Interdisciplinary Perspectives on Equality and Diversity

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Backlash and false progress: Exploring gender diversity management in the engineering industry

Zara Whysall*[1] and Elizabeth Foley*

* Nottingham Trent University, UK

Abstract

Recent typological theory highlights potential unintended consequences of diversity initiatives, including backlash and false progress. This study aimed to explore this in relation to gender diversity initiatives, against two critical dimensions: horizontal dimensionality in terms of both majority and minority group attitudes and behaviours, and vertical dimensionality in terms of the impact of initiatives at surface and deeper levels of organisational culture. A mixed-methods design was adopted, comprising a survey of male and female engineers to allow for comparisons between majority and minority groups attitudes, and interviews with internal stakeholders within a global engineering organisation attempting to enhance gender diversity, to explore alignment between diversity initiatives and underlying attitudes, beliefs, and values. The findings revealed that superficial efforts to promote diversity can potentially threaten the perceived legitimacy of such initiatives, creating perceptions of positive discrimination and tokenism. The findings also highlight the importance of alignment between what an organisation espouses (both internally and externally), and how its members truly think and act. These findings support recent theoretical propositions regarding potential negative unintended consequences of diversity initiatives. We propose that to mitigate unintended effects, diversity initiatives must embrace greater horizontal dimensionality through inclusion of majority and minority groups, and vertical dimensionality through effecting change at both surface and deeper levels of organisational culture.

Keywords: diversity, gender, engineering, culture

[1] Corresponding author: zara.whysall@ntu.ac.uk

Submitted: 10 Apr 2021
Accepted: 02 Nov 2021
First published online: date

Introduction

Despite claims that workforce diversity is a competitive necessity (Matuska and Salek-Iminska, 2014), progress towards achieving it has been slow. Concerning gender, evidence suggests that progress has stagnated (Dobbin and Kalev, 2016; Sealy *et al.*, 2016). Reviews of the literature regarding diversity intervention effectiveness reveal mixed results (e.g. Dover *et al*., 2020; Ng & Sears, 2020; Robertson, 2019) and progress is dependent on us understanding why. A promising avenue presented by recent theoretical advances (Leslie, 2018; Dover *et al*., 2020) is that different diversity initiatives may trigger specific unintended consequences. Accountability practices such as targets for minority group representation, for instance, may signal to employees that what is valued most is improved diversity metrics, rather than true changes in attitudes or behaviours towards minority groups. The potential negative unintended consequence of this, Leslie (2018) argues, is a sense of false progress. The organisation may appear diverse at the surface level but, beneath the surface, diversity is not embraced. Resource practices such as provision of training for minority groups, on the other hand, may inadvertently trigger perceptions of unfairness, and consequentially backlash from majority groups. To avoid these negative unintended effects, we suggest that diversity must be managed inclusively, taking into account and addressing both majority and minority groups' perspectives, attitudes and behaviours. Secondly, we argue that diversity should be managed vertically in terms of organisational culture, from surface elements of organisational culture such as espoused values, written policies and the external brand identity portrayed, through to the deeper levels of culture embodied by employees' implicit beliefs and attitudes.

These insights highlight the complexity of diversity management, and the critical distinction between diversity and inclusion. Simply recruiting more individuals from minority groups will not automatically make a workplace fairer, nor generate the performance benefits that diversity can offer. As articulated by Frost and Kalman (2016), "*real inclusion is about bringing those differences together to add value*" (p.49). In light of this, we argue that interventions to increase diversity are unlikely to lead to sustainable change unless they are accompanied by efforts to also promote inclusion. Without accompanying changes in employee attitudes and behaviours, the work environment will remain inhibiting, and possibly even inhospitable for individuals from minority groups. This may lead to them withdrawing or de-selecting themselves from these contexts, or worse, their potential being valued due to the inhibitive effect of discriminatory attitudes and behaviours on their performance (as discussed below in relation to stereotype threat). In other words, efforts to promote diversity without inclusion could not only lead to diversity fatigue, but also to the false assumption that diversity is not worth the effort.

This paper aims to investigate the extent to which hypothesised unintended negative consequences are triggered by, and/or impede the success of, diversity initiatives in practice, and in doing so, to enhance our understanding of the barriers and enablers to promoting organisational diversity. Specifically, it aims to explore dimensionality in diversity management research and practice, along two key dimensions: *horizontal dimensionality* – the impact across different (majority and minority) groups in an organisation, and *vertical dimensionality* – the depth of diversity initiatives and their impact, from surface level changes such as espoused values to more deeply rooted changes in employee values, attitudes and beliefs.

Literature review

Findings of mixed effectiveness for common diversity initiatives, including training, pro-diversity employer branding on websites and recruitment materials, affirmative action policies and targets, diversity committees and management personnel, mentoring programs, and affinity groups (see Dover, Kaiser & Major, 2020; Leslie, 2018) present a significant challenge for the field. Recent theoretical developments suggest that a critical part of this puzzle could relate to the potential for such initiatives to trigger unintended consequences, of which Leslie (2018) outlined four main types:

1. Backfire: negative diversity goal progress, e.g., women becoming less likely to be given leadership opportunities due to targets being perceived as needing help due to inferior capability as a result of support given
2. Negative spill-over: undesirable effects on outcomes other than diversity goal progress, e.g., evoking backlash in the form of negative reactions among non-target populations due to perceived unfairness and/or preferential treatment
3. Positive spill-over: desirable effects on outcomes other than diversity goal progress, e.g., favourable reactions among non-target populations
4. False progress: improved diversity metrics without true change in targets' experiences and outcomes. Applied to gender representation targets, for example, it can be seen how although targets may increase female representation, if women are appointed to perform in environments where discrimination, stereotypes and other biases still prevail, this may reflect false progress, because whilst the environment may appear more diverse on the surface, women's' performance is likely to be impeded in this context as a result of explicit or implicit discrimination, microinequities (Rowe, 2008), or stereotype threat (see Steele and Aronson, 1995; Casad and Merritt, 2014; Von Hippel *et al.*, 2015). As a result, biases and stereotypes of women as inferior are likely to be reinforced, resulting in backfire.

Although women's' representation on boards has improved in some countries, evidence of shorter tenures raises questions regarding potential symbolism (Vinnicombe *et al.,* 2019), suggestive of false progress. Similarly, in specific sectors such as engineering, although initiatives have increased the proportion of women entering engineering education, women remain significantly underrepresented in engineering professions (e.g. Powell et al., 2006; UK Office for National Statistics, 2017; Engineering UK, 2020). Consequently, targets alone may reflect a box-ticking exercise which fails to address underlying causes of discrimination such as stereotypes and other sources of bias.

A similar situation could transpire with employer branding initiatives employed by organisations to attract a more diverse range of employees. In practice, employer branding focuses on external positioning of the brand as pro-diversity but gives little or no consideration to the alignment of these efforts with the internal reality. This is likely to create a gap between discourse and practice, achieving a superficial level of diversity which is not accompanied by any significant changes at a deeper organisational level (Lundkvist, 2011). As with diversity targets, an initiative focussed on the surface level of an organisation (e.g. promoting a diverse image on the company website and in recruitment materials), unaccompanied by any additional attempts to address inherent bias in attitudes, behaviours, or processes within the organisation is likely to introduce the risk of unintended negative consequences. Indeed, it may even aggravate the situation since organisations which promote a diverse identity but fall short in practice will lose perceived legitimacy (Cole and Salimath, 2013).

Schein's (1992, 2004, 2016) concept of levels of culture provides a useful structure for understanding the role of organisational culture in promoting or inhibiting diversity and inclusion in this regard. Schein suggested that organisational culture can be viewed in terms of three interrelated levels: Surface manifestations of culture (artefacts), espoused values, and basic underlying assumptions. Surface level culture reflects "all the phenomena that one sees, hears, and feels when one encounters a new group with an unfamiliar culture" (Schein, 1992, p. 17). Espoused values are the "articulated, publicly announced principles and values that the group claims to be trying to achieve" (Schein, 2016, p. 4), which over time drop out of conscious awareness to become basic assumptions. Basic assumptions are "the implicit assumptions that actually guide behaviour, that tell group members how to perceive, think about, and feel about things" (Schein, 1992, p. 22). These taken-for-granted assumptions and beliefs are the ultimate source of individuals' values and actions, but typically go unchallenged or debated. Applying Schein's levels of culture concept to diversity highlights a fundamental challenge - the potential disparity between an organisation's espoused rhetoric regarding diversity, and the reality of organisational practices, behaviours, implicit attitudes and beliefs. Indeed, recent research reinforces that it is insufficient for a CEO to show backing for diversity initiatives; they must

form genuine positive beliefs about the value of increasing diversity in the workplace (Ng & Sears, 2020). These deeply-rooted beliefs signal to others that CEOs are committed to workplace diversity, which is necessary for diversity management practices to be prioritised (Ng & Sears, 2020).

It can be argued, therefore, that initiatives to promote diversity and inclusion will be of limited value if they fail to penetrate deeper levels of organisational culture; to address implicit norms, attitudes, values and beliefs. When organisational changes are reflected by "*resigned compliance, rather than an authentic willingness to change*" (Ogbonna and Harris, 1998, p.285), those changes are unlikely to be maintained. Furthermore, Schein's multi-layered concept of organisational culture also emphasises the additional risk of cultural misalignment; of a gap emerging between what an organisation espouses, one the one hand, and how its members truly think and act on the other. Initiatives which operate solely at the surface level of organisational culture - corporate statements, policies, an employer brand that espouses pro-diversity values, or diversity targets – potentially leave the environment, deeply-held assumptions, attitudes and implicit beliefs, unchanged. This example of 'false progress' in terms of the typographical framework proposed by Leslie (2018) is arguably more damaging, since it conveys an impression of progress and equality, whilst continuing to expose individuals of minority groups to unfair, discriminatory situations, attitudes and behaviours.

Critical to gaining alignment between surface and deeper levels of culture, we argue, is active management of an organisation's multiple identities (Gioia *et al*., 2000), through conscious efforts to portray different identities to different stakeholders (Cole and Salimath, 2013), such as potential future employees the organisation is aiming to attract compared to existing employees. This requires an understanding of existing employees' perceptions of organisational identity (such as its status in relation to diversity), and the sources that shape potential employees' perceptions of potential employers. Furthermore, those that are attracted to a brand go on to play a role in socialising those values and assumptions about an employer once within it (Backhaus and Tikoo, 2004), suggesting that over time convergence may be achieved between an aspirational external identity and the internal identity experienced by employees. However, if not actively managed, misalignment between an aspirational employer brand and the internal organisational reality is likely to trigger problems with employee motivation, engagement and retention. If employees are attracted to a brand on a false (or at least aspirational) premise, unless efforts are made to shift attitudes, beliefs, and behaviours which characterise the existing culture, or the newcomers are attracted in significant numbers to create a 'tipping point', a talent attraction issue may simply transfer into an engagement and retention issue when the reality does not live up to expectations. Finally, the promotion of a diverse identity is likely to come at a cost to the various other identities that existing employees may associate with. Diversity initiatives

can inadvertently threaten important identities (Petriglieri, 2011), and polarize men and women by making gender the most salient component of their identity, thereby enhancing gender stereotypes (Steele and Vandello, 2019).

Managing the horizontal dimension in terms of impact on, and relationships between majority and minority groups, is critical to creating an inclusive culture to ensure that both underrepresented and dominant groups are accounted for in diversity management (Ringblom and Johansson, 2020). Focusing on minority groups can result in a 'backlash' from the majority groups, a response which triggers counter-productive outcomes for the minority groups such as the perception of 'positive discrimination' and 'tokenism' (Zimmer, 1988). Backlash may be active or passive (Davidson and Proudford, 2008; Hill, 2009); passive in terms of a refusal to engage in diversity initiatives, or active in terms of ignoring diversity mandates, continuing discriminatory practices, and/or denigrating target group(s). Furthermore, diversity resistance is unique from resistance to most other organisational change initiatives since the proposed change extends beyond an organisation's way of operating to touch upon an individual's deeply held values and motivations (Hite and McDonald, 2006). This has led to attempts to make diversity initiatives more inclusive and to a distinction between initiatives described as 'diversity conscious' (e.g. opportunity enhancing initiatives provided exclusively for women or other minority groups) as opposed to 'diversity blind' (e.g., management training available to all employees; Konrad and Linnehan, 1995). It is diversity conscious initiatives that potentially lead to criticism from non-beneficiaries – essentially members of majority groups (Leslie, 2018). Since a number of key industries with diversity challenges also face general skills shortages, it is essential that organisations are able to maintain high levels of engagement among majority groups, whilst also attempting to attract more individuals from minority groups.

The engineering industry faces particularly intense talent challenges; both an ongoing skills shortage and a distinct lack of diversity. In Australia only 15% of undergraduate engineering enrolments are women, reducing to only 5% of engineers in the workforce, and little improvement is detectable in these figures over the past decade (Schafer, 2011; Engineers Australia, 2017). This shortage of engineering talent dramatically limits growth and productivity in the sector, such that closing this gap in Australia is considered to have the potential to increase GDP by 13% (Conway, 2012). Previous research has highlighted certain fixed beliefs within the sector that are likely to present significant barriers to progress. For instance, the vast majority of employers agree that retention of female engineers would be improved if more flexible and/or part-time options were offered, but engineering roles are perceived incompatible with these forms of working (Bryce et al., 2019). Clearly, if such beliefs are not challenged within organisations attempting to enhance diversity, the success of other efforts to promote diversity is likely to be limited.

Research aims

This study aimed to enhance understanding of the impact of gender diversity initiatives by exploring the potential negative unintended consequences associated with horizontal and vertical dimensionality, outlined above. Specifically, this study aimed to broaden the dominant focus of previous diversity research to explore both male and female engineers' attitudes towards diversity initiatives, in addition to comparing the attitudes, perceptions and values of external stakeholders (engineering talent) with those of key internal stakeholders within a case study organisation striving to promote gender diversity. The primary aim of this research was to investigate the impact of horizontal dimensionality in the form of minority and majority attitudes, and vertical dimensionality in the form of surface versus deeper level organisational culture, on diversity initiatives to understand how diversity management can be improved to maximise intended consequences and avoid negative unintended consequences. Specific sub-questions in relation to this, and the theoretical areas to which they relate, were:

Theoretical basis	Sub-question
Exploring evidence of backfire, negative spillover and false progress (Leslie, 2018)	i) to what extent is diversity an important consideration for male and female engineers when choosing a potential employer? ii) how are efforts to promote gender diversity in the engineering industry perceived by male and female engineers?
Exploring evidence of false progress or potential for negative spillover (Leslie, 2018)	iii) to what extent do engineers (male and female) believe that fair treatment currently exists in relation to gender in the Australian engineering industry?

In answering these questions, the authors aim to identify recommendations for engineering organisations in actively managing diversity, specifically in managing minority and majority attitudes and engagement, and in aligning surface-level and deeper elements of culture. The research did not extend to consider transgender issues as that was not a focus for the organisation when the research was conducted.

Research design

A mixed-methods design was adopted to provide both breadth and depth of insight, comprising of two key elements: a sector-wide survey of engineers in Australia, and a series of interviews with senior managers within a leading global engineering and construction company currently attempting to enhance gender diversity. The value of this combined approach is that it allowed

for examination of both the underrepresented groups and the dominant groups in the implementation and consideration of different diversity approaches, as well as comparison of external stakeholders' attitudes, beliefs, and values against those of key internal stakeholders within a large, global engineering and construction organisation. Further details of the two study elements are provided below.

Sector-wide survey. An online survey was designed to address the research aims outlined above, using a combination of open-ended questions and questions requiring ratings of importance or agreement on 4 and 5-point Likert scales. It was piloted with engineering employees not participating in the main body of the research to seek feedback on question clarity, ease and duration to complete. Following some minor adaptations to question wording to enhance clarity, the survey was distributed widely, with support of Engineers Australia and the Women of the Australian STEM group. Information about the study was also shared via Engineers Australia's monthly e-newsletter and across Engineers Australia LinkedIn and Twitter platforms, with both outlets subsequently being shared further by groups such as Women in STEM. The survey was open for three weeks with a reminder sent out via social media prior to closing dates. The data were then transferred to SPSS for analysis, and significant differences analysed using t-tests and Mann-Whitney U tests.

Case-study organisation interviews. Due to the importance of 'buy-in' and support from senior management when aiming to implement steps aimed at increasing diversity (Henry & Evans, 2007), purposive sampling was used to identify interview participants within the case-study organisation with influence within the organisation, representing a range of roles and disciplines, in addition to covering the range of divisions within the organisation. A semi-structured interview schedule was developed to explore the research questions outlined above, and interviews were conducted over three weeks. Previous research comparing qualitative face-to-face interviews with telephone interviews found that the method of interviewing did not affect the responses from their participants (Sturges and Hanrahan, 2004), so both methods were offered to participants to reduce potential barriers to participation. Seven were conducted face-to-face and six using Skype for Business audio-visual software. The interviews were recorded using a recording device or inbuilt Skype recording function with both sets fully transcribed. The data were analysed using Miles and Huberman's (1994) framework for qualitative data analysis data reduction; data display; and drawing and verifying conclusions. First-level coding entailed identifying meaning units, which were assigned codes. The second stage of analysis involved identification of vertical and hierarchical relationships between themes. Conclusions were independently sense-checked and verified between the two authors.

Case study organisation. The case study organisation was a leading engineering and construction company with offices in multiple locations worldwide, and a workforce of over 50,000 employees operating in the resources and infrastructure market. The organisation commenced operations in Asia Pacific over 30 years ago with a workforce of over 3,000 employees predominately based in Australia. In 2016 the company introduced a Diversity and Inclusion programme aimed at increasing diversity across the organisation, having identified that females represented less than 12% of senior management positions, less than 13% of management positions and less than 14% of engineering roles. The first stage in the programme was focused on increasing female representation in both senior management and engineering to 20% between 2016-2019. A Diversity and Inclusion Steering Committee had been established and had begun initiating the first phase of a 3-phase programme involving awareness-raising, cultural transformation, and market visibility and engagement. The awareness-raising phase was nearing completion and had involved ambassadors being recruited across the company to raise awareness of the programme in their local offices and regions. The organisation did not yet have an employer branding strategy.

Participants

A total of 186 survey responses were received, which was reduced to 164 following removal of respondents not working in the engineering industry. Of these, 55% were male, and 45% female. Respondents represented a range of roles and levels within the sector: team member/operator (27%), management (26%), senior management (18%), team leader/principal engineer (12%), owner/executive/C-level (10%), supervisor (7%). Participants also represented a range in terms of age: 18-24 (2%), 25-30 (18%), 31-35 (21%), 36-45 (29%), 46-55 (21%), 55 or older (9%). In terms of years in the profession: 6-10 years (31%), 11-15 years (31%), 16-20 years (8%), 21 years or more (31%). Interview requests were sent to 19 managers in varying disciplines across the five business groups in Australia, and 13 participated. Their demographic profiles are shown in Appendix A.

Results

Importance placed on diversity by male and female engineers

The perceived importance of diversity is an important consideration for diversity management due to the increased risk of backlash if individuals concerned (both majority and minority groups) do not perceive diversity to be important objective. Significant differences were identified according to gender, with women rating diversity as more important than men, $t(177)= 5.94$; $p <.001$. Women, on average identified diversity as “important” (Mean 1.84, SD 0.98)

compared to men who tended to rate it as 'somewhat important' (Mean 2.87, SD 1.28). See Table I for frequency data.

However, an indication of the range and nuanced nature of the factors underpinning these quantitative data was provided by interview data. For instance, one male engineer (Interviewee E) stated that if he:

> *"…felt that the organisation was going to be the kind of place that was going to be lacking in its ability to embrace diversity that would be very negative…[he] wouldn't join…or certainly wouldn't stay in an organisation if [he] felt like diversity wasn't going to be supported."*

In contrast, when asked if diversity was an important consideration when selecting a potential employer, Interviewee C (a female engineer) said: "*No, never, because it's the same pretty much anyway where you go."* In other words, employers were all perceived to be as bad as each other in relation to diversity, eroding the value which female engineers might otherwise place on it, and therefore increasing the risk of diversity initiatives backfiring.

Table I. The importance of diversity when selecting an employer

	Total (n=164)	**Males (n=91)**	**Females (n=73)**
Very important	27%	14%	44%
Important	30%	26%	34%
Somewhat important	24%	30%	18%
Irrelevant	9%	15%	1%
Never considered it before	9%	14%	3%

Interestingly, the sources used by engineers to find out about potential employers and their work environments were largely informal and 'unofficial' sources. The 3 most preferred sources were: via people currently working or who had worked for the company (29%), followed by social media (24%), then external sources – other people who have knowledge about the company (21%). More formal sources such as the company website, company communications such as blogs, or career events were much less frequently cited sources, questioning the value of this form of employer branding as part of a diversity initiative.

Male and female engineers' attitudes towards diversity initiatives

When asked how efforts to promote gender diversity are perceived by others in their workplace, contrasting beliefs emerged between males and females. Females reported that male colleagues are predominantly negative about it, whereas males reported that men are largely indifferent, or even positive (χ^2 (3)= 10.05, $p < .05$), as shown in Table II. Unsurprisingly, both male and female respondents believed that the vast majority of women perceive efforts to increase gender diversity as positive, yet a significant difference was found in the pattern of responses (χ^2 (3)= 8.93, $p < .05$). As shown in Table III, this appears mainly due to a larger proportion of men reporting that they 'don't know' how women in their workplace feel about efforts to increase gender diversity.

Table II. Perceived attitudes towards increasing females in the workplace

	Perceived by **Men in the workplace**			Perceived by **Women in the workplace**		
	Male respondents	Female respondents	Total	Male respondents	Female respondents	Total
Positive	28	15	43	59	58	117
Negative	16	28	44	6	3	9
Indifferent	35	19	54	9	6	15
Don't know	7	6	13	12	1	13
Total	86	68	154	86	68	154

When asked about their attitudes towards diversity management and the organisation's gender diversity target, the majority of participants admitted that they were unaware the organisation had such initiatives in place. Interviewee I (female) and G (male) queried respectively, "*is there quota system, I don't know?"* and "*what are the targets? I haven't seen any targets."* Many of those who were aware of the initiatives expressed scepticism or fundamental reservations about the programme. Interviewee M (male), for example, said: "*I don't know how legitimate it is...an agenda of diversity across [the organisation], I don't know…it's kind of nice marketing."* Interviewee M questioned the feasibility of attempting to create an organisational identity which diverges significantly from that which dominates the industry as a whole, stating: *"…it goes back to the branding of what the whole industry is as a whole…is the industry branded as a diverse industry?"*

Furthermore, Interviewees A (female) and J (male) both expressed reservations about the organisation's ability to promote a diverse employer brand since the organisation was still unclear about its own culture and identity internally, asking: "*How can we put a diversity programme together and put our brand out there as someone to come and work for when we actually don't know it ourselves?"* Interviewee J further argued the importance of ensuring that

employees' actual experience within the organisation aligns with what the organisation is aiming to portray externally since he believed that how employees speak about the organisation externally has a strong impact on its employer brand in the talent marketplace: "…*diversity with your brand, that gives you a brand presence, if …people walk out of here and say 'I'm working for xxx, they've done this for me, they've done that for me, they're fantastic', that's what creates brand."*

Positive discrimination

Evidence of backfire in the form of perceived positive discrimination was raised by male and female respondents in both the survey and interviews as a potential negative consequence of efforts to promote gender diversity. For instance, both survey respondents and interviewees expressed beliefs that men are being overlooked and women are being promoted too early. Interviewee A (female) and survey respondents 77 and 97 all referred to the impact of promoting women too soon to '*tick a diversity box*' when they did not necessarily possess the requisite capabilities or experience for the position. Interviewees B (male) and D (female) reflected on the lack of relevant expertise amongst women with Interviewee B noting that gender targets: "*may not be achievable for the business because there aren't the skillsets that we need to run our business effectively."* Furthermore, survey respondent 77 noted that this subsequently *"causes angst amongst those who actually deserve the position".* This was elaborated upon by respondent 97 who believed that: *"artificially increasing gender targets in the industry create a stigma that women may only be selected for the role as a 'quota filler'.* Similarly, Interviewee A (female) noted: "*as I get further and further ahead people start to say to me… it's a good job you're a woman."* She described having "*had a glimpse of what it feels like to be told your achievements are due to gender",* and went on to add: "…*I would see it as unfair is actually women have more rights than men… there are more conferences for women than there is for men at the moment, there is more training for women."* Interviewee I (female) expressed similar views: *"I think sometimes women get away with more, you get a little bit of special treatment like I was saying with the mollycoddling at the start and then other times… because it can be such a boys club you can get very excluded."* Survey respondent 153 felt that *"by putting more focus on, increasing percentage of women in the company, you are limiting the opportunity for men. The polar opposite form of sexism is achieved." Similarly,* respondent 17 stated: "*many males have been told they won't be promoted this year as most promotions have been set aside for women."*

Perceived gender equality in the engineering industry

In response to the statement *'In your experience do you think fair treatment is given to all employees regardless of gender, within the engineering industry?',* a significant difference was

identified according to gender (t (153) = 4.36; p <.001). As shown in Table III, female respondents generally disagreed with this statement (on a rating scale where 1= strongly agree to 5=strongly disagree; Mean 3.58, SD 1.14) compared to men, the majority of whom agreed that fair treatment is given to all employees regardless of gender (Mean 2.83, SD 1.00).

Table III. Is fair treatment is given to all employees regardless of gender, within the engineering industry?

	Female	Male	Total
Strongly agree	4%	7%	6%
Agree	17%	37%	28%
Neutral	16%	24%	21%
Disagree	41%	29%	34%
Strongly disagree	22%	2%	11%

Concordantly, when asked if they felt their careers had been limited by their gender, significantly more men said no, 88% compared to only 29% of women (U = 7.808, p < .001). The majority (44%) of those who felt their careers had been limited by their gender attributed this to not getting the same opportunities as colleagues of the opposite sex, 21% felt it was due to the lack of support from their manager, and 21% as a result of having taken maternity/paternity leave. For instance, reference was made to the "*Male/masculine culture [favouring] promotion to those working long hours",* another described *"Gendered work practices that promote and reward practices of presenteeism, long hours and total availability".* In addition, reference was made to the difficulty experienced by *"Working mothers [in] finding challenging roles in part-time or with flexible hours",* and another the "*Informal male networks that form strategic alliances and exclude women."* The subtle, cultural nature of the barriers, embedded into 'how we do things around here', were expressed by Interviewee I (female) revealed that women remain excluded from activities within the organisation noting *"there is that boy's club element…there's always a golf tournament but none of the women are invited to it."* A masculine culture was described both in the corporate office and on project sites. Interviewee I recalled that on her first on-site assignment she "*had to ask for a toilet when [she] first started"* and explained that:

> *"…the whole, you can't do that, that's a man's job…that attitude still lingers, you do have a lot of old school people that do that or say 'don't hire her she's going to have babies."*

Linked to this were findings that female engineers felt they needed to change who they were to succeed in this environment. Interviewee C explained that she had had to "*toughen up"* to succeed and Interviewee I said that she "*becomes a man on-site"* in order to feel accepted. Others such as Interviewee I (female) felt that within this culture she had to "*work twice as hard to prove"* herself. This was also noted by their male peers, such as Interviewee H who observed female colleagues working harder to prove themselves.

Lack of support was articulated in various ways, including subtle and implicit manifestations, such as:

> *"The leadership (who are the same gender, background, education, ethnicity, age etc) unconsciously setting style requirements - outgoing, strong opinions etc that are generally seen in men more than women."*

The impact of parental leave (described as resulting from a combination of choice and pressure from societal norms) on career progression was typically described in terms of the lost months or years of work experience. For example:

> *"…because I've taken a break in my career to raise children. Whilst this was a personal choice, the men I was working with did not take a break as the culture in Australia is that men work, and women can choose to work or not but take the main responsibility for household and children regardless."*

It is important to note that the perception that gender had limited career progression was not confined to female respondents. A small number of male respondents also reported feeling that their gender had limited their career progression, which may lead diversity initiatives to backfire if they are not designed in an inclusive manner. Comments suggest that this is associated with backlash as a result of perceived positive discrimination. For example, one respondent stated that "*many males have been told they won't be promoted this year as most promotions have been set aside for women."* The influence of cultural norms was also evident for men, described by Interviewee H (male) regarding paternity leave:

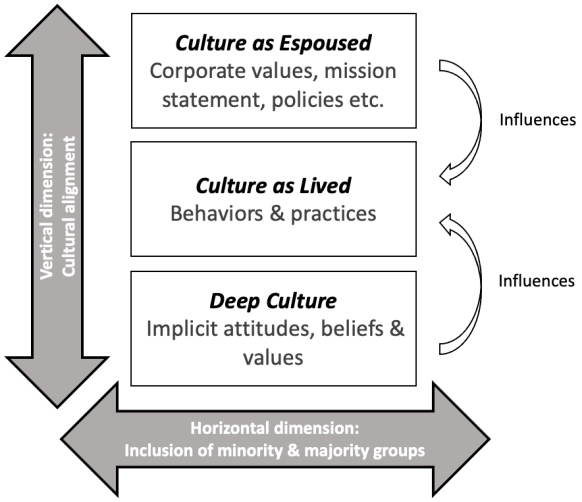
> *"…the higher you [men] go up the ranks…you might be allowed politically to do but you're not practically going to be favoured… to just leave this elevated position you have in the company and go off on carer leave for three months. Traditional attitudes prevail that a woman going away to take care of her children is very acceptable."*

Internal stakeholder interviewees expressed mixed views regarding fair treatment concerning gender. Some, such as Interviewees K and B (both male), believed inequality still existed. For instance, Interview B reflected: "*Are women held back on the way? I think they probably still are at the moment."* In contrast, a number of other respondents expressed views which reflect the implicit belief that fair treatment is given to men and women across the organisation, which in light of the other evidence to the contrary discussed above, may reflect a sense of false progress. According to Interviewee E (male), "*there is a lot of effort placed on ensuring gender diversity."* Interviewee D (female) further added that she is "*very lucky that [the organisation] treats everyone with equal respect".*

Discussion and Implications

Recent theoretical developments in diversity management highlight the potential for such initiatives to trigger negative unintended consequences (Leslie, 2018; Dover, Kaiser & Major, 2020), a situation that is likely to inhibit diversity progress. This study provides evidence of such unintended consequences, in particular backfire, negative spill-over (backlash) and false progress. We argue that to reduce the risk of unintended consequences, greater dimensionality must be incorporated into diversity research and practice, as reflected in Figure 1. Specifically, this involves addressing vertical dimensionality, by ensuring that diversity initiatives translate into changes in employees' implicit attitudes, beliefs and values, whilst also embracing horizontal dimensionality to ensure that both underrepresented and dominant groups are integrated into diversity management. As argued by Ringblom and Johansson (2020), '*To act on the issue of the lack of women is important when working towards improved gender equality in male-dominated sectors. However… a unilateral focus on certain groups leads to skewed problem formulations.*' (p.349). Diversity research and practice cannot afford to exclude majority group(s), who are key enablers of the success of those initiatives.

Figure 1. Horizontal and Vertical Dimensionality within Diversity Management



The importance of managing the horizontal dimension was highlighted by a number of findings, including the finding that a large portion of male engineers either never consider diversity when selecting an employer or consider it irrelevant, suggesting lack of awareness of the importance of diversity in the workplace and/or a lack of awareness of their role in promoting diversity. Such de-valuing of diversity presents a risk of backfire (Leslie, 2018), for instance, due to males viewing women being given an unfair advantage. Thus, before implementing initiatives such as representation targets or mentoring programmes, organisations must ensure that all employees *truly* understand why such interventions are required. Simply communicating the reasons is likely to be insufficient; the end goal must be surfacing and challenging incompatible implicit beliefs to successfully *convince* employees of the need for action.

Engineers' reliance on informal sources to find out about potential new employers implies that there may be limits to the effectiveness of surface-level employer branding in attracting a more diverse range of employees. Organisations must ensure that informal sources convey a diverse organisational reality, not just official sources such as the website or recruitment materials. Potential employees are most likely to consult current and past employees or social media to learn about an employer's environment from a diversity perspective, highlighting the importance of focusing on the actual employee experience rather than on creating an external identity that does not necessarily align with reality. Social media has blurred the barrier between internal and external communications, giving all employees the power instantly share internal organisational realities with the outside world. As a result, the idea of presenting one identity to external stakeholders and a different identity to those 'on the inside' is redundant. In contrast to the

concept of managing multiple identities (Gioia *et al*., 2000), we argue that in today's environment of enhanced communication and transparency, organisations should focus on creating a single, cohesive organisational identity which is aligned to the organisational culture reality. Furthermore, employees must have a clear sense of 'who we are' culturally if they are to contribute positively towards conveying organisational brand identity. A series of mergers and acquisitions within this case study organisation over the preceding years had created a sense of 'multiple personalities'; multiple sub-cultures co-existing in relative isolation and creating confusion about 'who we are' or what the culture of the organisation actually was. This lack of internal alignment and cultural definition emerged as a key challenge for the organisation in effectively employing employer branding to promote diversity.

Findings revealed negative attitudes among male and female engineers regarding gender diversity interventions, primarily relating to perceived positive discrimination (beliefs that men are being overlooked and women are being promoted too early) and perceptions of initiatives as a 'tick box exercise'. These attitudes undermined the value and impact of diversity management for male and female engineers alike, providing support for recent theoretical propositions regarding unintended consequences (Leslie, 2018; Dover *et al*., 2020). These findings suggest that the manner in which organisations strive to promote gender diversity may foster counterproductive attitudes amongst both sexes, the likelihood of which is increased if initiatives fail to go beyond surface levels of culture (Schein, 1992, 2004, 2016).

Further increasing the risk of backfire and negative spillover, almost half of male engineers did not believe there to be a gender inequality issue in the industry. Clearly, without awareness that a problem exists, the introduction of steps such as gender targets are more likely to produce negative consequences. Indeed, it is perhaps only when viewed in the context of a culture and system underpinned by implicit bias, which serves to discriminate against minority groups, that steps such as the introduction of targets can be understood as appropriate. Without this understanding, the introduction of targets and other measures to promote diversity risk exacerbating the situation, creating resentment and division. Thus, organisations must manage the horizontal dimension of diversity; initiatives must be communicated and implemented in a transparent and inclusive way, including both minority and majority groups and adopting a blend of formal and informal communication channels.

As highlighted by Whysall (2017), implicit biases present a thorny challenge for equality and diversity, since the owners of the biases are unaware of their existence. Given the normative influence of organisational culture on attitudes and behaviours, implicit bias must be addressed to tackle the motivational underpinning and encourage employees and leaders to internalize non-biased attitudes and values. Since organisational culture is fairly resistant to change, it may only

be when a tipping point is reached that minority groups generate sufficient representation to shift existing norms and stereotypes. Instead, as evident in findings from this study, individuals from minority groups may succumb to pressure to fit in with prevailing norms; female engineers 'act like a man', for example, thereby diminishing the objective and potential benefits of aiming to enhance diversity in the first place and most likely also impeding women's' ability to perform at their best. Thus, organisations should not dismiss the concept of representation targets, but where they are adopted, should ensure that such initiatives are adopted alongside a suite of interventions which address the full range of organisational culture across the vertical dimension; from surface-level artefacts and espoused values, to the organisational systems, processes and routines which trigger or reinforce certain behaviours, to the deep-rooted attitudes, beliefs and values which perpetuate them.

Finally, it is important to acknowledge the methodological limitations of this study and make recommendations for future research. By gathering data on both internal and external perspectives, the current study avoids previously identified limitations regarding reliance on existing employees' inferences about employer brand perceptions by the outside world. However, whilst survey methodology is beneficial in exploring a broad range of attitudes, beliefs and perceptions, it is limited by its self-report and cross-sectional nature. Future research would be strengthened by employing two or more case studies to allow for cross-case examination, in addition to incorporating longitudinal designs. Furthermore, research designs which allow for comparisons between self-reported attitudes and observation of behaviours demonstrated in practice would be ideal to further examine gaps between organisational cultures as espoused and as lived. Further research is required to develop new and creative means of exploring deep-rooted attitudes, beliefs and values, which do not involve self-report and implementing those methods to monitor the extent to which they can be changed, and most effective means of doing so. Finally, longitudinal sector-specific research would also be valuable, to identify any critical points in women's' careers at which they are most likely to be impeded from fulfilling their potential, whether as a result of self de-selection or due to external barriers and why.

Conclusion

This study highlights the importance of managing the horizontal and vertical dimensions of diversity. On the horizontal dimension, whilst diversity research and practice have traditionally focused on minority groups, efforts to promote diversity must be designed and implemented in an inclusive way, across minority and majority groups. Specifically, steps should be taken to ensure that the rationale for diversity interventions is understood across the entire organisation, as a necessary means to address implicit and systemic biases, to avoid fostering counterproductive attitudes such as perceptions of positive discrimination.

Diversity interventions must also incorporate elements which address the vertical dimension, going beyond superficial or cosmetic efforts to address deeper cultural barriers and implicit beliefs. This is likely to involve challenging, and ultimately changing, stereotypes (held by both men and women) about what an effective engineer looks like or how they must operate. It may involve questioning norms and assumptions around why certain roles and responsibilities cannot be undertaken on a part-time or flexible basis, for instance, and encouraging flexibility in working patterns and locations where possible. Again, it is important that such initiatives are implemented on an inclusive basis, encouraged for all not just for women, since as a total household unit, when men work longer hours, women tend to work fewer (Misra, Budig & Boeckmann, 2011).

Due to their implicit nature, changing stereotypical beliefs and attitudes may be more effectively achieved through personal experience. Targets for greater female representation, for instance, can facilitate greater exposure to capable female engineers, thereby breaking down gender stereotypes and reducing bias (Elsesser & Lever, 2011). Targets can not only induce more talented women to put themselves forwards for positions (Niederle, Segal & Vesterlund, 2012) but can also help to create critical mass. Without critical mass, members of a minority group may be treated as tokens (Bohnet, 2016), thereby not creating the conditions for these individuals to demonstrate their capability, and potentially leading to backfire. Thus, surface diversity efforts alone – including targets - without efforts to address the deeper cultural or attitudinal barriers to them succeeding in those positions – are unlikely to be effective and may even aggravate the situation. Instead, diversity management should be approached as a systematic culture change initiative, challenging existing mindsets and deep-rooted beliefs.

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Appendix A. Demographic details of interviewees

	Gender	Age	Nationality	Years in profession	Years with current employer	Division[1]
Interviewee A	Female	25-30	British	6-10 years	< 1 year	INF
Interviewee B	Male	46-55	Australian	21 years or more	4-7 years	POW
Interviewee C	Female	36-45	South African	16-20 years	1-3 years	OandG
Interviewee D	Female	36-45	Australian	11-15 years	4-7 years	MandM
Interviewee E	Male	36-45	British	11-15 years	1-3 years	INF
Interviewee F	Male	46-55	British	21 years or more	16-20 years	INF
Interviewee G	Male	31-35	Canadian	11-15 years	1-3 years	COR
Interviewee H	Male	55 +	Irish	21 years or more	21 years or more	OandG
Interviewee I	Female	31-35	Irish	11-15 years	4-7 years	MandM
Interviewee J	Male	36-45	Australian	6-10 years	4-7 years	COR
Interviewee K	Male	46-55	Australian	21 years or more	< 1 year	MandM
Interviewee L	Female	31-35	Australian	6-10 years	1-3 years	INF
Interviewee M	Male	31-35	Irish	6-10 years	8-10 years	OandG

[1]Division Legend: INF – Infrastructure; POW – Power; OandG – Oil and Gas; MandM – Mining and Metals; COR – Corporate