

The relation of cognitive learning strategies to psychosocial employability attributes amongst black adult learners in the economic and management sciences field

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Orientation: Research provides empirical evidence of the importance employers and employees attach to continuous learning and development opportunities as aspects of employees' employability, retention and job and career satisfaction.

Research purpose: The objective of the research was to investigate the relation between adult learners' cognitive learning strategies (measured by the examination preparation inventory) and their psychosocial employability attributes (measured by the employability attributes scale).

Motivation for the study: Recent research has made important progress in understanding the notions of cognitive learning styles in learning and psychosocial employability attributes in sustaining individuals' employability in the contemporary world of work. However, research on how adult learners' cognitive learning strategies influence the psychosocial attributes they need to manage and sustain their employability has been lacking.

Research approach, design and method: A quantitative cross-sectional survey design was used, involving a stratified proportional random sample of 1102 predominantly early career black female undergraduate level adult learners. The participants were enrolled for distance learning studies in the economic and management sciences field at a South African higher education institution.

Main findings: Canonical correlation and multiple regression analysis indicated the abstract theoretical and factual practical cognitive learning strategies as useful predictors of the participants' overall level of psychosocial employability attributes and especially their levels of career self-management and proactivity.

Practical/managerial implications: Learning practitioners should strive to integrate cognitive learning strategies in the design of learning and assessment activities in order to foster the psychosocial employability attributes adult learners need to manage their continued employability in the contemporary workplace.

Contribution: The study contributes new insights to the employability and learning and education literature. The results may potentially inform formal learning and assessment design in order to improve adult learners' learning performance and employability.

Introduction

Focus of the study

Globally, the employability of existing and prospective employees continues to be a matter of major concern for employers (Guzman & Choi, 2013; Savickas, 2011). Employability is associated with the notion of lifelong learning in a rapidly changing and technologically advancing knowledge economy (Steur, Jansen & Hofman, 2012; Williams, 2012). Employers and their employees increasingly realise that in order to flourish in a highly competitive and turbulent business environment they need to invest in the continued education, training and development of their employees (Tshilongamulenzhe, 2012). In addition, the South African national skills development legislation emphasises the design of workplace-based training and learning programmes to enhance the employability of employees (Coetzee, 2013a; Tshilongamulenzhe, 2012). Research also provides empirical evidence of the importance employers and employees attach to continuous learning and development opportunities as aspects of the employees' employability, retention, organisational commitment and job and career satisfaction (João & Coetzee, 2012; Tshilongamulenzhe, 2012; Van Dyk & Coetzee, 2012).

Learning practitioners involved in training and development initiatives further realise the importance of understanding how individuals' learning preferences and personality attributes influence their motivation and ability to learn and perform optimally in a learning and assessment environment (Choi & Jacobs, 2011; Kiguwa & Silva, 2007). Although research indicates that individuals' learning style preferences drive the actual skills or competencies that they require to optimally and successfully engage in learning and assessment activities (Sugahara & Boland, 2010), research on how adult learners' cognitive learning strategies influence the psychosocial attributes they need to manage and sustain their employability has been lacking. Understanding the relationship between these variables could potentially bring new insights to the design of formal learning and development programmes and help to further the continued employability of adult learners attending these programmes.

Background to the study

Recent research has made important progress in understanding the notions of cognitive learning styles and preferences in workplace-based learning (Choi & Jacobs, 2011; Hosford & Sidors, 2010; Kiguwa & Silva, 2007) and psychosocial employability attributes in sustaining individuals' employability in the contemporary world of work (Bezuidenhout, 2011; Fugate, Kinicki & Ashforth, 2004; Pool & Sewell, 2007; Potgieter, 2012). In the context of the present study, the notion of learning strategies is understood as the cognitive-behavioural strategies individuals prefer to adopt when engaging in formal learning and studying activities (Williams, Rudyk & Staley, 2004). Learning and studying activities may involve preparing for an examination or any type of formal assessment activity that forms part of the individual's lifelong learning agenda. Adult learners who engage in formal workplace-based training and learning or further their qualifications at a higher education institution are frequently exposed to formal learning and assessment events (Coetzee, 2013a; Tshilongamulenzhe, 2012).

The presence of specific, identifiable learning strategies indicates the likelihood that an individual will engage in certain cognitive behaviours, thereby enabling one to predict the probability of an individual's preferred cognitive learning behaviours and strengths (Williams *et al.*, 2004). Research by Williams *et al.* (2004) suggests that individuals are energised or affronted by environmental stimuli that either encourage or discourage the adoption of positive learning behaviours. Similarly, some individuals enjoy dealing with abstract-theoretical information whilst others prefer dealing with factual, practical information when engaging in learning activities. Some individuals prefer using an analytical, logical approach to organise learning content whilst others prefer to organise learning content based on what they find as personally meaningful. Individuals may also be highly organised in their approach to learning or prefer to follow a less organised and more open-ended approach to their learning (Williams *et al.* 2004).

Research on individual differences further provides evidence in support of the link between cognitive coping and approaches to learning and studying. Learning and studying approaches or strategies are viewed as cognitive processes that are grounded in the general coping strategies people adopt to deal with anxiety-creating circumstances (Moneta, Spada & Rost, 2007). Preparing for formal learning assessments or examinations and dealing with the uncertainties of future career pathways and more frequent career transitions are known to provoke anxiety (Moneta *et al.*, 2007; Savickas & Porfeli, 2012; Williams *et al.*, 2004). As a consequence, the present study was interested in understanding how the cognitive learning strategies of adult learners relate to the psychosocial attributes that are known to influence their employability in the contemporary workplace (Bezuidenhout, 2011; Fugate *et al.*, 2004; Pool & Sewell, 2007; Potgieter, 2012).

The notion of psychosocial employability attributes relates to the positive psychological career resources and capacities that individuals need in the proactive management of their career development (Bezuidenhout, 2011; Coetzee, 2013b). In an employment environment characterised by uncertainty, fast-changing technological and knowledge advances, more frequent career transitions and blurred career progression pathways, individuals are seen as active agents that need to take ownership of their careers (Lent, 2013; Savickas, 2011). Employees are therefore required to engage in career and learning behaviours that help them to adapt to changing circumstances and develop the skills they need to sustain their employability (Lent, 2013; Savickas, 2011; Savickas & Porfeli, 2012). Psychosocial attributes are also seen as the positive psychosocial capital that enhances the individual (psychological) and work (social) interface and that makes individuals valued assets to both prospective and current employers (Avey, Reichard, Luthans & Mhatre, 2011; Fugate *et al.*, 2004). These attributes include, for example, proactive career self-management behaviours, career resilience and adaptability, and core positive self-evaluations such as self-efficacy, self-esteem, proactivity, locus of control, emotional literacy and sociability (Bezuidenhout, 2011; Fugate *et al.*, 2004).

Research purpose

The objective of the research was to investigate the relation between adult learners' cognitive learning strategies and their psychosocial employability attributes. In light of the importance of encouraging lifelong learning attitudes and behaviours in today's employees (Tshilongamulenzhe, 2012) and the importance attached to their psychosocial employability attributes (Bezuidenhout, 2011; Fugate *et al.*, 2004; Guzman & Choi, 2013) in today's more turbulent workplace, the present research seems timely and important. Both the notion of cognitive learning strategies and psychosocial employability attributes are seen as important positive coping or adaptive resources needed to obtain success in anxiety-provoking situations (Bezuidenhout, 2011; Fugate *et al.*, 2004; Moneta *et al.*, 2007; Williams

et al., 2004). By investigating the relationship between adult learners' cognitive learning strategies and their psychosocial employability attributes, the present research endeavoured to contribute to the employability and adult training and learning literature. More specifically, the research was interested in answering the following research question:

Do the cognitive learning strategies of adult learners significantly explain their psychosocial employability attributes?

The classical conservation of resources theory (Hobfoll, 1989) posits in this regard that humans have a basic drive towards the maintenance, conservation and accumulation of resources and that these resources act as buffers against and reduce the adverse consequences of stress responses (Bakker & Demerouti, 2007; Tuckey & Hayward, 2011). Consequently, it was expected that adult learners' preferred learning strategies (as a set of cognitive coping resources) would strengthen the adaptive capacities represented by their psychosocial employability attributes. Moreover, training and educational research emphasises the importance of studying cognitive processes in interaction with motivational and self-regulative behaviours (Heikkilä, Niemivirta, Nieminen & Lonka, 2011; Rozendaal, Minneart & Boekaerts, 2001). Whereas learning and learning strategies are seen as cognitive processes (Rozendaal *et al.*, 2001; Williams *et al.*, 2004), psychosocial employability attributes are seen as core self-evaluations and self-regulative behaviours that are metacognitively guided and that are at least partially intrinsically motivated and to some extent strategically employed in the management of one's employability (Bezuidenhout, 2011).

Literature review

Cognitive learning strategies

The notion of cognitive learning strategies is based on the research conducted by Williams *et al.*, (2004) on the behavioural strategies that learners adopt when preparing for formal assessment situations such as, for example, an examination. The cognitive learning strategies framework of Williams *et al.* (2004) is anchored in Carl Jung's (1921) theory of psychological type and the personality type theory of Myers and Briggs (Myers, McCaulley, Quenk & Hammer, 2003), which is an extension of Jung's theory. Jung identifies two ways in which the mind functions in processing information (perception) and making decisions (judgment) and two attitudes toward life that create different lifestyles (extraversion and introversion). Williams *et al.* assert that the preferred cognitive learning strategies learners frequently adopt can be related to the inherent tendencies (preferences) underpinning the cognitive functions and attitudes of the personality types described by Myers and Briggs (Myers *et al.*, 2003).

Individuals can take in or perceive information by preferring to deal with factual, practical information that they obtain through their senses (called sensing) or by intuitively trusting information that they receive from an unconscious

processing of the relationship and patterns that arise out of the facts and details (called intuition). In terms of the judging function, individuals may prefer to use the thinking process and be objective and analytical when making a decision. Information is also presented in an intellectual manner. Individuals may also prefer to make decisions based on what they personally value, like or dislike and believe to be important to themselves and to others (Myers *et al.*, 2003). Research shows that perceiving types prefer tasks that require the use of the right hemisphere of the brain (going with the flow and working at random), whilst judging types prefer left hemisphere learning tasks and use drills, games, fact retention, goal setting and methodical study to focus on learning content (Myers *et al.*, 2003; Williams *et al.*, 2004).

Williams *et al.* (2004) found that perceiving types may tend to adopt open-ended, spontaneous strategies. Adult learners using an open-ended learning approach tend to prefer flexibility and less structured activities such as, for example, exploring ideas and generating options and possibilities, being curious and interested in gathering more information, finding information from a variety of sources, planning as little as possible so as not to miss spontaneous opportunities, adapting easily to changing learning situations and modifying and changing projects as they evolve (Williams *et al.*, 2004). Perceiving types may also tend to adopt either factual practical learning strategies or abstract, theoretical strategies. Learners with a strong preference for factual, practical strategies are drawn to hands-on activities, dealing with real data and facts and finding practical applications for learning. They further prefer to set short-term practical learning goals and build on existing knowledge (Williams *et al.*, 2004). On the other hand, learners with a strong preference for abstract theoretical strategies enjoy grasping new ideas and possibilities, integrating information from a variety of sources and learning about theories and models. They tend to persist with complex learning material until they achieve understanding. They focus on organising information conceptually, focusing their learning on generalisations, abstract ideas and concepts and seeing trends and patterns in facts and data. They also prefer setting long-term learning goals and originating and innovating new ways of thinking about learning themes and situations (Williams *et al.*, 2004).

Judging types may tend to prefer organised planned strategies and may be drawn to activities such as, for example, using study time efficiently, seeking order and being methodical, making and following plans and schedules, taking charge, coordinating actions and achieving results, defining manageable, achievable results, seeking clear learning objectives and timelines and deciding and moving forward in the pursuit of getting things done (Williams *et al.*, 2004). Learners with a judging preference also tend to adopt either analytical, logical strategies or personally valued learning strategies. Learners who prefer an analytical, logical learning approach tend to judge information, rather than simply accepting it, and place information into a logical framework to increase understanding. Analytical, logical strategies entail examining and evaluating data and data trends, looking

for cause and effect relationships, finding logical reasons for learning, debating and critiquing what is learned and considering logical consequences and implications (Williams *et al.*, 2004). Learners with a strong preference for personally valued strategies demonstrate a subjective and situational cognitive learning approach. They tend to identify personal reasons for learning the material, relate what is being learned to personal situations and needs and ensure the learning will benefit or meet the needs of others. They enjoy learning that requires them to use their unique talents, characteristics or abilities. Their personal likes and dislikes also tend to influence the learning process (Williams *et al.*, 2004).

The lifestyle attitudes relate to the type of environment that individuals find energising (Williams *et al.*, 2004). Some individuals are energised by external experiences (called extraverts). Extraverts are attracted to action-taking and socialising (Kummerow & Quenk, 1992). On the other hand, some individuals are more energised by internal experiences (called introverts). They are attracted to thoughtful, reflective, intimate activities (Myers *et al.*, 2003; Williams *et al.*, 2004). Research shows that extraverted learners work best when actively involved with external stimuli and that they may be drained by the intense, isolated work that studying requires. They therefore may tend to need breaks that allow them to interact with their environment. Introverts, on the other hand, need more quiet and freedom from distraction in order to concentrate (Myers *et al.*, 2003). Williams *et al.* (2004) found that extraverted learners adopt environmentally interactive strategies. They prefer to discuss facts or ideas with others and build understanding about something by talking and thinking aloud. Learners who prefer environmentally interactive learning strategies tend to act immediately on what is being learned and learn by trying things out, researching information by contacting people and working on more than one thing at a time (Williams *et al.*, 2004). On the other hand, learners who prefer an environmentally reflective approach to their learning find it helpful to explore the learning material in depth and use deep reflection when learning. Environmentally reflective learning strategies involve getting information as far ahead of time as possible, listening carefully, building understanding by thinking about information, working on one thing at a time, concentrating for extended periods of time and researching information by reading, listening and observing (Williams *et al.*, 2004).

Sternberg (1997) posits in his theory of mental self-government that people tend to have different ways of managing their own activities and that they tend to choose styles they are most comfortable with when they interact with environments or people. The theory of self-government explains why adult learners adopt different cognitive styles when engaging with learning or study activities (Liu, Magjuka & Lee, 2008). Research provides evidence that some individuals tend to adopt a global cognitive style featuring broad-ranging global thinking or a local style characterised by detailed, local thinking, which focuses on a narrow range. Thinking styles may range from internal styles featuring introverted, task-oriented thinking and

preferences for working alone to external styles characterised by extraverted, people-oriented, socially sensitive styles and preferences (Liu *et al.*, 2008; Sternberg, 1997). Research has further shown that cognitive styles and cognitive learning strategies are related to learners' academic achievement (Liu *et al.*, 2008; Williams *et al.*, 2004; Zhang, 2004). Research also provides evidence that learners' preferred cognitive learning strategies and styles influence their level of achievement and that adult learners differ in terms of their success at taking formal assessments or examinations (Holtbrügge & Mohr, 2010; Naimie, Siraj, Abuzaid & Shaghali, 2010; Ng, Pinto & Williams, 2011).

Psychosocial employability attributes

Psychosocial employability attributes are an aspect of individuals' self-regulatory capacities that promote adaptive cognition, behaviour and affect and enhance an individual's suitability for appropriate and sustained employment opportunities (Bezuidenhout, 2011; Potgieter, Coetzee & Masenge, 2012; Fugate *et al.*, 2004). Managing one's continued employability requires a range of attributes (dispositions, values, attitudes and skills) that promote proactive adaptability in changing environments and the likelihood of obtaining career success (Hamtaux, Houssemand & Vrignaud, 2013). In an attempt to elucidate the psychosocial self-regulatory capacities and self-evaluations individuals require for managing their employability, Bezuidenhout (2011) identified eight core psychosocial attributes based on an extensive literature review on the topic. These attributes are labelled as career self-management, career resilience, cultural competence, entrepreneurial orientation, sociability, self-efficacy, proactivity and emotional literacy. Career self-management is the individual's ability to sustain employability through constant learning, problem-solving and decision-making and career planning and management efforts (Schreuder & Coetzee, 2011). Career resilience is a personal disposition that facilitates a high degree of adaptability, flexibility, self-confidence and competence, regardless of adverse career circumstances (Bezuidenhout, 2011). Chiaburu, Baker and Pitariu (2006) found career resilience to be positively associated with proactive personality and self-management behaviours. Cultural competence is the competence to grasp, reason and behave successfully in culturally diverse circumstances. Entrepreneurial orientation is a preference for innovation, creativity and autonomy in exploiting opportunities in the career environment, a propensity to take risks and a need for achievement (Bezuidenhout, 2011). Sociability (capacity to network with and build social contacts), self-efficacy (the belief in one's ability to successfully cope in a variety of career environments), proactivity (taking initiative in improving existing circumstances or creating more advantageous ones) and emotional literacy (the ability to accept and express a range of emotions that facilitate career adaptive behaviours) are core positive self-evaluations that are deemed important for sustaining one's employability (Bezuidenhout, 2011; Potgieter, 2012).

The hypothesised relationship between adult learners' cognitive learning strategies and their psychosocial employability attributes is approached from the perspective of Bandura's (1978, 1989, 1999) general social cognitive theory and in particular the model of emergent interactive agency (Bandura, 1978, 1989). Broadly speaking, this model focuses on the interplay between action, cognitive, affective and other personal factors and environmental events. The human mind is seen as generative, creative, proactive and self-reflective. Knowledge structures, representing the models, rules and strategies of effective action, serve as cognitive guides for the construction of complex patterns of behaviour (Bandura, 1999). Individuals are seen to have some active control over both their environments and themselves by drawing on their knowledge and cognitive and behavioural skills to produce desired results (Bandura, 1989; Converse, Pathak, DePaul-Haddock, Gotlib & Merbedone, 2012). According to Bandura (1999), the cognitive capacities of individuals enable them to profit extensively from learning and life experiences. People's psychosocial attributes have been related to key self-evaluations and agentic processes and resources that enable them to manage their employability (Bezuidenhout, 2011; Fugate *et al.*, 2004), control and influence their environment (Hobfoll, Johnson, Ennis & Jackson, 2003; Rottinghaus, Buelow, Matyja & Schneider, 2012), successfully cope with job demands, attain goals and achieve personal growth and development (Demerouti, Bakker, Nachreiner & Schaufeli, 2001) and solve the unfamiliar, complex and ill-defined problems presented by current and anticipated developmental vocational tasks and transitions and traumas in occupational roles (Savickas & Porfeli, 2012). Proactive individuals seem to be oriented toward learning and development (Converse *et al.*, 2012) and are more likely to engage in self-enhancing behaviours such as pursuing further education, training and learning in order to advance their careers (Seibert, Crant & Kraimer, 1999) and develop new skills (Fuller & Marler, 2009). Coetzee and Botha (2013) also found that adult learners' cognitive learning strategies significantly predict their sense of self-directedness, success orientation and intrinsic motivation to study and learn.

Potential value-add by the study

Hirishi, Lee, Porfeli and Vondraeck (2013) posit that the increased self-directedness of contemporary careers necessitates that employees take charge of their own career development and develop the proactive career management behaviours they need for enhancing their employability. Understanding the role of cognitive learning strategies in either enhancing or lowering adult learners' capacity to demonstrate the psychosocial attributes they need to proactively manage their employability therefore seems to be important. Assessing the cognitive learning strategies learners use to prepare for formal types of assessment and how these relate to their psychosocial employability attributes could be invaluable to learning practitioners to help improve the learning performance and employability of adult learners (Coetzee & Botha, 2013; Williams *et al.*, 2004).

What will follow

In the next section, the research design for this study will be elaborated on and the research approach and method will be covered. The results will then be presented and the findings discussed. The article concludes with a brief outline of the most important conclusions, limitations of the research design and recommendations for possible future research initiatives.

Research design

Research approach

The present study is exploratory in nature as the variables under investigation appear to have commanded little research attention in South Africa up to now. A quantitative, cross-sectional survey was utilised to collect primary data, involving adult learners enrolled in further studies in the economic and management sciences field.

Method

Measures

Participants

A stratified proportional random sample ($N = 1102$) of undergraduate adult learners at a South African distance learning higher education institution participated in the study. The sample was stratified to proportionally represent the various fields of study in the economic and management sciences per course, level of study (1st–3rd year), school and department. The sample predominantly consisted of black students (92%) between the ages of 18 and 40 years (88%); 63% were female and 57% were employed.

Measuring instruments

Cognitive learning strategies were measured by the examination preparation style inventory (Williams *et al.*, 2004). The examination preparation style inventory (EPI) is a self-report measure that identifies the cognitive-behavioural strategies (115 items clustered into eight subscales) that adult learners use when preparing for formal assessments or examinations. A five-point Likert-type scale format is used to measure the respondents' responses to each item. The eight subscales are: environmentally interactive, environmentally reflective, factual practical, abstract theoretical, analytical logical, personally valued, organised planned and open-ended spontaneous cognitive learning strategies. Overall, research by Williams *et al.* (2004) provides supportive evidence of the validity and reliability of the EPI as a measure of cognitive learning strategies. Test-retest reliability coefficients for the eight scales ranged between 0.70 and 0.87 (Williams *et al.*, 2004). The EPI shows proven predictive validity with students' grade point average (GPA). In terms of the present study, Cronbach's alpha coefficients (internal consistency reliabilities) ranging between 0.70 and 0.85 were obtained.

Psychosocial employability attributes were measured by the employability attributes scale (Bezuidenhout & Coetzee,

2010). The employability attributes scale (EAS) is a self-rated, multi-factorial measure that contains 56 items and eight sub-scales: career self-management (11 items), cultural competence (5 items), self-efficacy (6 items), career resilience (6 items), sociability (7 items), entrepreneurial orientation (7 items), proactivity (7 items), and emotional literacy (7 items). Respondents are required to rate each item on a six-point Likert-type scale. An exploratory factor analysis (Coetzee, 2010) provided evidence that the EAS items meet the psychometric criteria of construct validity. Cronbach's alpha (internal consistency) reliability coefficients for each subscale ranged between 0.78 and 0.90 (Coetzee, 2010). In terms of the present study, Cronbach's alpha coefficients (internal consistency reliabilities) ranging between 0.81 and 0.90 were obtained.

Procedure and ethical considerations

Ethical clearance and permission to conduct the study were obtained from the management and research ethics committee of the higher education institution that participated in the study. Questionnaires were mailed to a stratified proportional random sample ($N = 4850$) of students enrolled for studies in the economic and management sciences field. The sample was stratified by module, level of study, department and school. The survey yielded 1102 useable questionnaires (response rate of 23%). Each questionnaire included a covering letter to obtain informed consent from the participants to use their responses for research purposes only. The covering letter explained the purpose of the research, procedure, potential benefits, confidentiality, anonymity, voluntary participation and withdrawal. Participants were requested to complete the questionnaires and return them by mail to the researchers using an enclosed return envelope.

Statistical analysis

Descriptive statistics (means, standard deviations and Cronbach's alpha coefficients), canonical correlations and standard multiple regression statistical analysis were performed. In line with guidelines by Hair, Black, Babin and Anderson (2010), the cut-off criteria for canonical factorial loadings (≥ 0.30) were used to interpret the relative importance of the canonical loadings. The r^2 type effect size ($1-0.\lambda$) was also considered for assessing the magnitude of the overall correlational relationships between the two variates of a canonical function and the practical significance of the predictive ability of the canonical relationship (Hair *et al.*, 2010). In terms of the multiple regression analysis, R^2 values of below 0.12 (small practical effect), between 0.13 and 0.25 (medium practical effect) and above 0.26 (large practical effect) ($Fp \leq 0.05$) (Cohen, 1992) were considered in the interpretation of the results. Prior to conducting the various regression analyses, collinearity diagnostics were examined to ensure that zero-order correlations were below the level of concern ($r \geq 0.80$), that the variance inflation factors did not exceed 10, that the condition index was well below 15 and that the tolerance values were close to 1.0 (Field, 2009).

Results

Means, standard deviations and internal consistency reliabilities

Table 1 shows that the participants obtained the highest mean scores for the EPI variables associated with the abstract theoretical ($M = 3.14$; $SD = 0.54$), factual practical ($M = 3.04$; $SD = 0.54$) and organised planned ($M = 3.02$; $SD = 0.52$) strategies. The environmentally interactive cognitive learning strategies were the least preferred by the participants ($M = 2.83$; $SD = 0.63$). In terms of the EAS, the participants obtained the highest mean scores for career self-management ($M = 4.80$; $SD = 0.82$) and self-efficacy ($M = 4.80$; $SD = 0.79$). The participants obtained the lowest mean scores for sociability ($M = 4.27$; $SD = 0.92$).

Correlations

As shown in Table 1, the correlations between the EPI and EAS variables ranged between 0.11 and 0.34 (small to moderate practical effect; $p = 0.00$). All correlations were in the expected direction (positive). Only emotional literacy did not correlate significantly with the open-ended spontaneous cognitive learning strategy. The zero-order correlations were well below the threshold level of concern ($r \geq 0.80$) about multicollinearity.

Canonical correlation analysis

Canonical correlation analysis was used to further understand the relations between the two sets of zero-order correlations (EPI and EAS). The canonical correlation analysis (see Table 2) assessed the overall statistical relationship between the EPI variables (as a composite set of multiple independent variables of the cognitive learning strategies construct) and the EAS variables (as a composite set of multiple dependent variables of the psychosocial employability attributes construct). The first function of the canonical model was statistically significant and of relevance to the present research (overall $Rc^2 = 0.18$; $F(p) = 3.98$, $p = 0.0001$; Wilks's lambda: $\lambda = 0.76$; $p = 0.0001$; r^2 type effect size: $1-0.\lambda = 0.24$; moderate practical effect). Overall, the results indicated that the EPI cognitive learning strategies were significantly related to the EAS psychosocial employability attributes. The Wilks's lambda represents the amount of variance not shared between the variable sets (inverse effect size). The r^2 type effect size was 0.24 ($1-0.\lambda$), which indicates that the full model explained a moderate proportion (24%) of the variance shared between the two variable sets. As illustrated in Table 2, the first canonical function contributed 18% ($Rc^2 = 0.18$; moderate practical effect) of the explained variation. Both the EPI and EAS variables were positively correlated with their respective canonical function. The abstract theoretical ($Rc = 0.91$; coefficient weight_c = 0.85) and factual practical ($Rc = 0.80$; coefficient weight_c = 0.25) cognitive learning strategies contributed the most in explaining the variance in the cognitive learning strategies construct. The career self-management ($Rc = 0.94$; coefficient weight_c = 0.49) and proactivity ($Rc = 0.90$; coefficient weight_c = 0.19) attributes

TABLE 1: Descriptive statistics: Means, standard deviations, internal consistency reliabilities and zero-order correlations.

Number	Scale	Subscale	M	SD	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	Exam preparation inventory	Environmentally interactive	2.83	0.63	0.80	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2		Environmentally reflective	2.93	0.55	0.72	0.46***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3		Factual/practical	3.04	0.54	0.83	0.70***	0.55***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4		Abstract theoretical	3.14	0.54	0.85	0.73***	0.60***	0.81***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5		Analytical logical	3.02	0.55	0.70	0.66***	0.56***	0.70***	0.76***	-	-	-	-	-	-	-	-	-	-	-	-	-
6		Personally valued	2.77	0.56	0.70	0.68***	0.53***	0.65***	0.68***	0.67***	-	-	-	-	-	-	-	-	-	-	-	-
7		Organised/planned	3.02	0.52	0.74	0.71***	0.57***	0.75***	0.79***	0.73***	0.70***	-	-	-	-	-	-	-	-	-	-	-
8		Open-ended/spontaneous	2.66	0.54	0.80	0.65***	0.59***	0.61***	0.64***	0.62***	0.68***	0.67***	-	-	-	-	-	-	-	-	-	-
9		Career self-management	4.80	0.82	0.93	0.24***	0.14***	0.33***	0.38***	0.25***	0.18***	0.29***	0.13***	-	-	-	-	-	-	-	-	-
10		Cultural competence	4.38	1.06	0.87	0.18***	0.10***	0.20***	0.27***	0.20***	0.16***	0.19***	0.11***	0.55***	-	-	-	-	-	-	-	-
11		Self-efficacy	4.80	0.79	0.81	0.22***	0.18***	0.32***	0.31***	0.22***	0.16***	0.26***	0.17***	0.69***	0.47***	-	-	-	-	-	-	-
12		Career resilience	4.46	0.87	0.81	0.26***	0.15***	0.33***	0.34***	0.27***	0.21***	0.30***	0.14***	0.73***	0.56***	0.65***	-	-	-	-	-	-
13		Sociability	4.27	0.92	0.82	0.28***	0.10***	0.31***	0.33***	0.26***	0.21***	0.28***	0.12***	0.70***	0.65***	0.60***	0.74***	-	-	-	-	-
14		Entrepreneurial orientation	4.69	0.77	0.82	0.18***	0.13***	0.25***	0.29***	0.20***	0.12***	0.23***	0.12***	0.70***	0.52***	0.72***	0.69***	0.66***	-	-	-	-
15		Proactivity	4.65	0.86	0.90	0.24***	0.13***	0.34***	0.36***	0.26***	0.18***	0.18***	0.12***	0.81***	0.58***	0.70***	0.78***	0.76***	0.76***	-	-	-
16		Emotional literacy	4.55	0.88	0.85	0.16***	0.12***	0.24***	0.27***	0.19***	0.14***	0.14***	0.14***	0.62***	0.55***	0.61***	0.62***	0.59***	0.63***	0.66***	-	-

Note: Correlations are all significant at $p = 0.000$.

M, Mean; n/s, Not significant; SD, Standard deviation.

$n = 1,102$.

$r \geq 0.29$ (small practical effect size); $r \geq 0.30 \leq 0.49$ (medium practical effect size); $r \geq 0.50$ (large practical effect size).

α , Cronbach's alpha coefficient.

contributed the most in explaining the variance in the psychosocial employability attributes construct.

The results of the cross-correlations (see Table 2) between the cognitive learning strategies (EPI) and the psychosocial employability attributes (EAS) showed that the abstract theoretical cognitive learning strategies exhibited the highest correlation with the psychosocial employability attributes canonical variate and explained 39% ($R^2 = 0.39$; large practical effect) of the variance in the psychosocial employability attributes variate. Career self-management correlated the highest with the cognitive learning strategies canonical variate, explaining 40% ($R^2 = 0.40$; large practical effect) of the variance in the cognitive learning strategies variate. Overall, the results suggest that the abstract theoretical and factual practical cognitive learning strategies are, relative to the other cognitive learning strategies, the most useful indicators of the participants' overall level of psychosocial employability attributes.

Multiple regression analysis

As reflected in Table 3, the multiple regression analysis on each of the eight EAS subscales produced significant predictive models from the EPI predictor variables. Table 3 reports only the significant EPI predictor variables. Model 1 shows that the abstract theoretical cognitive learning strategies significantly and positively contributed in explaining the variance in career self-management ($\beta = 0.36$; $p = 0.001$). The open-ended spontaneous cognitive learning strategies significantly and negatively contributed in explaining the variance in career self-management ($\beta = -0.17$; $p = 0.002$). Overall, these two variables contributed significantly in predicting the participants' levels of career self-management ($R^2 = 0.15$; medium practical effect; $p \leq 0.001$). Model 2 shows that the abstract theoretical ($\beta = 0.11$; $p = 0.002$) cognitive learning strategies significantly and positively contributed in explaining the variance in cultural competence. The model explains 8% ($R^2 = 0.08$; small practical effect; $p = 0.01$) of the variance in cultural competence.

Model 3 shows that the abstract theoretical ($\beta = 0.11$; $p = 0.002$) and factual practical ($\beta = 0.07$; $p = 0.01$) cognitive learning strategies significantly and positively contributed in explaining the variance in self-efficacy. Overall, these two variables contributed significantly in predicting the participants' levels of self-efficacy ($R^2 = 0.10$; small practical effect; $p \leq 0.001$). As reflected in Table 3, Model 4 shows that the abstract theoretical ($\beta = 0.11$; $p = 0.001$) and factual practical ($\beta = 0.06$; $p = 0.04$) cognitive learning strategies also significantly and positively contributed in explaining the variance in career resilience. The open-ended spontaneous cognitive learning strategies significantly and negatively contributed in explaining the variance in career resilience ($\beta = -0.09$; $p = 0.003$). Overall, these three variables contributed significantly in predicting the participants' levels of career resilience ($R^2 = 0.12$; small practical effect; $p \leq 0.001$).

Model 5 shows that the abstract theoretical ($\beta = 0.17$; $p = 0.001$) cognitive learning strategies significantly and

TABLE 2: Standardised canonical correlation analysis results for the first canonical function variates - EPI (independent variables) versus EAS (dependent variables).

Variate	Variables	Function 1		
		Canonical coefficients (weights)	Canonical loading (R_c)	Canonical cross-loadings (%)
Set of independent variables (EPI): Cognitive learning strategies †	Environmentally interactive	-0.05	0.61	0.26
	Environmentally reflective	-0.14	0.34	0.14
	Factual practical	0.25	0.80	0.34
	Abstract theoretical	0.85	0.91	0.39
	Analytical logical	0.03	0.64	0.27
	Personally valued	-0.11	0.47	0.20
	Organised planned	0.09	0.69	0.29
	Open-ended spontaneous	-0.33	0.29	0.12
Set of dependent variables (EAS): Psychosocial employability attributes ‡ ^b	Career self-management	0.49	0.94	0.40
	Cultural competence	0.07	0.67	0.28
	Self-efficacy	0.13	0.76	0.32
	Career resilience	0.12	0.83	0.35
	Sociability	0.18	0.84	0.35
	Entrepreneurial orientation	-0.11	0.74	0.31
	Proactivity	0.19	0.90	0.38
	Emotional literacy	0.08	0.74	0.31

Overall $R_c^2 = 0.18$; $F(p) = 3.98$ ($p < 0.0001$); $df = 72$; 6084.3; Wilks's lambda (λ) = 0.76; r^2 type effect size: $1 - 0.\lambda = 0.24$ (moderate practical effect).
 $R_c^2 \leq 0.12$ (small practical effect size); $R_c^2 \geq 0.13 \leq 0.25$ (moderate practical effect size); $R_c^2 \geq 0.26$ (large practical effect size); $n = 1102$.

EPI, Exam preparation inventory; EAS, Employability attributes scale.

†, Independent canonical variate: average canonical loading $R_c^2 = 0.40$; Redundancy index = 0.07.

‡, Dependent canonical variate: average canonical loading $R_c^2 = 0.65$; Redundancy index = 0.12.

TABLE 3: Significant multiple regression analysis: EPI (independent variables) versus EAS (dependent variables).

Number	Model	Variable	β	p	F	Adjusted R^2
1	Career self-management (EAS)	Abstract theoretical	0.36	0.001	21.27***	0.15‡
		Open-ended spontaneous	-0.17	0.002		
2	Cultural competence (EAS)	Abstract theoretical	0.15	0.001	10.50*	0.08†
3	Self-efficacy (EAS)	Factual practical	0.07	0.01	13.81***	0.10†
		Abstract theoretical	0.11	0.002		
4	Career resilience (EAS)	Factual practical	0.06	0.04	15.99***	0.12‡
		Abstract theoretical	0.11	0.001		
		Open-ended spontaneous	-0.09	0.003		
5	Sociability (EAS)	Environmentally reflective	-0.09	0.01	16.99***	0.12‡
		Abstract theoretical	0.17	0.001		
		Open-ended spontaneous	-0.12	0.002		
6	Entrepreneurial orientation (EAS)	Abstract theoretical	0.17	0.001	12.58***	0.09†
		Open-ended spontaneous	-0.06	0.05		
7	Proactivity (EAS)	Environmentally reflective	-0.06	0.05	18.90***	0.14‡
		Factual practical	0.10	0.004		
		Abstract theoretical	0.20	0.001		
		Open-ended spontaneous	-0.10	0.01		
8	Emotional literacy (EAS)	Abstract theoretical	0.16	0.001	12.40***	0.09†
		Open-ended spontaneous	-0.15	0.001		

$n = 1102$

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

†, $R^2 \leq 0.12$ (small practical effect size); ‡, $R^2 \geq 0.13 \leq 0.25$ (medium practical effect size); §, $R^2 \geq 0.26$ (large practical effect size).

F , function; β , standardised regression coefficient; EPI, Exam preparation inventory; EAS, Employability attributes scale.

Note: Collinearity statistics were as follows: Tolerance ≤ 1.0 ; VIF $> 1.0 < 1.1$; Condition index $> 1 < 4$.

positively contributed in explaining the variance in sociability. The open-ended spontaneous ($\beta = -0.12$; $p = 0.002$) and environmentally reflective ($\beta = -0.09$; $p = 0.01$) cognitive learning strategies significantly and negatively contributed in explaining the variance in sociability. Overall, these three variables contributed significantly in predicting the participants' levels of sociability ($R^2 = 0.12$; small practical effect; $p \leq 0.001$). As seen in Table 3, in Model 6, the abstract theoretical ($\beta = 0.11$; $p = 0.002$) cognitive learning strategies significantly and positively contributed in explaining the variance in entrepreneurial orientation, whilst the open-ended spontaneous ($\beta = -0.06$; $p = 0.05$) cognitive learning

strategies negatively contributed in explaining the variance. The model explains 9% ($R^2 = 0.09$; small practical effect; $p = 0.001$) of the variance in entrepreneurial orientation. In Model 7, the abstract theoretical ($\beta = 0.20$; $p = 0.001$) and factual practical ($\beta = 0.10$; $p = 0.004$) cognitive learning strategies significantly and positively contributed in explaining the variance in proactivity. The open-ended spontaneous ($\beta = -0.10$; $p = 0.01$) and environmentally reactive ($\beta = -0.06$; $p = 0.05$) cognitive learning strategies negatively contributed in explaining the variance. The model explains 14% ($R^2 = 0.14$; medium practical effect; $p = 0.001$) of the variance in proactivity. Finally, in Model 8, the abstract theoretical

($\beta = 0.16$; $p = 0.001$) cognitive learning strategies significantly and positively contributed in explaining the variance in emotional literacy. The open-ended spontaneous ($\beta = -0.15$; $p = 0.001$) cognitive learning strategies negatively contributed in explaining the variance. The model explains 9% ($R^2 = 0.09$; small practical effect; $p = 0.001$) of the variance in emotional literacy.

Discussion

The objective of the research was to investigate the relation between adult learners' cognitive learning strategies and their psychosocial employability attributes. Overall, the canonical results suggested that the abstract theoretical and factual practical cognitive learning strategies are, relative to the other cognitive learning strategies, the most useful indicators of the participants' overall level of psychosocial employability attributes, and especially their levels of career self-management and proactivity. The multiple regression analysis further investigated the overall relationship and confirmed the explanatory role of the abstract theoretical learning strategies in terms of the participants' levels of psychosocial employability attributes. The highest beta weights were also obtained in terms of the career self-management and proactivity attributes.

The abstract theoretical and factual practical learning strategies are related to the information-seeking and information-using preferences of the participants (Williams *et al.*, 2004). It appears from the results that a preference for abstract theoretical information significantly increased the participants' proactivity and sense of agency in managing their careers. Career self-management entails a sense of autonomy and perceived controllability over one's life and situation. One easily recognises the skills needed to be successful in one's career and the actions necessary in order to achieve career goals (Bezuidenhout, 2011; Schreuder & Coetzee, 2011). Abstract theoretical learning strategies entail having a preference for setting broad long-term learning goals, integrating information from a variety of sources and organising it conceptually, grasping new ideas and possibilities and generating new ways to think about learning themes and situations (Williams *et al.*, 2004). These cognitive learning strategies appear to have strengthened the participants' drive, proactivity and confidence in conceptually organising the information they need to manage and realise their personal career objectives. Coetzee and Botha (2013) found that learning strategies relating to the way adult learners gather and use information (abstract theoretical and factual practical) significantly strengthen their sense of self-directedness, success orientation, intrinsic motivation to engage in learning activities and utilisation of learning resources. Learners who prefer using abstract theoretical learning strategies also tend to persevere in successfully completing complex learning material (Williams *et al.*, 2004). Having the confidence and determination to pursue and achieve set career goals and continuously engage in development activities to achieve career goals are

also typical of proactive career self-management behaviour (Bezuidenhout, 2011; De Vos & Soens, 2008; Schreuder & Coetzee, 2011).

The results further suggest that the factual practical learning strategies, which entail a preference to engage in hands-on activities, relating information to realities and past information, building on existing knowledge and finding practical application for learning (Williams *et al.*, 2004), significantly increased the participants' self-efficacy, career resilience and proactivity. Self-efficacy beliefs help determine how much effort people will expend on an activity, how long they will persevere when confronting obstacles and how resilient they will prove to be in the face of adverse and stressful situations: the higher the sense of self-efficacy, the greater the effort, persistence and resilience (Coetzee & Oosthuizen, 2013; Pajares, 1996). The positive relation between the participants' factual practical learning strategies and their self-efficacy, career resilience and proactivity may be attributed to the proposition made by Dooley, Linden and Dooley (2005) that learning seems to improve when learners have the opportunity to practise and experiment with what and how they learn. Experiential learning increases learners' levels of active study engagement (Robinson, 2006), which, in turn, has been shown to enhance their confidence in their abilities to successfully perform and persevere in complicated situations (Coetzee & Oosthuizen, 2013). Using practical factual information to solve problems and make decisions that apply to real-world situations also increases adult learners' sense of self-directedness and intrinsic learning motivation (Coetzee & Botha 2013). Self-directed learners are known to take responsibility for their learning and to feel confident about their ability to be successful (Botha, 2012; De Bruin & De Bruin, 2011). Fugate and Kinicki (2008) found positive self-evaluations to be characteristic of resilient individuals who are also regarded to be highly employable. Research by Bowling, Wang and Li (2012) indicates that positive self-evaluations enhance individuals' general level of initiative and beliefs about their general level of competence.

It is interesting to observe that the open-ended spontaneous learning strategies (i.e. preferring flexibility, variety and less structured learning activities) explained lower levels in the participants' career self-management, career resilience, sociability, entrepreneurial orientation, proactivity and emotional literacy. The findings seem to corroborate research by Coetzee and Botha (2013) indicating that an open-ended spontaneous learning approach lowers adult learners' success orientation, that is their confidence and sense of responsibility in resolving learning obstacles (for example workload, obtaining needed information and meeting study or learning deadlines). People with an open-ended spontaneous learning style are generally energised just before examination time which may negatively affect their learning success and performance (Williams *et al.*, 2004).

The environmentally reflective learning strategies also explained lower levels of proactivity and sociability. Learners who prefer these learning strategies are generally more introverted and reflective in nature, and prefer to learn and study on their own and at their own pace (Myers *et al.*, 2003; Williams *et al.*, 2004), which, in turn, may explain the participants' lower levels of sociability and proactivity. On the other hand, learners who prefer environmentally interactive learning strategies have been found to act immediately on what is being learned and engage with others to enhance their learning (Williams *et al.*, 2004).

Conclusion

Implications for practice

The present study provides new, original insights and knowledge regarding the explanatory power of adult learners' cognitive learning strategies in terms of their levels of psychosocial employability attributes. Overall, it is concluded that the cognitive learning strategies associated with the participants' preferred way of seeking and using information (abstract theoretical and factual practical) when preparing for an examination or formal type of assessment are most likely to strengthen their psychosocial employability attributes, especially their career self-management and proactivity. However, following an open-ended spontaneous and environmentally reflective approach toward preparing for a formal assessment or examination may significantly lower adult learners' psychosocial employability attributes. There are several implications that can be drawn from these results regarding the design of formal learning and development programmes.

Firstly, the results of the study suggest that it will be useful for learning practitioners to integrate cognitive learning styles as one of the factors in designing learning and assessment activities in order to foster the psychosocial employability attributes adult learners need to manage their continued employability in the contemporary workplace. Adult learners participating in formal training and development programmes need to develop insight into how their cognitive learning strategies in preparing for an examination or formal type of assessment influence their ability to successfully and proactively manage their employability.

Secondly, although cognitive learning strategies represent relatively fixed ways of conceptualising and processing information, research evidence suggests that individuals may develop cognitive flexibility to improve their learning and performance (Liu *et al.*, 2008; Sternberg, 1997; Williams *et al.*, 2004). The findings of the present study imply that adult learners should be guided as to how to adopt a balance between the abstract theoretical and factual practical learning strategies when preparing for an examination or formal type of assessment. Learning practitioners should further ensure that a programme's learning and assessment design provides learners with the opportunity to engage in activities that draw on these information-seeking and information-using strategies. Such an approach to learning and assessment design may help to strengthen the learners' capacity for adopting the career

self-management attitudes and self-enhancing behaviours they need to enhance their employability.

Thirdly, adult learners who prefer open-ended spontaneous learning strategies should be made aware of the implications of these approaches for their ability to manage their employability. They should be guided in terms of how to complement their preferred learning approach with a more organised planned approach in preparing for an examination or formal type of assessment. Finally, learners who prefer an environmentally reflective approach to their learning should be coached in terms of becoming more proactive in developing the social skills they need to manage their employability.

Limitations and recommendations for future research

The conclusions about the findings of the study need to be considered in light of a number of limitations, each suggestive of promising directions in the area of research into enhancing adult learners' ability to manage their learning performance and employability. Firstly, the study was cross-sectional in nature and thus the causal direction of relations between the variables cannot be ascertained. Longitudinal studies are needed to understand how adult learners' preferred cognitive learning strategies influence the development of psychosocial employability attributes and how these influence their ability to successfully manage their employability over time.

Secondly, the participants in this study were enrolled as distance learning students at first year to third year level undergraduate studies in the economic and management sciences field at one university. They were mostly early career black and female students. The findings can therefore not be generalised to other educational, occupational, age, race and gender contexts. Replication studies, using independent samples drawn from other contexts are recommended. Notwithstanding these limitations, the study contributed valuable new information in the light of the paucity of research into the cognitive learning strategies and psychosocial employability attributes of early career black and female adult learners in the South African context.

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Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contributions

M.C. (University of South Africa) conducted the literature research, the data collection and statistical analysis and wrote up the report. I.L.P. (University of South Africa) assisted with the literature research and writing up the report.

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