

Examining the Learning Style Preferences of Offenders at the Johannesburg Female Correctional Centre, South Africa

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Abstract – This study examined the learning style preferences of offenders at the Johannesburg Female Correctional Centre, South Africa. Followed a quantitative approach and used cross-sectional survey design. Enumeration sampling technique was applied due to small size of the population ($n = 571$). Data were collected from 402 participants, yielding to response rate of 70.40%. A Kolb Learning Style Questionnaire was used to collect data. Kolb 's instrument can assess learning styles and provide a valuable framework for the design and management of learning activities. The results show that many offenders strongly prefer diverging/reflector learning style. This learning style influence the offenders' learning experiences to a great extent. It is recommended that the South African Department of Correctional Services should consider providing customised training programmes to build the capacity of teachers/facilitators/learning designers so that they are able to accommodate the diverse learning styles of offenders during the classes and/or rehabilitation programmes.

Keywords – Learning Styles, Learning Experience, Offenders, Education, Rehabilitation Programme

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1 Introduction

There are a variety of learning styles that can be adopted for different learning environments. According to Monteiro et al. (2016), a learning style can be defined as characteristics, strengths, and preferences in how people grasp and process information or the way of learning that enables individuals to learn best by attending to a given modality. It is also the way people prefer to learn or way that is best for them to learn. Learning styles can also refer to a learner's unique way of grasping, processing and internalising academic information (Gulnaz et al., 2018). Therefore, for the learner to reach their ultimate potential in learning, it is of paramount importance to take cognizance of their learning styles in order to motivate them and help them to develop into independent thinkers. Furthermore, Saad (2017) stated that learning styles are the manner in which and conditions under which learners most efficiently and effectively perceive, process, store and recall what they are attempting to learn. Jaleel and Thomas (2019) indicated that pupils learn differently and differ in the way of learning. This dissimilarity is based on the fact that learners prefer different learning styles, have different motivation, and differ from each other in self-confidence. Therefore, learning styles classify different ways in which pupils learn and how they absorb the information; such as role play and reflecting, visioning and auditioning, and memorising and visualising the information logically and intuitively (Jaleel & Thomas, 2019). One of the major characteristics of a learning style is that it affects how students digest the information, reconstruct it in their minds and make sense of their environment accordingly (Kanadli, 2016). Another major characteristic of a learning style is that it is enhanced based on experiences and not genetic traits of a learner. In other words, the preferred learning style may change over time rather than remain stable, and is independent of both students' abilities and content (Kanadli, 2016).

1.1 Learning within a correctional environment

Kabeta (2017) reported that historical accounts of education in the correctional centres demonstrated that the beginning of education in correctional facility settings differed from one country to another. Thus, in some countries correctional centre education was provided over two centuries ago. Kabeta found that the first education provided in a correctional centre took place in the United States of America in a Walnut Street Jail in 1789. However, the scope of education provided in correctional centres varied from time to time. For instance, the first hundred years of this education had limited scope as it focused on religious education and on enabling inmates to read the bible. Although its scope was limited when it started, it eventually grew and led to the establishment of schools in prison settings with facilities such as libraries (Kabeta, 2017). Novek (2017) refers to the correctional environment as an environment that stifles hope, triggers violence, and teaches cynicism, suspicion and manipulation as tactics for survival. For that reason, learning should

Examining the Learning Style Preferences of Offenders at the Johannesburg Female Correctional Centre, South Africa

be grounded in principles of human connection rather than in rules, performance standards and evaluation. Patrie (2017) observed that education in the correctional centres straddles justice and the education system; systems that are often in conflict over philosophy, policy and practice. Patrie is also of the view that, for correctional educators, this could involve overcoming the initial culture shock of correctional environment while addressing personal knowledge and skills gaps in areas such as alternative education, security, and law.

In South Africa, all incarcerated individuals have the right to access education and training programmes as per Section 29 (1) of the country's constitution (Republic of South Africa, 1996). This Constitutional right "may not be curtailed by incarceration" (DCS, 2005, p.138). Consequently, correctional education is utilized as a rehabilitation programme; to transform offenders into law-abiding and productive citizens upon release. Equally, the assumption is that education and training programmes delivered to incarcerated individuals in South Africa may help in reducing recidivism rates in the country (Vandala, 2017). Correctional education encompasses academic and vocational education (career and technical education) programmes delivered to incarcerated individuals within correctional or community corrections facilities (Rivera, 2016, p. 7). As captured in the 2005 White Paper for Corrections in South Africa, part of the mission statement of the South African Department of Correctional Services is 'placing rehabilitation at the centre of all Departmental activities in partnerships with external stakeholders, through the integrated application and direction of all Departmental resources to focus on the correction of offending behaviour, the promotion of social responsibility and the overall development of the person under correction' (DCS, 2005). Therefore, learning within the South African correctional environment is a constitutional right that is an integral part of the broader development of sentenced offenders.

1.2 Offenders' needs and learning experiences within correctional centres.

Crowley (2019) stated that the United Nations Standard Minimum Rules for the treatment of offenders were first approved in 1957 and revised in 2015. The revised rules are known as Nelson Mandela Rules. Accordingly, the rules reiterate that the purpose of imprisonment is to protect society against crime and to reduce recidivism. Therefore, it is expected that a correctional centre's administration should offer education, vocational training and work, as well as other forms of assistance that are appropriate and available, including those of a remedial, moral, spiritual, social and health and sport-based nature (Crowley, 2019). The rules also stipulate that all rehabilitation programmes, activities, and services should be delivered in line with the individual treatment needs of offenders. Kabeta (2017) observed that correctional centre education has been the subject of debate among scholars. Hence, the adoption of the Universal Declaration of Human Rights which guaranteed education to be a right for everyone, and which made its provision elsewhere necessary.

The South African Department of Correctional Services (DCS, 2019) reported that the implementation of rehabilitation-focused correctional services requires the provision of needs-based interventions that are specific to each offender. Crowley (2019) indicated that offenders should be held in facilities near their families and communities, as this aids offenders' rehabilitation and allows for longer family visits. However, due to the limited number of female prisons or correctional facilities in many countries, women are more likely to be incarcerated far from their families and therefore there are logistical challenges and financial costs associated with visiting them in the correctional facilities where they are incarcerated. Zhao et al. (2019) established that offenders who have a healthy and frequent contact with the outside world, through visitors and phone calls, are more likely to participate in rehabilitation programs. Furthermore, these authors contended that it is possible that visits and phone calls to offenders' act as a pull factor for offenders' participation because such opportunities provide offenders with information, encouragement, emotional support, and a sense of duty to others. However, Adebayo and Babalola (2019) found that there was a lack of educational learning experience in adult literacy, basic/ primary education, secondary and tertiary education in Ondo, Osun and Oyo correctional centres in Nigeria. The authors further indicated that although there are existing vocational learning experiences such as hairdressing, tailoring, home economics, etc, the predominant learning experience was religious activity and correctional/counselling learning experience.

According to Crowley (2019), women face significant, unique and complex educational challenges based on a range of environmental, social, organisational and individual factors. Generally, female offenders have a limited economic independence; therefore, they face more economic barriers associated with the payment of fees for higher education opportunities during their incarceration. Moreover, female offenders are also mere recipients of learning experiences, which are limited to what is available in the correctional facilities and their rights in planning and designing learning experiences are curtailed (Adebayo & Babalola, 2019). However, education within the correctional environment may take various forms where possible, thus offenders need to be allowed to participate in active education outside correctional facilities (Crowley, 2019). This brings us to the aspect of choice and learning styles.

1.3 Importance of learning styles within a learning environment

According to Kempen and Kruger (2019) the concept of learning styles emerged when higher education institutions started using integrated, interactive and active teaching strategies, rather than traditional methods. Preziosi et al. (2009) asserted that various categories of learning styles and related concepts have been developed over the years. These categories include Solomon's Inventory of Learning Styles, the Myers-Briggs Type Indicator, Howard Gardner's Multiple Intelligences, McCarthy's 4-Mat Systems, and Honey and Mumford's Social Approach to Learning, Kolb Learning Styles Inventory, etc. Therefore, identifying the learning styles of students enables the adoption of a more student-centred teaching approach and this may be good for the development of lifelong learners who possess the skills necessary for self-

Examining the Learning Style Preferences of Offenders at the Johannesburg Female Correctional Centre, South Africa

learning. Kempen and Kruger (2019) noted that the skill of recognising and reacting to different styles of learning expands learning, regardless of the environment. This view supports an earlier one by Rahal (2010) who indicated that one of the great values of using learning styles in education is that teaching activities that respond to students learning styles bring “love and enjoyment” to their learning experience. This in itself is a very strong argument for learning styles.

Furthermore, Seloma (2020) highlights that in any learning environment there exists students with different learning styles. Learning style can be viewed as the way in which individuals begin to concentrate on process and to internalize and retain new and difficult information (Bosman & Schulze, 2018). However, knowing learners learning styles makes it easy for the teacher/facilitator to determine the appropriate teaching strategies to be applied in the learning process. Learning can take place by using different learning styles, depending on the environment and preference of the learner (Darling-Hammond et al., 2020). Some learning style methods focus on relatively narrow aspects such as preferences for visual input. While others are far more elaborative and focus on factors associated with personality issues. Whereas some approaches attempt to identify how individuals process information in terms of cognitive style and others emphasise the body's role in learning (Bosman, 2015; Kempen & Kruger, 2019). In this study Kolb's learning style method was adopted in order to examine how offenders at the Johannesburg Female Correctional Centre, South Africa prefer to learn.

1.4 Kolb's Learning Style Method

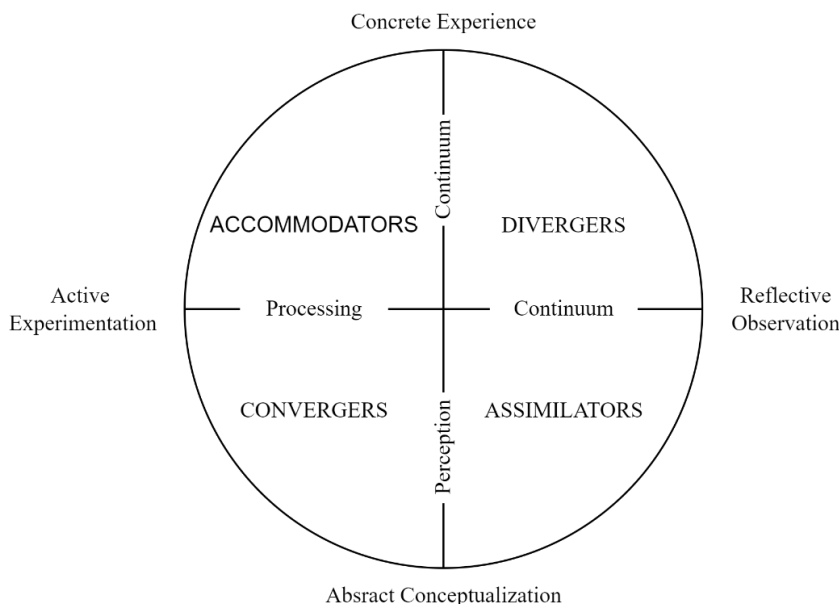
A. Kolb and Kolb (2013) declared that Kolb's learning styles inventory 4.0 is based on experiential learning theory and is designed to help individuals identify the manner in which they learn from experience. Such individuals perceive information, thinking and feeling (abstract conceptualisation and concrete experience) and process it through doing and watching (active experimentation and reflective observation) (Kanadli, 2016). Moreover, A. Kolb and Kolb (2019) indicate that Kolb's experiential cycle is an adaptable template for the creation of educational programs that actively engage learners in the learning process, providing an alternative to the overused and ineffective traditional information transmission model.

Therefore, the Kolb's Learning Style Inventory (KLSI) was developed as a psychometric instrument to define the kinds of learning style modalities which are often used by an individual (Akinyode & Khan, 2016; Kozlova, 2018). Akinyode and Khan (2016) found that the experiential learning theory offers an outline of the learning procedure to be compatible with the way individuals deliberate, grow and advance academically, mentally and physiologically.

Abstract conceptualisation and concrete experience describe how information is perceived by individuals, while reflective observation and active experimentation examine how individuals process or internalise information. Abstract learners are very analytical and logical; concrete learners learn through examples; and reflective learners prefer to observe before making judgments and tend to be introverts (Preziosi et al., 2009).

According to A. Kolb and Kolb (2013), the KLSI is one of the most widely distributed instruments used to assess learning styles and claims to provide a valuable framework for the design and management of learning activities. This is the instrument that was used to collect data in the current study. Bosman (2015) found that it is essentially used to describe the way an individual learns and deals with ideas and daily situations. Bosman also supports the notion that the KLSI is based on a bipolar view of two learning continuums, namely perception and programming. The illustration shows that the vertical axis looks at how the student takes information in through either concrete experimentation (CE) or abstract conceptualisation (AC). The horizontal axis measures how students interact with information, which can be either through active experimentation (AE), or reflective observation (RO). The combination of learning models forms four quadrants reflecting four learning styles, namely Divergers, Assimilators, Accommodators, and Convergents. This learning style method includes four different learning styles, which are based on the a four-stage learning cycle (Bhat, 2014; Kozlova, 2018), and these are presented in Figure 1 below.

Figure 1: Kolb's learning style model, adapted from A. Kolb and Kolb (2013, p. 9)



Kolb's Learning Styles

A. Kolb and Kolb (2019) reported that in a typical application of the experiential cycle the educator provides a direct concrete experiencing event, such as a field trip, a lab experiment, or a role play, and then organises personal or group reflections on the experience. The conceptualisation phase focuses on understanding the meaning of the experience, often with the addition of related subject matter, lectures, or a reading. Learners are then asked to apply what they have learned in their own life and work context. The four Kolb's learning styles are discussed hereunder:

1.4.1 Divergers

The divergers learning style represents learning through feeling and watching (A. Kolb & Kolb, 2013). The term diverge means to break up or differ from something. The type of learners that are referred to as divergers prefer to watch rather than do. They are best at viewing concrete situations from various viewpoints. They prefer working in groups, receiving personal feedback, collecting information and making use of imagination to solve problems (Bhat, 2014; Kozlova, 2018). According to A. Kolb and Kolb (2013), these types of learners relish experiences and think deeply about them; they diverge from single experiences to multiple possibilities. Divergers are personalities related in the Concrete-Experiencing (CE) and Reflective-Observational (RO) dimensions.

Examining the Learning Style Preferences of Offenders at the Johannesburg Female Correctional Centre, South Africa

Divergers absorb information best through precise samples and are inclined to lean upon fresh evidence. These personalities take evidence from concrete experience and convert it through reflective observation (Akinyode & Khan, 2016).

1.4.2 Assimilators

Kozlova (2018) established that the assimilators learning style is a combination of watching and thinking as ways of learning. The term assimilate means absorbing and translating. Assimilators are personalities connected in the Abstract-Conceptualising (AC) and Reflective-Observational (RO) dimensions. They study best in an atmosphere that highlights organised analysis and tend to lean upon fresh evidence (Akinyode & Khan, 2016). They prefer clear explanations rather than opportunities for practical exercises. Therefore, they like readings, lectures and exploring analytical models (Bhat, 2014; Kozlova, 2018). A. Kolb and Kolb (2013) discovered that these types of learners have the most cognitive approach and they prefer thinking than action. During a lesson they ask questions such as: 'What is there I can learn? They like organised and structured understanding. Lectures are their preference, with demonstrations where possible, and they respect the knowledge of the experts.

1.4.3 Convergents

The convergers learning style involves learning by doing and thinking. The word converge means to get closer to something. Convergents are personalities that are associated with the Abstract-Conceptualizing (AC) and Active-Experimenting (AE) dimensions. Thus, this group of learners absorbs best in an atmosphere that stresses organised analysis and depends profoundly on experimentation. They derive facts by abstract conceptualisation and process facts by active experimentation (Akinyode & Khan, 2016). Therefore, these types of learners prefer to find solutions for realistic issues and technical tasks. They are less concerned with people and social or interpersonal issues but like to experiment with new ideas (Bhat, 2014; Kozlova, 2018). A. Kolb and Kolb (2013) established that that convergers think about issues and then experiment with their ideas to see if they work in practice and they also prefer to work alone and independently.

1.4.4 Accommodators

This learning style is prevalent within the general population (Kozlova, 2018). The accommodators learning style combines doing and feeling as a way to learning. Accommodators are personalities associated with the Concrete-Experiencing (CE) and the Active-Experimenting (AE) dimensions. They acquire knowledge best through precise samples and depend profoundly on experimentation. Therefore, these personalities derive evidence from concrete experiences and process it by active experimentation (Akinyode & Khan,

Examining the Learning Style Preferences of Offenders at the Johannesburg Female Correctional Centre, South Africa

2016). However, learners who prefer an accommodating learning style like to do things concretely and rely on intuition rather than logic. They prefer to work in teams in order to complete tasks (Bhat, 2014; Kozlova, 2018). Accommodators often have hands-on approach, with a strong preference of doing rather than thinking. However, they do not like routine and will take creative risks to see what happens when they do things (A. Kolb & Kolb, 2013).

As stated in the foregoing literature, the fact that both the Nelson Mandela Rules and the rehabilitation implementation strategy of the South African Department of Correctional Services emphasise that all rehabilitation programmes, activities, and services should be delivered in line with the individual treatment needs of offenders, the relevance of this study becomes indisputable. There is lack of published research both internationally and locally that is focused on understanding the learning styles preference of offenders and their learning experiences within the correctional environment, particularly research focusing on female offenders who are the focus of the current study. The purpose of this study is to examine the learning styles preferences of offenders at the Johannesburg Female Correctional Centre, South Africa.

The following hypotheses were proposed for this study:

H1: Offenders at the Johannesburg Female Correctional Centre have diverse learning styles preferences that must be catered for during the correctional school classes and the rehabilitation programmes.

Saad (2017) stated that by knowing students' learning preferences, the course instructor can assimilate necessary course delivery methods which best suit students' learning style preferences, thus enhancing their learning experience.

H2: Offenders' preferred learning styles influence their learning experiences within the Johannesburg Female Correctional Centre.

Jalee and Thomas (2019) stated that learning of a person is more influenced by his styles of learning because everyone has a preferred style for learning. Therefore, students can maximize their learning if they are aware of their own style.

H3: Demographic variables influence offenders learning experience at the Johannesburg Female Correctional Centre.

Saad (2017) established that there was no significant relationship between gender and modality of learning styles.

H4: There is a statistically significant relationship between learning styles preference and demographic variables of offenders at the Johannesburg Female Correctional Centre.

Generally, the successful prison literacy programs are learner centered, recognizing different learning styles, cultural backgrounds, and multiple literacies (Newman, et al., 1993).

2 Materials and methods

2.1 Participants

The population of this study comprises all sentenced offenders who in 2019 were attending the correctional centre school and/or participating in various rehabilitation/skills programmes within the Johannesburg Female Correctional Centre, South Africa. This study used an enumeration sampling technique because it allows all members of the population to be included in the survey. The population in this study was too small for sampling to be carried out ($N = 571$), hence all members of the population were included in the survey. There were 571 sentenced offenders at this centre in 2019 when data was collected. This study involved 411 sentenced offenders who accepted the invitation to participate from a population of 571 at the Johannesburg Female Correctional Centre. Nine (9) out of the 411 offenders submitted incomplete questionnaires and these were not considered useful for further consideration. The results of this study are therefore based on 402 questionnaires which were found to have been correctly completed, thus yielding a response rate of 70.4%. The response rate in this study was relatively higher because participants were in a controlled environment, and accessible, as they have limited movement. There were no additional costs incurred in collecting data from the whole population, hence enumeration sampling technique was adopted.

The profile of the participants was measured across two demographic variables, namely, age and level of education. The decision to include only these two demographic variables was informed by the profile of the participants (who are only females in custody at the target correctional centre) and the purpose of the study. About 65, 2% ($N = 262$) of the respondents were aged between 18 to 40 years; with 22, 6% ($N = 91$) comprising those aged 41 to 50; and 11, 2% ($N = 45$) representing those older than 51 years. Only 4 participants did not disclose their age range (1%). In terms of level of education 66, 4% ($N = 267$) of participants had educational achievements that ranged from Grade 8 to Grade 12; with 22, 4% ($N = 90$) who had a 3-year degree/diploma and higher qualification. Only 9, 2% ($N = 37$) of the participants had educational achievements below Grade 7. A total of 8 (2%) participants did not provide information about their educational achievements.

2.2 Instrument

This study used Kolb's Learning Styles Questionnaire to collect data from participants. The questionnaire was comprised of 80 items. Participants had to tick in a box next to each applicable statement () they agree with to indicate their agreement, and they also had to place a cross in the corresponding box () if they disagreed with any of the statements. Sample items in the questionnaire included 'I have strong beliefs about what is right and wrong, good and bad in my own space' and 'I am keen on exploring the basic assumptions, principles and theories underpinning things and events'. A. Kolb and Kolb (2013) report that the Kolb Learning Style Inventory version 4.0 (KLSI 4.0) maintains the high scale reliability of the KLSI 3.1 with an average scale

Examining the Learning Style Preferences of Offenders at the Johannesburg Female Correctional Centre, South Africa

reliability on the Cronbach Alpha of 0.81 (KLSI 4.0) versus 0.80 (KLSI 3.1). According to A. Kolb and Kolb a Cronbach alpha in the range of 0.70 - 0.90 is considered to be acceptable and that an alpha exceeding 0.90 may indicate redundancy. In the current study, the Cronbach's Alpha reliability coefficient of the 80-items Kolb Learning Styles Questionnaire was 0.81 just like what was found for KLSI 4.0 by A. Kolb and Kolb (2013). The coefficient values for the dimensions were also high with 0.80 for Accommodating/Activist learning style, 0.83 for Diverging/Reflector learning style, 0.77 for Assimilating/Theorist learning style, and 0.73 for Converging/Pragmatist learning style. A Cronbach's alpha coefficient of 0.70 is considered a desirable reliability coefficient, although it may decrease to .60 in exploratory research (Heale & Twycross, 2015).

2.3 Procedure

Application for permission to conduct this study was sent to the Johannesburg Female Correctional Centre's Education Office. The Education Office submitted the application to the Ethics Committee of the South African Department of Correctional Services (DCS) for approval. After receiving and perusing all the required documents the DCS's Ethics Committee granted permission for the researcher to collect data at the Johannesburg Female Correctional Centre. The permission had a validity period of 24 months. The DCS's Ethics Committee appointed the Manager: Education and Training for the Johannesburg Area as a gatekeeper who assisted the researcher during data collection. This was done to ensure that the DCS policies and procedures, which apply at the Johannesburg Female Correctional Centre, were adhered to throughout the data collection period. Data were collected from October to November 2019

The Manager: Education and Training designated the Education and Training Coordinator at the Johannesburg Female Correctional Centre to assist with the fieldwork. The researcher guided the Education and Training Coordinator regarding how the questionnaire and consent form should be completed. The researcher also provided guidance to Educational Facilitators within the Correctional Centre on how to present the information sheet to the participants. Before the data was collected, the Education and Training Coordinator held a briefing meeting with all cell representatives to provide guidance regarding the whole process of data collection. The Education and Training Coordinator distributed questionnaires to offenders per section and per cell in line with DCS security protocols. Marked boxes were made available at each section to enable the return of completed questionnaires. In each cell, the Education and Training Coordinator identified cell representatives who assisted in collecting back the completed consent forms and questionnaires and place them in the boxes provided. The Education and Training Coordinator at the Johannesburg Female Correctional Centre returned the completed consent forms and questionnaires to the researcher in separate boxes to protect the identities of the participants.

2.4 Data analysis

Upon receipt of completed questionnaires, the researcher began the process of screening to check if participants did not provide personal information and/or have completed the questionnaire correctly. Where participants provided information that was personal (for example, others wrote their names on the questionnaire), the researcher had to erase such information with a correction fluid before data capturing. Out of a total of 548 questionnaires which were distributed at the Johannesburg Female Correctional Centre, 411 were returned. Upon further quality assurance of the documents, 9 of the questionnaires were not completed correctly and therefore had to be discarded. Only 402 of the correctly completed questionnaires were considered for this study, thus yielding a response rate of 70, 4%. The IBM Statistical Package for Social Sciences (SPSS) version 26.0.0. (IBM, 2019) was used to compute descriptive statistics (frequency analysis, cross-tabulation) and inferential statistics (Chi-Square test, Kruskal-Wallis H test, and Pearson Product Moment Correlation test).

3. Results

The results of this study are presented below. These include frequency distribution, cross-tabulation, chi-square test, Kruskal-Wallis H test and Pearson product moment correlation test.

3.1 Learning style preferences of participants

This section presents the results of participants' learning style preferences, based on answers they provided to the 80 items that were part of the Kolb Learning Styles questionnaire. The questionnaire items were grouped into four types of learning styles. Table 1 shows the results of the learning style preferences of 402 participants who participated in this study. It is clear from this table that the majority of participants (83, 1%) preferred the diverging/reflector learning style. These results show that offenders at the Johannesburg Female Correctional Centre preferred to learn through feeling and watching. Thus, they experience and reflect deeply about their experiences; and diverge from single experiences to multiple possibilities. Participants' personalities are related with the Concrete-Experiencing (CE) dimension and the Reflective-Observational (RO) facet. Diverging learners absorb best through precise samples and incline to lean upon fresh evidence. Learners who prefer this learning style learn best when they are asked to produce reports that carefully analyse the situation or issues; where there is interaction with others without risks of strong feelings coming to the fore; and where they can finalize a view without being put under pressure.

Table 1: Learning style preferences of participants.

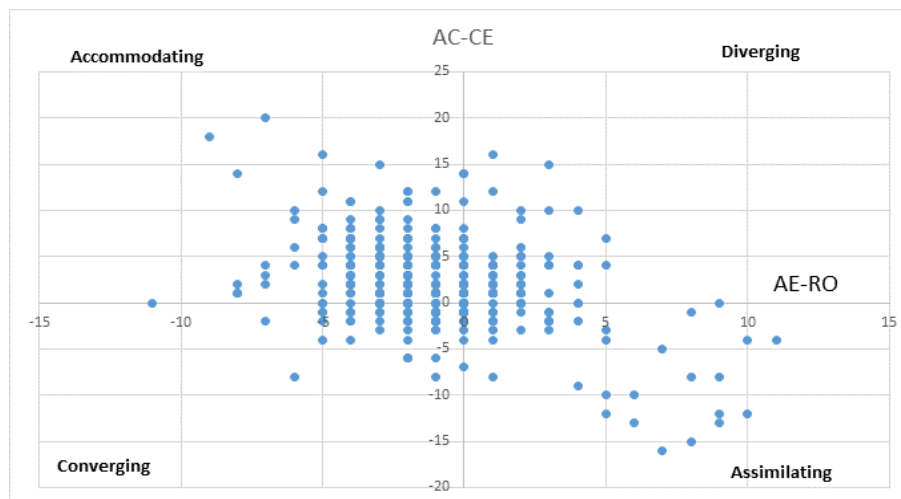
Learning style	Frequency	Percent
Accommodating/Activist	14	3.5
Diverging/reflector	334	83.1
Assimilating/Theorist	44	10.9
Converging/pragmatist	10	2.5
Total	402	100.0

Only 2, 5% of participants ($n = 10$) preferred the converging/pragmatist learning style. These results show that the number of offenders who prefer to learn by doing and thinking is low. Converging learners prefer to find solutions for realistic issues and technical tasks. They are less concerned with people and social or interpersonal issues but like to experiment with new ideas. Although insignificant, the second most preferred learning style was assimilating/theorist, with 44 participants (10, 9%).

3.1.1 Learning style preference and personality combinations across quadrants

Figure 1 shows the quadrants of spread across Accommodating – Diverging; Diverging – Assimilating; Assimilating – Converging; and Converging – Accommodating learning styles and personality combinations. Accommodating (feel and do) is a combination of concrete experiences and active experiment (CE/AE). Diverging (feel and watch) is a combination of active experiment and reflective observation (AE/RO). Assimilating (think and watch) is a combination of abstract conceptualisation and reflective observation (AC/RO). Converging (think and do) is a combination of abstract conceptualisation and active experimentation (AC/AE). Figure 2 shows that that the most preferred learning style was the diverging learning style followed by the assimilating learning style.

Figure 2: Learning style preferences of participants according to Kolb learning style quadrants (n = 402)



The results depicted in Figure 2 show that participants in this study have strong combinations of AE-RO personalities and learning styles. Therefore, it is clear that participants prefer to learn by feeling and doing, and by feeling and watching. Therefore, offenders at the Johannesburg Female Correctional Centre have a strong preference for teamwork and hands-on activities. They prefer to receive constructive feedback. When they learn they ask 'why' and start from detail to logically work up to the big picture. They have a strong preference for doing and feeling rather than thinking and they prefer clear explanations rather than opportunities for practicals. Thus, they prefer reading, lectures and exploring analytical models. These types of learners learn best from activities where there are opportunities to do and consider; where there is a strong element of passive involvement such as listening to a speaker or watching a video; where there is time to think before having to act or contribute; and where there is opportunity for research and problems can be probed in some depth.

3.1.2 Crosstabulation and Chi-square test results

The crosstabulation and Chi-Square results for learning styles and their influence on participants' learning are presented in this section. The basic assumption is that a relationship exists between learning styles and participants' learning. The null hypothesis is that no relationship exists between these variables, and that they are independent from each other.

3.1.2.1 Learning styles and their influence on participants learning.

Table 2 shows that 318 participants (87, 6%) indicated that learning styles have an influence on their learning. The diverging learning style was preferred

Examining the Learning Style Preferences of Offenders at the Johannesburg Female Correctional Centre, South Africa

by 84, 9% of the participants ($n = 270$), who indicated that this learning style influences their learning experience. The least preferred learning style was convergence, with 10 participants (2, 7%), and with only 0, 9% participants ($n = 3$) who indicated that this learning style influences their learning experience. Only 45 participants (12, 4%) indicated that learning styles do not influence their learning. The results also show that participants preferred to learn through watching rather than doing. They are best at viewing concrete situations from numerous different viewpoints, and they prefer to work in groups, to receive personal feedback, to collect information and make use of imagination to solve problems.

Table 2: Cross-tabulation between learning styles and their influence on learning

			Influence on learning		
			Yes	No	Total
Learning styles	Accommodation	Count	12	0	12
		% within Learning styles	100.0%	0.0%	100.0%
		% within Influence on Learning	3.8%	0.0%	3.3%
	Divergence	Count	270	30	300
		% within Learning styles	90.0%	10.0%	100.0%
		% within Influence on Learning	84.9%	66.7%	82.6%
	Convergence	Count	3	7	10
		% within Learning styles	30.0%	70.0%	100.0%
		% within Influence on Learning	0.9%	15.6%	2.8%
	Assimilation	Count	33	8	41
		% within Learning styles	80.5%	19.5%	100.0%
	Total	Count	318	45	363
% within Learning styles		87.6%	12.4%	100.0%	
% within Influence on Learning		100.0%	100.0%	100.0%	

Table 3 shows the Chi-square tests results of the relationship between learning styles and their influence on participants' learning. It is clear from this table that the Chi-square is $X^2(3, N=363) = 35.750, p < 0.001$. This Chi-Square statistic is less than the alpha level of significance of 0.05. These results show that there is a statistically significant relationship between learning style preference and influence on learning. About 84,9% ($n = 270$) of participants who prefer the diverging learning style indicated that this learning style influences their learning. This means that the participants' learning is not independent from the learning styles. Therefore, there is a statistically significant relationship between the two variables. Furthermore, this implies that how participants learn is highly influenced by the learning style they prefer. In other words, the participants' ability to learn successfully in various educational and rehabilitation programmes offered in the Johannesburg Female Correctional Centre is related to the learning style they prefer.

Table 3: Chi-Square test results for learning styles and their influence on learning

	Value	df	Asymp- totic Sig- nificance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probabil- ity
Pearson Chi-Square	35.750a	3	0.000	0.000		
Likelihood Ratio	24.333	3	0.000	0.000		
Fisher's Exact Test	23.157			0.000		
Linear-by-Linear Association	9.335b	1	0.002	0.003	0.003	0.001
No. of valid cases	363					

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.24.
 b. The standardized statistic is 3.055.

3.1.2.2 Age and its influence on respondents' learning

Table 4 depicts the cross-tabulation results of age and its influence on learning. The results show that 318 participants (87, 6%) across all age ranges indicated that age influences their learning. However, the results do not show a significant difference within the age ranges.

Table 4: Cross-tabulation between age and its influence on learning

		Influence on learning			
		Yes	No	Total	
Age	18-30yrs	Count	90	15	105
		% within Age	85.7%	14.3%	100.0%
		% within Influence on learning	28.3%	33.3%	28.9%
	31-40yrs	Count	125	5	130
		% within Age	96.2%	3.8%	100.0%
		% within Influence on learning	39.3%	11.1%	35.8%
	41-50yrs	Count	70	14	84
		% within Age	83.3%	16.7%	100.0%
		% within Influence on learning	22.0%	31.1%	23.1%
	51 and above	Count	33	11	44
		% within Age	83.3%	16.7%	100.0%
		% within Influence on learning	10.4%	24.4%	12.1%
Total	Count	318	45	363	
	% within Age	87.6%	12.4%	100.0%	
	% within Influence on learning	100.0%	100.0%	100.0%	

The age range that had more participants ($n = 125$) was between 31 and 40 years. This accounts for 39, 3% of the respondents who indicated that age influenced their learning. This was followed by the age range 18 – 30 years, which had 90 participants who indicated that age influenced their learning, thus accounting for 28,3% of the total. These results indicate that there is a statistically significant relationship between age and participants' learning. Although there is no significant noticeable difference within the different age ranges for those participants who indicated that age influenced their learning, there is a significant difference between those who indicated that age influence their learning when compared to those who indicated that age does not influence their learning. These results indicate that participants in different age ranges learn differently. Table 5 presents the Chi-square test results for age and its influence on learning. It is clear in Table 5 that the Chi-square is $X^2(3, N=363) = 16.943, p<001$. These results reveal that age is not independent of participants' learning, and therefore that there is a statistically significant relationship between age and learning. Therefore, age has a significant influence on how participants learn. This means that participants' ability to learn successfully in the various educational and rehabilitation programmes within the correctional centre is influenced by their age.

Table 5: Chi-Square test results for age and its influence on learning

	Value	df	Asymp- totic Sig- nifi- cance (2- sided)	Exact Sig. (2- sided)	Exact Sig. (1-sided)	Point Proba- bility
Pearson Chi-Square	16.943a	3	0.001	0.001		
Likelihood Ratio	18.382	3	0.000	0.000		
Fisher's Exact Test	18.286			0.000		
Linear-by-Linear Association	4.196b	1	0.041	0.044	0.026	0.008
N of Valid Cases	363					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.45.

b. The standardized statistic is 2.048.

3.1.2.3 Education and its influence on participants' learning

Table 6 depicts the cross-tabulation results of educational achievement and its influence on participants' learning. It is clear in the table that 318 participants (87, 6%) across all educational achievements have indicated that their educational achievements influence their learning. Of those who indicated that educational achievements influenced their learning, 215 (67. 6%) had educational achievements between Grade 8 and 12. About 25, 8% ($n = 82$) of the participants who indicated that educational achievement influenced their learning had a 3-year qualification and higher. About 95, 3% ($n = 82$) of respondents with a 3-year qualification and higher indicated that educational achievement influenced their learning, whilst a paltry 4, 7% indicated that educational achievement did not influence their learning. These results reveal that there is a statistically significant relationship between educational achievement and participants' learning. This means that participants' learning is influenced by their level of educational achievement.

Table 6: Cross-tabulation between education and its influence on participants' learning

			Influence on learning		
			Yes	No	Total
Education	Grade R- Grade 7	Count	21	10	31
		% within Education	67.7%	32.3%	100.0%
		% within Influence on learning	6.6%	22.2%	8.5%
	Grade 8- Grade 11	Count	113	13	126
		% within Education	89.7%	10.3%	100.0%
		% within Influence on learning	35.5%	28.9%	34.7%
	Grade 12	Count	102	18	120
		% within Education	85.0%	15.0%	100.0%
		% within Influence on learning	32.1%	40.0%	33.1%
	A 3-year qualification (Degree/Diploma) and higher	Count	82	4	86
		% within Education	95.3%	4.7%	100.0%
		% within Influence on learning	25.8%	8.9%	23.7%
Total		Count	318	45	363
		% within Education	87.6%	12.4%	100.0%
		% within Influence on learning	100.0%	100.0%	100.0%

Table 7 depicts the Chi-square tests results for level of educational achievement and its influence on participants' learning. The Chi-square is $X^2(3, N=363) = 17.262, p < 0.01$. These results indicate that educational achievement is not independent of participants' learning. Therefore, there is a statistically significant relationship between educational achievement and participants' learning. This means that participants' level of educational achievement influences how they learn in the various educational and rehabilitation programmes offered within the Johannesburg Female Correctional Centre.

Table 7: Chi-Square test results for education and its influence on participants' learning

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	17.262a	3	0.001	0.001		
Likelihood Ratio	15.616	3	0.001	0.002		
Fisher's Exact Test	15.500			0.001		
Linear-by-Linear Association	7.992b	1	0.005	0.005	0.003	0.001
N of Valid Cases	363					

a. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 3.84.
 b. The standardized statistic is -2.827.

A Kruskal-Wallis test can be used to establish if there is a statistically significant difference between learning styles and participants' learning experiences. In this study the results show that there is no statistically significant difference between learning styles and participants' learning experiences. The rest result show that $X^2(3, N=394) = 2.834, p>05$.

Table 8: Learning styles and influence on participants' learning experience.

Total N	394
Test Statistic	2.834a.b
Degree of Freedom	3
Asymptotic Sig. (2-sided test)	0.418

a. The test statistic is adjusted for ties.
 b. Multiple comparisons are not performed because the overall test does not show significant differences across samples.

3.1.2.4 *Learning styles and strength of participants' learning styles preferences.*

This section presents the results of the learning styles and the strength of participants' learning styles preferences. The four learning styles are activist, reflector, theorist, and pragmatist. Kolb interpreted them as accommodating, diverging, assimilating, and converging. Accommodating (feel and do) is a combination of concrete experience and active experiment (CE/AE). Diverging (feel and watch) is a combination of active experiment and reflective observation (AE/RO). Assimilating (think and watch) is a combination of abstract conceptualisation and reflective observation (AC/RO). Converging (think and do) is a combination of abstract conceptualisation and active experimentation (AC/AE). The results of respondents' preference strengths are presented hereunder.

Table 9 shows the strength of preference of the participants on four learning styles from very low preference to very strong preference. The activist learning style had 9, 7% of the participants ($N = 39$) who indicated a low to very low preference while 69, 4% of the participants ($N = 279$) indicated a strong to very strong preference. The reflector learning style had 12, 1% of the participants ($N = 49$) who indicated a low to very low preference and 73, 3% of the participants ($N = 295$) who indicated a strong to very strong preference. The theorist learning style had 13, 5% of participants ($N = 55$) who indicated a low to very low preference and 65, 2% of the participants ($N = 262$) who indicated a strong to very strong preference. The pragmatist learning style had 14, 1% of participants ($N = 57$) who indicated a low to very low preference and 61, 6% of the participants ($N = 248$) who indicated a strong to very strong preference. The learning style which has the highest strength of preference is the divergence/reflector learning style. Learners who prefer this learning style have experiences and think about them deeply. These learners like working with others but like things to remain calm as they get distressed by conflicts in the group. They want lots of breaks to go off and read and discuss about issues.

Table 9: Strength of respondent on four learning styles

Learning styles	Very low preference		Low preference		Moderate preference		Strong preference		Very strong preference		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Accommodation/Activist	14	3,5%	25	6,2%	84	20,9%	70	17,4%	209	52,0%	402	100,0%
Divergence/Reflector	25	6,2%	24	6,0%	58	14,4%	116	28,9%	179	44,5%	402	100,0%
Assimilation/Theorist	22	5,5%	33	8,2%	85	21,1%	102	25,4%	160	39,8%	402	100,0%
Convergence/Pragmatist	20	5,0%	37	9,2%	97	24,1%	111	27,6%	137	34,1%	402	100,0%

3.1.2.5 Correlation analysis between learning styles and demographic variables

Table 10 presents the results of the Pearson product moment correlation coefficient between learning styles and demographic variables. An absolute value of 1 indicates that there is perfect linear relationship between variables. A correlation value close to zero (0) indicates that there is no relationship between variables. The total number of observations for the correlation coefficients presented in Table 10 was 379.

The results depicted in Table 10 show that there is a positive and statistically significant correlation between the learning styles as follows: accommodating/activist and diverging/reflector ($r = .226$; $p < 0.01$); accommodating/activist and assimilating/theorist ($r = .266$; $p < 0.01$); accommodating/activist and converging/pragmatist ($r = .454$; $p < 0.01$); diverging/reflector/assimilating/theorist ($r = .644$; $p < 0.01$); diverging/reflector and converging/pragmatist ($r = .581$; $p < 0.01$); assimilating/theorist and converging/pragmatist ($r = .602$; $p < 0.01$). The results also show a statistically significant relationship between age and educational achievement ($r = .252$; $p < 0.01$).

Furthermore, the results depicted in Table 10 show that there is no statistically significant relationship between learning styles and age. These results mean that the older the participants get such a change does not have a statistically significant relationship with learning styles preferences. All the correlation coefficients between the learning styles and age are of a low degree and very close to zero, and they are on the negative. For educational achievement, all correlation coefficients with learning styles are positive but close to zero (0), with the exception of education and the accommodation/activist learning style, which is negative but statistically insignificant ($r = -0.117$). The

means that the higher the level of education of offenders, the less their preference for accommodating/activist learning style.

Table 10: Correlation coefficient between learning styles and demographic variables (N = 379)

	CE	RO	AC	AE	Age	Educa- tion
Accommodat- ing/Activist (CE)						
Diverging/Re- flector (RO)	.226**					
Assimilat- ing/Theorist (AC)	.266**	.644**				
Age of re- spondents	- 0,064	- 0,080	- 0,033	- 0,049	Age of re- spondents	-0,064
Level of edu- cation	-.117*	0,008	0,024	0,032	.252**	Level of educa- tion

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

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

4. Discussion and implications of the study

As stated by Taxman (1998), formal education programs in prisons have been available to inmates but have been offered uniformly without considerations to the individual learning needs and preferences of the inmates. This study sought to examine the learning styles preferences of offenders at the Johannesburg Female Correctional Centre, South Africa. With regards to the first proposed hypothesis (*H1*), the results revealed that diverging learning style is preferred by the majority of offenders at the Johannesburg Female Correctional Centre. Furthermore, the results provide support for hypothesis two (*H2*) because they show that diverging learning style affects the learning experiences of participants to a great extent. The second most preferred learning style is the assimilating learning style, and this learning style also affected offenders' learning experiences to a great extent. These results are similar to those from a study by Afrifa et al. (2022) who found that diverging learning style was the most preferred style by clinical year physiotherapy students in Ghana, followed by the assimilating learning style. Another important finding of this study was that convergence learning style was the least preferred style and the extent to which this learning style affects respondents' learning experiences was insignificant due to the low preference.

With regards to hypothesis three (*H3*), the results of this study show that both age and educational achievement are not independent of participants' learning. This means that participants' age and level of educational

Examining the Learning Style Preferences of Offenders at the Johannesburg Female Correctional Centre, South Africa

achievement influence how they learn in the various educational and rehabilitation programmes offered within the Johannesburg Female Correctional Centre. These results support the hypothesis (*H3*). For hypothesis four (*H4*), the result partly provide support because it is only the level of education that has shown a statistically significant relationship with accommodating/activist learning style. Age was found not to have a statistically significant relationship with any of the four Kolb learning styles.

As Rahal (2010) alludes, one of the great values of using learning styles in education is that teaching activities that respond to students learning styles bring “love and enjoyment” to their learning experience. This in itself is a very strong argument for learning styles. The joy for learning can definitely yield higher motivation levels and improve students’ attitude toward schooling, which in the long run can improve long-life learning. Newman et al. (1993) state that successful prison literacy programs are learner centered, recognizing different learning styles, cultural backgrounds, and multiple literacies. They are participatory; instead of taking a “deficit” perspective, educators recognize and use learner strengths to help them shape their own learning. This shows that in any learning environment there exists students with different learning styles (Seloma, 2020). Educators should therefore appreciate the needs and strengths of various types of learning styles, while understanding differences, which could develop and enhance the different teaching methods available to meet the needs of different learning styles of students (Afrifa et al., 2022). However, Seloma (2020), has found that the environment at Gauteng Correctional facilities is not conducive to accommodate different learning styles of offender students, and this is a challenge that must be confronted head on.

This study has several implications based on the results of this study:

- It is suggested that the South African Department of Correctional Services and more specifically, the Johannesburg Female Correctional Centre must consider providing customised training to build the capacity of correctional schoolteachers/facilitators so that they are able to deliberately accommodate the diverse learning styles of offenders during the classes and/or rehabilitation programmes. Such a deliberate effort to accommodate the learning style preferences of offenders will stimulate motivation and heighten interest among offenders to participate meaningfully in these interventions. This will reduce drop-out rates and reinforce the achievement of the long-term purpose of offender rehabilitation.
- It is further suggested that programme designers and or curriculum developers that are responsible for lessons pertaining to the correctional centre school (or university education programmes) or interventions specific to rehabilitation programmes must take cognizance of offenders’ learning styles when they design the curriculum and develop learning materials. It is recommended that they design curriculum or programmes with both the learning outcomes and the offenders’ learning styles in mind. A learning style questionnaire can be used to identify offenders’ learning style preferences or profile before curriculum and or programmes are developed, or during

the review of such programmes and curriculums. This could be very useful in ensuring that the learning materials and curriculum already cater for the diverse learning styles of offenders, who are in a confined environment with no options to cherry pick interventions that are synchronised with their preferred learning styles.

- To enhance the learning experience of offenders, it is suggested that facilitators and teachers should at least have access to the offender's learning style profile. This would assist them to vary their facilitation skills and to implement varied instructional techniques and media in order to accommodate the diverse pool of offenders participating in the school (university programmes) or rehabilitation programme, as long as the techniques and media are authorised by the correctional facility in the interest of security.
- Finally, it is suggested that offenders should make effort, when opportunity is provided by the correctional centre and where practically possible without interfering with the security establishment, to know their learning style preferences as individuals in order to enrich their own learning experiences. When the opportunity is presented by the correctional centre for offenders to know their learning style preferences, offenders should be encouraged to participate in this important process because it will positively influence their learning journey, even beyond their stay in the correctional centre.

5. Limitations and recommendations for future research

Generally, research projects are constrained by a few limitations. Some of these have a bearing on the actual conduct of the study and the interpretation of its results. These limitations must be taken into cognizance to ensure that the research results and recommendations of the study are properly contextualized. This also safeguards the scientific and practitioner communities from potential misinterpretation of the study, its parameters, and results. The following are the limitations of this study:

1. The study only focused on sentenced offenders at the Johannesburg Female Correctional Centre. Therefore, the perspectives of male offenders were not part of this study.
2. The population of the study was small, hence the decision to apply the enumeration sampling technique.

Despite these limitations, the results of the study could form a basis for understanding the learning style preferences of female offenders and how these influence the offenders' learning experiences.

The following recommendations are made for future studies:

1. Further research may be conducted on the role and competences of teachers/facilitators regarding offenders' learning experiences within a correctional service environment in South Africa.
2. Perspectives of male offenders in terms of their learning style preferences may be worthy of future investigations.
3. Similarly, future studies maybe focused on the same phenomenon of learning style within the correctional environment but involving a bigger sample. For example, by extending the scope of the study to include other correctional centres in different regions of South Africa and beyond.

Another area of interest which future studies could focus on is the teaching styles of educators/facilitators because this has a bearing on the learning experiences of offenders.

6. Conclusion

It is clear from the results of this study that the overwhelming majority of offenders at the Johannesburg Female Correctional Centre are diverging/reflector learners who prefer to work in groups; who prefer to receive personal feedback; who prefer to collect information and to make use of imagination to solve problems. These offenders view concrete situations from numerous different viewpoints and prefer to learn through watching rather than doing. Moreover, these offenders indicated that their preferred learning style (diverging/reflector learning style) influences their learning. A conclusion drawn from these results is that offenders at the Johannesburg Female Correctional Centre in South Africa are mostly diverging/reflectors who believe that their preferred learning style affects their learning experiences, both during classes at the correctional service school (and university programmes) and in the rehabilitation programmes.

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8. Ethics statement

This study was conducted in compliance with the University of South Africa (UNISA) Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The application for research ethics clearance was approved by Unisa College of Economic and Management Sciences Research Ethics Review Committee (Ethics Certificate Reference Number 2019_CRERC_018 (FA)) on the 24th of April 2019. Fieldwork only took place after permission was given by the Research Ethics Committee of

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9. Competing interests

The authors have declared that no competing interest exist.

10. Authors' contributions

All authors contributed equitably to this study.

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12. Data availability

Data can only be made available with permission from the University of South Africa and the authors.

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