- k. Oil and gas**
 - i. Oil and gas
- l. Other service activities**
 - i. Religious and membership organisations
- m. Professional, scientific and technical activities**
 - i. Administrative and support services
 - ii. Graphic design
 - iii. Finance and insurance
 - iv. Head office and management consultancy
 - v. Legal services
 - vi. Market research
 - vii. Product development
 - viii. Research laboratories
 - ix. Scientific or technical services
 - x. Software
 - xi. Veterinary
 - xii. Other professional, scientific and technical activities
- n. Public administration and defence**
 - i. Government and public administration
 - ii. Military
 - iii. Police
- o. Real estate activities**
 - i. Real estate, rental and leasing
- p. Transportation and storage**
 - i. Air transport
 - ii. Transportation and warehousing
 - iii. Other transportation and storage
- q. Water, sewerage and waste**
 - i. Water, sewerage and waste

- r. Wholesale and retail trade**
 - i. Grocery and food retail
 - ii. Retail (excluding grocery and food)
 - iii. Wholesale
- s. Other industry / none of the above**
 - i. Other industry / none of the above

Soft skills experience (as per section 1.3 of this appendix)

Additional demographics

- 13. How many children (aged 18 or younger) are living with you in the household?
 - a. Drop-down 0,1,2,3+
- 14. Do you consider yourself to have a disability or long-term condition?
 - a. Yes; No; Prefer not to say

Age, sex and ethnicity were provided by the panels that recruit the sample.

1.2 Challenges with outcome data

We encountered a challenge with one of the covariates. Initially we planned to ask participants what their desired working pattern (full-time or part-time) would be for their next role to control for flexibility preferences. However, due to a technical error, none of the participants were asked this question. As a result, the working pattern in their next role was omitted from the list of control variables. For those who were in employment participating in the study (69.8% of the sample), we already controlled for working pattern in current role (full-time or part-time) through the employment status variable.

1.3 Soft skills experiences measure

Soft skills experience items are listed below along with their skill coding and expertise level: 'B' indicates basic, 'I' indicates intermediate and 'E' indicates expert. Participants did not see this coding. The order of the items in each screen were randomised.

How much have you performed the following tasks in your working life?

Please select all that apply.

Never | Rarely | Regularly (weekly for at least 3 months)

Skill	Activity (Order randomised)
Communication B	1. Written work-related emails to customers, clients or colleagues.
Communication B	2. Participated in work-related phone or video call conversations with customers, clients, colleagues or service users.
Teamwork B	3. Worked with at least one other employee in order to complete a task that could not have been completed individually.
Teamwork B	4. Provided updates to your teammates about your progress on a team project.
Teamwork B	5. Shared information, knowledge, or experience with at least one colleague to help them complete a task or improve their work.
Leadership B	6. Provided feedback to another employee on how they could improve their work.
Leadership B	7. Assigned the responsibility for a task to an employee.
Time management B	8. Written notes during a meeting that included key decisions and next steps.
Time management B	9. Shared the notes from a meeting that included key decisions and next steps for colleagues to refer to.
Time management B	10. Prioritised your work tasks.
Time management B	11. Independently identified the key tasks and subtasks required to complete work you are assigned to.
Time management B	12. Worked out the timing for when you need to complete tasks to meet the standard set by your manager or team lead.

How much have you performed the following tasks in your working life?

Please select all that apply.

Never | Rarely | Regularly (monthly for at least 3 months)

Skill	Activity (Order randomised)
Communication B	1. Written content that was shared beyond your immediate team within the organisation, e.g. a report, information sheet, summary of your work, etc.
Teamwork B	2. Adapted your work to accommodate the needs and schedules of one or more colleagues.
Problem Solving B	3. Identified an issue that needed to be addressed in your work.
Problem Solving B	4. Raised an issue or opportunity for improvement in your work with your team lead or manager.
Problem Solving I	5. Gathered or researched information to understand the causes of a work-related problem or challenge.
Problem Solving B	6. Contributed to a group effort at work to generate solutions to a problem.
Problem Solving B	7. Approached more senior or experienced colleagues to seek information.
Problem solving I	8. Generated multiple solutions to a work-related problem or challenge.
Problem solving I	9. Assessed the advantages and disadvantages of a solution to a work-related problem to decide whether to progress with it.
Time management B	10. Asked your manager or team lead which of your tasks are most important or urgent.
Time management I	11. Identified the actions required to reduce the likelihood of missing a deadline for a task or project.

How much have you performed the following tasks in your working life?

Please select all that apply.

Never | Rarely | Regularly (monthly for at least 6 months)

Skill	Activity (Order randomised)
Communication I	1. Simplified complex information and created a written summary for a customer, client or colleague.
Communication I	2. Written content that was shared with an audience outside of the organisation, e.g. a blog post, article, report, etc.
Communication I	3. Explained your work to a small (3 people or more) group of people in your organisation.

Communication I	4. Presented your work to a small (3 people or more) group of people outside of your organisation.
Communication I	5. Communicated difficult information to a customer, client or colleague, e.g. critical feedback, disappointing news or an undesirable outcome.
Communication I	6. Initiated a discussion with a client or colleague that reached an agreement.
Teamwork B	7. Completed assigned work on a group task within the deadline and up to the standard set by the team lead.
Teamwork I	8. Openly acknowledged the contributions your colleagues have made to a shared project or task.
Leadership B	9. Instructed another employee on how to perform a task.
Leadership B	10. Monitored an employee's progress on a task that you have assigned to them to see if they are meeting your expectations.
Leadership B	11. Openly acknowledged the members of a team you managed when they achieved a goal by mentioning what they did and how they individually contributed to the outcome.
How much have you performed the following tasks in your working life?	
Please select all that apply.	
Never Rarely Regularly (every 3 months for at least 6 months)	
Skill	Activity (Order randomised)
Communication I	1. Set up an informal meeting with an employee outside of your team or person outside of your organisation to understand what they do or learn from them.
Teamwork B	2. Offered support to a colleague because their workload seemed too large.
Teamwork E	3. Intervened to resolve at least one disagreement between team members and reached a compromise.
Leadership I	4. Explained and shared the results of the work by a team you have managed with senior management, including the reasons behind the decisions that were made, whether or not they were successful.
Leadership I	5. Sought input from all members of a team you have managed in order to make a decision.
Problem solving I	6. Organised a group discussion at work to generate solutions to a problem.
Problem solving I	7. Implemented a solution at work to a work-related problem or challenge.
Problem solving I	8. Assessed whether a solution you have implemented at work has worked.
Problem solving I	9. Identified the causes for why a project or task at work failed.

Problem solving I	10. Made adjustments to a solution that you have implemented at work based on how it has performed.
Time management I	11. Let your manager or team lead know when you will take longer to complete a task than they expected.
Time management I	12. Let your manager or team lead know when you think that a deadline is no longer realistic.
<p>How much have you performed the following tasks in your working life?</p> <p>Please select all that apply</p> <p>Never For <u>less than</u> 6 months For <u>more than</u> 6 months</p>	
Skill	Activity (Order randomised)
Teamwork B	1. Completed a task or project that required working with at least one other employee with a different background or skillset to you.
Teamwork B	2. Worked with colleagues at a different level of seniority to you (not including the team lead or your manager).
Teamwork B	3. Worked as a member of a team of at least three people.
Teamwork B	4. Worked on a project or task that required working jointly with at least one other employee.
Teamwork B	5. Worked closely with at least one employee from a different team or function on a task or project.
Leadership B	6. Overseen the work of at least one employee.
Leadership I	7. Had direct managerial responsibility for at least one employee that involved fulfilling formal management responsibilities such as carrying out a performance assessment.
Leadership I	8. Led or managed a team of at least three employees.
Leadership E	9. Held a leadership role that oversaw the management of several teams or functions.
Time management E	10. Tracked the costs of a project against the intended costs.

How much have you performed the following tasks in your working life?	
Please select all that apply.	
Never Rarely Regularly (every 3 months for at least 12 months)	
Skill	Activity (Order randomised)
Communication E	1. Given a speech or presented your work to a large (more than 20 people) audience from outside the organisation.
Time management E	2. Monitored the completion of tasks across multiple members of a team on a project against expected deadlines.
Time management E	3. Identified key risks on a project for the whole team, e.g. risks that mean it may not meet deadlines or stay within budget.
Time management E	4. Let your manager or team lead know when a project or purchase is likely to cost more than intended.
Time management E	5. Negotiated terms or costs with a client or supplier to meet the project timeline and budget.
How much have you performed the following tasks in your working life?	
Please select all that apply.	
Never Once or more	
Skill	Activity (Order randomised)
Communication E	1. Spoken about your work in a radio, TV or other media interview.
Communication E	2. Led the presentation of a sales pitch (e.g. for a product or service) to a potential client or investor.
Communication E	3. Responded to unrehearsed questions from a large (more than 20 people) audience during a live event.
Teamwork I	4. Identified and implemented at least one new way to spend non-work social time together as a team.
Leadership I	5. Explained a major failure of a team you managed to senior management.
Leadership E	6. Developed and implemented a new way of working as a team, e.g. adopting a new project management approach, for a team you have managed or been part of.
Leadership E	7. Been responsible for making decisions about how a budget is spent, which includes staff costs or other costs incurred by a team you managed.
Problem solving E	8. Improved a process at work to reduce costs, time or resources.
Problem solving E	9. Collected information to quantify how much a solution or process you have implemented improved or worsened outcomes.

Appendix 2: Further results

2.1 Identifying model of best fit

We began the main analysis by identifying the model of best fit. We plotted the average willingness to apply against proportion of relevant qualifications (measured by soft skills experiences). The plot (see Figure A1 below) revealed a possible interaction between gender and proportion of relevant qualifications, and/or a non-linear effect. For this reason, it was determined that a linear model would most likely lead to false conclusions. Instead, we proceeded by using Bayesian Information Criterion and Akaike Information Criterion, to identify the model of best fit that could accurately describe the existing relationship. The analyses found that the most appropriate model for the observed relationship, factoring in best fit and complexity, included an interaction term between soft skills experiences and gender, and a quadratic term for soft skills experiences (see Table A1 for comparison of model fits below). Based on our findings, we used this model in subsequent analyses.

Figure A1. Relationship between proportion of relevant qualifications, and average willingness to apply.

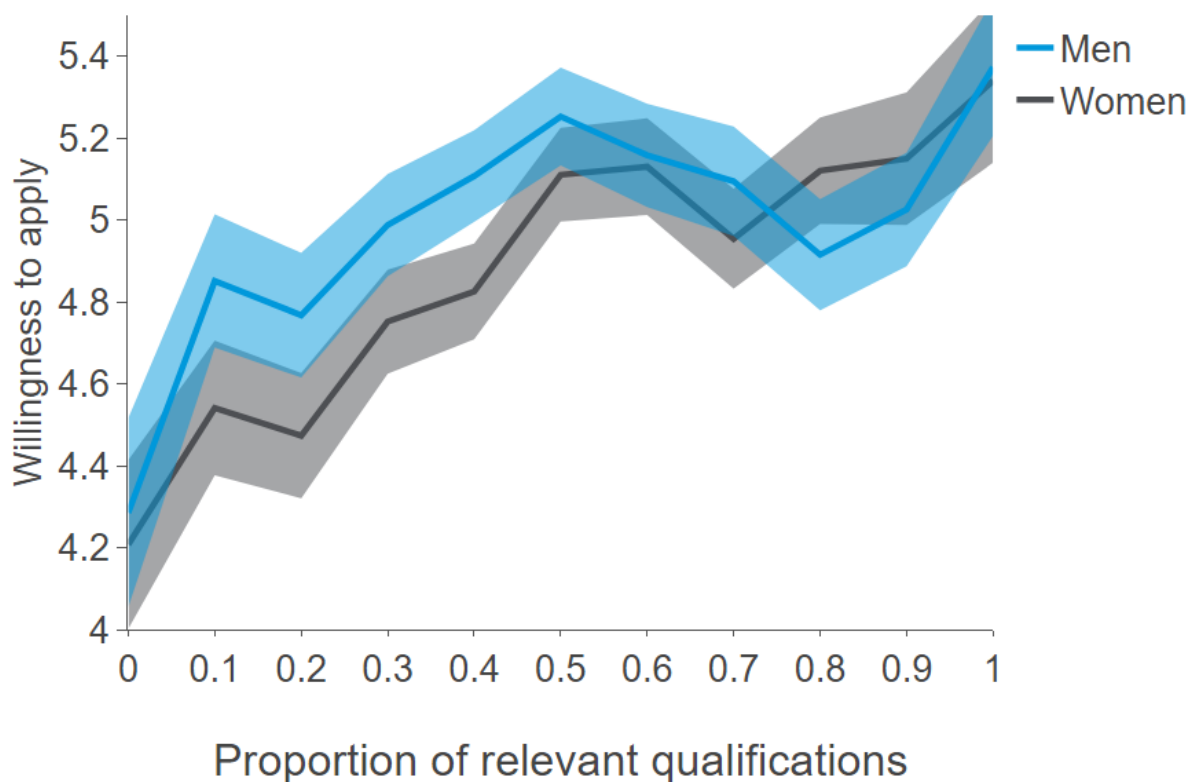


Table A1. Comparison of model fits. Lower numbers represent better trade-off between model fit and complexity.

	Model 1 soft skills experience	Model 2 interaction	Model 3 interaction + extremes dummy	Model 4 quadratic	Model 5 interaction + quadratic	Model 6 interaction + quadratic + quadratic interaction
AIC	38321.79	38309.13	38295.90	38292.04	38282.02	38281.97
BIC	38909.53	38904.12	38905.41	38887.03	38884.27	38891.48

2.2 Analytical strategy

Our primary analysis examined whether there is a difference in women and (equally-qualified) men's willingness to apply to the job advert. This was assessed using a non-linear regression:

$$Y_i = \alpha + \beta_1 man_i + \beta_2 treat_i + \beta_3 (man_i * softSkills_i) + \gamma_1 softSkills_i + \gamma_2 softSkills_i^2 + \gamma_3 hardSkills_i + \delta A_i + \varepsilon_i$$

Here:

- Y_i is the self-reported willingness to apply to the job advert (1-7 scale)
- man_i is a binary indicator for being a man (instead of a woman)
- $softSkills_i$ is a proportion of soft-skill experiences averaged over all skill categories.
- $hardSkills_i$ is a vector of measures for hard skills (education level, years of experience)
- $treat_i$ is a categorical variable for the version of the job advert received
- A_i is a vector of other covariates (industry, employment status, role skill level, number of children, disability, ethnicity, age bracket, household income bracket, location, working pattern for next job)

2.3 Primary analysis

Table A2. Relationship between gender, soft skills experiences and willingness to apply. The first column reports results from an OLS regression, and second column from a logistic regression. The table does not include the coefficients for covariates; however, they were included in the analysis as specified in the Trial Protocol (TP).

	Continuous (1)	Binary (2)
Gender (Male)	0.265** (0.065)	0.375** (0.094)
Soft skills experiences	2.158** (0.220)	3.321** (0.319)

Gender * Soft skills experiences	-0.373** (0.108)	-0.485** (0.158)
Soft skills experiences squared	-1.079** (0.201)	-1.948** (0.295)
Intercept	4.308** (0.141)	0.079 (0.213)

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table A3. Relationship between binary willingness to apply, gender and soft skills among less and more qualified participants. The table does not include the coefficients for covariates; however, they were included in the analysis as specified in the TP.

	More qualified	Less qualified
Gender	-0.001 (0.013)	0.043** (0.046)
Soft skills experiences	0.0406 (0.144)	0.437** (0.045)
Intercept	0.777** (0.069)	0.582** (0.052)

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

2.4 Manipulation checks

Table A4. Manipulation checks. The table reports results from OLS regressions, with standard covariates, and clarity of requirements / perceived target of the advertisement as the dependent variable, and conditions as the independent variable. The table merges results from regressions that treat the ‘specific behaviours’ condition as the reference variable, and ‘high-level skills’ condition as the reference variable (the latter allows us to directly compare if two ambiguity conditions differed from each other). The results are reported separately for the sub-samples of men and women.

	Men	Women	Overall
Clarity of requirements			
High-level skills vs. Specific behaviours	-0.04 (0.04)	0.07 (0.04)	0.02 (0.03)
Masculine identities vs. Specific behaviours	-0.01 (0.04)	0.00 (0.06)	0.00 (0.03)
Masculine identities vs. High-level skills	0.03 (0.04)	-0.07 (0.04)	-0.02 (0.03)
Intercept	5.46** (0.14)	5.39** (0.14)	5.41** (0.10)

Advert targets men more than women			
High-level skills vs. Specific behaviours	0.00 (0.03)	-0.01 (0.03)	-0.01 (0.02)
Masculine identities vs. Specific behaviours	0.07* (0.03)	0.08** (0.03)	0.07** (0.02)
Masculine identities vs. High-level skills	0.06* (0.03)	0.09** (0.026)	0.08** (0.02)
Intercept	4.50** (0.11)	4.23** (0.09)	4.44** (0.07)
N	5169	5299	10468

⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

2.5 Secondary analysis

Table A5. Relationship between gender, conditions, and willingness to apply. The table does not include the coefficients for covariates; however, they were included in the analysis as specified in the TP.

	(1) Main specification
Gender (Male)	0.36** (0.08)
High-level skills vs. Specific behaviours	0.23** (0.05)
Masculine identities vs. Specific behaviours	0.14* (0.05)
Masculine identities vs. High-level skills	-0.09 (0.05)
High-level skills vs. Specific behaviours* Gender	-0.15+ (0.07)
Masculine identities vs. Specific behaviours* Gender	-0.14+ (0.07)
Masculine identities vs. High-level skills* Gender	0.01 (0.07)
Soft skills experiences	2.16** (0.22)
Soft skills experiences squared	-1.08** (0.20)
Soft skills experiences * Gender	-0.37** (0.11)
Constant	4.26 (0.14)

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, corrected for multiple comparisons in case of gender interactions

Table A6. Relationship between gender, proportion of relevant qualifications, conditions and self-perceptions of meeting the requirements. The table does not include the coefficients for covariates; however, they were included in the analysis as specified in the TP.

	(1) Self-perception of meeting <u>overall</u> requirements (5-point Likert scale)	(2) Self-perception of meeting <u>individual</u> requirements (7-point Likert scale)
Gender (Male)	0.14** (0.05)	-0.07* (0.03)
High-level skills vs. Specific behaviours	0.31** (0.03)	0.28** (0.02)
Masculine identities vs. Specific behaviours	0.16** (0.03)	0.10** (0.02)
Soft skills experiences	0.84** (0.13)	2.07** (0.11)

Soft skills experiences *	-0.18**	-0.05
Gender	(0.07)	(0.06)
Soft skills experiences quadratic	0.15	-0.53**
	(0.12)	(10)
Constant	2.83**	4.77***
	(0.09)	(0.07)



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