

Sex differences and work engagement: a study across 27 South African companies

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Abstract

According to literature, employees who display vigour, dedication and absorption in their work are deemed to be engaged, resulting in increased productivity. Engagement, as well as the unbiased measurement thereof, may therefore be considered as a matter of interest and importance in the workplace. The Utrecht Work Engagement Scale (UWES-9) is the most widely used self-report measure of engagement and has been validated in many countries. However, no empirical studies aimed at identifying sex-specific outcomes associated with the UWES-9 could be found.

The aim of this research was to determine whether sex differences in work engagement exist, including sex-based differences in the psychometric properties of the UWES-9. A cross-sectional survey design was used. Data were collected independently on two occasions, as to assess whether the findings can be replicated. Initially, employees from 10 companies (N1=750) were surveyed. During the second research session, employees from 17 companies (N2=864) participated. In both cases men and women were almost equally represented.

In the case of the first sample, at an item level, sex bias was detected in four of the nine items of the UWES-9. However, the factorial structure of the UWES-9 for men and women appeared similar. Correlation coefficients between UWES-9 scores and other related constructs differed along sex lines. Men obtained practically significant higher mean scores than women on the UWES-9. Similar, but not identical, findings were reported with the second sample.

The results indicated sex bias at item level, but structural equivalence at scale level was found. Men scored higher than women on the scale and the overlap between UWES-9 scores and other measures taken at the same time was statistically larger for women compared to men. Users of the UWES-9 are cautioned against conducting mean score comparisons across gender lines and using the instrument in correlative studies as the measured constructs may have different meanings for men and women.

Key phrases

employee engagement; gender; sex; UWES-9; work engagement

1. INTRODUCTION

At the outset of this article, it may be important to draw a distinction between sex and gender, as these terms are often used interchangeably. The 1960's definition of sex and gender will be applied in this article, where sex deals with the physiology of being a man or a woman, while gender is concerned with the uptake of traditional male and female roles (Mikkola 2016:22)¹.

Gender is thus best understood as culturally learned beliefs about what it means to be male or female (Best 2010:210). Culture therefore plays a significant role in gender matters and affects people's "modes of being" in the world (Kitayama, Duffy & Uchida 2007:140). Gender is generally viewed as a social construction and there is a growing body of work that speaks of "doing gender" (Nentwich & Kelan 2013:124).

It is, however, naïve to think that culture alone determines behaviour (Berry, Poortinga, Breugelmans, Chasiotis & Sam 2011:9). Biology, particularly when it comes to genes and hormones, plays a significant role in archetypal gender-based behavioural differences, such as nurturing for women and aggression in the case of young men. Berry *et al.* (2011:10) suggest that it is quite possible to assume that genes also influence less salient gender-related behavioural differences.

The seminal work of Munroe and Munroe (1975:360) suggests that behavioural differences between men and women are modal, and many other researchers seem to agree. Observational studies indicate that women generally invest more in relationships (Rossi & Rossi 1990:198), are less inclined to express dominant behaviour (Barry, Child & Bacon

¹ In this article the term sex will be used as binary concept, determined by individuals who identify themselves as a man or a woman.

1959: 53; Pratto 1996:182), are less aggressive (Archer 2002:315; 2004:300) and tend to display lower sexual assertiveness (Schmitt 2005:251) than men.

Furthermore, women tend to express emotion more often in the workplace (LaFrance & Banaji 1992:181), excluding expressing anger (Grossman & Wood 1993:1014), and are better than men at reading non-verbal cues (James 1989:30). Bennie and Huang (2010:23) report that “there are significant differences between men and women with regard to how their stress and emotions are managed and expressed” in the workplace.

Women further tend to contemplate more than men do (Nolen-Hoeksema & Jackson 2001:40) and are likely to over-think problems (Elias 2003:1). They are less prone to risk-taking (Barber & Odean 2002:262) and less likely to pose a health or safety risk in the workplace (Mühlau 2011:120). Women also tend to rate communal factors as more important in the workplace than men tend to do (Frame, Roberto, Schwab & Harris 2010:40).

Sex differences are also observable in the choices women make in the workplace. Pratto, Stallworth and Sidanius (1997:52) found that women usually gravitate towards jobs that reduce inequality, whilst men prefer jobs that actually accentuate this aspect. Konrad, Ritchie, Lieb and Corrigan (2000:600) similarly report that women prefer positions that involve personal relations and helping others, while on the other hand men are attracted to jobs that focus on challenge and power.

Another important choice difference involves work scheduling, particularly in the case of family responsibility. Women normally bear the bulk of domestic tasks (Cascio 2015:468) and tend to prefer part-time work and flexible schedules to attend to family matters (Robbins & Judge 2011:50).

The aforementioned suggests that workplace behaviour of employees differs along sex lines. However, limited research (see Laba & Geldenhuys 2016), specifically referring to employee engagement, and how men differ from women on this important variable, was found.

2. LITERATURE REVIEW

Employee engagement is an important element of workplace behaviour. It refers to “a positive, fulfilling, work-related state characterized by the dimensions of vigor, dedication, and absorption” (Balducci, Fraccaroli & Schaufeli 2010:143). Engaged employees have a positive effect on the financial results of the company (Xanthopoulou, Bakker, Demerouti &

Schaufeli 2009:190). Engagement, for example, mediates the relationship between self-efficacy and colleague support on the one side and workplace performance on the other (Xanthopoulou, Bakker, Heuven, Demerouti & Schaufeli 2008:350). Engagement also mediates the impact of available workplace resources on proactive workplace behaviour (Salanova & Schaufeli 2008:120).

Wilmar B. Schaufeli is prominent, if not the leading, writer in the study of employee engagement, and many refer to his theory on engagement. Rothbard and Scefali (2012:58) give credit to Schaufeli (and Bakker) for re-characterising the concept, leading to the present understanding of the concept as being three-dimensional, comprising of vigour, dedication and absorption. Schaufeli's standing as a leading author in the field is further emphasised by authors such as Macey and Schneider (2008:11) refer to Schaufeli's definition of engagement as the standard definition. Schaufeli was also instrumental in the development of a measure of employee engagement (Schaufeli & Bakker 2004:296) namely the Utrecht Work Engagement Scale (UWES). The UWES is referred to as the most often used self-report measure of engagement and has been validated in many countries around the world (Bakker, Schaufeli, Leiter & Taris 2008:190).

A search was conducted within the EBSCOhost environment with "engagement" as a keyword included in the title, and the surname Schaufeli, (as a proxy for UWES), searched for anywhere in the text. The result yielded 33 hits. Of these, 22 were useful and involved the measurement or description of engagement in terms of Schaufeli's model (Bakker, Schaufeli, Leiter & Taris, 2008:191; Balducci *et al.* 2010:143; Hallberg, Johansson & Schaufeli 2007:140; Hallberg & Schaufeli 2006:125; Salanova, Llorens & Schaufeli 2010:280; Salanova & Schaufeli 2008:120; Schaufeli & Bakker 2004:295; Schaufeli, Bakker & Van Rhenen 2009:900; Schaufeli & Salanova 2007:180; Schaufeli, Salanova, González-Romá & Bakker 2002:80; Schaufeli, Taris & Van Rhenen 2008:200; Xanthopoulou *et al.* 2008:351; Xanthopoulou *et al.* 2009:193). This supports the notion that Schaufeli is a prominent theorist and that the UWES can be considered as a recognised measure of employee engagement.

In none of these articles on employee engagement were references made to sex differences. This tendency of not referring to sex differences in the workplace is not particular to the matter of engagement. References to sex differences are also absent from general organisational behaviour textbooks (Cunningham 2014:58-80; Ivancevich,

Konopaske & Matteson 2014:77; Robbins & Judge 2011:50)². In these books, authors are willing to write about gender diversity, but are reluctant to openly compare men with women.

A different-but-equal approach seems to prevail. Robbins and Judge (2011:50), for example, conclude that we “should operate on the assumption that there is no significant difference in job productivity between men and women”. The democratisation of the workplace (Cascio & Aguinis 2014:242) seemingly made it unpopular to differentiate between men and women in the working environment. This is in sharp contrast to earlier seminal publications, such as Cattell, Eber and Tatsuoska (1988) and Guion (1965), who had no problems reporting different norms for men and women.

The aim of this research was to report on sex differences in employee engagement as measured with the UWES.

3. METHOD

3.1 Research approach

The research was conducted from a critical rationalist and logical empiricist angle. The critical rationalist (part of the positivist perspective) approach acknowledges that the truth eludes us and that scientists should try to avoid falsity (Higgs & Smith 2006:95; Reed 2009:445), focusing on the rejection of the nil hypothesis. Logical empiricism proclaims that the truth can be found by looking at the hard facts (Higgs & Smith 2006:1; Honderich, 1995:229), and that the use of standardised, reliable and valid instruments validates the findings.

3.2 Design

A cross-sectional survey design was used. Cross-sectional designs are adequate to describe a population as well as to determine relationships between phenomena (Shaughnessy, Zechmeister & Zechmeister 2009:320). This is in line with the goals of this research.

² In the 2015 addition of *Organizational Behaviour* (15th ed.) Robbins and Judge make some reference to sex differences.

3.3 Procedure and research goals

Archival psychometric data, collected by the primary researcher for purposes other than this particular research, were used. The data were collected using paper based questionnaires, and protocols pertaining to consent and confidentiality were followed.

Ethical clearance certificates (2014_SBL_018_CA and 2015_SBL_02_CA) for the collection of the data were issued. The data were collected with the Utrecht Work Engagement Scale-9 (UWES-9) (Schaufeli & Bakker 2004:300), and the initial focus was on differences in absolute scores. Statistical tests were also performed to ascertain whether engagement and other constructs, particularly job satisfaction and organisational commitment, overlap to the same extent for a group of men and a group of women. To be able to claim that some of these differences are dependent on sex and not bias in the measure, testing of bias on item as well as scale level was performed. To ensure that the results were not merely dependent on the sample, a second set of archival data, collected one year later, was used to replicate the study.

3.4 Measuring instruments

Three instruments were administered. The Utrecht Work Engagement Scale-9 (UWES-9) (Schaufeli & Bakker 2004:300), a measure of engagement, was the primary focus of the study. The Job Diagnostic Survey (Hackman & Oldham 1975:162) and the Organisational Commitment Scale (Allen & Meyer 1990:15) were also administered – for the purpose of gathering information on the convergent validity of the UWES-9.

3.4.1 Utrecht Work Engagement Scale-9 (UWES-9)

The UWES-9 (Schaufeli & Bakker 2004:300) is a summative assessment of vigour, dedication and absorption. The questionnaire consists of nine items. Schaufeli and Bakker (2004:33) report that the Cronbach's α of all nine items varies from 0.85 to 0.94 (median=0.91) across studies done in nine countries. The Cronbach α -value for the total data set was 0.90. With regard to validity, Schaufeli, Bakker and Salanova (2006:714) claim that the suggested three-factor structure of engagement was confirmed (across samples from different countries) and that the construct was related to other constructs in the expected manner. This suggests construct and convergent validity.

3.4.2 Job diagnostic survey

The General Satisfaction items of the Job Diagnostic Survey represent “an overall measure of the degree to which the employee is satisfied and happy with the job” (Hackman & Oldham 1975:162).

This part of the survey consists of five items. Hackman and Oldham (1975:162) report an internal consistency value (Cronbach’s α -value) of 0.76 and, with regard to validity, report “adequate” discriminant validity. They also point out that the relationships among the different scales of the survey confirmed what theory had suggested. This is also indicative of construct validity.

3.4.3 Organisational commitment scale

The Organisational commitment scale (Allen & Meyer 1990:15) was used to assess organisational commitment. The scale consists of 24 questions, measuring affective, continuance and normative commitment. Allen and Meyer (1990:15) report an internal consistency (Cronbach’s α -values) of 0.86, 0.82 and 0.73 for the three subscales of the scale.

Furthermore, Allen and Meyer (1990:13) report evidence of construct validity, and also comment that the “relationship between commitment measures ... and the antecedent variables ... was, for the most part, consistent with prediction”. This indicated convergent and discriminant validity.

3.4.4 Participants

Two independent sets of participants were surveyed. The purpose was to ensure that the results were not dependent on merely one sample, but could be replicated in a second data set. The data were collected over two consecutive years. The participants who contributed the two data sets are described below.

Dataset 1: Employees in 10 companies were approached. 750 employees volunteered to participate in the research. 376 were men and 374 women. The racial composition was as follows: 319 black African, 88 coloured, 102 Indian, and 241 white. The average age of the respondents was 35.1 years ($SD=9.27$) and the average tenure was 6.3 years ($SD=6.48$).

Dataset 2: Employees in 17 companies were approached. 864 respondents volunteered to participate in the research. 55.1% were men and 44.8% women, with 0.1% missing information. All the main ethnic groups in South Africa were represented: 65.3% were black African, 7.5% Indian, 3.2% coloured and 23.9% white. The mean age of the respondents was 38 years ($SD=9.22$) and the mean tenure 4.1 years ($SD=8.44$).

3.5 Analysis

The way the data were analysed, as well as the manner in which decisions were made regarding the calculated statistics, is described below.

3.5.1 Descriptive statistics

Descriptive statistics were calculated first. The focus was on the dispersion of the data, with means, standard deviations, kurtosis and skewness being reported. Kurtosis scores below a value of -0.47 are indicative of heavier tails (platykurtic shape) and scores higher than 0.62 of a sharper peak (leptokurtic shape (Doane & Seward 2015). The lower limit for skewness (skewed to the left) is -0.28 and the upper limit (skewed to the right) is 0.28 . These cut-off scores were used to make comments with regard to kurtosis and skewness of the data sets. Data were, however, not disregarded based on deviations from normality. The focus was on similarities across sex lines.

3.5.2 Reliability

The reliability of the questionnaires was expressed as Cronbach's coefficient alpha. Some authors (Hair, Black, Babin, Anderson & Tatham 2006:310) consider a Cronbach's alpha coefficient greater than 0.60 to be indicative of satisfactory reliability. Others (Spatz & Kardas 2008:10), however, set the mark much higher at 0.80 .

For the purpose of this research acceptable coefficients for the different questionnaires were set at the higher margin of 0.80 . This set mark of 0.80 can be considered to be high as it is difficult to obtain high coefficients with a small number of items (Pallant 2013:6). This was also the case in this particular research study, with the UWES-9 having only nine items.

3.5.3 Sex differences in mean scores

The first matter of concern in this research was whether the absolute scores differed for the different sexes. Mean differences between the sexes were calculated using one-way analysis of variance.

A p -value smaller than 0.05 (Kerlinger & Lee 2000:50) was considered as indication of a statistically significant difference between groups and a Cohen d -value (Cohen 1988) larger than 0.2 (Steyn 2000:2) as evidence that the differences were of practical significance. A d -value of 0.2 suggested that, on a practical level, 14.7% of the groups did not overlap (Steyn 2000:2). Higher d -values indicated that the non-overlap between groups increased, suggesting larger differences between the groups.

3.5.4 Sex bias in the instrument

Scale-level bias was addressed first. This was done by comparing the factorial structure of the men and women subgroups. Principal component analyses were performed, forcing all the items to load on a single factor. Tucker's phi was then calculated, comparing the factor structure of the men and women. This was done in the case of Dataset 1 and Dataset 2. According to Meiring, Van de Vijver, Rothman and Barrick (2005:6), Tucker's phi-values greater than 0.90 are taken to point to essential agreement, whereas values above 0.95 point to very high agreement.

This was followed by an analysis of bias at item level. Two approaches were followed. The first approach makes use of an analysis of variance procedure (Meiring *et al.* 2005:6). Here, item scores were used as the dependent variable with sex and the score levels (the total score on the scale) were used as independent variables.

The score levels were presented on a scale of 1 to 4, where a score of 1 was allocated to respondents whose scores fell in the first quadrant of the group's scores; a score of 2 was given to respondents whose score fell in the second quadrant, and so forth. A significant main effect for sex was deemed to be indicative of uniform bias, whilst a significant interaction effect for score level and sex was seen as pointing to non-uniform bias (Meiring *et al.* 2005:6). The p -values smaller than 0.05 were considered indicative of a statistical significant effect (Steyn 2000:2; Kerlinger & Lee 2001:50).

The second approach involved a linear regression procedure (Steyn 2012:177). Here item scores were the dependent variables, with score level and sex as independent variables. The score level was the score on the scale minus the contribution of the item under investigation. These scores were deemed as proxies to the underlying construct which that particular item measured. An item was deemed biased if the partial regression coefficient (beta value) of sex was significant and therefore had p -values smaller than 0.05.

3.5.5 Sex differences in overlaps between work engagement and related constructs

The last matter of interest was how the construct (engagement) related to other variables, along sex lines. Pearson product-moment correlation coefficients were calculated for the men and women groups separately. To assess if the correlations calculated for the group of men differed from the correlations calculated in the case of women, a strategy suggested by Pallant (2013:146) was used. This strategy involved the calculation of an observed z -value. This involves finding corresponding z -values for the correlations, calculating the difference between the z -values, and dividing that value ($z_1 - z_2$) by the square root of $1/N_1 - 3 + 1/N_2 - 3$. When the observed z -value was larger than 1.96, or smaller than -1.96 , this was seen to be indicative of significant differences in the correlations (Pallant 2013:147).

4. RESULTS

The results are presented as per the method section.

4.1 Descriptive statistics

In Dataset 1, the mean score for the total group was 35.52 ($SD=9.19$), with the score for women 34.38 ($SD=9.76$) and for men 36.65 ($SD=8.45$). Very similar results were found for Dataset 2. The mean score in Dataset 2 for the total group was 35.97 ($SD=10.36$), with the score for women being 34.80 ($SD=10.80$) and for men 36.93 ($SD=9.90$).

With regard to the dispersion of the data, it was observed that all the items had negative skewness, indicating only a few endorsements of low values. This was true for the men and women groups, and in both Datasets 1 and 2. The kurtosis picture was less uniform. In Dataset 1, five (item 1, 2, 4, 8 and 9) of the nine items were normal across all groups. In Dataset 2, six of the nine items had a normal kurtosis across all the groups. For the

remaining cases, sex differences were found in kurtosis, where the men's dispersion often displayed a leptokurtic shape.

4.2 Reliability

In Dataset 1, the internal consistency coefficient for UWES expressed as Cronbach's alpha for the mixed group was 0.908, for the women 0.918, and in case of the men 0.897. For Dataset 2, it was 0.911, 0.921 and 0.897 respectively. In all cases the coefficients were acceptable, given the 0.80 mark set by Spatz and Kardas (2008:25). From the aforementioned it may be deduced that the reliability scores for women are marginally higher than those for men, as this phenomenon occurred in both datasets.

4.3 Sex differences in mean scores

In Dataset 1, with the score for women being 34.38 ($SD=9.76$) and for men 36.65 ($SD=8.45$), the calculated d -values were practically significant ($d=0.25$). The scores of items 1 to 5 and 7 (six of the nine items) in Dataset 1 differed statistically significantly along sex lines, and in all the cases men scored higher than women.

A similar result was found for Dataset 2, with the score for women standing at 34.80 ($SD=10.80$) and for men at 36.93 ($SD=9.90$). The calculated d -value was practically significant ($d=0.21$). In Dataset 2, the scores of items 2 to 5 and 7 (five of the nine items) differed statistically significantly along sex lines, and in all the cases men scored higher than women.

4.4 Sex bias in the instrument

Scale-level bias was assessed by comparing the factorial structure of a subgroup with that of a combined group. In Table 1 the results pertaining to a principal component analysis are reported, forcing all the items to load on one factor. The values presented first are those for Dataset 1 whereas those in brackets represent Dataset 2.

The calculated Tucker's phi for the group of men was 0.999 for Dataset 1 and 0.996 for Dataset 2. This suggests that the factorial structure of the men and women is almost identical.

TABLE 1: Component structure

Item	Women	Men
	Dataset 1 (Dataset 2)	Dataset 1 (Dataset 2)
1	0.80 (0.75)	0.73 (0.79)
2	0.81 (0.79)	0.82 (0.82)
3	0.87 (0.83)	0.84 (0.84)
4	0.79 (0.84)	0.80 (0.74)
5	0.81 (0.79)	0.77 (0.80)
6	0.73 (0.76)	0.68 (0.75)
7	0.76 (0.81)	0.75 (0.73)
8	0.78 (0.81)	0.71 (0.70)
9	0.66 (0.67)	0.60 (0.54)
Total variance	60.85 (61.71)	55.84 (56.30)
Tucker's phi	-	0.999 (0.996)

Source: Calculations from datasets

Analyses of bias on an item level were firstly investigated using the analysis of variance procedure (Meiring *et al.* 2005:6). To test the effect of participants sex, their standing on the construct, as well as the interaction between sex and their standing on the construct, and the particular item score, a univariate analysis of variance was performed with the item score as the dependent variable, sex as the fixed factor, and the individual's standing on the construct as the random factor. The test of the between-subjects' effects is reported in Table 2. Also presented in Table 2 are the *F*-values and the statistical significance of these values.

From Table 2, one main effect of sex could be found in Dataset 1 (Item 4) that was indicative of uniform bias. No uniform bias was found in Dataset 2. Non-uniform bias was detected at the levels of Items 1 and 5 in Dataset 1 and in the cases of Items 4, 7 and 8 in Dataset 2.

TABLE 2: Between-subjects effects

Item	Sex		Standing on construct		Sex x Standing	
	Dataset 1	(Dataset 2)	Dataset 1	(Dataset 2)	Dataset 1	(Dataset 2)
1	.29	(4.42)	49.28**	(236.26***)	3.98**	(.75)
2	1.94	(4.91)	207.91**	(263.90***)	1.19	(.83)
3	3.47	(1.64)	789.77***	(199.00**)	.49	(1.33)
4	10.41*	(3.71)	473.91***	(53.18**)	.48	(3.96**)
5	5.46	(2.84)	42.48**	(108.51**)	4.98**	(2.07)
6	.02	(.29)	99.18**	(289.68***)	1.39	(.60)
7	2.71	(.75)	252.08***	(47.95**)	.76	(4.41**)
8	2.05	(.22)	168.73**	(59.02**)	1.03	(3.20*)
9	1.22	(7.25)	59.73**	(108.89**)	1.43	(.69)
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$						

Source: Calculations from datasets

Item bias was also investigated using a linear regression procedure (Steyn 2012:178). Total scores and sexes (men=1; women=2) were used as independent variables in a regression analysis with item score being the dependent variable.

The results of this analysis are presented in Table 3.

From Table 3 it can be seen that, in four cases in Dataset 1, as well as in Dataset 2, sex formed a significant and unique contributor to the variance in the item scores. In each dataset four out of the nine items showed evidence of a sexist bias.

4.5 Sex differences in overlaps between work engagement and related constructs

In order to obtain information on convergent validity, the correlation between engagement (on the one side) and organisational commitment and job satisfaction (on the other) was calculated.

TABLE 3: Regression analysis

Item	R ² adjusted	Model fit		Standardised beta for sex	
		Dataset 1 (Dataset 2)	Dataset 1 (Dataset 2)	Dataset 1 (Dataset 2)	Dataset 1 (Dataset 2)
1	0.49 (0.47)	$F(2,746)=3560.3^{**}$	$(F(2,846)=3780.70^{**})$	-0.057*	(0.040)
2	0.56 (0.55)	$F(2,746)=4680.5^{**}$	$(F(2,846)=5180.82^{**})$	-0.041	(-0.035)
3	0.59 (0.64)	$F(2,746)=5370.1^{**}$	$(F(2,846)=7430.87^{**})$	-0.039	(-0.018)
4	0.53 (0.52)	$F(2,746)=4190.0^{**}$	$(F(2,846)=4550.18^{**})$	-0.058*	(-0.049*)
5	0.53 (0.52)	$F(2,746)=4250.1^{**}$	$(F(2,846)=4620.87^{**})$	-0.064*	(-0.114^{**})
6	0.47 (0.40)	$F(2,746)=3340.9^{**}$	$(F(2,846)=2770.74^{**})$	0.046	(0.011)
7	0.50 (0.47)	$F(2,746)=3780.1^{**}$	$(F(2,846)=3790.16^{**})$	-0.004	(-0.029)
8	0.48 (0.46)	$F(2,746)=3490.89^*$	$(F(2,846)=3550.11^{**})$	0.029	(0.054*)
9	0.27 (0.29)	$F(2,746)=1410.82^*$	$(F(2,846)=1760.43^{**})$	0.106^{**}	(0.068*)
* $p < .05$; ** $p < .01$; *** $p < .001$					

Source: Calculations from datasets

The results are presented in Table 4. Please note that the results pertaining to Dataset 2 are presented in brackets.

From Table 4 it becomes clear that engagement significantly correlates with organisational commitment as well as with job satisfaction, with regard to men and women, in both datasets. It can also be read from Table 4 that the correlations are consistently higher for the women than for the men.

The values of the observed z , being 0.74 and 2.01 for Dataset 1, and 2.63 and 2.92 in the case of Dataset 2, indicate that sex differences exist in the way work engagement correlates with organisational commitment and job satisfaction.

TABLE 4: Correlation between engagement and employee attitudes

		Organisational commitment	Job satisfaction
		Dataset 1 (Dataset 2)	Dataset 1 (Dataset 2)
Women	Pearson correlation	0.53**(0.55**)	0.63**(0.66**)
	Significance (2-tailed)	0.00(0.00)	0.00(0.00)
	N	374 (378)	364 (379)
Men	Pearson correlation	0.41**(0.50**)	0.52** (0.57**)
	Significance (2-tailed)	0.00(0.00)	0.00(0.00)
	N	376 (465)	376 (468)
Difference between women and men	Observed z	0.74 (20.63)	20.01 (20.92)
	Significance	n/s (<0.01)	<0.01(<0.01)
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$			

Source: Calculations from datasets

5. DISCUSSION

This paper investigated differences in employee engagement as measured by means of the Utrecht Work Engagement Scale (UWES-9) for the different sexes. These differences were analysed in two datasets ($N_1=750$; $N_2=863$) of South African men and women who are in full-time employment. These individuals were representative of all the main ethnic groups in the country.

The results showed that men obtained statistically and practically significant higher mean scores on the UWES-9 than women, and that this was the case with both datasets ($d=0.21$; $d=0.25$). The mean difference in scores for Dataset 1 was 2.13 and 2.27 for Dataset 2. The same applies at item level, where men scored higher than women on six of the nine items in Dataset 1 and on five of the nine items in Dataset 2. The finding that men score higher than women may be linked to the general tendency of men to rate themselves more positively than women (see Sturm, Taylor, Atwater & Braddy 2014:657-667), or it may be related to

real differences in the ways men and women engage with their workplaces. It should also be recognised that the sex-engagement relationship is not as simple one (Laba & Geldenhuys 2016), particularly in a society which is racially diverse (Booyesen & Nkomo 2010; Holvino 2010).

Although the data was negatively skewed, this was not deemed problematic, considering that this pattern was found in both datasets and that the men's and women's response styles mirrored each other. The kurtosis differed along sex lines, and in the case of five items this appeared to be problematic. The difference in distribution could be seen as a limitation of the study.

The reliability coefficients for UWES-9, expressed as Cronbach alphas, were acceptable for both men and women.

In both groups the factorial structures of the UWES-9 were similar with Tucker's phi being 0.999 and 0.996 respectively. Uniform-item bias was detected in one item in Dataset 1. For this item (Item 4) men had higher scores than women, irrespective of their total score on the UWES-9. With regard to non-uniform bias, where the score of respondents depended on both their standing on the construct as well as on the sex of the respondents, two cases were reported for Dataset 1 and three for Dataset 2. When applying the regression approach to detect bias more cases were found, with four items in each dataset showing signs of bias. At an item level, the UWES-9 shows bias in both datasets.

It was also found that UWES-9 scores for men and women correlated significantly with organisational commitment and job satisfaction, with coefficients ranging from 0.41 to 0.66, which is also practically significant. The size of these correlations differs along sex lines. In Dataset 1 the size of correlation between UWES-9 and organisational commitment depended on sex (observed $z=2.01$) and, in the case of Dataset 2, differences were found in the correlation between UWES-9 and organisational commitment as well as job satisfaction (observed $z=2.63$ and 2.92). It could be expected that relationships between constructs would be similar, irrespective of the sex of the respondent. This suggests that the measures used do not display adequate convergent validity or that sex does indeed influence the relationship between the tested constructs.

This difference in scores and correlations may be the effect of item-level sex bias. Practitioners are therefore alerted to the evidence that women constantly score lower than

men on the UWES-9 and that this may be the effect of item bias. However, the possibility of authentic sex differences should not be excluded, given that the results indicate that the UWES-9 scores of men and women correlate differently to other attitudinal measures. This could be an important area for additional research.

6. CONCLUSION

Although the UWES-9 is used widely and, according to research published on the topic, interpreted without considering the sex of the employee, this research suggest that the sex of the employee is an important factor in determining scores on this measure. At item level, but not at scale level, sex bias was found in the measurement of engagement (UWES-9), and men consistently scored higher than women on the instrument. Additionally the finding of sex-specific relationships between behavioural and attitudinal measures highlights the importance of scholarly debate on this topic as the measured constructs may have different meanings for men and women.

This paper contributes to academic debate as it emphasises the importance of considering the sex of the employee in all matters pertaining to the work environment. Practitioners should also take note of these findings as ignorance in this regard may result in sex-based discrimination. This may take on the form of discriminating against women during appointment or promotion processes when they (unfairly) scored lower on a measure of engagement, compared to men competing for the same position. Such discrimination should be seen against the background of employment equity legislation (Employment Equity Act, No 55 of 1998), which in South Africa prohibits the use of any psychometric instrument that is biased against any employee or group (Republic of South Africa 1998).

An important finding of this research is the sample-specific results found. Although similarities were found across the samples, differences were also detected. The differences in the samples would not have been noticed when a single sample was used, or if the datasets were collapsed. As such multi-sample research and meta-analysis as research method should be encouraged. It is therefore recommended that additional research be done to position these findings within the body of knowledge of measurement and our understanding of employee engagement.

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