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Validation of the UWES in assessing work engagement of the own-account informal entrepreneurs

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Background: Work engagement assesses physical, psychological and emotional states of the worker. The Utrecht Work Engagement Scale (UWES)-9 is one of the most used and few valid instruments in assessing the engagement of the worker at different professions in the formal sector. It is strange because globally, most of the labour force is in the informal sector, and the UWES has not been validated to assess the engagement of the worker in the informal sector. These workers are not provided with the social security at work.

Aim: The purpose of the study was to determine the validity of UWES-9 in assessing the engagement of the self-employed entrepreneur in the informal sector. These workers do not have access to work, social protection and security.

Setting: The study was conducted in the City of Tshwane, the capital city of South Africa, which experienced a proliferation in the number of self-employed informal entrepreneurs.

Methods: The study was quantitative, with data collected through a face-to-face interviewer-administrated survey questionnaire from a convenience-selected sample of respondents.

Results: The study had 405 respondents. The UWES is valid for assessing the engagement of self-employed informal entrepreneurs, with their work not providing social security.

Conclusion: The study concluded that UWES has acceptable validity for assessing the work engagement of self-employed informal entrepreneurs.

Contribution: The study contributed new knowledge in the field of positive psychology by validating UWES. The instrument can be used to conduct studies for the development of the informal sector of the economy, which is the biggest global employer.

Keywords: absorption; dedication; informal sector; self-employed informal entrepreneurs; Utrecht Work Engagement Scale; work engagement (well-being); vigour.

Introduction

The Utrecht Work Engagement Scale (UWES) is the most used and one of the few valid instruments for the assessment of the engagement of the worker, integrating the dimensions of vigour (physical state of health or well-being), dedication (emotional state of health or well-being) and absorption (psychological state of health or well-being) (Gifford & Young 2021; Kulikowski 2017; Merino-Soto et al. 2022; Saks 2019). At the time when the study was conducted, the instrument was translated into more than 31 languages (Merino-Soto et al. 2022; Schaufeli et al. 2019), because of the popularity of the instrument. The instrument was validated to assess the engagement of the worker in formal organisations, including in the South African context (De Bruin & Henn 2013; Leiter & Bakker 2010; Rothmann & Rothmann Jr 2010; Schaufeli et al. 2019; Storm & Rothmann 2003), where the study was undertaken. The instrument has some challenges related to psychometric properties (Domínguez-Salas et al. 2022; Kulikowski 2017; Lins de Holanda Coelho et al. 2023; Merino-Soto et al. 2022; Moisoglou et al. 2024; Saks 2019; Schaufeli et al. 2019), which are always determined in many studies. The study ensured that the psychometric properties were addressed. One of the recommended ways of addressing the multicollinearity was also to examine the correlation matrix to identify variables with high correlation coefficients (Kyriazos & Poga 2023). All these were observed to alleviate the challenges associated with multicollinearity in the study as recommended (Kyriazos & Poga 2023; Schaufeli, Bakker & Salanova 2006). Some scholars recommended an unabated and non-desisted continuous search for a better instrument than the few available validated instruments for assessing the work engagement (Kulikowski 2017). Despite all these shortcomings, the use of UWES continues to be an instrument of choice in assessing the

engagement of the workers both in academia and corporate environments. Some reports indicate that more than 86% of the engagement of the worker studies used UWES (Saks 2019). Thus, finding one such instrument with all psychometric properties better than the UWES will take time, as many other instruments that were developed to provide an alternative to the UWES, were only used once and mostly by its developers.

It is strange to conduct work engagement studies only focussing on the formal sector because there are overwhelming reports of more than 60% of the most global labour force being in the informal sector (ILO 2023). This is a trend that has been there for almost a century (ILO 1972). Informality is associated with an emerging persistent uncertain global environment, which brings depression on business investment, with small, medium and micro enterprises (SMMEs) most affected, resulting in the erosion of the real wages (ILO 2023). The study included references to existing literature of the studies focussing on the informal sector within the South African context to provide a comprehensive perspective. However, most of these studies generally focus on the formal sector in South Africa, with some studies including well-being, but not directly related to the engagement of a worker (Blaauw 2017). Yet, there is a strong relationship between concepts such as well-being and work engagement, which is mostly studied and reported on workers in the formal organisation (eds. Leiter & Bakker 2010). Literature reveals an exploration of the factors that stimulate work engagement, and much of the work focussed on the role of work-related resources in predicting the engagement of the worker. Other theories, namely broaden-and-build theory, conservation of resources theory, job characteristics theory, job demands-resources theory, self-determination theory and social cognitive theory, also suggest that the engagement of a worker is predicted by work resources (Halbesleben 2010; Moisoglou et al. 2024). In addition to better work performance, work engagement is also associated with the workers' mental health, emotional health, physical health and well-being (Kulikowski 2017; Moisoglou et al. 2024). Moreover, these are associated with inclusive, meaningful and safe participation in work activities, which enhance effective democracy, social inclusion, the rule of law, the advancement of human rights and positive progress towards the achievement of economic and sustainable development goals (SDGs). All these are essential for reducing social conflict and inequalities, discrimination and marginalisation (United Nations [UN]: General Assembly 2023). These were also fundamental in the study, namely physical (vigour), emotional (dedication) and psychological (absorptions) states, the three dimensions of the engagement of a worker. The study explored the enchanted engagement of self-employed informal entrepreneurs, which continues to increase because of factors such as economic shocks that result in increasing unemployment. Many people find refuge in the informal sector for survival, and many studies neglect this area of the economy — the sector that does not provide social protection or security (ILO 2023).

Conceptual framework

The section provides a thorough discussion of the conceptual framework underlying the study. Work engagement measures the psychosocial well-being of the worker by applying the framework of evaluating psychosocial factors affecting one's work and work performance and the consequences for a worker's health or well-being (Lins de Holanda Coelho et al. 2023; Merino-Soto et al. 2022; Saks 2019). The study was premised on work engagement defined 'as a positive fulfilling work-related state of worker's mind that is characterised by three dimensions, namely vigour, dedication, and absorption' (Domínguez-Salas et al. 2022; Lins de Holanda Coelho et al. 2023; Merino-Soto et al. 2022; Saks 2019; Schaufeli et al. 2002; Schaufeli et al. 2019). The definition was rephrased and operationalised through the development of the UWES instrument (Schaufeli et al. 2002). A worker who is engaged in one's work generally shows some sense of being energetic and effectively connected to the work activities and roles. Such a person is also seen as able to calmly and confidently attend to most work demands and challenges (Moisoglou et al. 2024; Schaufeli et al. 2002). A worker who is engaged in one's work is capable of driving one's energies, namely physical, emotional and mental energies into their different work roles in one's organisation (Schaufeli & Salanova 2011; Schaufeli et al. 2002, 2019).

Many work engagement definitions reveal a lack of consensus on a common single definition. This raises some concerns regarding the validity of the instruments for assessing the engagement of the worker, including the UWES, which according to Saks (2019) and Saks and Gruman (2014) is one of the most used and among the few valid instruments for the assessment of the engagement of the worker. The UWES was developed and validated for measuring the engagement of workers in the formal sector (Domínguez-Salas et al. 2022; eds. Leiter & Bakker 2010; Lins de Holanda Coelho et al. 2023; Moisoglou et al. 2024; Schaufeli et al. 2019). Despite the extensive use of the instrument, concerns were raised about the psychometric properties of the UWES in some studies (Kulikowski 2017; Saks 2019; Schaufeli et al. 2006), which must be addressed.

Literature shows that the UWES continues to be used by various studies for a variety of professions to measure the engagement of a worker, affirming its popularity as one of the dominant instruments for assessing the engagement of the worker. The literature reveals that at least 86% of work engagement studies used the UWES, making it difficult to compare the results and processes of those studies that used different scales other then the UWES. It is a concern for the validity and generalisability of the work engagement model and its findings (Saks 2019). It is recommended that to improve the psychometric properties of the instrument, an examination of the correlation matrix to identify variables with high correlation coefficients be conducted (Kulikowski 2017; Kyriazos & Poga 2023), especially when exploring new fields of study. Although the UWES is not as perfect an instrument as it should be, when properly applied, it

produces valid and acceptable results. There is a recommendation for its use while continuous search for a better one is encouraged.

The study acknowledges that some of the sources cited are classical. The literature review included any available latest publications and validations concerning the engagement of a worker in the informal sector. Most readily available studies focussing on the validation of UWES focussed on the formal sector (Schaufeli et al. 2019). This study is one of the groundbreaking studies in the field of engagement of worker in the informal sector.

At the level of the study, instead of computing three-dimensional scales, namely vigour (VI), dedication (DE) and absorption (AB), it is recommended that researchers should gradually consider using the total nine-item UWES scale as an indicator of work engagement. In doing so, for example, challenges related to the multicollinearity of the results are under control when VI, DE and AB are computed as unidimensional predictors of work engagement in a regression equation (Schaufeli et al. 2006). The multicollinearity-associated challenges in the study were also addressed by focussing on the correlation coefficients of variables, as one of the recommended approaches to deal with such challenges (Kyriazos & Poga 2023). The computation of these dimensions as discriminant variables is a challenge at an early stage of the study and in exploratory studies (Schaufeli et al. 2006). These were taken care of as the study was conducted in unfamiliar fields of study, namely the informal sector of the economy. These validity challenges have prompted researchers to recommend a further search for a better instrument for assessing the engagement of the worker to continue despite the use and popularity of UWES (Kulikowski 2017). It is an added advantage if an instrument could achieve discriminate validity among these dimensions, and when computed as a single measure, but it is not an objective of the study to do so. A worker who is engaged in one's work is most likely to demonstrate positive work-related outcomes, namely lower turnover intention, greater customer satisfaction, greater level of productivity and profitability. Work engagement connotes or overtly denotes some senses of absorption, alertness, dedication, energy, enthusiasm, persistence and vigour, as well as some feelings of pride in one's work performance (Bataineh 2019). Work engagement promotes good health or well-being, as supported by a host of longitudinal and cross-sectional studies available in the literature (Hakanen, Peeters & Schaufeli 2018; Kyriazos & Poga 2023; Moisoglou et al. 2024).

The formal sector is characterised by providing decent work, which is fundamental for social justice. The formal sector offers work opportunities that provide a fair income and social security or protection in the workplace (ILO 2023). There is a persistent deficit in major formal or decent work around the world; formal work and social justice are a new global social contract that is needed to enhance the resilience of economies and societies in the face of today's multiple crises (ILO 2023). Hundreds of millions of people lack access to paid work, work that provides access to social security or fundamental rights. The majority of these workers are in the informal sector, unable to express their interests through social dialogue. An estimated 2 billion workers are in the informal sector globally (ILO 2023).

Informality is generally described as a widespread, multidimensional and persistent phenomenon (OECD 2023). The contribution of informality to the economy is characterised by multiple and interrelated dimensions regarding jobs and enterprises. This represents more than 50% of the world's employed population. It is estimated that informal enterprises contribute between 15% and 35% of the total global gross domestic product (GDP), with more than 80% of SMMEs operating in the informal economy, depending on the region (OECD 2023). The SMMEs were reported to be providing an estimated 9.31 million jobs or 59% of total employment in South Africa (StatsSA 2024). The average size of the informal sector in Africa is estimated at 40% of GDP with a high heterogeneity between sub-regions and countries (David Diallo & Nilsson 2023). At a policy level, South Africa through the National Development Plan (NDP 2030), provides an environment that enables those in the informal economy to make meaningful economic participation. The formal retail sector accounts for almost 2 million jobs and another 3 million jobs exist in informal activities. Business services account for about 20% – 30% of gross value added and for over 1 million jobs (NPC 2011).

Research purpose and objectives

The purpose of the study was to determine whether the UWES is valid for assessing the engagement of self-employed informal entrepreneurs. On a global scale, the most visible self-employed entrepreneurs in the informal sector are street traders (Chen 2012; Roever & Skinner 2016). These are the workers who work in jobs that do not provide social security and are the largest workers worldwide (globally). Utrecht Work Engagement Scale is one of the few validated instrument and most popular used instruments in assessing the worker's engagement (Gifford & Young 2021; Moisoglou et al. 2024; Saks 2019). Yet, the instrument has not been validated to assess the engagement of the worker in the informal sector (eds. Leiter & Bakker 2010; Roever & Skinner 2016). The instrument has extensively been used to assess the engagement of blue-collar and white-collar workers in formal organisations for different professions, including teachers, nurses, engineers, managers and police officers, among other professions (Domínguez-Salas et al. 2022; Lins de Holanda Coelho et al. 2023; Merino-Soto et al. 2022; Moisoglou et al. 2024; Schaufeli et al. 2006, 2019). The use and popularity of the instrument led to it being translated into more than 31 languages across the globe (Merino-Soto et al. 2022; Schaufeli et al. 2019). Despite the validity and extensive use, the instrument was not validated to assess the engagement for the worker in the formal sector.

The following hypotheses were thus formulated for the study:

$H1_0$: UWES-9 is valid for assessing the engagement of self-employed informal entrepreneurs in the City of Tshwane.

$H1_1$: UWES-9 is not valid for assessing the engagement of self-employed informal entrepreneurs in the City of Tshwane.

For the achievement of these formulated objectives and testing of these formulated hypotheses, the study collected primary data to determine whether the formulated hypotheses were either supported or not supported.

Research methods and design

The study collected primary data using a survey questionnaire from a sample of respondents who were selected through a convenience sampling technique. The respondents were recruited and interviewed through a face-to-face interviewer-administered questionnaire. The procedure followed qualified the study to be a quantitative study. The interviewer posed questions to the respondents upon their consent and recorded the responses on a pencil and paper questionnaire. The pencil and paper questionnaire administration approach was used as one of the security precautions because of the high crime and robbery risk exposures in the areas when using gadgets such as phones or laptops. The absence of a credible database for self-employed informal entrepreneurs qualified the approach as the most appropriate for the study. Access to technological gadgets was also a challenge for studies involving self-employed informal entrepreneurs in South Africa.

A requested list of registered self-employed informal entrepreneurs was also provided by the City of Tshwane. However, the provided list was not regularly updated and not good enough to work with in the study. This prompted the use of a convenience sampling strategy, a non-probability sampling strategy instead of other probability sampling strategies. The absence of a reliable and valid database of self-employed informal entrepreneurs was also the case in a study about 'the size estimate of the informal sector in South Africa' conducted by Ligthelm (2006), compelling the use of a census approach as the better approach for conducting the study. The use of convenience sampling as the best option for the study is recommended, given that it represents the population of the study (Bono & McNamara 2011).

Population and sample of the study

The population of the study was self-employed informal entrepreneurs with businesses that operated in the City of Tshwane central business district. The recruitment of the sample of respondents in the study was conducted by the interviewer in person based on the attributes the study was looking for, namely being the owner of the business, having started a business and not working for someone else. Self-employed informal entrepreneurs' businesses are characterised by a high level of volatility. The businesses are easy to set up and wind up without major consequences, except for some small financial implications. During the pre-test, the drop-off questionnaire distribution strategy was used and proven to have serious challenges, as most questionnaires were not returned or completed after being handed to potential respondents. In the face-to-face questionnaire interviewer-administrated approach, the potential respondents were recruited, upon agreeing and consenting to participate, and were interviewed, and the responses were recorded by the interviewer. The self-employed informal entrepreneurs from different walks of life participated voluntarily in the study. Respondents could exercise freedom not to answer or answer questions they were not comfortable answering and could withdraw at any stage without consequences.

Measuring instruments

The UWES-9 questionnaire was used for data collection. This was a borrowed instrument, for which permission had to be requested from its developers (Schaufeli et al. 2006), which was granted. The condition attached to the use of the instrument was to use a questionnaire for academic purposes. The condition was observed in the study. The UWES was the most used instrument for assessing the engagement of the worker, especially for a worker in the formal sector. The study determined the validity of UWES in assessing the engagement of self-employed entrepreneurs with a business that operates in the informal sector.

Despite the instrument being valid and extensively used, the pre-test and pilot studies were conducted for quality appraisal. The respondents in both the pre-test and pilot studies were like those in the main study. These studies were conducted in the areas that were excluded from the main study, alleviating the possibilities of sample contamination as recommended (Bolton 1993; Saunder, Lewis & Thornhill 2016). The pre-test assisted in determining the comprehension of the language as used in the instrument (UWES) (Hair Jr et al. 2014; Schaufeli et al. 2002), as it was developed and validated in the European countries. Complex words were explained in brackets without changing or translating them into other languages or tampering with the structure of the original questionnaire and/or instrument. The pilot study assisted in determining the reliability test of the instrument before conducting the main study. The reliability test indicated that the instrument was of acceptable reliability in assessing the engagement of self-employed informal entrepreneurs, although two items could not meet the acceptable corrected correlations coefficient, which were candidates for deletion. Once that was done, there was confidence that the instrument would perform well in the main study, and it was used without further alterations.

Research procedure

The study was part of an academic programme to fulfil part of the requirements of a doctoral programme. The procedure was that the research proposal had to be presented to the

colloquium committee for approval. The study was presented and approved by the colloquium committee before it was undertaken. The permission to conduct the study from the City of Tshwane was requested and granted. The ethical clearance certificate had to be applied for and was granted prior collection of data. The area in which the study was conducted was under the jurisdiction of the City of Tshwane. Permission was requested and granted by the city. The condition was that when the study was completed, the results must be shared with the city. Respondents gave consent before participating. Those who were recruited and could not give consent, could not be part of and were excluded from participating, meaning that interviews were not conducted with them. It was within their rights to continue or withdraw from the study at any stage without consequences. A statistician assisted with the quality appraisal activities of the instrument by guiding the structuring of the instrument. The completed questionnaires were preserved in an access control place for at least a 5-year period as per the policy of the institution where the study was domiciled.

Statistical analysis

When concluded with the data collection process, the data preparation process was continued. The data preparation process was started before data were collected, by ensuring that the field workers were well trained to administrate the questionnaire and the data collection process. The coding manual was created shortly after the pilot study. The completed questionnaires were captured on the computer spreadsheet file every day after receiving the completed questionnaires. The daily capturing of data alleviated the burden of having to start the process when the entire data collection process was concluded, which could have compromised the quality of the process. The piecemeal gradual approach to the data capturing process on the spreadsheet allowed for some quality assurance improvements, which were discussed, when necessary, with the fieldworkers the following day. The data were converted into numbers as guided by the coding manual and did not contain any traceable identifiers to the respondents. The cleaned data were shared with the statistician who used the Statistical Programme for Social Science (SPSS) (IBM SPSS Statistics 2021) for analysis.

Ethical considerations

Ethical approval to conduct this study was obtained from the University of South Africa's Department of Operations Management Ethics Review Committee (No. ERC REF. OPS/2020/003).

Results

The presentations of the results of the study included the frequencies, reliability and validity test results of the study. All these are presented in separate subsections later in the article.

Demographic frequencies' presentations

There were 405 respondents who voluntarily consented to participate in the study. Out of all these, the gender profile was 179 women and 229 men. There were 209 South African and 196 migrant respondents in the study. Other demographic variables included age; home language, ethnic group (for South African respondents); marital status; parents' status; the highest level of education; family member working with; agency or structural entrepreneurship employment status; group membership and association membership. Some of these variables were broadened and reported in other studies as the focus of the current study was on the validity of UWES for assessing the engagement of self-employed informal entrepreneurs. The results of the reliability and validity tests of the instrument were conducted and are presented as follows.

Presentation of reliability and validity test results

Various reliability tests were conducted. The Cronbach alpha coefficient statistical tool was used in determining the instrument's internal consistency reliability. The Cronbach alpha coefficient test results for UWES-9 were $\alpha = 0.74$. The minimum acceptable Cronbach alpha coefficient results are recommended as $\alpha = 0.70$ (Costello & Osborne 2005; Nunnally 1968). However, for instruments with fewer than 10 items, a minimum alpha value of $\alpha = 0.50$ may be acceptable (Costello & Osborne 2005; Nunnally 1968). In the case of UWES-9, the instrument has fewer than 10 items, and any alpha value of $\alpha = 0.50$ was acceptable.

In addition, the instrument was further subjected to reliability testing through the Summary Item Statistics. The results of the Inter-Item Correlations mean value were conducted and reported, and the minimum acceptable mean value is recommended at $X = 0.30$ (Hair et al. 2014; Pallant 2016). The result of the Inter-Item Correlations test was $X = 0.252$, which was less than $X = 0.30$, signalling some concerns for the instrument's reliability. Therefore, the results of the Inter-Item Correlations mean of the UWES-9 were low although it was of acceptable value. The lower results of the Inter-Item Correlation mean value of $X = 0.25$, prompted further tests of reliability tests through the Item-Total Statistics. The minimum acceptable item mean value is recommended at $X = 0.30$ and above (Hair et al. 2014; Pallant 2016). The results of the two items were below the minimum acceptable mean value of $X = 0.30$. These affected items were subjects for deletion as recommended (Hair et al. 2014; Pallant 2016) and were deleted. The affected items were UWES.3 (scale for dedication) and UWES.9 (scale for absorption). Once the deletion process was completed, the internal consistency reliability tests on the remaining 7 items (UWES-7 items) were done. The remaining items in the UWES-7 were 3 items of vigour, 2 items of dedication and 2 items of absorption. The Cronbach coefficient reliability results of the 7-items (UWES-7) were reported and are presented in Table 1.

The results of the internal consistency reliability test of the UWES-7 were better than those of UWES-9. The Cronbach alpha coefficient was used after the elimination of the two items as shown in Table 1. The reliability tests were further assessed by using various statistics such as Summary Item Statistics as shown in Table 2:

The Inter-Item Correlation means statistical results were further used to determine the internal consistency reliability results of the UWES-7 items. As shown in Table 2, the UWES-7 mean results of the Inter-Item Correlations was X = 0.34, which was better than the mean value of the UWES-9 of X = 0.25 as reported earlier in this section. The results of the internal consistency reliability test of the instrument were also conducted using various statistics such as the Corrected Item-Total Correlation. The mean results of each item were analysed and are presented in Table 3. The item acceptable minimum mean results are recommended at X = 0.30 (Hair et al. 2014; Pallant 2016).

The results mean values of all the items on the Corrected Item-Total Correlation column were all above X = 0.30, which is the minimum acceptable mean value (Hair et al. 2014; Pallant 2016). The results of all the items of the Corrected Item-Total Correlations were above the minimum acceptable mean value of X = 0.30 as shown in Table 3. Thus, all the items of the one-factor model showed acceptable reliability and were further subjected to validity tests. Various validity indexes were analysed to determine the validity of the instrument as presented in Table 4.

The standardised root mean residual (SRMR) index, with a rule of thumb of SRMR higher than 0.1, suggests a problem with model fit (Hair et al. 2014). The SRMR was 0.055, which was below 0.1, indicating some goodness-of-fit of the model.

TABLE 1: Utrecht work engagement scale-7 reliability statistics (N = 7).

Cronbach's Alpha	Cronbach's Alpha based on standardised items
0.78	0.78

The acceptable normed fit index (NFI) is recommended to be between 0 and 1, and a model with a perfect fit should produce an NFI of 1 or any value closer to 1 (Hair et al. 2014). The NFI was 0.90, which showed a perfect model fit at almost 1. Tucker Lewis index (TLI) was normed, and thus model with a good fit has values that approach 1 and a model with a higher value suggests a better fit than a model with a lower value (Hair et al. 2014). The TLI value of the study was 0.83, which was almost 1. The comparative fit index (CFI) is an incremental fit index that is an improved version of the NFI. The CFI is normed so that values range between 0 and 1, with higher values indicating a better fit (Hair et al. 2014). Thus, the CFI value of the study was 0.91, indicating a better model fit. As with the goodness-of-fit index (GFI), the adjusted goodness-of-fit (AGFI) is less frequently used in favour of the other indices, which are not as affected by sample size and model complexity (Hair et al. 2014; Pallant 2016). Adjusted goodness-of-fit values are typically lower than GFI values in proportion to model complexity (Hair et al. 2014). The AGFI was at 0.91, slightly lower than the GFI at 0.95. The GFI was acceptable at 0.95, with the recommended minimum acceptable mean value of X= 0.90 (Hair et al. 2014; Pallant 2016). The root mean square error of approximation (RMSEA), as shown in Table 4, was not acceptable with a mean value of 0.121, and the acceptable range is a recommended mean value of between 0.050 and 0.08 (Hair et al. 2014). Values smaller than 0.08 for the RMSEA are indicative of an acceptable fit, and values greater than 0.1 should lead to model rejection (Schaufeli et al. 2006). Not all the indices were acceptable or not acceptable; however, in general, like in some other studies, the model had a GFI for the study in assessing the engagement of self-employed informal entrepreneurs. The one-factor model was computed as shown in Figure 1.

The psychometric properties of the UWES were acceptable. The factor analysis of the scale was acceptable. However, the discriminant analysis between the scales was not acceptable. Thus, it is recommended that instead of the three-factor

TABLE 2: Utrecht work engagement scale-7 summary item statistics (N = 7).

Description	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance
Item means	4.93	4.29	5.18	0.89	1.21	0.10
Inter-item covariances	0.96	0.39	2.10	1.71	5.36	0.19
Inter-item correlations	0.34	0.20	0.67	0.47	3.38	0.01

TABLE 3: Utrecht work engagement scale-7 item-total statistics.

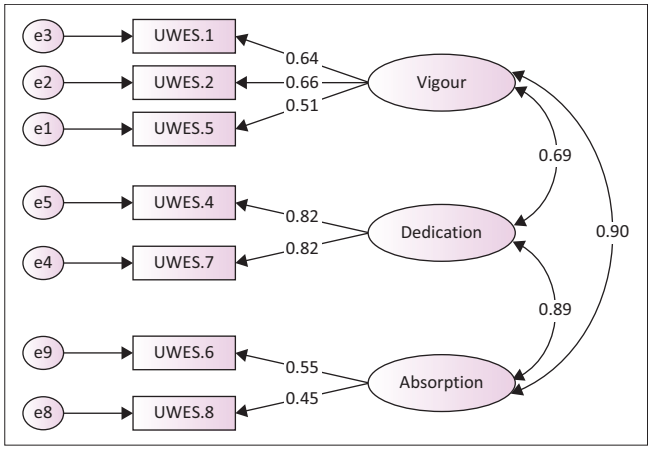
Scale description	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Squared multiple correlation	Cronbach's Alpha if item deleted
At my work as a street trader, I feel bursting with energy. [UWES.1]	29.30	48.28	0.49	0.33	0.75
At my job as a street trader, I feel strong and vigorous. [UWES.2]	29.36	48.59	0.49	0.31	0.75
When I get up in the morning, I feel like going to work as a street trader. [UWES.5]	29.43	48.48	0.45	0.25	0.76
My job as a street trader inspires me. [UWES.4]	29.74	42.12	0.62	0.52	0.72
I am proud of the work I do as a street trader. [UWES.7]	29.48	43.81	0.62	0.52	0.73
I feel happy when I am working intensely as a street trader. [UWES.6]	30,19	40.24	0.50	0.30	0.76
I am immersed in my work as a street trader. [UWES.8]	29.41	50.88	0.40	0.19	0.77

UWES, Utrecht work engagement scale.

TABLE 4: Validity statistics.

Variables	Statistics
CMIN	76.44
df	11.00
p-value	0.00
CMIN/*df*	6.95
GFI	0.95
AGFI	0.87
NFI	0.90
TLI	0.83
CFI	0.91
RMSEA	0.12
PCLOSE	0.00
SRMR	0.05
AIC	110.40
BIC	178.50

df, degrees of freedom; GFI, goodness-of-fit index; AGFI, adjusted goodness-of-fit index; NFI, normed fit index; TLI, Tucker Lewis index; CFI, comparative fit index; RMSEA, root mean square error of approximation; PCLOSE, probability of close fit; SMRM, standardised root mean residual; AIC, Akaike Information Criterion; BIC, Bayesian Information Criterion.



UWES, Utrecht work engagement scale.

FIGURE 1: Utrecht work engagement scale-7 factor analysis.

model, the one-factor model was used (Saks 2019; Schaufeli et al. 2006). The results of the study did not support the differences between vigour, dedication and absorption. Hence, the approach used for this study.

Discussion

The main aim of the study was to determine the validity of UWES (psychometric properties) in assessing the engagement of the worker (self-employed informal entrepreneur) in the informal sector. The study was an extract from the study entitled 'Assessing work engagement of street traders in the City of Tshwane, South Africa'. Various validity steps were performed, namely reliability and validity tests. The reliability and validity test results of the UWES were conducted through various statistical tests on the SPSS version 28. The internal consistency reliability results of the original UWES-9 were acceptably low at an alpha value of $\alpha = 0.74$. Subsequent tests were conducted, including the Summary Item Statistics, focussing on the Inter-Item Correlation statistics results reporting the reliability of the instrument below the minimum acceptable mean value of $X = 0.30$ as recommended (Hair et al. 2014; Pallant 2016). The lower mean value prompted a further examination of all the individual items on the instrument to determine which item contributed to the lower Inter-Item Correlation results. It was done through various correlation statistics, including Item-Total Statistics, wherein the Corrected Item-Total Correlation was reported. Two items were found to be contributing below the minimum acceptable mean value of $X = 0.30$ as recommended (Hair et al. 2014; Pallant 2016). The identified items were UWES.3 (an item for the dedication scale) and UWES.9 (an item for the absorption scale). Items with a below-minimum acceptable mean were candidates for deletion (Hair et al. 2014; Pallant 2016). The items with low mean values were therefore deleted. The reliability and validity tests were conducted again on the remaining UWES-7 items. The Cronbach alpha coefficient results of the remaining UWES-7 improved significantly from $\alpha = 0.74$ to $\alpha = 0.78$, respectively. Other statistical tests were also used, such as UWES-7 Summary Item Statistics, where the Inter-Item Correlation improved significantly from $X = 0.25$ for UWES-9 to $X = 0.34$ for UWES-7. The UWES-7 Item-Total Statistics, where the Corrected Item-Total Correlation Statistics were analysed, improved significantly to a minimum mean value of above $X = 0.30$ (Hair et al. 2014; Pallant 2016). The data supported all the internal consistency reliability for the UWES-7 than for the UWES-9.

In the study, the one-factor model provided acceptable results compared to the complex three-factor model. Moreover, it is recommended that at the earlier stage of the study, it is better to compute one-factor model than discriminant factor approach (Kulikowski 2017; Saks 2019; Schaufeli et al. 2006). The instrument experienced some challenges, for example, some of the validity indices such as the RMSEA were above the minimum acceptable value of $X = 0.08$ and $X = 0.125$. Despite these challenges, the instrument was acceptable. The recommendations for a search for a better instrument should continue unhindered, while the use of UWES provides a better measure and explanation of the work engagement construct (Kulikowski 2017; Saks 2019). A recommendation for using a single composite engagement score was observed and adhered to, with recommendations for future research to determine how much each of the following dimensions, namely VI, DE and AB contribute to work engagement (Kulikowski 2017; Schaufeli et al. 2006). In the case of the study, it was not determined how much each of the dimensions of work engagement, namely VI, DE and AB contribute to the work engagement of self-employed informal entrepreneurs. It was according to the recommendations by the developers of the instrument that either convergent or divergent analysis should be conducted at an early stage of the study (Schaufeli et al. 2006). The study determined that UWES is valid for assessing the engagement of self-employed informal entrepreneurs.

Practical implications of the results of the study in practice and literature

The practical implications of the results of the study include a search for a better instrument for the assessment of the engagement of a worker as recommended; UWES-7 was

found to be of acceptable validity and could be used to assess the engagement of self-employed informal entrepreneurs. The engagement of a worker is associated with the well-being of a worker and is also important for determining the engagement of self-employed informal entrepreneurs, and the informal sector constitutes the largest global labour employer. The well-being of a worker is associated with the worker's health, namely physical health, mental or psychological health and emotional health. The well-being of a worker can also be assessed using the UWES, the most used instrument in assessing the engagement of a worker. The UWES is also valid to assess the engagement of a self-employed informal entrepreneur.

Limitations and recommendations of the study

The study focussed on the validity of the UWES in assessing the engagement of a self-employed informal entrepreneur, a sample selected through the convenience sampling method. The UWES is the most used instrument in assessing the engagement of a worker. Some studies have been conducted focussing on the well-being of a worker in the informal sector. Although the engagement of the worker is associated with well-being, the current study was a groundbreaking study or one of a kind, assessing the engagement of self-employed informal entrepreneurs through UWES, and it has not done before in the same way as in the current study. Similar studies should be done to directly benchmark with the use of UWES in assessing the engagement and well-being of the self-employed informal entrepreneur. There are many different types of informal workers in the informal sector who were not included in the study, which may be considered for other future studies. The sample was representative, appropriate and acceptable for the study.

The study had some limitations because of a lack of availability of a credible database of self-employed informal entrepreneurs in the City of Tshwane. The area that should be considered in the future by keeping an updated database of everyone who trades in the city, be it formal or informal. As this study was the first to determine the validity of UWES in assessing the engagement of self-employed informal entrepreneurs in the informal sector, it focussed on the one-factor model to avoid multicollinearity, as recommended by Schaufeli et al. (2006). Future studies should also determine the three-factor model to determine how much each dimension contributes to the work engagement of self-employed informal entrepreneurs in the informal sector. Future studies may also consider broadening the scope of the study by including different demographic variables to determine whether it is related to or predicts work engagement. Although the convenience sampling method used in selecting the respondents was appropriate for the study, it may be reconsidered or changed to another sampling method for future studies.

Conclusion

The engagement of a worker is one of the fast-growing constructs in the field of human resource management both in academia and corporate sectors. The construct is associated with good health and outstanding performance of a worker at work. The UWES is one of the few valid and extensively used instruments is the UWES for assessing the engagement of the worker in informal organisations. The study sought to determine whether UWES can also be used in assessing the engagement of a worker in the informal sector. The study concluded that UWES is indeed also valid and can be used to assess the engagement of the worker in the informal sector. These included self-employed informal entrepreneurs doing their trades along the streets; these are the workers who work in jobs that do not provide social security. There are different versions of UWES, ranging from UWES-17, UWES-15, UWES-9 and to the ultra-short UWES-3 (Gifford & Young 2021; Schaufeli et al. 2019). All these can also be used to assess the engagement of the worker in the informal sector, determining the worker's health and well-being in both formal and informal sectors. The study concluded that, as much as UWES was developed and validated to assess the engagement of the worker in the formal sector, it is also valid to assess the engagement of the worker in the informal sector, especially the self-employed informal entrepreneurs. The study does not challenge the recommendation for a search for a better instrument as in other fields of studies; UWES was used as a good instrument for assessing the engagement of a worker, both in the formal and informal sectors, providing a better understanding of a worker' physical, mental and emotional health or well-being and performance at work.

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Data availability

The data that support the findings of this study are available from the corresponding author, D.G.M., upon reasonable request.

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References

Bataineh, K.A., 2019, 'Impact of work-life balance, happiness at work, on employee performance', *International Business Research* 12(2), 99–112. https://doi.org/10.5539/ibr.v12n2p99

Blaauw, P., 2017, 'Informal employment in South Africa: Still missing pieces in the vulnerability puzzle', *Southern African Business Review* 21(1), 339–361.

Bolton, R., 1993, 'Pretesting questionnaires: Content analysis of respondents' concurrent verbal protocols', *Marketing Science* 12(3), 1–25. https://doi.org/10.1287/mksc.12.3.280

Bono, J. & McNamara, G., 2011, 'From the editors publishing in AMJ-part 2: Research design', *Academy of Management Journal* 54(4), 657–660. https://doi.org/10.5465/amj.2011.64869103

Chen, M., 2012, '*The informal economy: Definitions, theories and policies*, No. 1; Women in Informal Employment: Globalizing and Organizing (WIEGO, Working Paper No 1 Manchester, United Kingdom (UK).

Costello, A. & Osborne, J., 2005, 'Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis', *Practical Assessment, Research, and Evaluation* 10(7), 1–10.

David, A., Diallo, Y. & Nilsson, B., 2023, 'Informality and inequality: The African case', *Journal of African Economies* 32(2), 273–295. https://doi.org/10.1093/jae/ejac052

De Bruin, G. & Henn, C., 2013, 'Dimensionality of the 9-item Utrecht work engagement scale (UWES-9)', *Psychological Reports* 112(3), 788–799. https://doi.org/10.2466/01.03.PR0.112.3.788-799

Domínguez-Salas, S., Rodríguez-Domínguez, C., Arcos-Romero, A., Allande-Cussó, R., García-Iglesias, J. & Gómez-Salgado, J., 2022, 'Psychometric properties of the Utrecht Work Engagement Scale (UWES-9) in a sample of active health care professionals in Spain', *Psychology Research and Behavior Management* 2022, 3461–3472. https://doi.org/10.2147/PRBM.S387242

Gifford, J. & Young, J., 2021, *Employee engagement: Definitions, measures and outcomes. Discussion report*, Chartered Institute of Personnel and Development: CIPD, London.

Hair Jr J., Black, W.C., Babin, B. & Anderson, R., 2014, *Multivariate data analysis*, 7th edn., Pearson Education Limited, London.

Hakanen, J., Peeters, M. & Schaufeli, W., 2018, 'Different types of employee well-being across time and their relationships with job crafting', *Journal of Occupational Health Psychology* 23(2), 289. https://doi.org/10.1037/ocp0000081

Halbesleben, J.R.B., 2010, 'A meta-analysis of work engagement: Relationships with burnout, demands, resources, and consequences', in A.B. Bakker & M.P. Leiter (eds.), *Work engagement: A handbook of essential theory and research*, pp. 102–117, Psychology Press, New York.

ILO, 1972, *Employment, Income and Inequality: A strategy for increasing productive employment in Kenya*, (A report of an Inter-Agency Team Financed by the United Nations Development Programme), Geneva.

ILO, 2023, *World and social outlook employment trends: Flagship report*, International Labour Organisation, Geneva.

Kulikowski, K., 2017, 'Do we all agree on how to measure work engagement? Factorial validity of Utrecht Work Engagement Scale as a standard measurement tool–A literature review', *International Journal of Occupational Medicine and Environmental Health* 30(2), 161–165. https://doi.org/10.13075/ijomeh.1896.00947

Kyriazos, T. & Poga, M., 2023, 'Dealing with multicollinearity in factor analysis: The problem, detections, and solutions', *Open Journal of Statistics* 13(3), 404–424. https://doi.org/10.4236/ojs.2023.133020

Leiter, M. & Bakker, A. (eds.), 2010, *Work engagement A handbook of essential theory and research*, Psychology Press, New York.

Ligthelm, A., 2006, 'Size estimate of the informal sector in South Africa', *Southern African Business Review* 10(2), 32–52.

Lins de Holanda Coelho, G., Monteiro, R., De Oliveira Santos, L., De Carvalho Mendes, L., Gouveia, V. & Fonsêca, P., 2023, 'Utrecht Work Engagement Scale (UWES): Psychometric parameters in Brazil', *Suma Psicológica* 30(2), 11–20. https://doi.org/10.14349/sumapsi.2023.v30.n2.2

Mabasa, D.G., 2023, 'Assessing work engagement of street traders (vendors) in the City of Tshwane, South Africa', PhD Thesis, University of South Africa, Pretoria.

Merino-Soto, C., Lozano-Huamán, M., Lima-Mendoza, S., Calderón de la Cruz, G., Juárez-García, A. & Toledano-Toledano, F., 2022, 'Ultrashort version of the Utrecht work engagement scale (UWES-3): A psychometric assessment', *International Journal of Environmental Research and Public Health* 19(2), 1–14. https://doi.org/10.3390/ijerph19020890

Moisoglou, I., Katsiroumpa, A., Gallos, P., Kolisiati, A., Tsiachri, M., Tsakalaki, A. et al., 2024, *Utrecht work engagement scale (nine items version): Translation and validation in Greek*.

NPC, 2011, *National development plan (NDP) 2030: Our future-make it work*, Government printing, National Planning Commission, Pretoria.

Nunnally, J., 1968, 'Psychometric theory', *American Educational Research Journal* 5(3), 6–21. https://doi.org/10.2307/1161962

OECD, 2023, *Informality and globalisation: In search of a new social contract*, OECD Publishing, Paris.

Pallant, J., 2016, *SPSS survival manual: A step by step guide to data analysis using IBM SPSS*, 6th edn., Allen & Unwin, Crows Nest.

Roever, S. & Skinner, C., 2016, 'Street vendors and cities', *Environment and Urbanization* 28(2), 359–374. https://doi.org/10.1177/0956247816653898

Rothmann, S. & Rothmann Jr S., 2010, 'Factors associated with employee engagement in South Africa', *SA Journal of Industrial Psychology* 36(2), 1–12. https://doi.org/10.4102/sajip.v36i2.925

Saks, A., 2019, 'Antecedents and consequences of employee engagement revisited', *Journal of Organizational Effectiveness: People and Performance* 6(1), 19–38. https://doi.org/10.1108/JOEPP-06-2018-0034

Saks, A. & Gruman, J., 2014, 'What do we really know about employee engagement?', *Human Resource Development Quarterly* 25(2), 155–182. https://doi.org/10.1002/hrdq.21187

Saunder, M., Lewis, P. & Thornhill, A., 2016, *Research methods for business students*, Pearson Education, New Delhi.

Schaufeli, W. & Salanova, M., 2011, 'Work engagement: On how to better catch a slippery concept', *European Journal of Work and Organizational Psychology* 20(1), 39–46. https://doi.org/10.1080/1359432X.2010.515981

Schaufeli, W., Bakker, A. & Salanova, M., 2006, 'The measurement of work engagement with a short questionnaire: A cross-national study', *Educational and Psychological Measurement* 66(4), 701–716. https://doi.org/10.1177/0013164405282471

Schaufeli, W., Salanova, M., González-Romá, V. & Bakker, A., 2002, 'The measurement of engagement and burnout: A two sample confirmatory factor analytic approach', *Journal of Happiness Studies* 3(1), 71–92. https://doi.org/10.1023/A:1015630930326

Schaufeli, W., Shimazu, A., Hakanen, J., Salanova, M., & De Witte, H., 2019, 'An ultra-short measure for work engagement: The UWES-3 validation across five countries', *European Journal of Psychological Assessment* 35(4), 536–577. https://doi.org/10.1027/1015-5759/a000430

StatsSA, 2024, *Quarterly labour force survey quarter 1: 2024 embargoed until: 14 May 2024 11:30*, Statistics South Africa, Pretoria.

Storm, K. & Rothmann, S., 2003, 'A psychometric analysis of the Maslach burnout inventory-general survey in the South African police service', *SA Journal of Industrial Psychology* 29(4), 62–70. https://doi.org/10.4102/sajip.v29i4.129

United Nations (UN): General Assembly, 2023, *Human Rights Council-Fifty-Four Session: Annual report of the United Nations High Commisioners for Human Rights and reports of the Office of the High Commisioner and the Secretary General*, United Nations, Geneva.