

Does organisational culture and talent management have an impact on gender employment equity?

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ABSTRACT

Purpose of the study: This study aimed to explore the impact of organisational culture and talent management on gender employment equity.

Design/methodology/approach: The study investigated gender inequalities within the engineering industry by using a cross-sectional survey design and quantitative methods. Data were collected through a structured questionnaire and analysed using descriptive statistics, parametric t-tests, EFA, and CFA. Moreover, structural equation modelling was also employed to examine the impact of organisational culture and talent management on gender employment equity.

Findings: The survey indicated a positive relationship between organisational culture and gender employment equity; however, there was an insignificant negative relationship between talent management and perceived gender employment equity. This study further underscores the importance of transforming organisational culture and employing strategic talent management to enhance gender employment equity. The notable negative impact of existing cultures on gender equity indicates a critical need for inclusivity-centred changes. Furthermore, positive links between organisational culture and talent management stress the integration of gender diversity into corporate values. By utilising frameworks such as the competing value framework (CVF)

and attraction-selection-attrition (ASA) theory, organisations can cultivate inclusive and diverse workplaces, aligning cultural values with fairness and pragmatic talent management objectives.

Recommendations/value: Human resource management (HRM) should reconsider organisational culture policies and talent management practices within the engineering sector. The aforementioned tends to encourage a culture of inclusivity within the engineering sector.

Managerial implications: The implementation of cultural and talent management initiatives, such as the promotion of clan culture, the provision of growth opportunities, the establishment of succession planning, the division of roles, and the addressing of compensation inequities, has the potential to enhance inclusivity and increase women's participation in the industry.

Keywords: Culture; engineering organisational culture; equity; gender employment equity; talent management

JEL Classification: J21, J71, M14

1. INTRODUCTION

Various industries, especially those that are predominantly male-dominated, persistently encounter disparities that impede efforts to mitigate gender inequalities (Begeny *et al.*, 2020; Fine *et al.*, 2020). In light of global demographics, it is evident that women, who constitute around 40% of the global population, are significantly underrepresented within the engineering profession, comprising a mere 10% of the workforce (Bennaceur *et al.*, 2018). The gender gap has been identified as a significant factor influencing both women's rights and global competitiveness (Alfred *et al.*, 2019; Chang & Milkman, 2020). Moreover, women's representation in male-dominated industries in South Africa continues to introduce challenges, notwithstanding the constitutional emphasis on democracy (Musetsho *et al.*, 2021). Consequently, to address the issue of gender imbalance, legislation pertaining to employment fairness was implemented (Espinoza *et al.*, 2019). The aforementioned legislation prioritises the eradication of bias with the aim of attaining equity and impartiality across all spheres.

Accordingly, scholars have offered measures to enhance the participation of women in the engineering field to overcome the difficulties mentioned above. These protocols aim to encourage young female scholars to pursue careers in science, technology, engineering, and mathematics (STEM) (Singh & Peers, 2019; Moè *et al.*, 2021). However, the industry lacks effective retention strategies that encourage the long-term participation of women. Moraba and Babatunde (2019) utilised the "leaky bucket" analogy to depict the issue of female attrition within engineering professions, which are predominantly male-oriented.

Addressing gender disparities in male-dominated fields such as engineering requires focusing on organisational culture and talent management. Organisational culture, as described by Andrianu (2020) and Holgersson and Romani (2020), includes the symbols, values, and

behaviours shared among organisational members. Thus, according to Ali et al. (2019), talent management involves strategic human resource planning to achieve organisational objectives. These concepts are interdependent, with culture influencing talent management and vice versa, leading to a more engaged and productive workforce. Moreover, Cameron and Quinn (2011) suggested the competing values framework (CVF) for cultural assessment and transformation, while Neville and Schneider (2021) highlighted the attraction-selection-attribution (ASA) theory for shaping culture. Hence, inclusive practices and strategic talent management are essential for promoting gender equality and enhancing competitiveness.

1.1 Problem statement

There is insufficient research regarding the connection between organisational culture, talent management, and gender employment equality, specifically within the engineering sector. For example, Tiliuță and Diaconu (2020) argued that organisational culture significantly influences the advancement of women within the engineering profession. However, O'Connor and Crowley-Henry (2019), on the other hand, highlight the importance of talent management for addressing gender inequalities within the engineering profession. Therefore, this study aims to fill the existing research gap by utilising a research methodology that incorporates talent management and organisational culture as potential strategies to diminish the gender employment equity gap in the engineering sector.

In accordance with the aforementioned, the following hypotheses will be investigated using the positivist paradigm:

- H₁: Organisational culture has a direct positive relationship with gender employment equity.
- H₂: Organisational culture has a direct positive relationship with talent management.
- H₃: Talent management has a direct positive relationship with gender employment equity.

1.2 Purpose of the study

The study aims to investigate the impact of organisational culture and talent management on gender employment equity within the engineering sector.

2. LITERATURE REVIEW

The study adopted the competing values framework, a versatile model for understanding and managing organisational culture (Cameron & Quinn, 2011). Additionally, the attraction-selection-attribution (ASA) theory by Schneider (1987) posits that individuals join and stay in organisations based on cultural fit, which applies to addressing gender imbalances in the

workplace. These theories guided the research in examining the interplay between culture and gender equity.

2.1 Organisational culture theory - competing values framework (CVF)

The study aims to investigate the application of the competing values framework (CVF) within the context of the engineering sector, with a focus on organisational culture. CVF, introduced by Cameron and Quinn (2011), represents a valuable tool for evaluating individual and corporate cultures due to its capacity to assess diverse organisational objectives. Gochhayat *et al.* (2017) proffered that a consensus and direction-oriented culture fosters shared beliefs and expectations. The study identifies four culture types based on CVF:

- Clan culture — encourages collaboration, employee engagement, and unity (Alharbi & Abedelrahim, 2018).
- Hierarchy culture — aims to combat gender biases in male-dominated sectors (Atuahene & Baiden, 2018).
- Adhocracy culture — is known for its flexibility and emphasises effective communication (Atuahene & Baiden, 2018; Tiliuță & Diaconu, 2020).
- Market culture — prioritises productivity, efficiency, and customer relationships (Rizki *et al.*, 2019; Alsaqqa & Akyürek, 2021).

The adoption of a clan culture within the engineering sector is expected to alleviate gender-related tensions in this predominantly male-dominated environment, thereby aligning with CVF principles.

2.2 Talent management theory - attraction-selection-attrition theory (ASA)

Neville and Schneider (2021) highlighted the ASA theory, focusing on individuals' decisions to join organisations, preferred candidate selection, and persistence. Hence, this theory connects talent management, organisational culture, and gender equality. Oh *et al.* (2018) emphasised that the ASA theory underscores the importance of assessing compatibility between individual traits and potential employers, which is relevant for addressing inequality.

Moreover, CVF and ASA integration aligns organisational culture with talent management to increase inclusion. CVF promotes gender diversity, whereas ASA recruits and retains diverse talent, creating an inclusive environment. However, combining these frameworks assists in integrating hiring and retention with cultural values, influencing the development of cultures, and improving organisational productivity by assuring employee-organisation fit (Cameron & Quinn, 2011). Cameron and Quinn argued that integrating is complicated and requires careful

cultural and recruitment cooperation. In engineering, competency, cultural fit, and social norms hinder advancement, making it challenging to balance cultural fit with diversity goals (Alfred *et al.*, 2019; McKinnon & O'Connell, 2020). Therefore, to engage and satisfy employees, leaders must establish a "positive" organisational culture with supportive values (Do, 2021).

In various ways, integrating CVF and ASA benefits organisations strategically. For example, strategic HRM can refine recruitment and create retention strategies to match cultural ideals, such as attracting innovative people for adhocracy cultures to increase employee satisfaction and reduce turnover (Cameron & Quinn, 2011). Cultural change management uses frameworks to anticipate possible incompatibilities better and match new personnel with the changing culture for enhanced transitions. Dutch (2022) suggested that, according to ASA theory, employees whose values do not align with those of the organisation are more likely to resign than others. Accordingly, by understanding the principles of ASA, organisations can enhance their hiring practices to better support retention and prevent harmful uniformity. Thus, the relationship between CVF and ASA enables leaders to adapt employees to the organisation's culture more effectively.

2.3 Gender employment equity theory - Adam's equity theory

Adams' equity theory, analysed by Eketu (2018) and Abayomi (2020), investigated perceptions of fairness in resource allocation within organisations. It argues for equitable outcome/input ratios among comparable individuals in employment contracts. Eketu (2018) supports this perspective, highlighting the role of benefits, promotions, workload, recognition, and team dynamics in motivating employees (Alfred *et al.*, 2019; Moraba & Babatunde, 2019). Adams's theory also recommends conducting regular compensation assessments, transparent promotion policies, feedback provision, open communication, and employee satisfaction monitoring to address equity concerns.

The literature review discusses organisational culture, talent management, and gender employment equity as key concepts for the current study.

2.4 Organisational culture

Organisational culture, as per Ertosun and Adiguzel (2018), refers to the social environment influencing employee working conditions. According to Andrianu (2020) and Holgersson and Romani (2020), it encompasses collective values, symbols, and behaviour patterns within an organisation, offering potential benefits in male-dominated fields.

2.4.1 Organisational culture and gender employment equity

Engineering is commonly perceived as a male-dominated field, which has led to the misconception that it is exclusively reserved for men (Longe & Ouahada, 2019). Thus, Cheryan and Markus (2020) argued that altering cultural norms, ideals, and practices related to masculinity is difficult due to their enduring and resilient nature. Along with the aforementioned debate, Di Tullio (2019) asserted that women with strong gender awareness are more likely to exhibit positive behaviour due to their understanding of societal discrimination and the presence of a male-dominated culture. To date, numerous studies have investigated factors influencing efforts to achieve gender employment equality (Sowjanya *et al.*, 2017; Paul *et al.*, 2018; Cislighi & Heise, 2020; Master & Meltzoff, 2020).

2.4.2 Organisational culture factors

Moreover, several cultural factors have been identified in the engineering sector, which contribute to its perception as a male-dominated domain.

2.4.2.1 Societal and cultural norms

Cislighi and Heise (2020) highlighted the impact of societal and cultural norms on workplace dynamics in male-dominated enterprises. For example, in China, women's societal value is often closely tied to their family support and parental duties (Zhu, 2021). Power (2020) noted that COVID-19 also intensified these challenges, particularly for women overrepresented in hard-hit industries such as retail, hospitality, and healthcare. This led to job losses and reduced working hours. Furthermore, Espi *et al.* (2019) argued that women's lower average earnings were exacerbated by the pandemic, resulting in increased economic insecurity due to job losses, furloughs, and reduced work hours.

2.4.2.2 Gender stereotypes

Stereotypes in STEM fields further contribute to the underrepresentation of women, as they often face uncertainty concerning their suitability and potential success. Dutta (2018) concurred, adding that gender biases limit women's opportunities for leadership roles in STEM-oriented professions. According to Babalola and Du Plessis (2021), African women leaders in STEM fields tend to encounter similar challenges in various countries.

2.4.2.3 Gender bias

According to Sowjanya *et al.* (2017), gender discrimination in the workplace is primarily predicated on men's biased attitudes and unfair treatment towards women. To this effect, Howcroft and Rubery (2019) argued that failing to address gender bias can lead to gender-biased forecasts and outcomes, worsening gender inequality gaps. As a result, Kong *et al.*

(2020) emphasised the ongoing gender disparities in senior leadership roles to combat gender stereotypes and biases in STEM fields.

2.4.2.4 Parental influence

According to Lloyd *et al.* (2018), girls generally receive less encouragement than boys to pursue STEM fields. Accordingly, this disparity is particularly noticeable in underdeveloped countries where gender norms play a significant role in the socialisation process. To this end, Šimunović and Babarović (2020) posited that studying the relationship between parental values and children's values in the STEM domain, specifically in engineering, is crucial.

2.4.2.5 Patriarchy

According to research, patriarchy poses challenges for women in the labour market (Paul *et al.*, 2018). The authors also highlighted the impact of patriarchy on women in India. Similarly, Adisa *et al.* (2019) argued that a patriarchal bias also exists among males in Nigeria. This bias affects women's ability to balance work, personal life, and career choices. The research by Paul *et al.* (2018) proffered the idea that patriarchy frequently hinders women's progress, particularly in India.

2.4.3 Organisational culture and the engineering context

Vandenberghe (2021) identified a lack of women in STEM fields, highlighting an absence of diversity in engineering institutions. Sassler *et al.* (2017) and Aboagye-Nimo *et al.* (2019) expressed apparent concerns about women facing hostility in STEM careers, potentially perpetuating gender inequality. Warren *et al.* (2019) also stressed the role of organisational culture in creating an inclusive work environment, which is particularly important in male-dominated industries such as engineering. Hammond *et al.* (2020) further reinforced this by pointing out that hostile cultures hinder female recruitment and retention in the field of engineering. This study aims to explore the impact of organisational culture on gender employment equity within the engineering sector

2.5 Talent management

Sowjanya *et al.* (2017) defined talent management as a systematic approach that involves identifying, attracting, developing, and retaining individuals with the required skills to achieve organisational objectives. Ali *et al.* (2019) further stated that talent management has expanded to include rational human resource planning to assess the value of a business and achieve organisational objectives.

2.5.1 Talent management and gender employment equity

Despite ongoing efforts to encourage female enrolment and success in STEM courses, attracting and retaining women in STEM fields, particularly engineering, remains a formidable challenge (Naukkarinen & Bairoh, 2020; Cowgill *et al.*, 2021). That said, one obstacle is the limited availability of professional development opportunities, which hinders women's retention (Moalusi & Jones, 2019; Fouad *et al.*, 2020; Stewart-Williams & Halsey, 2021). Furthermore, women constitute merely 28% of the scientific and technical workforce worldwide, despite making up 50% of the overall workforce (George, 2024). The gap is even more noticeable for women of colour, who account for less than 2% of the STEM workforce (George, 2024). Gender disparities are also evident in Australia and Japan (Fatourou *et al.*, 2019), with German architecture fields surpassing computing and engineering in gender diversity (Schmitt & Wilkesmann, 2020). Specifically, in South African engineering, especially in construction, gender discrimination is linked to the absence of role models, insufficient training, and limited mentorship support (Ndweni & Ozumba, 2021). Thus, Shikweni *et al.* (2019) emphasised the importance of removing barriers that hinder women's access to talent pools.

2.5.2 Talent management factors

2.5.2.1 Talent attraction and acquisition

Recruitment and retention are essential in talent management, particularly emphasising gender equity. Tyskbo (2021) further highlighted how cultural norms affect talent identification. Oh *et al.* (2018) also addressed the difficulties in fostering women's involvement and sustainability in STEM fields, particularly engineering, to bridge skill gaps in historically male-dominated domains.

2.5.2.2 Talent development

The talent development process encompasses training, developmental appraisal, mentoring, and coaching (Anlesinya *et al.*, 2019). For example, gender disparities persist, with men typically favoured in development plans (Böhmer & Schinnenburg, 2016). Moreover, women's participation in training is often discouraged, resulting in a dearth of advancement programmes (Hodges, 2017), which leads to women in male-dominated fields being viewed as tokens.

2.5.2.3 Talent retention

Scholarly research extensively examines challenges women face in male-dominated fields like engineering, often leading to their departure (Seron *et al.*, 2018; Anlesinya *et al.*, 2019; Fouad *et al.*, 2020). Retaining talented employees is crucial, as recruitment is more expensive

than retention. Thus, Anlesinya *et al.* (2019) offered strategies such as succession planning, rewards management, and a supportive work environment.

2.5.3 Talent management and the engineering context

Scholars have raised concerns regarding discriminatory talent management practices within male-dominated industries (Shikweni *et al.*, 2019; Gallardo-Gallardo *et al.*, 2020). O'Connor and Crowley-Henry (2019) also advocated for fair approaches that encompass marginalised women, yet gender disparities persist, particularly in fields such as engineering (Alfred *et al.*, 2019; Moraba & Babatunde, 2019). These scholars asserted that the presence of a glass ceiling, financial inequalities, and obstacles in career development further contribute to the underrepresentation of women in engineering. Hence, implementing inclusive policies and gender-neutral recruitment practices is vital to address these issues (Kuschel & Salvaj, 2018).

2.6 Gender employment equity

As Bendix *et al.* (2022) and Naicker (2021) describe, employment equity involves fair, non-discriminatory practices, eliminating biases in employment policies, and fostering equal opportunities. Therefore, it is essential to identify and remove barriers that hinder women from pursuing their goals. Gender equality, as noted by Sukri and Shasrini (2020), is vital for achieving justice and rectifying gender-based discrimination and structural inequalities. Fatourou *et al.* (2019) further stressed the importance of considering diverse interests and needs to attain gender equity.

2.6.1 Gender employment equity factors

Gender diversity and discrimination within the engineering sector are influenced by factors such as compensation (Yousaf, 2020). Hence, integrating rewards into the company culture can enhance commitment and job satisfaction (Ramdhani *et al.*, 2017). Below are additional factors which researchers have identified:

2.6.1.1 Work-life balance (WLB)

The global construction industry continues to grapple with work-life balance stress (Tijani *et al.*, 2022). For example, in India, cultural norms and societal pressures obstruct women's ability to effectively manage their professional and familial roles (Maji, 2019). Female engineers, in particular, face multifaceted challenges encompassing limited work presence, heightened competition, long working hours, role conflicts, and gender-biased organisational structures (Di Tullio, 2019; Maji, 2019). Moreover, the COVID-19 pandemic exacerbated work-life balance issues for women (Rodríguez-Rivero *et al.*, 2020) as they contend with the demands of their careers and family responsibilities. Also, in alignment with Qian and Fuller

(2020), disparities in leave were also observed. Due to school closures and increased caregiving needs, numerous women were compelled to reduce their work hours or exit the workforce entirely to attend to children or elderly relatives. Accordingly, this situation has had adverse implications for their career advancement and financial independence. The setbacks experienced by women during the pandemic could also lead to enduring economic consequences that negatively impact their career growth, income potential, and retirement savings.

2.6.1.2 Division of work structure

Numerous studies have explored women's participation in male-dominated fields such as engineering (Miner *et al.*, 2018; Butcher *et al.*, 2020; Fouad *et al.*, 2020). They often connect it to the "lack of fit" model and role incongruity theory. However, some scholars question these assumptions (Alfred *et al.*, 2019; McKinnon & O'Connell, 2020; Cowgill *et al.*, 2021).

2.6.2 Gender employment equity in the engineering sector

The contemporary emphasis on gender equity is crucial due to the ongoing perception of women as victims (Wong *et al.*, 2021). Overall, attaining gender employment equity is vital for women's access to male-dominated fields (Howcroft & Rubery, 2019; Sukri & Shasrini, 2020). Moreover, Casad *et al.* (2019) investigated challenges faced by women in STEM fields, determining that racial minority women may experience an even stronger connection between perceived threat and negative outcomes, especially when compared to their white counterparts. Thus, women from racial minority groups exhibit heightened gender stigma awareness and disengagement in math and science fields, highlighting significant disparities, particularly within ethnic categories (Aboagye-Nimo *et al.*, 2019).

3. METHODOLOGY

A cross-sectional survey research design within a positivistic research paradigm was used to test the research hypotheses. A quantitative research method was employed, and existing research questionnaires were used to collect data to answer the research questions. A cross-sectional design was used due to financial and time constraints. Wang and Cheng (2020) and Kesmodel (2018) described cross-sectional studies as observational analyses of data at a single point in time.

3.1 Research participants

The sample comprised 200 engineers across various occupational levels within South African engineering sectors. From this sample, 143 participants responded to the questionnaire, resulting in a response rate of 71.5%.

3.2 Biographical information

Table 1 lists the demographic representation of the engineers who participated in the study.

Table 1: Demographic representation

Categories	Participants	Frequency of participants (%)
Gender	Females	43.4
	Males	56.6
Age	21-25 years	8
	26-30 years	38
	31-35 years	23
	36-40 years	11
	41-45 years	7
	46-50 years	5
	51-55 years	3
	56-60 years	1
	61-65 years	3
Years in current position	0-5	30.1
	6-10	21.0
	11-15	23.8
	16-20	16.1
	Over 21	9.1
Years working for the organisation	Under a year	1.4
	1-5 years	64
	6-10 years	18
	11-15 years	6.9
	16-20 years	2.8
	21-25 years	4.9
	Over 26 years	2

Level of registration	Professional Engineer	21.7
	Professional Engineer Technologist	9.1
	Professional Certificated Engineer	0.7
	Professional Engineering Technician	4.9
	Candidate Engineer	40.6
	Candidate Engineering Technologist	14.7
	Candidate Certificated Engineer	2.1
	Candidate Engineering Technician	6.3

The study revealed that most engineers participating in the study were aged 26-30, and most of these engineers were male, 56.6%, compared to 43.4% of females. This confirms the traditional male-dominated nature of the engineering profession. The study also found a high number of entry-level engineers, with 64% having been with the sector for 1-5 years. The Engineering Council of South Africa categorises engineers according to professional levels, with 40.6% of the participants at the candidate engineering level, confirming the younger generation and sector entry-level of the sample.

3.3 Measuring instrument

Participants answered closed-ended questions on employment equity, talent management, and organisational culture using validated instruments for the study. The instruments were as follows:

- Employment equity questionnaire adapted from Shields *et al.* (2011);
- Employment equity legislation questionnaire adapted from Mula (2014);
- Talent management questionnaire adapted from Knott (2016); and
- Organisational culture questionnaire adapted from Cameron and Quinn (2011).

Closed-ended questions were posed to measure participants' perceptions regarding employment equity, talent management, and organisational culture perceptions. An itemised scale was used where 1 = Completely disagree; 2 = Partially disagree; 3 = Neither agree nor disagree; 4 = Partially agree; and 5 = Completely agree. The 5-point scale was used to save participants' time, while Cronbach's alpha was applied to test reliability. To ensure content validity, a pilot study was conducted in which 20 engineers participated; for construct validity, a factor analysis was applied to the study.

3.4 Research procedure

Permission was obtained from CESA to conduct a pilot study. Furthermore, ethical clearance was obtained through the ethics committee of a university of technology that assessed the research proposal and measuring instrument. The questionnaire was disseminated via SurveyMonkey to the 200 sampled engineers.

3.5 Testing the proposed research model

This study used partial least squares structural equation modelling (PLS-SEM) with SmartPLS 4 software to ascertain the correlation between factors contributing to gender employment equity. By using a two-pronged approach, the study evaluated both a measurement and a structural model. According to Henseler *et al.* (2009), this two-step protocol is initiated by assessing the measurement model and testing the validity and reliability of the items. In the first step, confirmatory factor analysis is conducted to assess the factor loadings of the measurement models.

3.6 Analysis techniques used in the study

The study used Smart-PLS software for data collection and analysis, partial least squares (PLS) and structural equation model (SEM) analysis for hypothesis formulation and exploratory research. Moreover, the SPSS 28 program was used for statistical analysis, detecting missing data, and normality testing. Descriptive statistics and a parametric t-test were used to investigate gender differences within the engineering industry, specifically regarding gender employment equity, talent management, and organisational culture. Hypotheses were assessed using reliability and validity inquiries. The data were analysed using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), while structural equation modelling was used to examine the impact of talent management and organisational culture on gender employment equity. Exploratory factor analysis (EFA) identified key patterns and relationships within data, which aided in theory development and instrument refinement, particularly in the early stages, to eliminate irrelevant items. EFA assesses instrument dimensionality (Knekta *et al.*, 2019). Moreover, Hair *et al.* (2020) emphasised that EFA involves critical decisions regarding the analysis approach. For example, the study found that all items measured the intended variables except for organisational culture. Thus, Smart-PLS and confirmatory factor analysis (CFA) were used to examine this factor further. Auerswald and Moshagen (2019) explored factor retention, with scholars suggesting retention thresholds of 0.70 or 0.50. Consequently, indicators with factor loadings above 0.7 were retained, while those below were removed. Several organisational culture indicators had loadings below 0.7 and were, therefore, deleted.

4. FINDINGS AND DISCUSSION

The findings of the study are discussed next.

4.1 Measurement model assessment

The initial analysis conducted was focused on the measurement model. This required the researcher to first evaluate reliability and validity.

4.1.1 Correlation matrix, KMO, Bartlett's test and rotated factor matrix

4.1.1.1 Correlation matrix

Moreover, to investigate the link between gender employment equity, talent management, and organisational culture, a correlation matrix evaluation was performed. That said, high correlation coefficients necessitate checking if the absolute value approaches 1, which implies that the variables share the same meaning or information (Kang & Ahn, 2021). A Pearson correlation coefficient (r) was also used to examine correlations and identify multicollinearity among the study variables. The results are reflected in Table 2.

Table 2: Correlations

	Gender employment equity	Talent management	Organisational culture
Gender employment equity	1		
Talent management	-0.156	1	
Organisational culture	-0.131	0.774**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation analysis revealed significant positive relationships between most constructs, except for talent management and gender employment equity, and organisational culture and gender employment equity, which were negative and not statistically significant. All coefficients were below 0.8, indicating no multicollinearity issues. With correlation values below the cut-off point, the study proceeded with parametric statistical analysis.

4.1.1.2 Kaiser-Meyer-Olkin (KMO) and Bartlett tests

To identify the underlying factors of perceived gender employment equity, talent management, and organisational culture, the Kaiser-Meyer-Olkin (KMO) and Bartlett's tests were conducted to assess survey adequacy. Field (2005) supports using these tests for sampling adequacy and sphericity. The KMO test measures sample adequacy with values between 0 and 1

(Kaiser, 1974). Shrestha (2021) ascertained that the KMO test evaluates data suitability for factor analysis, with values from 0.8 to 1.0 indicating adequate sampling, 0.70 to 0.79 as average, and 0.60 to 0.69 as marginal. Additionally, Bartlett's test demonstrated statistical significance, confirming the data's suitability for further analysis.

As shown in Table 3, the KMO value is 0.875, which Kaiser (1974) considers acceptable. Bartlett's test was statistically significant ($p = 0.000$), indicating that the constructs are accurate and adequate for measurement. Table 3 presents the results of the KMO and Bartlett tests.

Table 3: KMO and Bartlett's tests

KMO and Bartlett's tests		
Kaiser-Meyer-Olkin measure of sampling adequacy		.875
Bartlett's test of sphericity	Approx. Chi-square	9925.244
	Df	3003
	Sig.	.000

4.1.1.3 Total variance explained

To identify the underlying factors related to perceived gender employment equity, talent management, and organisational culture, the study conducted an exploratory factor analysis (EFA) using principal component analysis (PCA). PCA is frequently employed to assess the suitability of items in EFA. In this analysis, only items with eigenvalues greater than 1.0 were retained, while those with loadings below 0.30 were excluded to minimise the number of variables grouped on the same factor (Yong & Pearce, 2013).

4.1.1.4 Rotated factor matrix

Willmer *et al.* (2019) applied exploratory factor analysis (EFA) using Promax rotation and maximum likelihood extraction to enforce a three-factor solution to evaluate the theoretical structure of the 9-item Utrecht work engagement scale (UWES-9). Similarly, this study also rotated factors to enhance clarity and optimise the structure, aiming to reduce the number of variables loading on the same factor (Yong & Pearce, 2013). Thirteen factors were identified, accounting for 73.44% of the variance. The findings revealed that all item sets effectively measured their intended variables, except for organisational culture, which demonstrated cross-loading onto other factors.

4.1.2 Assessing the reliability and validity of the data

PLS-SEM usually employs Cronbach alpha and composite reliability to assess reliability. For both methods, as a general rule, values of 0.70 or higher indicate levels of reliability (Hair *et al.*, 2021). Table 4 presents the reliability results.

Table 4: Test for reliability

	Cronbach's alpha	Composite reliability (CR)
Employment legislation	0.933	0.944
Organisational culture	0.943	0.95
Talent management	0.967	0.971
Perceived gender employment equity	0.94	0.944

The values of the Cronbach alpha and those of composite reliability exceeded the threshold of 0.7, suggesting that the measurement model is adequate. The next step was to assess convergent validity.

SEM determines convergence validity by reviewing factor loadings and average variance extracted (AVE). In a scale, convergence validity measures how closely variables measuring the exact dimension correlate (Cooper & Schindler, 2006). Hair *et al.* (2021) claimed that convergent validity is supported by AVEs exceeding 0.5 since some of the AVE values were lower than the recommended value of 0.5; the study relied heavily on factor loadings. For example, the perceived gender employment equity and the organisational culture were clearly below the recommended values of 0.477 and 0.474, respectively. Other studies have previously observed this low AVE (Kozak *et al.*, 2003). Although the two constructs had low AVEs, other measures of convergent validity were satisfactory, thus confirming their existence. For example, the AVEs for employment legislation and talent management were 0.63 and 0.66, respectively, and were above the recommended threshold.

In light of the challenges in AVE, analysis of factor loadings became imperative, as some of the factors were below the recommended threshold. However, after removing the problematic factors from the CFA, the factor loadings met the required criterion. Therefore, they were used along with the AVEs of employment legislation and talent management to confirm convergent validity. Overall, the combined assessment supported convergent validity.

Discriminant validity is determined by how constructs empirically differ from each other (Hair *et al.*, 2021). This study assessed discriminant validity in terms of Fornell-Larcker's (1981) and the heterotrait-monotrait ratio (HTMT) methods. The Fornell-Larcker (1981) criterion suggests

that the average variance extracted (AVE) be compared to correlations and that the square root of the AVE for any construct should be larger than the construct's correlations. The square roots of AVEs are usually located on the diagonal of the matrix. Table 5 presents the results of discriminant validity using Fornell-Lacker's criterion.

Table 5: Discriminant validity

Fornell-Larcker criterion				
	Employment legislation	Organisational culture	Perceived gender employment equity	Talent management
Organisational culture	0.6671	0.691		
Perceived gender employment equity	-0.244	-0.205	0.688	
Talent management	0.62	0.8	-0.195	0.813

The square root of AVEs in Table 5 (marked in bold and diagonally) were all greater than their corresponding correlations, which confirms discriminant validity. Discriminant validity was further assessed using the HTMT ratio. In the HTMT ratio method, a value less than 0.9 or 0.85 shows discriminant validity (Hair *et al.*, 2021). The results of the HTMT technique are presented in Table 6.

Table 6: Testing discriminant validity with a heterotrait–monotrait ratio

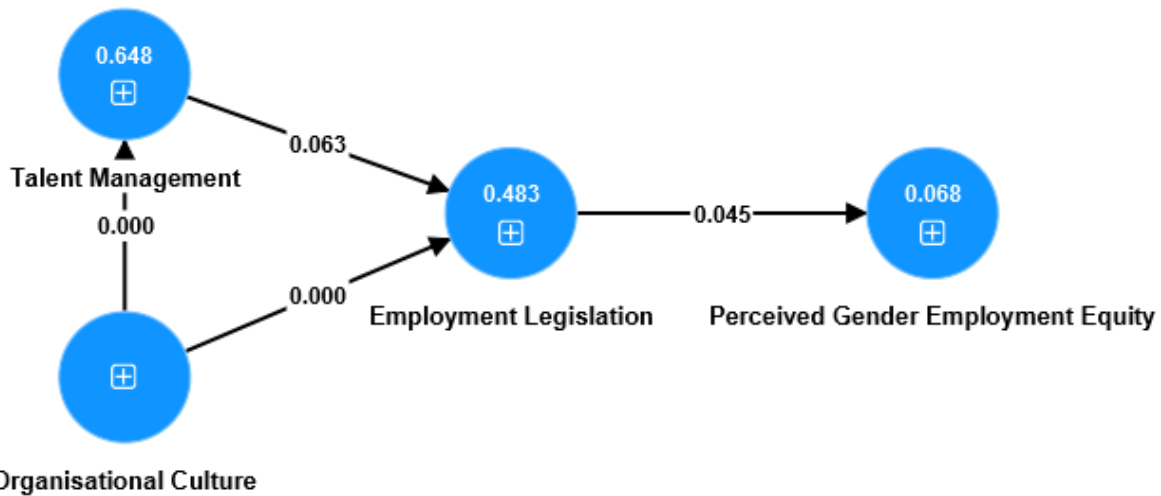
Ratio				
	Employment legislation	Organisational culture	Perceived gender employment equity	Talent management
Organisational culture	0.687			
Perceived gender employment equity	0.22	0.209		
Talent management	0.645	0.809	0.19	

Table 6 shows that the HTMT values are within an acceptable range since they are less than the threshold of 0.9 or 0.85, confirming discriminant validity. Overall, both techniques used in this study confirmed discriminant validity.

This study used a Smart PLS technique with standard bootstrapping of 5000 (Ringle *et al.*, 2020) samples and 220 cases to assess the significance of the path values (Hair *et al.*, 2021). The R^2 , beta, and t values had to be calculated based on the data, and if the R^2 value is greater than 0.26, it indicates a good model (Hair *et al.*, 2020). As shown in Figure 1, all R^2 values are lower than the 0.26 threshold, suggesting an acceptable model fit.

4.1.3 Assessing the Structural Model

Figure 1: Structural model



The model relies on several fundamental assumptions. It posits causal relationships among the variables: organisational culture influences both talent management and employment legislation; talent management affects employment legislation; and employment legislation impacts perceived gender employment equity. Each latent variable is measured using scales deemed valid and reliable. The model assumes linear relationships between these variables and no perfect multicollinearity among the independent variables. Additionally, it assumes the data are normally distributed, which is crucial for specific statistical tests within the structural equation modelling (SEM) framework. To ensure the model's reliability and validity, various checks were performed. Composite reliability confirms consistent measurement of each latent variable. Convergent validity verifies strong correlations among indicators of a latent variable. Moreover, discriminant validity ensures that the latent variables are distinct and not overly correlated. These checks were conducted to ensure the model's robustness.

After the model fit was completed, the beta coefficient values and significance values were calculated. Table 7 displays the data on the analysis.

Table 7: Results of a structural model

	Beta coefficient	T-statistics	P
Organisational culture -> Perceived gender employment equity	-0.178	1.966	0.049
Organisational culture -> Talent management	0.805	24.367	0.000
Talent management -> Gender employment equity	0.219	1.862	0.063

The path coefficient between organisational culture and perceived gender employment equity ($\beta = -0.178$, $p = 0.049$, $p < 0.05$) indicates employment legislation's significant and negative

effect on perceived gender employment equity. As a result, H1 was accepted. Organisational culture positively impacted talent management ($\beta = 0.805$, $p = 0.0001$, $p < 0.05$), supporting H₂. Furthermore, there was a negative, insignificant relationship between talent management and perceived gender employment equity ($\beta = -0.057$, $p = 0.223$, $p > 0.05$). Additionally, there was a positive, non-significant relationship between talent management and gender employment equity ($\beta = 0.219$, $p = 0.063$, $p > 0.05$). These results showed that H3 should be rejected.

According to the theories employed in the present study (supported by the affirmed Hypothesis 1), it substantiates that the utilisation of the CVF in the context of gender employment equity entails the recognition that cultural transformation is frequently a necessary precondition to fostering fairness and inclusivity within an organisation. This process involves aligning the prevailing organisational culture with the values and practices that endorse gender equity. The influence of organisational culture on talent management, as corroborated by Hypothesis 2, is consistent with the principles of the competing values framework (CVF) and the attraction-selection-attrition (ASA) theories, as previously elucidated. For example, organisations that actively incorporate gender diversity and equity into their branding and cultural fabric may attract a more diverse and gender-representative pool of candidates, including women and other underrepresented genders. The aforementioned will likely benefit the engineering sector as a traditionally male domain.

Despite rejecting Hypothesis 3, the attraction-selection-attrition theory remains a valuable framework for talent management. This theory aids organisations in comprehending the evolution of their culture and how they can attract, select, and retain employees who contribute positively to the organisation's achievements. However, its application should be cautious, balancing the importance of cultural alignment with diversity and inclusion to ensure organisational adaptability and innovation while preserving a robust corporate culture. These considerations underscore the need for further exploration involving the impact of talent management on gender employment equity, particularly within the engineering sector.

5. DISCUSSION

5.1 Organisational culture

The study explores cultural representation and female employment equity, highlighting the importance of corporate culture in building a competitive advantage (Vlaicu *et al.*, 2019; Singh, 2020). Respondents favoured market and hierarchy culture, emphasising the significance of formal procedures and efficiency. Surprisingly, clan culture did not attain the expected prominence, indicating potential challenges in traditionally male-dominated fields like

engineering, where segregation has been identified as a barrier. These findings align with Vlaicu *et al.*'s (2019) observations favouring clan culture values. To address these issues, fostering open discussions, constructive criticism, career advancement, and enhancing loyalty and trust within organisations is vital. That said, management mentorship and support culture, particularly in engineering, remain areas of concern (Bondaescu *et al.*, 2018; Vandenberghe, 2021). The study underscores the need for strategies to promote gender equity in traditionally masculine sectors like engineering (Sharma *et al.*, 2019). Thus, effective, long-term organisational change should be rooted in a comprehensive assessment of organisational culture, as advocated by Vlaicu *et al.* (2019).

5.1.1 Organisational culture and talent management

The literature review highlighted a positive connection between organisational culture and talent management (Hypothesis 3). Organisations with cultures aligned with talent management policies tend to implement them more effectively. Survey participants favoured clan and creative cultures over market and hierarchical ones, which are common in engineering. This finding emphasises the significance of workplace environment and social ties in determining employee satisfaction (Paais & Pattiruhu, 2020). Other studies underscore the importance of individual traits, recruitment, recognition of talent, talent development, leadership style, appreciation, and reward in talent management (Shahi *et al.*, 2020). While reviewing the engineering sector, particularly for women, it became evident that organisational culture and talent management are crucial.

5.1.2 Organisational culture and perceived gender employment equity

The PLS analysis supports Hypothesis H1, indicating a positive link between organisational culture and perceived gender employment equity in the engineering sector. Previous research in STEM fields has emphasised the importance of organisational culture in creating a welcoming environment for women (Kuschel & Salvaj, 2018; Nazir *et al.*, 2019). Gupta (2019) recommended regularly examining internal policies to align with evolving laws and regulations. Additionally, organisational culture has proven beneficial in male-dominated sectors like engineering, where women often face bias and hostility from male colleagues (Aboagye-Nimo *et al.*, 2019; Hardcastle *et al.*, 2019; Marco-Bujosa *et al.*, 2021). While non-discriminatory policies can drive behavioural change, challenges such as a lack of respect, prejudice, and stereotypes persist for women in engineering.

The results support the competing values framework (CVF) by demonstrating that organisational culture significantly influences factors such as gender equity and talent management. The findings align with CVF's claim that distinct cultural categories shape

organisational outcomes. For example, adhocracy cultures, which prioritise flexibility and innovation, are more effective in attracting diverse talent and promoting gender equity than rigid, hierarchical cultures (Cameron & Quinn, 2011). Additionally, Clan cultures, which focus on collaboration and teamwork, may help reduce segregation and hostility in male-dominated fields like engineering. However, the study also challenges CVF by highlighting the complexities and resistance involved in implementing cultural changes aligned with gender equity goals.

5.2 Talent management

Despite the global push for gender equity and inclusion, Ruiz-Cantisani *et al.* (2020) highlighted the ongoing challenges in offering development and advancement opportunities to women in male-dominated fields. Male dominance, especially in the engineering industry, contributes to this problem (Afolabi *et al.*, 2019; Hansen *et al.*, 2020; Hasan *et al.*, 2021). Critical talent management research is vital for addressing gender employment equity in this context. Also, Goestjahjanti *et al.* (2020) ascertained that talent management enhances job satisfaction among women, underscoring the need for further study. Opoku and Williams (2019) noted concerns within the engineering sector as related to mobility opportunities, peer interaction, and work-life balance, with women facing career disadvantages due to entrenched masculine cultures and patriarchal structures. Anlesinya *et al.* (2019) noted that the lack of skilled talent professionals poses a challenge for implementing talent strategies across industries, a concern that could particularly impact the engineering sector, where women often face marginalisation.

Furthermore, the findings largely support the attraction-selection-attrition (ASA) theory, demonstrating that recruitment and retention practices can significantly influence organisational diversity. The study aligns with ASA's (Schneider, 1987) claim that organisations tend to hire and retain employees who fit their existing culture, highlighting the role of talent management in promoting gender equity. However, the study also critiques ASA, noting that a strong emphasis on cultural fit can sometimes hinder diversity, especially if the organisational culture does not align with inclusivity goals. This suggests that ASA may need to be adjusted to better integrate cultural fit with diversity by eliminating recruitment biases and ensuring equitable policies and procedures.

5.2.1 Talent management and perceived gender employment equity

Hypothesis 3 anticipated a positive link between talent management and gender employment parity in engineering. Surprisingly, the PLS path modelling detected a negative impact, contradicting prior studies (Howcroft & Rubery, 2019; Mensah, 2019; Paais & Pattiruhu, 2020).

The gender career mobility gap in engineering may relate to succession planning and retention concerns. Smith *et al.* (2023) confirmed the existence of persistent gender disparities in the engineering profession, emphasising the need for additional research on talent management's role in increasing the participation and advancement of women in engineering.

5.3 Gender employment equity

5.3.1 Reward/salary structure

The gender employment equity survey highlights concerns about gender inequality in the workplace, including salary influence, such as men receiving larger salary raises and unequal promotions. For instance, Haupt and Ndimande (2019) highlighted gender inequality in the workplace, with women receiving lower pay for equal work.

5.3.2 Division of role/work structure

Studies by Miner *et al.* (2018), Butcher *et al.* (2020), and Fouad *et al.* (2020) underscore the challenges women encounter in job allocation within male-dominated industries, like engineering, owing to societal role imbalances (Chung *et al.*, 2020; Padavic *et al.*, 2020). This role division imbalance adversely affects career progression and income disparities, perpetuated by the field's male-dominated nature. Gender inequality in engineering also varies with experience, particularly impacting women's access to leadership positions (Afolabi *et al.*, 2019; Hasan *et al.*, 2021).

5.3.3 Work-life balance

The study highlights women's work-life balance challenges attributed to societal norms and patriarchy, emphasising the importance of engineering sector work-life balance policies for gender equity (Paul *et al.*, 2018; Makarem *et al.*, 2019). Moreover, caregiver women may face career perception biases, reinforcing gender employment disparities and discouraging female participation in engineering (Espí *et al.*, 2019).

The study highlights that achieving gender equity remains challenging, especially in fields like engineering, where cultural fit issues are prevalent, even with the application of the Competing Values Framework (CVF) and attraction-selection-attrition (ASA). This challenges the notion that aligning recruitment practices with organisational culture alone can close the gender gap, emphasising the need for additional strategies or frameworks to address these persistent barriers (Alfred *et al.*, 2019; McKinnon & O'Connell, 2020).

6. RECOMMENDATIONS

The study suggests that HRM should implement succession planning processes to identify potential successors for employee promotions, regardless of gender. Diversity training should be considered for both men and line managers so as to promote gender employment equity. The organisational culture should be reviewed, focusing on teamwork, support, and mentoring, especially in the engineering sector, where women are a minority. An inclusive environment should be established to combat traditional perceptions and ensure equal opportunities for all employees.

7. LIMITATIONS OF THE STUDY

According to the study, the relationships between the independent and dependent variables showed both positive and negative support. However, it is vital to interpret the results cautiously due to the limitations of the study design, which only collected data at one point in time and did not allow for causal inferences. The research specifically focused on male and female engineers in the engineering industry; therefore, the findings may not be applicable to other populations.

8. THEORETICAL IMPLICATIONS

8.1 Competing values framework (CVF):

The study aligns with Cameron and Quinn's (2011) competing values framework (CVF), which categorises organisational cultures into clan, adhocracy, market, and hierarchy, each promoting distinct behaviours and values. The research confirms that organisational culture significantly impacts talent management and gender equity. Clan cultures, emphasising collaboration and employee well-being, were more supportive of gender diversity, while adhocracy cultures, valuing innovation and flexibility, effectively attracted and retained diverse talent. However, the study also highlights the challenges of applying CVF in practice. Overall, transforming entrenched organisational cultures to support gender equity is complex and resource-intensive, suggesting that CVF may require more detailed guidance for such cultural shifts. Therefore, leaders need to understand these cultural dimensions and focus on building a positive, inclusive workplace culture to increase employee engagement and satisfaction (Do, 2021).

8.2 Attraction-selection-attrition (ASA) theory

Schneider's (1987) attraction-selection-attrition (ASA) theory asserts that organisations attract and retain individuals whose values align with their culture. The study supports ASA, showing

that aligning recruitment and retention with cultural values can enhance diversity. For example, engineering firms that prioritise gender diversity attract more women. However, the study also critiques ASA, noting that an overemphasis on cultural fit may limit diversity. That said, existing cultures can hinder diversity in male-dominated fields like engineering, where women's competency and cultural fit are scrutinised more harshly. This suggests that ASA may necessitate diverse adjustments to balance cultural fit with fostering inclusion (Alfred *et al.*, 2019; McKinnon & O'Connell, 2020).

8.3 Broader theories of gender equity and talent management

The study aligns with broader gender equity theories, confirming that barriers like competency, cultural fit, and social norms persist in talent management, particularly in male-dominated fields like engineering. While frameworks like the competing values framework (CVF) and attraction-selection-attrition (ASA) offer valuable insights, they are not sufficient alone to achieve gender equity. For instance, integrating additional strategies, such as targeted training, mentorship, and policies addressing unconscious biases and structural barriers to create a more inclusive and diverse workplace is important. Accordingly, this holistic approach is essential for effective talent management and gender equity.

9. PRACTICAL/MANAGERIAL IMPLICATIONS

9.1 Strategic HR management

Integrating CVF and ASA allows organisations to refine their recruitment and retention strategies to ensure a better cultural fit. For example, companies with a dominant adhocracy culture should focus on attracting more innovative and entrepreneurial individuals. This approach enhances employee satisfaction and reduces turnover, aligning HR practices with the broader organisational strategy.

9.2 Cultural change management

Understanding the dynamic interplay between CVF's cultural values and ASA's employee fit can guide cultural change initiatives. Organisations undergoing transformation can employ these frameworks to identify potential cultural clashes and devise strategies to align new hires with the evolving culture, ensuring smoother transitions.

9.3 Leadership development

Leaders can benefit from understanding how CVF and ASA interact, tailoring their leadership styles to align with the organisation's cultural values and the values of their team members. For example, leaders in a market culture (competitive) should adopt a results-oriented

approach, while those in a clan culture (collaborative) should focus on team building and support.

The study's findings support and expand on existing theories while highlighting areas where these theories may fall short. Hence, integrating CVF and ASA can help promote inclusivity; however, organisations must address the complexities and resource demands of cultural transformation.

10. IMPLICATIONS FOR FUTURE RESEARCH

10.1 Longitudinal studies

Future research should emphasise longitudinal studies to understand the long-term effects of integrating CVF and ASA on organisational culture and talent management. These studies can reveal how these frameworks influence diversity and inclusion over time.

10.2 Sector-specific analysis

Additional research is required to explore the application of CVF and ASA in various sectors, especially male-dominated fields like engineering. Understanding sector-specific challenges and strategies can aid in developing more effective approaches to promoting gender diversity.

10.3 Cultural change mechanisms

Investigating how cultural change occurs can provide valuable insights. Future studies should examine how organisations successfully manage cultural transformation to support diversity and inclusion.

10.4 Diversity metrics

Developing and validating metrics to measure the effectiveness of diversity initiatives is crucial. Future research should focus on creating robust tools to assess the impact of cultural and recruitment strategies on gender equity.

10.5 Integration of additional frameworks

Exploring the integration of CVF and ASA with other theoretical frameworks can enhance understanding. Incorporating theories related to unconscious bias, structural barriers, and targeted training programmes can provide a more comprehensive approach to talent management and diversity.

10.6 Employee perspectives

Gathering employee perspectives on cultural fit and diversity can offer valuable insights. Future research should include qualitative studies to better understand employees' experiences and perceptions of organisational culture and diversity initiatives.

In conclusion, while integrating CVF and ASA is crucial for creating a cohesive and inclusive environment, organisations must address the complexities and resource demands of cultural transformation. They must also adopt supplementary strategies to achieve appropriate gender equity in talent management.

11. CONCLUSION

According to the survey, market and hierarchy cultures dominate the engineering business. Maintaining a culture of hierarchy is, therefore, crucial to address animosity in the sector. However, a clan culture that promotes teamwork, employee involvement, and corporate commitment to employees is desirable. This can also help to eliminate gender segregation in the sector. Several challenges must be addressed in order to enhance talent management and create equity in the engineering sector. These include modifying training and advancement plans to guarantee that no discrimination occurs, thereby creating equitable succession planning policies and practices and conducting departure interviews to determine the causes of attrition.

Moreover, in strategic HR management, integrating the competing values framework (CVF) and attraction-selection-attrition (ASA) principles is essential for refining recruitment and retention strategies. For example, organisations with an adhocracy culture should focus on attracting innovative individuals to boost creativity and problem-solving in STEM fields, which can enhance job satisfaction and reduce turnover, thus supporting organisational goals (Schneider, 1987; Cameron & Quinn, 2011).

Gender diversity in recruitment requires inclusive job descriptions, diverse hiring panels, and targeted marketing to mitigate unconscious biases. Managing cultural transformation involves aligning CVF's cultural values with ASA's principles of employee fit, especially in STEM, where shifting from hierarchical or market-driven cultures to more inclusive clan or adhocracy cultures can improve gender diversity. This transition requires careful planning and alignment of new hires with the evolving culture (Yong & Pearce, 2013).

Addressing structural barriers involves implementing policies to counteract biases and providing support systems for underrepresented groups. Additionally, leadership development should reflect organisational values, with leaders in market cultures focusing on results and

those in clan cultures prioritising team support. Ultimately, promoting inclusive leadership through transparency and diversity training is essential (Do, 2021).

Finally, policy development should include setting diversity targets, offering flexible work arrangements, and regularly monitoring these initiatives to ensure effectiveness. Building a positive organisational culture that values employee well-being and collaboration, along with industry partnerships and networking with academic institutions, can further support diversity efforts and enhance gender equity in talent management (Alfred *et al.*, 2019; McKinnon & O'Connell, 2020).

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REFERENCES

- Abayomi, M.F. 2020. Sensitivity of equity theory on employees' commitment: A Study of Nigeria Furniture Sector, 2(1):104-132.
- Aboagye-Nimo, E., Wood, H. & Collison, J. 2019. Complexity of women's modern-day challenges in construction. *Engineering, Construction and Architectural Management*, 26(11):2550-2565. [<https://doi.org/10.1108/ECAM-09-2018-0421>].
- Adisa, T.A., Abdulraheem, I. & Isiaka, S.B. 2019. Patriarchal hegemony: Investigating the impact of patriarchy on women's work-life balance. *Gender in Management*, 34(1):19-33. [<https://doi.org/10.1108/GM-07-2018-0095>].

- Afolabi, A., Oyeyipo, O., Ojelabi, R. & Patience, T.O. 2019. Balancing the female identity in the construction industry. *Journal of Construction in Developing Countries*, 24(2):83-104. [<https://doi.org/10.21315/jcdc2019.24.2.4>].
- Alfred, M.V., Ray, S.M. & Johnson, M.A. 2019. Advancing women of color in STEM: An imperative for US global competitiveness. *Advances in Developing Human Resources*, 21(1):114-132. [<https://doi.org/10.1177/1523422318814551>].
- Alharbi, S.H. & Abedelrahim, S.S. 2018. Organisational culture assessment using the competing values framework (CVF) in public universities in Saudi Arabia: A case study of Tabuk University. *International Journal of Business and Management*, 6(2):1-16. [<https://doi.org/10.20472/BM.2018.6.2.001>].
- Ali, Z., Bashir, M. & Mehreen, A. 2019. Managing organisational effectiveness through talent management and career development: The mediating role of employee engagement. *Journal of Management Sciences*, 6(1):62-78. [<https://doi.org/10.20547/jms.2014.1906105>].
- Alsaqqa, H.H. & Akyürek, Ç.E. 2021. Assessment of organisational culture types, leadership styles and their relationships within governmental and non-governmental hospitals in Gaza Strip of Palestine. *BMC Health Services Research*, 21(1):1-11. [<https://doi.org/10.1186/s12913-021-06351-1>].
- Andrianu, B. 2020. Resilient organisational culture: Cluj-Napoca case study. *Eastern Journal of European Studies*, 11(1):335-357.
- Anlesinya, A. & Amponsah-Tawiah, K. 2020. Towards a responsible talent management model. *European Journal of Training and Development*, 44(2/3):279-303. [<https://doi.org/10.1108/EJTD-07-2019-0114>].
- Anlesinya, A., Amponsah-Tawiah, K. & Dartey-Baah, K. 2019. Talent management research in Africa: Towards multilevel model and research agenda. *African Journal of Economic and Management Studies*. 10(4):440-457. [<https://doi.org/10.1108/AJEMS-12-2018-0371>].
- Atuahene, B.T. & Baiden, B.K. 2018. Organisational culture of Ghanaian construction firms. *International Journal of Construction Management*, 18(2):177-188. [<https://doi.org/10.1080/15623599.2017.1301043>].
- Babalola, O.O., Du Plessis, Y. & Babalola, S.S. 2021. Insight into the organisational culture and challenges faced by women STEM leaders in Africa. *Social Sciences*, 10(3):1-16. [<https://doi.org/10.3390/socsci10030105>].
- Begeny, C.T., Ryan, M.K., Moss-Racusin, C.A. & Ravetz, G. 2020. In some professions, women have become well represented, yet gender bias persists: Perpetuated by those who think it is not happening. *Science Advances*, 6(26):eaba7814. [<https://doi.org/10.1126/sciadv.aba7814>].
- Bendix, S., De Bruyn, A.J. (Ed.), Mabaso, C., Magau, M., Keyser, E. & Lessing, K.F. 2022. *Labour relations: A Southern African perspective*. 8th edition. Claremont: Juta.
- Bennaceur, A., Cano, A., Georgieva, L., Kiran, M., Salama, M. & Yadav, P. 2018. Issues in gender diversity and equality in the UK. In *Proceedings of the 1st International Workshop on Gender Equality in Software Engineering*:5-9. [<https://doi.org/10.1145/3195570.3195571>].
- Böhmer, N. & Schinnenburg, H. 2016. How gender and career concepts impact global talent management. *Employee Relations*, 38(1):73-93. [<https://doi.org/10.1108/ER-07-2015-0154>].
- Bondaescu, R., Balakrishna, J., Moran, C.C. & Desilva, A. 2018. Women in science: surpassing subtle and overt biases through intervention programmes. *arXiv preprint arXiv:1808.05549*. [<https://doi.org/10.31234/osf.io/tqy3q>].
- Butcher, M., Coats, K., Voss, G. & Worden, B. 2020. Women in STEM and the laws that enabled diverse innovation. *Chapman Law Review*, 23(2):333-346.
- Cameron, K.S & Quinn, R.E. 2011. *Diagnosing and changing organisational culture: Based on the Competing Values Framework* (3rd ed.). San Francisco, CA: Jossey Bass.
- Chang, E.H. and Milkman, K.L., 2020. Improving decisions that affect gender equality in the workplace. *Organizational Dynamics*, 49(1):100709. [<https://doi.org/10.1016/j.orgdyn.2019.03.002>].

- Cheryan, S. & Markus, H.R. 2020. Masculine defaults: Identifying and mitigating hidden cultural biases. *Psychological Review*, 127(6):1022-1052. [<https://doi.org/10.1037/rev0000209>].
- Chung, H. & Van Der Lippe, T. 2020. Flexible working, work-life balance, and gender equality: Introduction. *Social Indicators Research*, 151(2):365-381. [<https://doi.org/10.1007/s11205-018-2025-x>].
- Cislaghi, B. & Heise, L. 2020. Gender norms and social norms: Differences, similarities and why they matter in prevention science. *Sociology of Health & Illness*, 42(2):407-422. [<https://doi.org/10.1111/1467-9566.13008>].
- Cooper, D.R. & Schindler, P.S. 2006. *Marketing research*. New York: McGraw-Hill/Irwin.
- Cowgill, C., Halper, L., Rios, K. & Crane, P. 2021. "Why so few?": Differential effects of framing the gender gap in STEM recruitment interventions. *Psychology of Women Quarterly*, 45(1):61-78. [<https://doi.org/10.1177/0361684320965123>].
- Di Tullio, I. 2019. Gender equality in STEM: Exploring self-efficacy through gender awareness. *Italian Journal of Sociology of Education*, 11(3):226-245.
- Do, T. 2021. *Does culture matter? The influences of organisational culture on engaged and satisfied workforce* (Master's thesis, NTNU).
- Dutch, M., 2022. *Systematic Literature Review on Attraction Selection Attrition Theory* (Doctoral dissertation, Guilford College).
- Dutta, D. 2018. Women's discourses of leadership in STEM organisations in Singapore: Negotiating sociocultural and organisational norms. *Management Communication Quarterly*, 32(2):233-249. [<https://doi.org/10.1177/0893318917731537>].
- Eketu, C.A. 2018. Workplace equity: Critique for epistemological usefulness. *American Journal of Humanities and Social Sciences Research*, 2(7):15-19.
- Ertosun, O.G. & Adiguzel, Z. 2018. Leadership, personal values and organisational culture. In: Dincer, H., Hacıoglu, Ü., Yüksel, S. (eds). *Strategic design and innovative thinking in business operations. The role of business culture and risk management*. Cham: Springer: 51-74. [https://doi.org/10.1007/978-3-319-77622-4_3].
- Espi, G., Francis, D. & Valodia, I. 2019. Gender inequality in the South African labour market: Insights from the Employment Equity Act data. *Agenda*, 33(4):44-61. [<https://doi.org/10.1080/10130950.2019.1674675>].
- Fatourou, P., Papageorgiou, Y. & Petousi, V. 2019. Women are needed in STEM: European policies and incentives. *Communications of the ACM*, 62(4):52-52. [<https://doi.org/10.1145/3312565>].
- Field, A.P. 2005. *Discovering statistics using SPSS*. 2nd ed. London: Sage Publications.
- Fine, C., Sojo, V. & Lawford-Smith, H. 2020. Why does workplace gender diversity matter? Justice, organisational benefits and policy. *Social Issues and Policy Review*, 14(1):36-72. [<https://doi.org/10.1111/sipr.12064>].
- Fouad, N.A., Kozlowski, M.B., Singh, R., Linneman, N.G., Schams, S.S. & Weber, K.N. 2020. Exploring the odds: Gender differences in departing the engineering profession. *Journal of Career Assessment*, 28(3):446-461. [<https://doi.org/10.1177/1069072719876892>].
- Gallardo-Gallardo, E., Thunnissen, M. & Scullion, H. 2020. Talent management: context matters. *The International Journal of Human Resource Management*, 31(4):457-473. [<https://doi.org/10.1080/09585192.2019.1642645>].
- George, A.S. 2024. Bridging the Gender Gap in STEM: Empowering Women as Drivers of Technological Innovation. *Partners Universal Innovative Research Publication*, 2(2):89-105.
- Gochhayat, J., Giri, V.N. & Suar, D. 2017. Influence of organisational culture on organisational effectiveness: The mediating role of organisational communication. *Global Business Review*, 18(3):691-702. [<https://doi.org/10.1177/0972150917692185>].

- Goestjahjanti, S.F., Novitasari, D., Hutagalung, D., Asbary, M. & Supono, J. 2020. Impact of talent management, authentic leadership and employee engagement on job satisfaction: Evidence from South East Asian industries. *Journal of Critical Reviews*, 7(19):67-88.
- Gupta, P. 2019. Workforce diversity management: Key to inclusive sustainability. *International Journal of Research in Engineering, Science and Management*, 2(11):592-596.
- Hair Jr, J.F., Howard, M.C. & Nitzl, C. 2020. Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109:101-110. [<https://doi.org/10.1016/j.jbusres.2019.11.069>].
- Hair Jr, J.F., Hult, G.T.M., Ringle, C.M., Sarstedt, M., Danks, N.P. & Ray, S. 2021. Evaluation of reflective measurement models. *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook*:75-90. [https://doi.org/10.1007/978-3-030-80519-7_4].
- Hansen, S., Rostiyanti, S.F. & Nafthalie, A. 2020. A motivational framework for women to work in the construction industry: An Indonesian case study. *International Journal of Construction Supply Chain Management*, 10(4):251-266. [<https://doi.org/10.14424/ijscsm100420-251-266>].
- Hammond, A. S., Rubiano Matulevich, E. C., Beegle, K. G. & Kumaraswamy, S. K. 2020. The Equality Equation: Advancing the Participation of Women and Girls in STEM (Vol. 2): Executive Summary. [<https://doi.org/10.1596/34317>]
- Hardcastle, V.G., Furst-Holloway, S., Kallen, R. & Jacquez, F. 2019. It's complicated: A multi-method approach to broadening participation in STEM. *Equality, Diversity and Inclusion: An International Journal*, 38(3):349-361. [<https://doi.org/10.1108/EDI-09-2017-0200>].
- Hasan, A., Ghosh, A., Mahmood, M.N. & Thaheem, M.J. 2021. Scientometric review of the twenty-first century research on women in construction. *Journal of Management in Engineering*, 37(3):04021004. [[https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000887](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000887)].
- Haupt, T.C. & Ndimande, J. 2019. A review on why women-owned construction firms fail in KwaZulu-Natal?. *Journal of Physics: Conference Series*, 1378(2):022070. [<https://doi.org/10.1088/1742-6596/1378/2/022070>].
- Henseler, J., Ringle, C.M. & Sinkovics, R.R. 2009. The use of partial least squares path modeling in international marketing. In Cavusgil, T., Sinkovics, R.R. & Ghauri, P.N. New challenges to international marketing. *Advances in International Marketing*, 20:277-319. [[https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014)].
- Hodges, J. 2017. Cracking the walls of leadership: women in Saudi Arabia. *Gender in Management: An International Journal*, 32(1):34-46. [<https://doi.org/10.1108/GM-11-2015-0106>].
- Holgersson, C. & Romani, L. 2020. Tokenism revisited: When organisational culture challenges masculine norms, the experience of token is transformed. *European Management Review*, 17(3):649-661. [<https://doi.org/10.1111/emre.12385>].
- Howcroft, D. & Rubery, J. 2019. 'Bias in, Bias out': gender equality and the future of work debate. *Labour & Industry: A Journal of The Social and Economic Relations of Work*, 29(2):213-227. [<https://doi.org/10.1080/10301763.2019.1619986>].
- Kaiser, H.F. 1974. An index of factorial simplicity. *Psychometrika*, 39(1):3136. [<https://doi.org/10.1007/BF02291575>].
- Kang, H. & Ahn, J.W., 2021. Model setting and interpretation of results in research using structural equation modeling: A checklist with guiding questions for reporting. *Asian Nursing Research*, 15(3):157-162. [<https://doi.org/10.1016/j.anr.2021.06.001>].
- Kesmodel, U.S. 2018. Cross-sectional studies: What are they good for? *Acta Obstetrica et Gynecologica Scandinavica*, 97(4):388-393. [<https://doi.org/10.1111/aogs.13331>].

- Knekta, E., Runyon, C. & Eddy, S. 2019. One size doesn't fit all: Using factor analysis to gather validity evidence when using surveys in your research. *CBE-Life Sciences Education*, 18(1):p.rm1. [<https://doi.org/10.1187/cbe.18-04-0064>].
- Knott, E. 2016. *The effect of talent management practices on employee performance among real estate companies in Kenya: A case of Suraya Property Group Limited*. Master of Science in Organisational Development dissertation, United States International University-Africa.
- Kong, S., Carroll, K., Lundberg, D., Omura, P. & Lepe, B. 2020. Reducing gender bias in STEM. *MIT Science Policy Review*, 1:55-63. [<https://doi.org/10.38105/spr.11kp6lqr0a>].
- Kozak, N., Karatepe, O.M. & Avci, T. 2003. Measuring the quality of airline services: evidence from Northern Cyprus. *Tourism Analysis*, 8(1):75-87. [<https://doi.org/10.3727/108354203108750184>].
- Kuschel, K. & Salvaj, E. 2018. Opening the "Black Box". Factors affecting women's journey to top management positions: A framework applied to Chile. *Administrative Sciences*, 8(4):63. [<https://doi.org/10.3390/admsci8040063>].
- Lloyd, A., Gore, J., Holmes, K., Smith, M. & Fray, L. 2018. Parental influences on those seeking a career in stem: the primacy of gender. *International Journal of Gender, Science and Technology*, 10(2):308-328.
- Longe, O.M. & Ouahada, K. 2019. A literature review on challenges and opportunities for women in engineering. 2019 *IEEE AFRICON*:1-6. [<https://doi.org/10.1109/AFRICON46755.2019.9133955>].
- Maji, S. 2019. "Doing men's jobs": A commentary on work-life balance issues among women in engineering and technology. *Metamorphosis*, 18(1):68-75. [<https://doi.org/10.1177/0972622519854887>].
- Makarem, Y., Metcalfe, B.D. & Afiouni, F. 2019. A feminist poststructuralist critique of talent management: Toward a more gender sensitive body of knowledge. *BRQ Business Research Quarterly*, 22(3):181-193. [<https://doi.org/10.1016/j.brq.2019.04.004>].
- Marco-Bujosa, L.M., Joy, L. & Sorrentino, R. 2021. Nevertheless, she persisted: A comparison of male and female experiences in community college STEM programs. *Community College Journal of Research and Practice*, 45(8):541-559. [<https://doi.org/10.1080/10668926.2020.1727382>].
- Master, A. & Meltzoff, A.N. 2020. Cultural stereotypes and sense of belonging contribute to gender gaps in STEM. *International Journal of Gender, Science and Technology*, 12(1):152-198.
- McKinnon, M. & O'Connell, C. 2020. Perceptions of stereotypes applied to women who publicly communicate their STEM work. *Humanities and Social Sciences Communications*, 7(1):1-8. [<https://doi.org/10.1057/s41599-020-00654-0>].
- Mensah, J.K. 2019. Talent management and talented employees' attitudes: mediating role of perceived organisational support. *International Review of Administrative Sciences*, 85(3):527-543. [<https://doi.org/10.1177/0020852319844318>].
- Miner, K.N., Walker, J.M., Bergman, M.E., Jean, V.A., Carter-Sowell, A., January, S.C. & Kaunas, C. 2018. From "her" problem to "our" problem: Using an individual lens versus a social-structural lens to understand gender inequity in STEM. *Industrial and Organisational Psychology*, 11(2):267-290. [<https://doi.org/10.1017/iop.2018.7>].
- Moalusi, K.P. & Jones, C.M. 2019. Women's prospects for career advancement: Narratives of women in core mining positions in a South African mining organisation. *SA Journal of Industrial Psychology*, 45(1):1-11. [<https://doi.org/10.4102/sajip.v45i0.1564>].
- Moè, A., Hausmann, M. & Hirnstein, M. 2021. Gender stereotypes and incremental beliefs in STEM and non-STEM students in three countries: Relationships with performance in cognitive tasks. *Psychological Research*, 85(2):554-567. [<https://doi.org/10.1007/s00426-019-01285-0>].
- Moraba, Y. & Babatunde, O. 2019. The leaky pipeline between construction education and women in the construction industry. In: Laryea, S. & Essah, E. (Eds.) *Procs West Africa Built Environment Research*

- (WABER) Conference, 5-7 August 2019, Accra, Ghana: 1090-1100. [<https://doi.org/10.33796/waberconference2019.78>].
- Mula, A.B. 2014. The impact of employment equity legislation on employee engagement within generation Y. Doctoral dissertation, Pretoria, University of Pretoria.
- Musetsho, M., Isac, N. & Dobrin, C. 2021. Gender inequalities in the workplace: Case study of South Africa. *Management and Economics Review*, 6(1):70-81. [<https://doi.org/10.24818/mer/2021.06-06>].
- Naicker, J. 2021. The constitutional paradox of employment equity in South Africa: A discursive analysis. Dissertation, University of KwaZulu-Natal.
- Naukkarinen, J.K. & Bairoh, S. 2020. STEM: A help or a hindrance in attracting more girls to engineering? *Journal of Engineering Education*, 109(2):177-193. [<https://doi.org/10.1002/jee.20320>].
- Nazir, S., Shafi, A., Atif, M.M., Qun, W. & Abdullah, S.M. 2019. How organisation justice and perceived organisational support facilitate employees' innovative behaviour at work. *Employee Relations: The International Journal*, 41(6):1288-1311. [<https://doi.org/10.1108/ER-01-2017-0007>].
- Ndweni, M.P. & Ozumba, A.O., 2021. The need investigate career progression of female professional employees in the South African construction industry. In *IOP Conference Series: Earth and Environmental Science*, 654(1): 012011. IOP Publishing. [<https://doi.org/10.1088/1755-1315/654/1/012011>].
- Neville, L. & Schneider, B. 2021. Why is it so hard to change a culture? It's the people. *Inspirations for the Future of OD & the Reality of Our Work*, 41.
- O'Connor, E.P. & Crowley-Henry, M. 2019. Exploring the relationship between exclusive talent management, perceived organisational justice and employee engagement: bridging the literature. *Journal of Business Ethics*, 156(4):903-917. [<https://doi.org/10.1007/s10551-017-3543-1>].
- Oh, I-S., Han, J.H., Holtz, B., Kim, Y.J. & Kim, S., 2018. Do birds of a feather flock, fly, and continue to fly together? The differential and cumulative effects of attraction, selection, and attrition on personality-based within-organisation homogeneity and between-organisation heterogeneity progression over time. *Journal of Organizational Behavior*, 39(10):1347-1366. [<https://doi.org/10.1002/job.2304>].
- Opoku, A. & Williams, N. 2019. Second-generation gender bias: An exploratory study of the women's leadership gap in a UK construction organisation. *International Journal of Ethics and Systems*, 35(1):2-23. [<https://doi.org/10.1108/IJOES-05-2018-0079>].
- Paais, M. & Pattiruhu, J.R. 2020. Effect of motivation, leadership, and organisational culture on satisfaction and employee performance. *The Journal of Asian Finance, Economics and Business*, 7(8):577-588. [<https://doi.org/10.13106/jafeb.2020.vol7.no8.577>].
- Padavic, I., Ely, R.J. & Reid, E.M. 2020. Explaining the persistence of gender inequality: The work-family narrative as a social defence against the 24/7 work culture. *Administrative Science Quarterly*, 65(1):61-111. [<https://doi.org/10.1177/0001839219832310>].
- Paul, A., Krishnan, T.N. & Scullion, H. 2018. *Career progression of women in the Indian IT Sector: Matching talent management practices and employee perspectives*. [Working papers](#) 274. Indian Institute of Management Kozhikode.
- Power, K., 2020. The COVID-19 pandemic has increased the care burden of women and families. *Sustainability: Science, Practice and Policy*, 16(1):67-73. [<https://doi.org/10.1080/15487733.2020.1776561>].
- Qian, Y. & Fuller, S. 2020. COVID-19 and the gender employment gap among parents of young children. *Canadian public policy*, 46(S2):S89-S101. [<https://doi.org/10.3138/cpp.2020-077>].
- Ramdhani, A., Ramdhani, M.A. & Ainissyifa, H. 2017. Conceptual framework of corporate culture influenced on employee's commitment to organisation. *International Business Management*, 11(3):826-830. [<https://doi.org/10.36478/ibm.2017.826.830>].

- Ringle, C.M., Sarstedt, M., Mitchell, R. & Gudergan, S.P. 2020. Partial least squares structural equation modelling. In *Handbook of market research*. Cham: Springer International Publishing: 587-632. [https://doi.org/10.1007/978-3-319-57413-4_15].
- Rizki, M., Parashakti, R.D. & Saragih, L. 2019. The effect of transformational leadership and organisational culture towards employees' innovative behaviour and performance. *International Journal of Economics and Business Administration*. 7(1):227-239. [<https://doi.org/10.35808/ijebe/208>].
- Rodríguez-Rivero, R., Yáñez, S., Fernández-Aller, C. & Carrasco-Gallego, R. 2020. Is it time for a revolution in work-life balance? Reflections from Spain. *Sustainability*, 12(22):9563. [<https://doi.org/10.3390/su12229563>].
- Ruiz-Cantisani, M., García-Castelan, R., Pérez-Lexama, C., Lima-Sagui, F., de Castro, M. G. M., Lara-Prieto, V. & Ortiz-Martínez, M. 2020. Women in stem: roadmap to inclusion and equality. In *ICERI2020 Proceedings* (pp. 9683-9688). IATED. [<https://doi.org/10.21125/iceri.2020.2166>].
- Sassler, S., Michelmores, K. & Smith, K. 2017. A tale of two majors: explaining the gender gap in stem employment among computer science and engineering degree holders. *Social Sciences Research*, 6(3):1-26. [<https://doi.org/10.3390/socsci6030069>].
- Schmitt, M. & Wilkesmann, U. 2020. Women in management in stem: Which factors influence the achievement of leadership positions? *International Journal of Gender, Science and Technology*, 12(3):328-352. [<https://doi.org/10.3390/socsci6030069>].
- Schneider, B., 1987. The people make the place. *Personnel Psychology*, 40(3):437- 453. [<https://doi.org/10.1111/j.1744-6570.1987.tb00609.x>].
- Seron, C., Silbey, S., Cech, E., & Rubineau, B. 2018. "I am not a feminist, but...": Hegemony of a meritocratic ideology and the limits of critique among women in engineering. *Work and Occupations*, 45(2):131-167. [<https://doi.org/10.1177/0730888418759774>].
- Shahi, T., Farroksheresht, B., Taghipourian, M.J. & Aghajani, H.A. 2020. Behavioural factors affecting talent management: Meta-synthesis technique. *Iranian Journal of Management Studies*, 13(1):117-137. [[DOI: 10.22059/ijms.2019.283845.673684](https://doi.org/10.22059/ijms.2019.283845.673684)].
- Sharma, J., Yarlagadda, T., Sharma, S. & Yarlagadda, P.K. 2019. Vertical segregation: Issues and challenges of women engineers in Australia. *Procedia Manufacturing*, 30:671-676. [<https://doi.org/10.1016/j.promfg.2019.02.074>].
- Shields, S.A., Zawadzki, M.J. & Johnson, R.N. 2011. The impact of the Workshop Activity for Gender Equity Simulation in the Academy (WAGES-Academic) in demonstrating cumulative effects of gender bias. *Journal of Diversity in Higher Education*, 4(2):120-129. [<https://escholarship.org/uc/item/2502g29j>].
- Shikweni, S., Schurink, W. & Van Wyk, R. 2019. Talent management in the South African construction industry. *SA Journal of Human Resource Management*, 17(1):1-12. [<https://doi.org/10.4102/sajhrm.v17i0.1094>].
- Shrestha, N. 2021. Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics*, 9(1):4-11. [<https://doi.org/10.12691/ajams-9-1-2>].
- Šimunović, M. & Babarović, T. 2020. The role of parents' beliefs in students' motivation, achievement and choices in the STEM domain: A review and directions for future research. *Social Psychology of Education*, 23(3):701-719. [<https://doi.org/10.1007/s11218-020-09555-1>].
- Singh, A. 2020. Organizational culture analysis: A study of Indian IT industry using OCAI instrument. *International Journal of Management*, 11(6):1394-1402.
- Singh, S. & Peers, S.M.C. 2019. Where are the women in the engineering labour market? A cross-sectional study. *International Journal of Gender, Science and Technology*, 11(1):203-231.
- Smith, N. E., Chowdhury, S. & Costello, S. B. 2023. Examining the effectiveness of gender equity initiatives to support women in engineering. *Journal of Management in Engineering*, 39(2):04022078. [<https://doi.org/10.1061/JMENEAE.MEENG-5014>].

- Sowjanya, K., Krishna, S. & Rao, I.N. 2017. Impact of gender discrimination on talent management. *International Journal of Engineering Technology Science and Research*, 4(11):1172-1178.
- Stewart-Williams, S. & Halsey, L.G. 2021. Men, women and STEM: Why the differences and what should be done? *European Journal of Personality*, 35(1):3-39. [<https://doi.org/10.1177/0890207020962326>].
- Sukri, A.L. & Shasrini, T. 2020. The concept of gender equality from the Malay perspective. *JournalNX*, 6(06):537-544.
- Tijani, B., Osei-Kyei, R. & Feng, Y. 2022. A review of work-life balance in the construction industry. *International Journal of Construction Management*, 22(14):2671-2686. [<https://doi.org/10.1080/15623599.2020.1819582>].
- Tiliuță, B.A. & Diaconu, I.R. 2020. Sustenabilitatea educației doctorale în economie și afaceri. Cap. 15. *The influence of female leadership on organisational culture*. Editura Universității „Alexandru Ioan Cuza. Publisher.” Iași 183-189.
- Tyskbo, D., 2021. Competing institutional logics in talent management: Talent identification at the HQ and a subsidiary. *The International Journal of Human Resource Management*, 32(10):2150-2184. [<https://doi.org/10.1080/09585192.2019.1579248>].
- Vandenberghe, J. 2021. How professional engineers can contribute to attraction and retention of minority groups into the engineering profession through equity, diversity, inclusion, and decolonisation efforts. *The Canadian Journal of Chemical Engineering*, 99(10):2116-2123. [<https://doi.org/10.1002/cjce.24151>].
- Vlaicu, F.L., Neagoe, A., Țîru, L.G. & Otovescu, A. 2019. The organisational culture of a major social work Institution in Romania: A sociological analysis. *Sustainability*, 11(13):3587. [<https://doi.org/10.3390/su11133587>].
- Wang, X. & Cheng, Z. 2020. Cross-sectional studies: strengths, weaknesses, and recommendations. *Chest*, 158(1): S65-S71. [<https://doi.org/10.1016/j.chest.2020.03.012>].
- Warren, M.A., Donaldson, S.I., Lee, J.Y. & Donaldson, S.I. 2019. Reinvigorating research on gender in the workplace using a positive work and organisations perspective. *International Journal of Management Reviews*, 21(4):498-518. [<https://doi.org/10.1111/ijmr.12206>].
- Willmer, M., Westerberg Jacobson, J. & Lindberg, M. 2019. Exploratory and confirmatory factor analysis of the 9-item Utrecht work engagement scale in a multi-occupational female sample: a cross-sectional study. *Frontiers in Psychology*, 10:2771.
- Wong, S., Khor, S. & Olanrewaju, A. 2021. Perception of male toward female's performance in construction industry. *International Journal of Social Science Research*, 3(1):75-82. [<http://myjms.mohe.gov.my/index.php/ijssr>].
- Yong, A.G. & Pearce, S. 2013. A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods for Psychology*, 9(2):79-94. [<https://doi.org/10.20982/tqmp.09.2.p079>].
- Yousaf, S. 2020. Dissection of Herzberg's two-factor theory to predict job satisfaction: empirical evidence from the telecommunication industry of Pakistan. *The Lahore Journal of Business*, 8(2):85-128. [<https://doi.org/10.35536/ljb.2019.v8.v2.a4>].
- Zhu, Z. 2021. The causes and solutions of gender inequality in the workplace. In *2021 4th International Conference on Humanities Education and Social Sciences (ICHESS 2021)*. Dordrecht, Netherlands: Atlantis Press: 693-697. [<https://doi.org/10.2991/assehr.k.211220.118>].