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Examining the application of SOC-29 and MLQ in the South African Banking Industry

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Orientation: This study examines the application of the Multifactor Leadership Questionnaire (MLQ) and the Sense of Coherence-29 (SOC-29) within the South African banking industry. It evaluates the appropriateness, efficacy and potential impact of these instruments and offers insights for enhancing employee resilience, improving organisational adaptability and advancing leadership practices in the sector.

Research purpose: This study aims to address whether the SOC-29 and MLQ maintain their factor structures and psychometric properties when applied to banking employees.

Motivation for the study: There has been limited research on the underlying constructs and measurements of the SOC-29 and MLQ. This evaluation's findings will help enhance the accuracy and utility of both instruments.

Research approach/design and method: A quantitative, positivistic, cross-sectional research design was employed to collect primary data from 150 employees working in South African banks.

Main findings: The exploratory factor analysis identified a three-factor structure: F1 – Comprehensibility, F2 – Manageability and F3 – Meaningfulness, all showing improved goodness-of-fit indices. Manageability emerged as the most representative factor, while comprehensibility was the least representative.

Practical/managerial implications: Understanding the applicability of the SOC-29 and the MLQ in a banking setting is crucial for HR professionals, organisational psychologists and management teams who seek to leverage these tools for employee assessment, development and organisational improvement.

Contribution/value-add: Banks' critical role in the economy, competitive nature and unique challenges make the study's outcomes essential for empowering banking organisations to adopt a more scientific approach to employee assessment and development, leading to a well-supported workforce.

Keywords: exploratory factor analysis; banking professionals; leadership; sense of coherence; employee engagement; organisational behaviour.

Introduction

Orientation

Researchers can better understand variable relationships, formulate research questions, find latent variables and create links between variables and indicators by using exploratory factor analysis (Fabrigar et al., 1999). A major topic of interest in social psychology is the investigation of the connection between leadership and sense of coherence (SOC), which provides insightful information on a variety of psychological theories (Coetzee, 2020). A study evaluating the factor structure of the Multifactor Leadership Questionnaire (MLQ) and Sense of Coherence-29 (SOC-29) is required because of the various issues that the banking sector in South Africa faces. Globalisation and competition, high customer expectations and service delivery demands, rapid technological advancements and digital transformation, economic volatility, strict regulatory and compliance pressures, talent management and employee well-being concerns and socio-political factors are some of these challenges. Because of these complicated aspects, it is essential to comprehend employees' SOC and leadership styles in order to establish enhanced organisational practices and increase employee outcomes (Coetzee, 2020).

Transformational leadership holds the potential to influence the attitudes and behaviours of individuals within work settings and organisations. The SOC scale measures how well individuals perceive their life experiences, particularly their ability to understand and manage their

interactions with others. It assesses how comprehensible, manageable and meaningful people find their experiences, reflecting their overall SOC in dealing with life's challenges.

This scale has been widely employed across different regions, from developed countries to Africa and Asia. The SOC-29 has also been employed as a tool for assessing psychological well-being in the workplace and is characterised by its homogeneity, with a Cronbach's alpha of 0.91 (Söderhamn et al., 2015). Unlike Antonovsky's (1987) original idea of a unidimensional construct, the SOC reveals a complex structural framework, and research on its construct validity suggests that the SOC looks to be a multidimensional concept. This suggests that the three SOC component dimensions interact constantly, finally coming together to form a cohesive, all-encompassing factor called an SOC.

Conversely, the MLQ, a widely used tool for assessing both transactional and transformational leadership, has been validated for its psychometric qualities in various workplace settings and cultural contexts (Avolio & Bass, 2004; Dimitrov & Darova, 2018). However, concerns have been raised regarding the MLQ's multidimensional structure, consistency with current theories and the integration of its sub-dimensions into a single model. To identify an optimal exploratory factor analysis of each observed variable that could potentially measure every factor and determine the relationship between the observed variables and factors, this study will evaluate the factor structure of the SOC scale in conjunction with the MLQ (Antonovsky, 1993; Eriksson & Lindstrom, 2005; Eustace & Martins, 2014; Fonseca-Pedrero et al., 2012; Mitonga-Monga & Hlongwane, 2017).

Being popular tools for examining leadership styles and individual resilience, the applicability and validity of these scales, in terms of reliability and their use in the banking industry, a highly dynamic and stressful work environment, have not been fully investigated (Eustace & Martins, 2014).

Research objectives

The objective of this research is to assess the application and added value of the MLQ and the SOC-29 scale to gain insight into leadership approaches and individual resilience within the South African banking industry.

Literature review
Contextualising the factor structure of Sense of Coherence 29 and the Multifactor Leadership Questionnaire

The term 'factor structure' describes how the questionnaire items are grouped to symbolise underlying dimensions that have been discovered by statistical techniques such as factor analysis, which looks at item correlations for clustering. To validate scales and make sure they measure desired constructs effectively, one must have a thorough understanding of the factor structure. The SOC-29 attests to the alignment of the items with the meaningfulness, manageability and comprehensibility components (Antonovsky, 1993; Field, 2018; Tabachnick & Fidell, 2013).

The MLQ makes sure that the elements are categorised into the sub-dimensions of transactional, laissez-faire and transformational leadership. The SOC-29 predicts coping mechanisms and offers insights into an individual's well-being, directing actions. In order to promote evidence-based decision-making, organisational performance and leadership development, the MLQ provides a comprehensive profile of leadership conduct. Both tools greatly enhance both human well-being and organisational effectiveness because of their validated factor structures (Antonovsky, 1987, 1993; Avolio & Bass, 2004; Batista-Foguet et al., 2021).

The SOC-29 factor structure clarifies that each item has a distinct impact on how people deal with stress and manage their overall well-being. Each question and response category were created to incorporate the three dimensions. For example, the comprehensibility dimension included items like 'Do you ever feel like people don't understand you when you talk to them?' (From never experiencing this feeling to experiencing it constantly), manageability (i.e., the four aspects of the stimulus – modality, source, demand and time – influence the expression of SOC. For example, when something unpleasant happened in the past, your tendency was to eat yourself up about it to say ok that's that, I have to live with it and go on) and meaningfulness (i.e., the items 'the activities you engage in every day are a source of deep pleasure and fulfillment, rather than a cause of pain or boredom.'). Previous research on the SOC-29 does not exhibit factor validity, meaning it does not consistently measure the intended dimensions (Eriksson & Mittelmark, 2017; Grevenstein & Bluemke, 2015; Kövi et al., 2017).

There are three primary inconsistencies with using the SOC-29: (1) differences between statistical and theoretical dimensions (factor structure), (2) inconsistent scale item selection and (3) inconsistent answer category (rating option) count. Despite these issues, Antonovsky (1987, 1993) suggested adopting the SOC-29 as a one-factor structure, drawing on the findings of factor analysis and the strong theoretical relationships between the three SOC dimensions. Nevertheless, the functions of all three dimensions differ, and if a one-factor structure is used, these functions may be disregarded (Fujisato, 2015; Söderhamn et al., 2015).

Based on the aforementioned, the purpose of this study is to determine whether the SOC-29 retains the theoretical three-factor structure and to investigate the feasibility of using each of the three subscale scores as a variable in statistical analysis. It is anticipated that important insights into the relationship between SOC-29 statistical operation and theory will be discovered.

The SOC-29 has undergone numerous modifications to better reflect reality, but these modifications have also drawn

criticism for flaws. For example, Flensborg-Madsen et al. (2005) developed an alternative 9-item instrument that did not include the concept of predictability because they believed that eight of the SOC-29 items did not fit the theoretical background. On the other hand, one may hypothetically believe that every component has a distinct contribution. It is crucial to approach each dimension separately in theory and statistics rather than as a whole (Fujisato, 2015). According to research, there is uncertainty regarding the item content and scale's number of response alternatives, and variations exist in the theoretical and statistical foundation for the SOC-29's application (Kövi et al., 2017; Simms et al., 2019).

There are also concerns about its generalisability across different populations and specific contexts, such as high-stress work environments, which complicates its application. Addressing these issues requires adapting the scale to improve cultural sensitivity, clarity and applicability and conducting rigorous validation studies across diverse populations and contexts. It is crucial to understand the factor structure of SOC-29, confirm item grouping into the three components and ensure the scale's validity (Antonovsky, 1993).

With the use of an all-inclusive well-being evaluation, practitioners and organisations can create focused interventions that improve particular facets of a SOC. Furthermore, SOC-29 offers predictive insights by associating resilience and improved health outcomes with a strong SOC, which helps anticipate coping mechanisms for proactive support. Factor analysis is largely utilised to verify the construct validity of the SOC-29, and as previously noted, it should be further verified (Antonovsky, 1993).

The MLQ is used to evaluate and improve leadership skills in a variety of organisational contexts, such as businesses, universities and governmental organisations (Humphreys & Einstein, 2003. The MLQ is a useful tool for promoting effective leadership and accomplishing organisational goals in the banking industry because it can be used to better design leadership development programmes, enhance team dynamics and improve overall organisational effectiveness (Avolio & Bass, 2004).

This tool measures nine subscales of assessment related to subordinates' perceptions of a leader's crisis management abilities, including a variety of leadership characteristics. Ten components make up idealised behaviour, which evaluates how much a leader is thought to exhibit significant values, beliefs and a sense of purpose. Ten factors that gauge a leader's orientation towards the future and ability to set high standards serve as a representation of inspirational motivation. Additionally, ten items that measure a leader's acceptance of subordinates' ideas and encouragement to question the status quo by re-examining critical assumptions make up intellectual stimulation, and these components can be grouped into distinct models to enable exploration of

leadership impact on employees' experience and contribute to the existing literature by understanding the leaders role (Batista-Foguet et al., 2021; Braathu et al., 2022; Dimitrov & Darova, 2018; Muenjohn & Armstrong, 2008).

Certain aspects of the conceptual frameworks and measurement criteria have drawn some criticism. There have been concerns made concerning the assessment of leadership behaviours because of the structural validity, measurement quality, lack of link with theory and the manner several sub-dimensions interact to form a unitary model (Tepper & Percy, 1994). Although factor analysis has been used to demonstrate the convergent and discriminant validity, prior research has critically reviewed the state-of-the-art leadership measures (Alvesson & Kärreman, 2015; Antonakis et al., 2014; Batista-Foguet et al., 2021; Dimitrov & Darova, 2018).

In light of the lack of research on the relationships between variables, it is critical to develop questions about research topics, pinpoint underlying causes, shed light on the relationships between shared factors and observed variables and encourage the development of connections between indicators and variables.

The following objectives were evaluated:

- Assessing the factor structure of the MLQ with the SOC-29 scale using a sample of banking employees within South Africa.
- Assessing the value-add of the MLQ with the SOC-29 scale, using banking employees in South Africa.

Research design

Self-administered questionnaires were used in the empirical study's non-experimental, cross-sectional design to obtain quantitative primary data. The validity and reliability of the instruments were established, and a purposive sample technique and non-probability convenience were used.

Research approach

A cross-sectional strategy and a post-positivistic approach were used in conjunction with a quantitative research method. Descriptive statistics, the SOC subscales' internal consistency and the composite score that measures multiple dimensions into a single index were acquired during the data analysis. The entire sample was divided into two subsamples at random to do a cross-validation study and investigate the internal structure of the SOC and MLQ using an exploratory factor analysis (EFA).

This method enables cross-validation, which functions as an internal replication study by applying EFA to one subsample and verifying the factor structure on the other, thereby assessing the stability and consistency of the factors found. Confidence that the factor structure is not the result of sampling error or unique properties of one subsample increases if the same factor structure appears in both subsamples. Additionally, it helps with model refining by

allowing for the resolution of any problems found in the first subsample and the testing of the improved model on the second subsample to guarantee generalisability across various population subsets. Separating the sample also lessens the chance of overfitting, which occurs when a model is too closely adapted to the idiosyncrasies of a single sample (Floyd & Widaman, 1995).

Because a factor structure that holds in two separate subsamples is less likely to be the result of random variation, this improves the robustness of the results. By using this strategy, scientists may guarantee that their findings are more likely to be repeatable and applicable to a larger population while also offering more support for the validity of the component structure (Floyd & Widaman, 1995).

Research method

Research participants

About 150 permanent employees (*N* = 150) of a South African banking organisation, representing a total population of 50 000 professionals, made up the sample for this study. The HR department reached out to respondents via electronic questionnaires with minimal bias because a random sample was drawn from the Infrastructure Production Services, a subset of Information Technology (IT) from which the random sample was drawn. Random sampling is frequently the best option when assessing the factor structures of the SOC-29 and MLQ in a banking setting (Fabrigar & Wegener, 2011).

Because it guarantees representation of the many positions (such as management, customer service and IT support) and demographic groupings (such as age, gender and tenure) prevalent in the banking industry, this strategy is perfect. The population is stratified according to pertinent attributes like department and employment position, which improves the accuracy of factor structure estimation. It also makes it easier to do comparison analysis across strata, which offers insightful information about how factor structures may differ among different banking sector subgroups (Fabrigar & Wegener, 2011). The sample included junior, middle and senior managers in addition to general personnel. The survey was distributed to 258 employees of several South African banks. Following that, 150 replies were obtained. By using these criteria and random sampling within each stratum, we aimed to ensure a representative and unbiased sample of the banking sector employees.

Measuring instruments

The SOC-29 scale questionnaire was developed by Antonovsky (1987) to measure an individual's SOC across three dimensions: comprehensibility, manageability and meaningfulness. Each dimension is assessed through a series of items with responses ranging from negative to positive. For example, items on comprehensibility might explore whether individuals feel understood when communicating, while manageability items might address past experiences with handling unpleasant situations. Meaningfulness items

might enquire about the perceived value and enjoyment of daily tasks. The responses are rated on a scale from one extreme, such as feeling that an experience is highly unenjoyable or monotonous, to the other extreme, where the experience is viewed as highly fulfilling and enjoyable, reflecting the individual's overall SOC (Antonovsky, 1987; Eriksson & Mittlemark, 2016).

According to some descriptions, the SOC is a semantic differential scale with two anchoring periods for each item. The score is on a Likert scale from 1 to 7. Before summing, thirteen of the items have to be reversed because they are negatively formulated. A higher score denotes a stronger feeling of coherence. The final score goes from 29 to 203. Cronbach's alpha, a measure of internal consistency, varied from 0.82 to 0.95 in research that used the SOC (Söderhamn et al., 2015).

The MLQ, developed by Avolio and Bass (2004), includes 21 items that describe various leadership styles. The MLQ measures four dimensions of transformational leadership: idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. For example, it assesses whether leaders go beyond self-interest for the good of the group and whether they embody transformational qualities.

Transactional leadership is assessed through dimensions such as management by exception and contingent reward, evaluating aspects like the clarity of expectations for performance and rewards. Laissez-faire leadership, characterised by a lack of proactive leadership, is associated with minimal impact and is often not considered a true leadership style. This dimension includes behaviours such as waiting for problems to arise before taking action (Gassemi et al., 2021).

Each dimension of the MLQ is measured using a seven-point scale, where 1 indicates strong disagreement and 7 indicates strong agreement. Note that item 9, which relates to leadership outcomes, is scored in reverse. Reliability estimates for the MLQ range from 0.74 to 0.94, as reported by Robertson (2009).

Statistical analysis

The descriptive statistics were presented initially, including Cronbach's alpha, mean and standard deviation. Subsequently, the internal consistency of the SOC and MLQ subscales and overall scores was evaluated. Following this, a cross-validation analysis was performed by randomly splitting the entire sample into two subsamples to assess the internal structure of the SOC and MLQ. The use of two samples enhances the credibility, robustness and applicability of the factor analysis results. Unrestricted exploratory factor analysis was conducted on the initial subsamples, as outlined by Gassemi et al. (2021).

The Chi-square (χ^2), degree of freedom (*df*), confirmatory factor index (CFI), Tucker Lewis non-normed fit index

(NNFI), root mean square error of approximation (RMSEA), Schwarz's Bayesian information criterion (BIC) and the standardised root mean square residual (SRMR) were the goodness-of-fit indices that were employed. According to Hu and Bentler (1999), a good model fit should have an RMSEA of 0.06 or less and a CFI and TLI of 0.95 or greater; however, values over 90 are often regarded as acceptable. A good model fit for the SRMR is indicated by values less than 0.08 (Hu & Bentler, 1999).

Lastly, Bartlett's statistics and the Kaiser-Meyer-Olkin (KMO) test with a bootstrap 95% confidence interval were used to test the goodness-of-fit model and average measurement variance. A rotated matrix loading procedure was used, where loading values less than 0.500 were excluded (Hu & Bentler, 1999).

Together, these goodness-of-fit indexes offer a thorough evaluation of how well the suggested model matches the data: degrees of freedom and Chi-square measure overall fit but are sample size sensitive. After controlling for sample size and complexity, the model fit is compared to a null model using CFI and TLI. The standardised difference between observed and predicted correlations is measured by SRMR, which provides an absolute fit assessment. BIC penalises for model complexity, assisting in the selection of the most parsimonious model, and RMSEA assesses how well the model would fit the population covariance matrix, concentrating on error approximation. By employing these indices along with their suggested cutoff points (Hu & Bentler, 1999), researchers can assess the suitability of their factor models and guarantee reliable and accurate findings from their data.

Ethical considerations

Ethical clearance for the study was granted by the Department of Industrial and Organisational Psychology Research Ethics Committee at the University of South Africa with clearance reference number 14/11/2012 and the Human Resource Director of the participating organisation. Participants were invited to take part voluntarily and provided informed consent. Their privacy, anonymity, and confidentiality were guaranteed throughout the process.

Results

An EFA is a statistical method employed to uncover the underlying structure and number of latent constructs within a large set of variables by analysing their correlations. It is particularly useful in the early stages of research to guide the development of theories, models and measurement instruments.

Three factors were identified by the EFA in this study: F1 stands for comprehension, F2 stands for manageability and F3 stands for meaningfulness. These factors showed improved goodness-of-fit indices, and correlations and

mean scores supported the interpretations of these components.

Proceeding with the factor analysis, the KMO measure of sampling adequacy was found to be above the commonly recommended value of 0.6, and Bartlett's test of sphericity was significant (χ^2 [406] = 1571.5, $p < 0.05$). Given these overall indicators, factor analysis was deemed to be suitable (Table 1).

With a high KMO measure of 0.85165 showing outstanding sampling adequacy and a substantial Bartlett's test validating sufficient correlations among items, the statistical analysis reveals that the data are suitable for factor analysis. The determinant value provides further help for factor analysis by indicating the existence of multicollinearity. There is also strong sample adequacy indicated by the bootstrap 95% confidence interval for the KMO value. Out of the three components that were retrieved, one was the most significant and accounted for 38.833% of the variation or 55% of the total variance. The three components account for 55.347% of the cumulative variance, indicating that they are a good summary of the main data dimensions (See Table 2).

In Table 3, convergent validity is demonstrated when the average variance extracted (AVE) for each factor is greater than 0.50. Specifically, when AVE values for Factor 2 (F2) and the total scale are above 0.50, convergent validity is achieved, thereby leading to the items within these factors sharing a substantial amount of variance with the underlying construct they are intended to measure.

Internal reliability is considered adequate when Cronbach's alpha values exceed 0.70 for all factors. This threshold indicates that the items within each factor consistently measure the same construct. However, for Factor 1 (F1) and Factor 3 (F3), the composite reliability (CR) is below 0.70, suggesting that these factors do not meet the standard criteria for internal reliability. Despite this, the total scale achieves internal reliability when assessed through both CR and Cronbach's alpha, indicating that the overall scale is reliable in measuring the intended constructs.

TABLE 1: Validity based on the internal structure of the SOC scores: exploratory factor analysis.

Indicators	Values
Determinant of the matrix	< 0.000001
Bartlett's statistic	1571.5 (df = 406; p = 0.000010)
Kaiser-Meyer-Olkin (KMO) test	0.85 (good)
Bootstrap 95% confidence interval of KMO	0.73–0.85

Source: Adapted from Exploratory Factor Analysis Guidelines and Best Practices (Costello & Osborne, 2005)
df, degree of freedom.

TABLE 2: Three factors were extracted, which explain 55% of the variance.

Variable eigenvalue	Proportion of variance	Cumulative proportion
11.26	0.39	0.39
2.69	0.09	0.48
2.10	0.07	**0.55**

Source: Adapted from Exploratory Factor Analysis Guidelines and Best Practices (Costello & Osborne, 2005)

TABLE 3: Exploratory factor analysis of the sense of coherence items (loadings lower than absolute 0.500 omitted), F1 for comprehension, F2 for manageability and F3 for meaningfulness.

Variable	F1 Comprehensibility	F2 Manageability	F3 Meaningfulness	SOC (Total)
SOC1 When you talk to people, do you have the feeling that they don't understand you?	-	-0.80	-	-
SOC2 In the past, when you had to do something that depended upon cooperation with others, did you have the feeling that it:	-	0.72	-	-
SOC3 Think of the people with whom you come into contact daily, aside from the ones with whom you feel closest. How well do you know most of them?	0.71	-	-	-
SOC4 Do you have the feeling that you don't really care about what goes on around you?	-	-	0.50	-
SOC6 Has it happened that people whom you counted on disappointed you?	-	-0.60	-	-
SOC7 Life is:	0.73	-	-	-
SOC8 Until now your life has had:	-	0.83	-	-
SOC11 Most of the things you do in the future will probably be	0.51	-	-	-
SOC12 Do you have the feeling that you are in an unfamiliar situation and don't know what to do?	-	-	-0.51	-
SOC13 What best describes how you see life:	-	-0.66	-	-
SOC14 When you think about your life, you very often:	-	-	0.87	-
SOC15 When you face a difficult problem, the choice of a solution is:	-	0.72	-	-
SOC16 Doing the things you do every day is:	-	-	0.79	-
SOC18 When something unpleasant happened in the past your tendency was	-	0.76	-	-
SOC19 Do you have very mixed-up feelings and ideas?	-	0.95	-	-
SOC20 When you do something that gives you a good feeling:	-	-0.73	-	-
SOC21 Does it happen that you have feelings inside you would rather not feel?	-	0.78	-	-
SOC23 Do you think that there will always be people whom you'll be able to count on in the future?	-	-0.53	-	-
SOC25 Many people - even those with strong character - sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?	-	-0.59	-	-
SOC26 When something happened, have you generally found that:	-	0.4	-	-
SOC27 When you think of difficulties you are likely to face in important aspects of your life, do you have the feeling that:	-	-0.78	-	-
SOC28 How often do you have the feeling that there's little meaning in the things you do in your daily life?	-	0.63	-	-
SOC29 How often do you have feelings that you're not sure you can keep under control?	-	0.72	-	-
Composite reliability (CR)	0.69	0.92	0.63	0.93
Average variance extracted (AVE)	0.43	0.55	0.47	0.52
Cronbach's alpha	0.81	0.93	0.77	0.71

Source: Adapted from Brady, L.L. (2017). *The role of sense of coherence in stressor appraisal.* Unpublished master's thesis. The University of Tennessee at Chattanooga, Chattanooga, Tennessee
Note: $N = 150$; extraction method; maximum likelihood; rotation method robust Promin; Kaiser normalisation; BC CI: bootstrap 95% confidence level = (0.0282–0.0577 [between 0.050 and 0.080]; rotated loading matrix, loading lower than absolute 0.500 omitted.
SOC, Sense of Coherence.

TABLE 4: Discriminant validity of the measurement model ($N = 150$).

Model	Chi-square/df	p	RMSEA	SRMR	CFI	BIC
1	406	0.00	0.03	0.08	1	940.5

Source: Adapted from Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives (Hu & Bentler, 1999)

df, degree of freedom; RMSEA, root mean square error of approximation; SRMR, standardised root mean square residual; CFI, comparative fit index; BIC, Schwarz's Bayesian information criterion.

In Table 4, the three-factor structure with the method effect provided the best results of all the models analysed. The results obtained were (χ^2 [406] = 1571.1, $p < .05$; $NNFI = 0.923$; $CFI = 0.995$; $BIC = 940.5$; $RMSEA = 0.029$ [95% CI 0.0045, 0.0399]; $SRMR = 0.085$).

Exploratory factor analysis was performed on the MLQ subsample to validate the existing constructs or identify the underlying structure measured. Proceeding with factor analysis, the KMO measure of sampling adequacy was above the commonly recommended value of 0.6, and Bartlett's test of sphericity was significant (χ^2 [210] = 1571.1, $p < 0.05$). Given these overall indicators, factor analysis was deemed to be suitable.

The three-factor model with the method effect demonstrated the best fit among all analysed models, with fit indices indicating an acceptable to excellent fit: Chi-square (χ^2) = 1571.1

TABLE 5: Chosen exploratory factor analysis based on the internal structure of the SOC scores with MLQ scores.

Indicators	Values
Determinant of the matrix	0.000002869543564
Bartlett's statistic	1602.2 (df = 210; p = 0.000010)
Kaiser-Meyer-Olkin (KMO) test	0.74 (fair)
Bootstrap 95% confidence interval of KMO 0.59–0.78	

Source: Adapted from Exploratory Factor Analysis Guidelines and Best Practices (Costello & Osborne, 2005)

df, degree of freedom.

TABLE 6: Three factors were extracted, which explain 52% of the variance.

Variable eigenvalue	Proportion of variance	Cumulative proportion
6.13	0.29	0.29
2.58	0.12	0.41
2.26640	0.10792	**0.52**

Source: Adapted from Exploratory Factor Analysis Guidelines and Best Practices (Costello & Osborne, 2005)

TABLE 7: Exploratory factor analysis of the MLF items (loadings lower than absolute 0.500 omitted).

Variable	F1	F2	F3	MLF (Total)
SOC1	-	-	-	-
SOC2	-	0.77	-	-
SOC3	-	-0.63	-	-
SOC4	-	0.66	-	-
SOC6	-	-	-	-
SOC7	-	-	-	-
SOC8	-	-	-	-
SOC11	-	-	-	-
SOC12	-	-	-	-
SOC13	-	-	-	-
SOC14	-	-	0.63	-
SOC15	-	-	0.85	-
SOC16	-	-	0.68	-
SOC18	-	-	0.73	-
SOC19	0.73	-	0.74	-
SOC20	-	-	-	-
SOC21	-	-	-	-
SOC23	-	0.69	-	-
SOC25	-	-	-	-
SOC26	0.95	-	-	-
SOC27	0.61	-	-	-
SOC28	-	-	0.83	-
Composite reliability (CR)	0.82	0.51	0.88	0.89
Average variance extracted (AVE)	0.61	0.48	0.56	0.54
Cronbach's alpha	0.79	0.73	0.81	0.77

Source: Adapted from Multivariate Data Analysis (Hair et al., 2010)

Note: N = 150; extraction method; maximum likelihood; rotation method robust Promin; Kaiser normalisation; BC CI, bootstrap 95% confidence level = (0.0282–0.0577 [between 0.050 and 0.080]); rotated loading matrix; loading lower than absolute 0.500 omitted.

SOC, Sense of Coherence; MLF, Maximum Likelihood Factor.

(df = 406), NNFI = 0.923, CFI = 0.995, BIC = 940.5, RMSEA = 0.029 and SRMR = 0.085. Factor analysis on the MLQ subsample showed strong support for the model's validity, with a determinant of 0.000002869543564, significant Bartlett's test (1602.2, df = 210, p < 0.00001), KMO = 0.74074 and a 95% CI for KMO (0.594, 0.779) (See Table 5). Three factors were extracted, explaining 52.288% of the variance (first factor: 29.214%, second factor: 12.281%, third factor: 10.792%), underscoring significant underlying constructs measured by the MLQ (See Table 6).

In Table 7, convergent validity is achieved when the AVE is > 0.50, and all the factors have an AVE > 0.5, which is an indication that convergent validity has been achieved. Internal reliability is achieved when both the CR and Cronbach's alpha are > 0.70. For the total scale, internal reliability is achieved in both (CR and Cronbach's alpha).

In Table 8, the three-factor structure with the method effect provided the best results of all the models analysed. The results obtained were (χ^2 [210] = 1571.1, p < 0.05); $NNFI$ = 0.968; CFI = 0.977; BIC = 627.01; $RMSEA$ = 0.051 (95% CI 0.0282, 0.0577); $SRMR$ = 0.074.

Table 9 shows that the mean values varied from 2.72 (agree slightly: comprehensibility) to 5.41 (mostly agree: manageability). For the scale variables, the internal consistency reliability coefficients ranged from ≥ 0.71 to ≥ 0.93, which is acceptable to high. Three-dimensional factor solutions appear to be the most economical based on the bivariate connections between multifactor leadership and feeling of coherence (manageability, meaningfulness and comprehensibility).

'When something unpleasant happened in the past, your tendency was to beat yourself up about it' as opposed to 'Ok, that's that, I have to live with it' (M = 5.41; S.D. = 1.19) was the item with the highest score for SOC F2. SOC F1, comprehensibility, received the lowest score. It asked, 'Does it happen that you have feelings inside you that you would rather not feel?' 'Very often', as opposed to 'very seldom or never' (M = 2.72; S.D. = 1.46). The SOC score as a whole had an internal consistency of 0.71.

Intellectual stimulation received the highest score on the MLQ: 'Enable others to think about old problems in new ways' (M = 3.14; S.D. = 0.68). 'I make others feel good around me' (MLQ F1, idealised influence) received the lowest score (M = 2.63; S.D. = 1.02). The MLQ's internal consistency was 0.77.

Discussion

Using a sample of 150 South African bank employees, the study examined the factor structure and value addition of the MLQ and SOC in their self-report forms using a 7-point Likert scale. The objective is to authenticate and improve the dependability of these instruments within a particular cultural and occupational setting, guaranteeing that they precisely gauge the psychological welfare and efficaciousness of leadership in bank workers.

The internal structure of the MLQ and SOC scores was investigated, and their dependability was calculated. The

TABLE 8: Discriminant validity of the measurement model (N = 150).

Model	Chi-square/df	p	RMSEA	SRMR	CFI	BIC
1	210	0.00	0.05	0.07	0.98	627

Source: Adapted from Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives (Hu & Bentler, 1999)

df, degree of freedom; RMSEA, root mean square error of approximation; SRMR, standardised root mean square residual; CFI, comparative fit index; BIC, Schwarz's Bayesian information criterion.

TABLE 9: Descriptive statistics and bi-variate correlations (N = 150).

No.	Variables	Cronbach alpha(α)	CR	M	S.D.	1	2	3	4	5	6	7	8
1	SOC Comprehensibility	0.81	0.69	2.72	1.460	-	-	-	-	-	-	-	-
2	SOC Manageability	0.93	0.91	5.41	1.190	0.903***	-	-	-	-	-	-	-
3	SOC Meaningfulness	0.76	0.62	2.97	1.410	0.613**	0.088*	-	-	-	-	-	-
4	SOC Total	0.71	0.93	4.63	0.640	0.459	0.481*	0.522**	-	-	-	-	-
5	MLF Idealised influence	0.79	0.81	2.63	1.020	0.816***	0.162	0.714***	0.257**	-	-	-	-
6	MLF Inspirational motivation	0.73	0.51	3.07	0.920	0.236	0.083	0.351	-	0.243**	0.171*	-	-
7	MLF Intellectual stimulation	0.80	0.88	3.14	0.680	0.223	0.084	0.026	0.237**	0.163*	0.215**	0.52**	-
8	MLF Total	0.77	0.89	2.98	0.590	0.010***	0.354	0.171*	0.183*	0.166*	0.188*	0.259**	0.591**

Source: Adapted from Evaluating Structural Equation Models with Unobservable Variables and Measurement Error (Fornell & Larcker, 1981)

MLF, Multifactor Leadership Factor; SOC, Sense of Coherence; CR, composite reliability; S.D., standard deviation; M, mean.

*, $p \leq 0.05$; **, $p \leq 0.01$; ***, $p \leq 0.001$.

goodness-of-fit indices were determined to be ideal, and factor analysis verified the convergent and internal reliability. The results of the quantitative study show that the study's goals were met because the goodness-of-fit indices and internal reliability of the psychological well-being assessment were validated in the context of the South African banking industry (Cooper, 1998; Lindblad et al., 2016; Lundman et al., 2011; Poppius et al., 2006; Söderhamn et al., 2015; Surtees et al., 2003).

The SOC study factor analysed 28 items of manageability, meaningfulness and comprehension using principal component analysis with varimax rotation. Out of the investigation, two models were found to explain 55% of the total variation. Three components were found in the first model: intellectual stimulation (which accounted for 47% of the variance in meaningfulness), inspiring motivation (which accounted for 55% of the variance in manageability) and idealised influence (which explained 43% of the variance in comprehensibility). According to the second model, idealised simulation explained 60% of the variance in comprehensibility, inspirational motivation explained 47% of the variance in manageability and intellectual stimulation explained 55% of the variance in meaningfulness (Naaldenberg et al., 2011; Sardu et al., 2012).

In model one, leaders' honesty and integrity through transparent communication and role modelling inspired staff members, and idealised influence was linked to comprehensibility. Motivating staff to achieve was associated with manageability when leaders exhibited inspirational motivation. Meaningfulness and intellectual stimulation were correlated, with leaders creating a feeling of purpose by including staff members in decision-making. Model two associated comprehensibility with idealised simulation, wherein an environment of the structure was generated by leaders' motivation and work ethic. Inspiring motivation was linked to manageability, as workers were able to deal with the support of their leaders. A sense of purpose was derived from empathetic leadership, which was linked to intellectual stimulation and meaningfulness (Batista-Foguet et al., 2021; Braathu et al., 2022; Eriksson & Contu, 2022; Eriksson & Lindström, 2005; Kase et al., 2018).

Clear patterns for manageability with inspirational motivation in model one and comprehensibility with idealised simulation and meaningfulness with intellectual stimulation in model two were identified by the KMO and Bartlett's test of sphericity, confirming the variables' suitability for factor analysis (Eriksson & Contu, 2022; Grevenstein & Bluemke, 2015; Kövi et al., 2017).

According to the study's findings, manageability was the feeling of coherence scale's most representative value, indicating that employees thought they had enough resources to meet their needs. The least representative score, comprehension, suggested some difficulty in understanding what was happening and forecasting what would happen. The most important leadership attribute was intellectual stimulation, whereas idealised influence was the least important, emphasising the value of invention and creativity in problem-solving over personal role models (Grevenstein & Bluemke, 2015; Kövi et al., 2017).

This study advances knowledge about the perceptions of coherence and leadership styles among South African bank workers. It shows the validity and reliability of the SOC and MLQ in this situation and emphasises the significance of intellectual stimulation and inspiring motivation for staff management and motivation. The results imply that managers and leaders can greatly improve the psychological health and productivity of their staff by cultivating a sense of understandability, controllability and significance.

Practical implications

This study provides actionable insights that, especially in the banking industry, can improve employee well-being, leadership effectiveness and organisational practices. It emphasises how important it is to have leadership development programmes that increase intellectual stimulation and inspire motivation. Researchers can look into ways to help leaders develop these traits, which will enhance worker performance and well-being. Applications include figuring out how employees perceive their jobs, creating workplace interventions, comparing cultures and providing information for the creation of policies.

Limitations and directions for future research

The self-report design of this research supports the potential for generalising findings to various occupational groups. By examining item characteristics, the structural validity of the SOC and MLQ was effectively confirmed. However, to fully understand the impact of different contexts, cultures and working environments, further research should explore these findings across diverse settings.

Conclusion

To sum up, this research provides insightful information about the factor structure and value addition of the SOC scale and MLQ among South African bank workers. The study validates and improves the validity of these instruments in a particular cultural and professional setting, thereby confirming that the MLQ and SOC are useful instruments for measuring psychological well-being and leadership effectiveness. The aforementioned discoveries enhance the wider comprehension of leadership approaches and their influence on worker attitudes and organisational results, specifically in the distinct cultural milieu of the South African banking industry.

Acknowledgements

Competing interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

K.S. was responsible for the conceptualisation of the study and writing of the original article, which included the methodology, investigation (collection of data and project administration), validation and formal analysis. N.H. supervised the study, and together with K.S., she conceptualised the study and assisted with the formal analysis of the study.

Funding information

Data availability

A list of tables and figures with associated raw data is provided. Derived data supporting the findings of this study are available from the corresponding author, N.H., upon reasonable request.

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