

The correlation between corporate entrepreneurship and classical compliance training effectiveness



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Background: Research has shown a strong positive correlation between corporate entrepreneurship and classical compliance training effectiveness as a performance indicator. Strategies are proposed to foster entrepreneurial spirit while contributing to the theoretical discourse on corporate entrepreneurship and entrepreneurial orientation in a traditionally non-entrepreneurial sector.

Aim: Exploring the correlation between corporate entrepreneurship and classical compliance training effectiveness factors, with entrepreneurial orientation as a mediating variable.

Setting: The study was conducted within the compliance functions of South African banks.

Methods: A quantitative research design was employed using a structured survey questionnaire. Structural equation modelling was used to evaluate the relationships between the variables.

Results: Consistent with prior research, corporate entrepreneurship was positively associated with the effectiveness of classical compliance training. Entrepreneurial orientation served as a mediating variable, indicating that corporate entrepreneurship fosters entrepreneurial orientation, which in turn enhances classical training effectiveness beyond financial return.

Conclusion: To foster entrepreneurial mindsets within the compliance functions of South African banks, managers should promote innovative thinking and cultivate environments that encourage creativity and proactivity, while allowing autonomy under regulatory limitations and the compliance mandate.

Contribution: An empirical study of South African banks confirmed a positive link between corporate entrepreneurship and classical compliance training effectiveness, supporting prior theory. Research explored entrepreneurial orientation as a mediating variable and proposed practical measures to foster entrepreneurship within compliance functions.

Keywords: compliance training effectiveness; corporate entrepreneurship; entrepreneurial orientation; mediating variable; structural equation modelling; training evaluation.

Introduction

Social value

In the banking sector, employees benefit from adopting an entrepreneurial mindset, which involves generating innovative solutions or addressing current challenges (The Financial Brand 2022). Furthermore, some argue that compliance functions can provide banks with a competitive edge (Gabruashvili et al. 2021). Ireland and Webb (2007:50) contend that innovation-driven corporate entrepreneurship is increasingly vital for developing and sustaining competitive advantage, both now and in the future.

Within this context, the costs associated with compliance functions are frequently perceived as substantial. Anti-financial crime oversight expenditure is expected to rise by 8% by 2025 (Forrester Consulting 2023), with a \$33 billion increase in compliance-related costs recorded between 2019 and 2020 (Lang 2021). As reported by American Banker, nearly three out of four large- and medium-scale banks have faced escalating costs associated with compliance (Alix 2018). The banking sector contends that such expenses may hinder innovation. Deloitte observes that stakeholders are increasingly calling for greater effectiveness within compliance functions (Grüter, Bischof & Steindler 2021). Despite organisational efforts, compliance failures continue to occur (Bird & Park 2017:285). During May 2022, Brite Advisors had its authorisation to operate as a financial services provider withdrawn by the Financial Sector Conduct Authority (FSCA) due to regulatory breaches (Moneyweb 2022). To mitigate compliance risk, organisations may implement

sophisticated control systems, onboard specialised employees, and deliver comprehensive training (Bird & Park 2017:298). However, evaluating the impact of compliance training interventions on workforce behaviour remains challenging without a structured framework (FinSMEs 2023).

Scientific value

Corporate entrepreneurship refers to the expression of entrepreneurial behaviours from an organisational standpoint (Shin & Cho 2020:2), thereby enabling and encouraging entrepreneurial initiatives within the business. This encompasses elements such as managerial support, discretion in task execution to promote autonomy, recognition and reinforcement of high performance, allocation of time for reflective thinking within daily workflows, and the establishment of clear organisational boundaries to provide certainty in work practices (Steyn & De Bruin 2018:3). Previous research has identified a positive correlation between corporate entrepreneurship and performance of the organisation (Ziyae & Sadeghi 2021:113).

As noted by Lumpkin and Pidduck (2021:18), entrepreneurial orientation as a multidimensional framework comprises five key dimensions: (1) autonomy, (2) innovativeness, (3) risk-taking, (4) proactiveness, and (5) competitive aggressiveness. These dimensions shape the nature of entrepreneurial orientation and may vary according to environmental and organisational context. Research has also identified a positive correlation between entrepreneurial orientation and the performance of an organisation (Fan et al. 2021:17; Khalid, Salykova & Capar 2020:282).

Accordingly, this study aimed to evaluate the relationship between corporate entrepreneurship and organisational performance, specifically in the context of classical compliance training effectiveness. The positive correlation between corporate entrepreneurship and performance has been well proven in previous studies (Ziyae & Sadeghi 2021:113). The classical approach to compliance training effectiveness in this study refers to the four-tier hierarchy evaluation framework proposed by Kirkpatrick (1996), a well-renowned and widely recognised person in the training and development industry, alongside the return on investment framework developed by Phillips (1996), which was subsequently tailored for compliance training by Marcheselli (2019). Over time, the Kirkpatrick and Phillips frameworks have significantly shaped global approaches to training evaluation (Mehale, Govender & Mabaso 2021).

According to Kirkpatrick and Kirkpatrick (2009), there are four stages of evaluating training effectiveness, including: (1) reaction, (2) learning, (3) behaviour, and (4) results. Reaction evaluates how participants perceive the training initiative, which includes feedback from the learner on the subjects explored, the impact of the instructors, the media utilised, and the content (Kirkpatrick 1996). Learning assesses participants' absorption of the targeted knowledge, skills, and attitudes during the training initiative through various

evaluations (Kirkpatrick 1996). Behaviour involves learners showcasing their ability to apply the knowledge they have gained in their workplace (Kirkpatrick 1996). Results evaluate the extent to which the training intervention and subsequent reinforcement aid in achieving the organisation's specific objectives (Kirkpatrick 1996). Another training effectiveness measure was added by translating training outcomes into financial indicators and evaluating them alongside training costs. Essentially, Phillips (1996) proposed evaluating the financial value derived from training initiatives to calculate the return on investment. The monetary value of training is assessed by comparing the outcomes with the expenses allocated to the training programme. Viewed through a compliance lens, Marcheselli (2019) advises managers to assess compliance training goals and the benefits of achieving them.

Entrepreneurial orientation has been further acknowledged as a core component within the domain of corporate entrepreneurship, as articulated by Kuratko and Morris (2018:50). Thus, the study aimed to evaluate entrepreneurial orientation as a mediating variable, treating it a subset of corporate entrepreneurship. Existing literature indicates a statistically significant connection between entrepreneurial orientation and organisational performance (Fan et al. 2021:17; Khalid et al. 2020:282).

Consequently, this research explored the relationship between corporate entrepreneurship and classical compliance training effectiveness, with entrepreneurial orientation serving as the mediating variable and a possible causal result of corporate entrepreneurship. Earlier, Botha (2012) identified a strong link between entrepreneurial orientation and training success within South African banks. However, there remains a limited body of research on compliance training in banks, which is often seen as a risk-averse function in the traditionally non-entrepreneurial banking sector.

It was therefore relevant and topical to validate the relationship between corporate entrepreneurship and classical compliance training effectiveness as a performance metric, and to assess entrepreneurial orientation as a mediating variable. The knowledge gap, therefore, addressed was the application of the classical compliance training effectiveness measures, corporate entrepreneurship, and entrepreneurial orientation within compliance functions in South African banks.

Conceptual framework

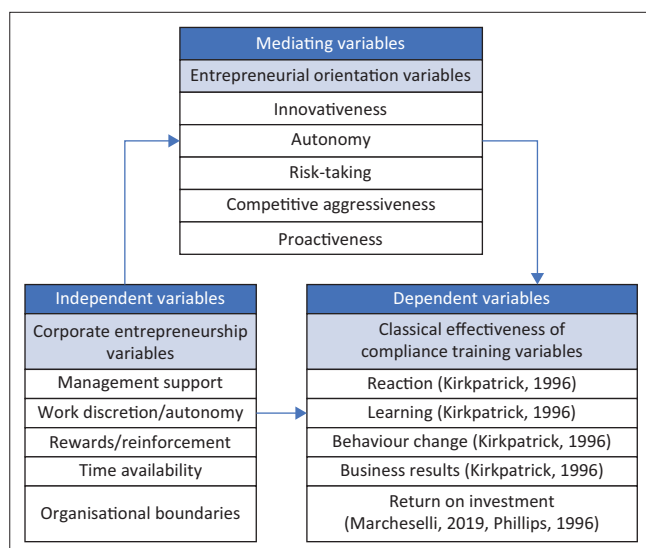
This research is grounded in two key theories: (1) the resource-based perspective of entrepreneurial orientation by Barney (1991) and (2) the theory of innovation, entrepreneurship, and economic development by Schumpeter (1934). The resource-based perspective on entrepreneurial orientation by Barney (1991) considers entrepreneurial orientation, and by extension corporate entrepreneurship, as valuable organisational resources that enhance overall performance. The resource-based perspective of entrepreneurial orientation by Barney (1991) is relevant to corporate entrepreneurship,

as entrepreneurial orientation offers a valuable lens for understanding corporate entrepreneurship, given that entrepreneurial orientation is considered a core component of corporate entrepreneurship (Kuratko & Morris 2018:50). Schumpeter's (1934) theory of innovation posits that employees within an organisation can exhibit entrepreneurial behaviour. Schumpeter (1934) theorised that entrepreneurship stimulates economic expansion by introducing instability. This transformative influence accelerates economic development (Malerba & McKelvey 2020:504). In this study, entrepreneurial orientation was considered as a mediating variable to identify its role within the broader context of corporate entrepreneurship (Kuratko & Morris 2018). The study investigated the potential causal link between corporate entrepreneurship and entrepreneurial orientation, examining how entrepreneurial orientation might mediate the relationship between corporate entrepreneurship and the effectiveness of classical compliance training.

The conceptual framework, informed by the theoretical models discussed, is presented in Figure 1. Corporate entrepreneurship constructs are treated as independent variables, entrepreneurial orientation functions as a mediating variable, and the defined constructs related to the effectiveness of classical compliance training are considered dependent variables.

Aim and objectives

This research examined the relationship between corporate entrepreneurship and the effectiveness of classical compliance training, which was conceptualised as a performance metric. Furthermore, it investigated the mediating role of entrepreneurial orientation in the relationship between corporate entrepreneurship and compliance training outcomes within the context of South African banks.



Source: Adapted from Botha, M.D., 2024, 'Proposing a compliance training success framework for South African banks to enhance an entrepreneurial business environment', Doctoral thesis, North-West University, Boloka Institutional Repository, viewed 12 September 2025, from <http://hdl.handle.net/10394/42546>

FIGURE 1: Conceptual framework flowing from the theoretical models.

Research methods and design

Study design

A survey-based quantitative study was conducted. Quantitative research utilises numerical and graphical analysis methods (Saunders, Lewis & Thornhill 2019). This study examined the perceived application of corporate entrepreneurship and entrepreneurial orientation, and the effectiveness of classical compliance training measures, using data gathered from a questionnaire with closed-ended items. A mono-method approach was selected, utilising a survey-based questionnaire. This mono-method was chosen to assess the current views of compliance officers on the application of corporate entrepreneurship and entrepreneurial orientation, and on the effectiveness of classical compliance training measures, at a specific point in time within their banks.

Setting

The study was conducted within the compliance functions of South African banks registered with the Banking Sector Education and Training Authority (BANKSETA) to fulfil skills development requirements. Compliance officers were the unit of study and were classified under the same occupational category and performed comparable duties, encompassing the oversight of compliance training within their bank (Lunday 2010).

Study population and sampling strategy

The research sample comprised compliance officers employed in South African banks. Based on data provided by the skills planning and research department at BANKSETA (personal communication, BANKSETA, 04 March 2021), the compliance officers comprised 1232 employees in 2020. The study adopted a total population sampling strategy, incorporating all individuals serving as compliance officers within banking institutions across South Africa. Compliance officers were identified through purposive sampling, guided by a criterion of uniformity (Saunders et al. 2019), as each individual was responsible for overseeing compliance training within their respective banking institution.

Banking Sector Education and Training Authority agreed to use established industry networks and the contact details (email address) of personnel responsible for skills development across various banking institutions. Employees in charge of skills development, as well as compliance contacts, were utilised as initial points of contact to comply with and respect the banks' approval procedures. Employees from the learning and development functions, who were not part of the compliance function but held responsibility for compliance training, were also represented in the survey. A sum of 341 surveys (27.7%) was completed. Drawing on the recommendations of Monk and Munro (2021:607), the sample size calculator developed by Raosoft (2023), and the general principles outlined by Hair (2019:633), a sample size of 300 was considered adequate for the study.

Data collection

Data were collected by administering an electronic survey through the Microsoft Forms platform (Redmond, Washington, United States). Compliance officers were reached either by the employees responsible for skills development or by the compliance contacts within the banks, after the approval processes of the banks were completed. Furthermore, the link to the survey was shared by the Compliance Institute South Africa (CISA) on their website, and the hyperlink was tagged on LinkedIn, inviting compliance officers at South African banks to participate in the survey. The survey was voluntary, and participants could not proceed with the survey without providing informed consent.

In this research study, the Corporate Entrepreneurship Assessment Instrument, which was modified and evaluated by Strydom (2013:174–177) and validated in the South African context by Steyn and De Bruin (2018:3), was employed to evaluate corporate entrepreneurship within the compliance functions of South African banks. Additionally, the study utilised the survey developed by Lotz and Van der Merwe (2013:31–32) to gauge entrepreneurial orientation within these compliance functions. The classical training effectiveness factors for compliance training were derived from a literature review. The structured survey questionnaire, previously utilised by Botha (2012:171–175), was used as the foundation for incorporating training effectiveness metrics established by renowned authors Kirkpatrick (1996:55–56) and Phillips (1996:20), recognised as classical measures of compliance training effectiveness.

The variables within the three research instruments were validated using confirmatory factor analysis (Taherdoost, Sahibuddin & Jalaliyoon 2022). Factor loadings above 0.298 are considered appropriate for sample size greater than 300. Hassim et al. (2020) also deemed variables with factor loadings below 0.3 to be adequate. Consequently, the study found the confirmatory factor loadings to be acceptable. Convergent validity was further assessed by confirming that the average variance extracted for the model exceeded the recommended threshold of 0.5 (Baharum et al. 2023). Items falling near the threshold were nonetheless regarded as acceptable. Therefore, the instruments used to measure corporate entrepreneurship, entrepreneurial orientation, and the classical effectiveness of compliance training were considered valid (Botha 2024).

Data analysis

Structural Equation Modelling (SEM) was employed to evaluate the proposed hypotheses, namely that corporate entrepreneurship is positively correlated with the effectiveness of classical compliance training and that entrepreneurial orientation serves as a positive mediator in this relationship. The analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 28 (IBM, Armonk, New York, United States).

The following hypotheses (H) were therefore set:

H1: There is a positive relationship between corporate entrepreneurship and classical compliance training effectiveness, according to Kirkpatrick (1996).

H2: There is a positive relationship between corporate entrepreneurship and return on investment, according to Phillips (1996) and Marcheselli (2019).

H3: Entrepreneurial orientation positively mediates the relationship between corporate entrepreneurship and classical compliance training effectiveness, according to Kirkpatrick (1996).

H4: Entrepreneurial orientation positively mediates the relationship between corporate entrepreneurship and return on investment, according to Phillips (1996) and Marcheselli (2019).

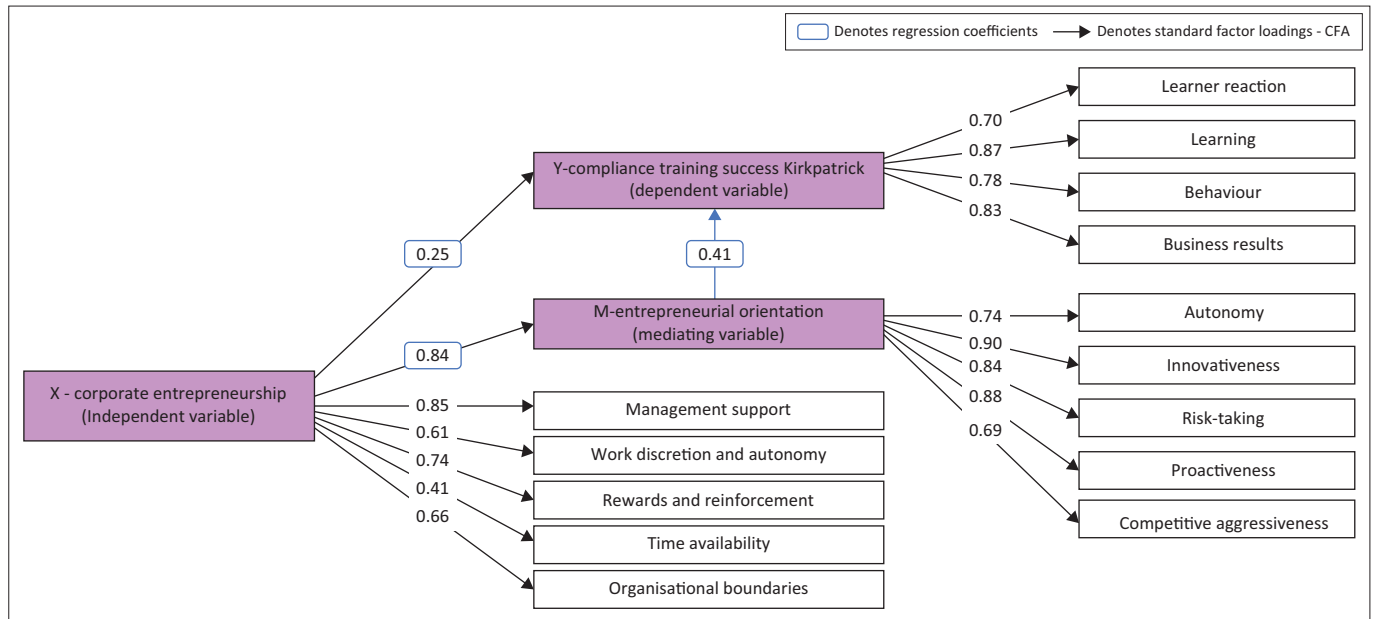
The following steps, according to Kline (2023:32), were applied in the SEM model:

- Specifying the conceptual framework and hypotheses for measurement.
- Evaluating the identification of the model and thus the degrees of freedom, where a model is identified when the degrees of freedom do not assume negative values. In this research, the degrees of freedom were positive, and thus the model was identified.
- Operationalisation of variables, alongside the collection, preparation, and screening of the data. Minimal screening was necessary, as the dataset was complete and free from missing values. This was ensured by the survey design, which required respondents to answer all items before proceeding and submitting the survey.
- Assessing the model's fit and significance.
- Assessing and adjusting the model as required.
- Reporting the results.

Two SEM models were run, one for the Kirkpatrick (1996) model of training evaluation measures (SEM path diagram – Figure 2) and one for the Phillips (1996) and Marcheselli (2019) model of return on investment (SEM path diagram – Figure 3). These steps are discussed further in the results section.

Ethical considerations

Ethical clearance was obtained from North-West University (clearance number NWU-01902-22-A4). In addition, written consent was secured from BANKSETA to access the email addresses of employees responsible for skills development within established industry communities (BANKSETA, personal communication, 19 October 2022). Informed consent was secured either electronically or verbally from chief compliance officers, employees responsible for skills development, or compliance contacts, who served as entry points into the banks. Participation in the survey was entirely voluntary and anonymous, with informed consent received electronically from each respondent before the survey began.

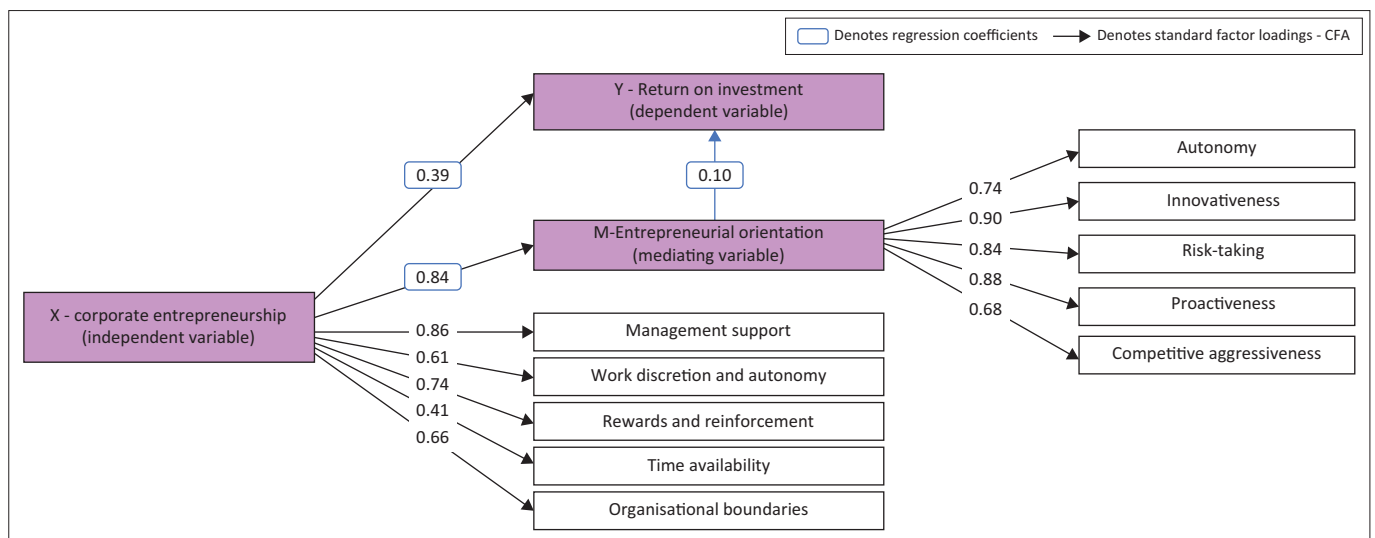


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Individual items and standard errors are omitted for conciseness.

CFA, confirmatory factor analysis.

FIGURE 2: Structural Equation Modelling path diagram: Compliance training effectiveness model – Kirkpatrick (1996).



Source: Adapted from Botha, M.D., 2024, 'Proposing a compliance training success framework for South African banks to enhance an entrepreneurial business environment', Doctoral thesis, North-West University, Boloka Institutional Repository, viewed 12 September 2025, from <http://hdl.handle.net/10394/42546>

Individual items and standard errors are omitted for conciseness.

CFA, confirmatory factor analysis.

FIGURE 3: Structural Equation Modelling path diagram: Return on investment model – Phillips (1996) and Marcheselli (2019).

Results

Reliability and validity of the research instruments

Cronbach's alpha is commonly used in the social and organisational sciences to assess the reliability and internal consistency of research instruments (Gong 2018). According to Shrestha (2021), a Cronbach's alpha value exceeding 0.7 is considered appropriate. All elements of the measurement instrument confirmed a Cronbach's alpha above 0.7, except for the factors associated with rewards and reinforcement within corporate entrepreneurship, which recorded a value of 0.69, borderline but still acceptable.

Confirmatory factor analysis was employed to establish the validity of the variables curated from the literature review (Taherdoost et al. 2022), which formed the constructs for evaluating the effectiveness of classical training, corporate entrepreneurship, and entrepreneurial orientation within the SEM process. Factor loadings above 0.298 are deemed acceptable for samples exceeding 300, and variables with factor loadings below 0.3 are widely acknowledged as appropriate in academic studies (Hassim et al. 2020). In this study, confirmatory factor loadings were regarded as acceptable. Convergent validity was subsequently evaluated by ensuring that the average variance extracted (AVE)

exceeded the threshold of 0.5 for the model (Baharum et al. 2023). Items with marginal values were still regarded as methodologically acceptable. Composite reliability (CR) values were also calculated, with all values exceeding the threshold of 0.7, indicating satisfactory construct reliability (Civelek 2018:42). Consequently, the instruments measuring classical training effectiveness, corporate entrepreneurship, and entrepreneurial orientation were deemed valid.

Structural equation modelling model fit statistics

Two SEM models were implemented:

- The first SEM model was developed to examine the theoretical constructs and measurement items associated with corporate entrepreneurship, with entrepreneurial orientation specified as a mediating variable, and the relationship with classical compliance training effectiveness, according to Kirkpatrick (1996:55–56).
- The second SEM model was developed to examine the theoretical constructs and measurement items associated with corporate entrepreneurship, with entrepreneurial orientation specified as a mediating variable, and the relationship with return on investment, according to the classical theorists, Phillips (1996:20) and Marcheselli (2019).

The two SEM models demonstrated statistically significant p -values ($p < 0.001$), Goodness of Fit indices below 5, and the root mean square error of approximation (RMSEA) values under 0.10, indicating an adequate absolute model fit. Incremental fit was evaluated using the Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI). According to Hooper, Coughlan and Mullen (2008), values of 0.90 or higher are indicative of a satisfactory fit. Both models yielded CFI and TLI values slightly below this threshold. Threshold values between 0.80 and 0.90 have been interpreted as reasonably acceptable in previous studies assessing model fit (Anggriani, Anggrawan & Cahyadi 2020). Based on these criteria, both models were considered to exhibit an adequate overall fit.

Structural equation modelling results

The following results were noted.

Kirkpatrick's (1996) classical compliance training effectiveness model

The p -value associated with the direct effect, recorded at 0.082, lies marginally above the conventional benchmark of 0.05, yet the model remains broadly regarded as statistically significant (Table 1). It is critical to acknowledge that the adoption of a fixed significance level, typically 0.05, is inherently arbitrary and may lead to misleading interpretations regarding the veracity or practical relevance of statistical findings (Whitley & Ball 2002:224). More nuanced and robust conclusions may be drawn when researchers consider the precise p -values alongside supplementary empirical evidence, thereby enabling a more informed

assessment of whether the observed effect is attributable to random variation. In this context, the comparison between the Kirkpatrick compliance training effectiveness SEM model and the return on investment SEM model supports a statistically significant interpretation, particularly given the borderline nature of the 0.082 p -value associated with the Kirkpatrick model.

Table 1 demonstrates that the indirect effect is statistically significant, as evidenced by a p -value of 0.004, which is below the 0.05 threshold.

Drawing on the Kirkpatrick model, entrepreneurial orientation accounts for 58% of the variance in the relationship between corporate entrepreneurship and the effectiveness of compliance training (calculated as $0.341/0.587$). Given that the variance accounted for (VAF) falls within the range of 20% to 80%, this indicates the presence of partial mediation (Ali et al. 2022:10). More specifically, the mediation is classified as complementary partial mediation, wherein both the direct and indirect effects are statistically significant and aligned in the same direction, being positive in this case (Timothy 2022:4):

H3: Entrepreneurial orientation positively mediates the relationship between corporate entrepreneurship and classical compliance training effectiveness, according to Kirkpatrick (1996), and is therefore accepted.

Regression analysis indicates a positive relationship between corporate entrepreneurship and the effectiveness of compliance training, as framed by Kirkpatrick's (1996) model. The standardised regression coefficient of 0.25 (Figure 2) implies that a one standard deviation increase in corporate entrepreneurship corresponds to a 0.25 standard deviation increase in classical compliance training effectiveness. As noted by Field (2018:1008), standardised coefficients provide a consistent metric for interpreting the relative strength of predictor–outcome relationships:

TABLE 1: Mediating role and associated relationships in the classical compliance training effectiveness framework – Kirkpatrick (1996).

Type of relationship	Standard regression weight β – weight	Standard error	p -value
Direct	0.245	0.117	0.082
Indirect	0.341	0.098	0.004
Total affect	0.587	0.073	0.001

Source: Adapted from Botha, M.D., 2024, 'Proposing a compliance training success framework for South African banks to enhance an entrepreneurial business environment', Doctoral thesis, North-West University, Boloka Institutional Repository, viewed 12 September 2025, from <http://hdl.handle.net/10394/42546>

TABLE 2: Mediating role and associated relationships in the return on investment model – Phillips (1996) and Marcheselli (2019).

Type of relationship	Standard regression weight β – weight	Standard error	p -value
Direct	0.391	0.168	0.010
Indirect	0.086	0.133	0.472
Total affect	0.478	0.079	< 0.001

Source: Adapted from Botha, M.D., 2024, 'Proposing a compliance training success framework for South African banks to enhance an entrepreneurial business environment', Doctoral thesis, North-West University, Boloka Institutional Repository, viewed 12 September 2025, from <http://hdl.handle.net/10394/42546>

H1: There is a positive relationship between corporate entrepreneurship and compliance training effectiveness, according to Kirkpatrick (1996), which is therefore accepted.

While not central to the study's primary focus, a strong positive relationship was identified between corporate entrepreneurship and entrepreneurial orientation, with a correlation coefficient of 0.84 (Figure 2). Furthermore, entrepreneurial orientation showed a moderate positive association with compliance training effectiveness, as assessed using Kirkpatrick's framework, with a correlation coefficient of 0.41 (Figure 2). This finding suggests that enhancing entrepreneurial orientation within the compliance functions of South African banks may contribute to improved performance outcomes, particularly in relation to compliance training effectiveness.

Standardised factor loadings from the confirmatory factor analysis exceeded 0.5 in most instances, with the exception of the 'time availability' item, which yielded a borderline loading of 0.41 (Figure 2). Nonetheless, this value remains within acceptable limits. The relatively lower loading may be attributed to the inconsistent interpretation of the two negatively worded statements included in the construct. Notably, factor loadings below 0.3 have been deemed acceptable in prior research (Hassim et al. 2020:4).

Philips (1996) and Marcheselli (2019) model

The *p*-value for the indirect effect was 0.472, indicating a lack of statistical significance (Table 2). Accordingly, the mediating role of entrepreneurial orientation was not subjected to further analysis. This outcome is consistent with the classification of 'direct-only non-mediation' as outlined by Hair et al. (2021:142), in which the direct relationship between corporate entrepreneurship and return on investment is statistically significant, whereas the indirect pathway through the proposed mediator does not demonstrate significance:

H4: Entrepreneurial orientation positively mediates the relationship between corporate entrepreneurship and the return on investment, according to Phillips (1996) and Marcheselli (2019), and is therefore rejected.

Drawing on the frameworks proposed by Phillips (1996) and Marcheselli (2019), a positive relationship was observed between corporate entrepreneurship and return on investment, evidenced by a correlation coefficient of 0.39 (Figure 3). Standardised regression coefficients provide a means of interpreting the strength and direction of relationships between predictor and outcome variables – in this case, corporate entrepreneurship and return on investment – expressed in standard-deviation units (Field 2018:1008). Accordingly, a one standard deviation increase in corporate entrepreneurship corresponds to a 0.39 standard deviation increase in return on investment:

H2: There is a positive relationship between corporate entrepreneurship and return on investment, according to Phillips (1996) and Marcheselli (2019), which is therefore accepted.

Although not central to the primary objectives of the study, a strong positive correlation was observed between corporate entrepreneurship and entrepreneurial orientation, with a correlation coefficient of 0.84 (Figure 3). In addition, a weak but positive relationship was identified between entrepreneurial orientation and return on investment, reflected in a correlation coefficient of 0.10 (Figure 3).

Standardised factor loadings obtained from the confirmatory factor analysis exceeded the recommended threshold of 0.5 in all cases, except the 'time availability' item, which yielded a borderline loading of 0.41 (Figure 3). Although it falls below the conventional threshold, this value is still considered acceptable in the context of the analysis. As mentioned before, the lower loading may be attributed to the inconsistent interpretation of the two negatively worded items associated with this construct. Notably, previous research has accepted factor loadings below 0.3 (Hassim et al. 2020:4).

Although not originally included among the objectives of this study, entrepreneurial orientation demonstrated a positive association with return on investment, as per the frameworks proposed by Phillips (1996:20) and Marcheselli (2019). This finding suggests that enhancing entrepreneurial orientation within the compliance functions of South African banks may improve performance outcomes, particularly regarding the return on investment of compliance training.

Discussion

Key findings

This research, therefore, illustrates positive relationships between corporate entrepreneurship and compliance training effectiveness, as proposed by the classical theorist Kirkpatrick (1996), as well as with return on investment, according to Phillips (1996) and Marcheselli (2019). These findings underscore the strategic importance of fostering entrepreneurial behaviour and cultivating an entrepreneurial working environment within compliance functions, which positively influences performance, specifically classical compliance training effectiveness. Such integration not only enhances the impact of training initiatives but also contributes meaningfully to organisational performance and financial returns.

Furthermore, entrepreneurial orientation was found to positively mediate the relationship between corporate entrepreneurship and the effectiveness of compliance training, as defined by Kirkpatrick (1996). This study demonstrates that corporate entrepreneurship influences entrepreneurial orientation, which in turn contributes to improved training outcomes, in line with the evaluation framework by Kirkpatrick (1996).

Discussion of key findings

The results of this study align with established findings in the extant literature demonstrating a positive relationship between corporate entrepreneurship and organisational

performance (Ziyae & Sadeghi 2021:113), specifically in relation to Kirkpatrick's (1996) training effectiveness model. Furthermore, a similar positive relationship is observed between entrepreneurial orientation and organisational performance, in accordance with the training evaluation frameworks proposed by Phillips (1996) and Marcheselli (2019). Thus, corporate entrepreneurship is positively associated with the effectiveness of classical compliance training. Similarly, the positive relationship between entrepreneurial orientation and performance, as evidenced in this study, is well-established in the literature (Fan et al. 2021:17; Khalid et al. 2020:282).

Strengths and limitations

This study focused on the compliance functions of South African banks that provided consent to engage in the research process. Several banks chose not to distribute the survey questionnaire to their compliance officers through internal channels, while others remained unresponsive despite repeated follow-up attempts. The use of full population testing contributed to a higher response rate, which was further enhanced by posting the survey link on the business-oriented social media platform, LinkedIn and on the official website of the CISA. Clarification was provided in the posts and, where necessary, directly to individuals to emphasise that the scope of the study was specifically limited to compliance training within South African banks.

The sampling unit comprised compliance officers, who are responsible, *inter alia*, for employees' compliance training obligations. During the study, it emerged that within certain banks, compliance training is designed, developed, and evaluated internally by learning and development employees, either embedded within the compliance function or operating independently of it. To address this variation, the researcher collaborated with participating banks to include relevant learning and development employees in the study. In cases where learning and development functions operated separately, compliance officers may have lacked detailed insight into training evaluation practices. This limitation was addressed by involving employees directly accountable for the delivery and evaluation of training outcomes.

As the survey was publicly accessible via the CISA's website and also promoted on LinkedIn, participation may have potentially extended beyond the intended sample, which could have influenced the rigour of statistical inference. To mitigate this, the research title and questionnaire explicitly stated the study's focus on compliance functions within banks in South Africa. During the institutional approval process and in response to individual queries, the researcher provided clarification regarding the sampling criteria, specifying that the target population comprised compliance officers operating within the South African banking sector.

Implications or recommendations

Despite its relatively recent emergence, regulatory technology is undergoing rapid development (Ascent 2023). Organisations operating within the regulatory technology domain are increasingly adopting sophisticated digital solutions, including artificial intelligence, machine learning, natural language processing, and blockchain, to strengthen compliance processes through technological innovation. These technological integrations streamline routine compliance functions, thereby allowing employees to redirect their efforts towards strategic initiatives, including entrepreneurial thinking and risk assessment of entrepreneurial clients. A 3-year longitudinal investigation conducted within the compliance functions of South African banking institutions may offer valuable insights into whether enhanced capacity for entrepreneurial engagement enabled by efficiencies introduced through regulatory technology correlates with increased corporate entrepreneurship and entrepreneurial orientation, and whether such developments contribute to improved effectiveness in compliance training.

Conclusion

The results of this study underscore the criticality of cultivating an organisational environment that actively supports corporate entrepreneurship – one that allows and values entrepreneurial behaviours, while remaining aligned with regulatory obligations and the compliance mandate, as this leads to an increase in performance, evidenced by improvements in classical compliance training effectiveness. Practically, this involves establishing clear structures and expectations within the workplace, enabling employees to operate autonomously with minimal oversight, and ensuring adequate time is allocated for both operational responsibilities and innovative thinking. The strategic adoption of regulatory technology can further enhance efficiency by automating routine compliance tasks, allowing employees to focus on innovation and the assessment of compliance-related risks. It is essential to strengthen the professional capabilities of compliance officers in the bank's adopted training assessment and evaluation framework to ensure awareness of compliance training efficiency measures as a performance indicator. Managers and leaders need to be equipped with expertise in the bank's innovation process to embed innovation meaningfully within compliance functions. Early engagement of compliance employees in cross-functional innovation initiatives is critical, as is aligning employee reward and appreciation programmes with innovation-driven contributions, within the boundaries of the bank's governance framework and risk appetite.

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Services, North-West University in 2024. The thesis was supervised by Stephanus P. van der Merwe. Portions of the data, analysis, and discussion have been revised, updated, and adapted for publication as a journal article. The original thesis is publicly available at: <https://repository.nwu.ac.za/items/208d248e-acbf-4d52-ab25-f13d94b9b564>. The author affirms that this article complies with ethical standards for secondary publication and that appropriate acknowledgement has been given to the original work.

Competing interests

The authors, Marié D. Botha and Stephanus P. van der Merwe, declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

CRedit authorship contribution

Marié D. Botha: Conceptualisation, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Validation, Visualisation, Writing – original draft, Writing – review and editing. Stephanus P. van der Merwe: Supervision. All authors reviewed the article, contributed to the discussion of results, approved the final version for submission and publication, and take responsibility for the integrity of its findings.

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Data availability

The data that support the findings of this study are not openly available due to confidentiality and are available from the corresponding author, Marié D. Botha, upon reasonable request.

Disclaimer

The views and opinions expressed in this article are those of the authors and are the product of professional research. They do not necessarily reflect the official policy or position of any affiliated institution, funder, agency, or the publisher. The authors are responsible for the article's results, findings, and content.

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