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A disaggregated view of soft skills: Entrepreneurship education systems of Africa

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ABSTRACT

Much of the literature on entrepreneurship education describes the teaching concept as a whole, which means that additional work must be done to tease out its individual components. Accordingly, this study focuses on soft skills—a core component of entrepreneurship education that represents entrepreneurial behaviors, attitudes, and attributes. It examines the mechanisms underlying soft skills and entrepreneurial readiness by drawing on a mediated model of entrepreneurship education and 300 observations on aspiring South African entrepreneurs. Regression tests reveal that while soft skills determine the entrepreneurial readiness of these entrepreneurs, their impact on their ability to start, innovate, finance, and grow new ventures is mediated by the entrepreneurial processes that define their entrepreneurial journeys. This has academic, policy, and social implications as it increases the importance of developing contextual insights into the facets of soft skills in an African country to inspire policy reforms that support African entrepreneurship.

KEYWORDS

Entrepreneurship education; soft skills; novice South African entrepreneurs; entrepreneurial readiness; Africa

Introduction

Since entrepreneurship education was first introduced in a course at Harvard University by Myles Mace in 1947, it has garnered extensive interest from governments and higher education institutions (Hägg & Gabrielsson, 2020; Matlay, 2005; Olutuase et al., 2023). Prior studies recognize that entrepreneurship education encourages students, with sufficient motivation, to convert their ideas into a business (Ripollés & Blesa, 2023). Within this body of knowledge, entrepreneurship education is perceived as a teaching intervention mechanism capable of inspiring and increasing entrepreneurial activity potentially yielding economic growth across many global regions (Galvão et al., 2018; Klofsten et al., 2019; Leitch et al., 2012; Raposo & Do Paço, 2011).

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Considering that much of this literature on entrepreneurship education (see Aparicio et al., 2019; Hahn et al., 2020; Lyu et al., 2023; Robinson & Stubberud, 2014) describes it as a whole, more work remains to be done to tease out the individual components of the teaching concept. Such work can aid the understanding of the effects of each of the individual components of the entrepreneurship education paradigm on novice entrepreneurship and entrepreneurial readiness. This is especially important when it comes to varied entrepreneurial contexts such as South Africa (compare, Morris et al., 2023) that are characterized by high entrepreneurial activity involving novice entrepreneurs (Bowmaker–Falconer & Herrington, 2020), but with mixed results in terms of developing successful enterprises (Ratten & Jones, 2018). Compared to entrepreneurship education in advanced economies (Fayolle, 2008), South African cultural norms, for example, *Ubuntu*, have infiltrated the higher education system (see Nkomo, 2015). Such fusion of culture and entrepreneurship education in South Africa presents a unique blend of philosophical business outcomes for aspiring South African entrepreneurs, as their skills are contextually embedded compared to Western-educated entrepreneurs (see Swartz et al., 2019). Consistent with this logic, the types of soft skills that interest us in this study are embedded in South Africa's cultural, economic, and social structures (Herrington et al., 2017).

Based on this understanding, this study turns its attention to the soft skills of aspiring South African entrepreneurs, using their context to examine the impact of these contextual skills on their ability to start, innovate, finance, and grow new businesses. The overarching goal is to develop theorizations to account for the effects of these types of skills at the intersection of novice entrepreneurship and entrepreneurial readiness from a developing country perspective (compare, Morris et al., 2023). Within this context, soft skills are perceived as a component of an African entrepreneurship education system representing the behaviors, attitudes, and traits that distinguish entrepreneurial individuals (De Ridder et al., 2014; Kechagias, 2011). In some way, they encapsulate critical thinking, problem solving abilities, and high-order cognitive models that provide entrepreneurially minded individuals proactive cognitive dispositions (Kuratko, 2005).

Considering the intangible nature of soft skills, it is conceivable that in varied entrepreneurial contexts such as South Africa, research is still to uncover some of the mechanisms underlying their effect in business development (Newbert et al., 2022). In such contexts, existing studies (for example, Bowmaker–Falconer & Herrington, 2020; Swartz et al., 2019) describe how cultural and societal values have infiltrated social life as well as the entrepreneurship space to the extent of influencing the cognitive dispositions of many people in Africa's business environment, not least the entrepreneurship education programs used by the continent's higher education institutions. Scholars who try to apply the

entrepreneurship education paradigm as a whole to examine novice entrepreneurs embedded in such cultural and social conditions risk missing novel entrepreneurship tendencies that may be hard to detect at the surface (Zhang et al., 2014). From that perspective, this study is an attempt to enrich research on entrepreneurship education. It addresses the following question:

> What mechanisms underlie the relationship between the soft skills that aspiring South African entrepreneurs acquire in entrepreneurship education in their country and their ability to start, innovatively finance, and scale new businesses?

The empirical evidence produced by answering this question enriches entrepreneurship education research in several ways. First, through a mediated entrepreneurship education model, the study contributes to the understanding of an entrepreneurship education system in South Africa by offering a comprehensive soft skills—entrepreneurial readiness analysis. This analysis advances theorizations (hypotheses) depicting the mechanisms underlying the relationships between soft skills, the entrepreneurship process, venture creation, innovative financing, and venture growth in South Africa.

Specifically, the theoretical perspectives derived through this analysis contribute to knowledge that describes how (i) soft skills determine the entrepreneurial readiness of aspiring South African entrepreneurs, and (ii) their effect on these entrepreneurs' ability to create new ventures, innovatively finance, and grow them, which is mediated by their entrepreneurship processes that shape their entrepreneurial journeys in resource-constrained entrepreneurial contexts (compare, Simba et al., 2021).

Second, uncovering casual and mediating relationships inherent in novice entrepreneurship within the context of an understudied African environment contributes to calls for research that uses business scenarios of the developing world to inspire contextualized theorizations in entrepreneurship (see Morris et al., 2023; Simba, Ogundana, et al., 2023). Such an approach adds new contextual dimensions that are important for entrepreneurship research because the knowledge, skills, and resources that may be needed to start and grow ventures in the developing world may vary (Bergmann et al., 2016; Dodd & Hynes, 2012; Leitch et al., 2012). Thus, contextualizing theory development in entrepreneurship contributes novel research avenues and opportunities to integrate African entrepreneurship theoretical perspectives in research (Filatotchev et al., 2022; Simba & Tajeddin, 2023). Third, that has scholarly, policy, and social implications as it increases the essence of developing insights into the individual components of entrepreneurship education in such a way that inspires policy reforms in support of African entrepreneurship.

Theoretical argument

Entrepreneurship education involves the delivery of enterprise development programs in higher education institutions (Collins et al., 2006; Cope, 2003). It is a structured and formal way of delivering entrepreneurship capabilities based on concepts and skills, and it models behaviors/attitudes that underpin successful entrepreneurship (Neck & Greene, 2011). Recent scholarly research describes entrepreneurship education as a teaching intervention mechanism used by higher education institutions to encourage students with sufficient motivation to enable them to convert their ideas into a business (Ripollés & Blesa, 2023). In other cases, entrepreneurship education has been debated as a form of learning about enterprise development through integrating practical and theoretical perspectives (Cheng et al., 2009).

Elsewhere research has elaborated on the importance of entrepreneurship education in poverty alleviation (Santos et al., 2019), job creation (Cieslik et al., 2022; Frolova et al., 2019), and economic development (Maheshwari et al., 2022; O'Connor, 2013). However, this research tends to focus on entrepreneurship education as a whole. Through such focus, various components of entrepreneurship education (for example, soft skills, technical skills, and entrepreneurship skills) are integrated (Lynch et al., 2021). This limits research in terms of thoroughly scrutinizing each of these components to fully assess the level of their individual impact on the entrepreneurial readiness particularly with regard to disadvantaged communities of novice African entrepreneurs whose macro- and meso-environments are often complex.

This approach of conflating the components of entrepreneurship education, often adopted in many studies that have focused on the concept (for example, Cohen et al., 2021; Kakouris, 2015; St–Jean & Audet, 2013; Ulvenblad et al., 2013; Von Graevenitz et al., 2010), justifies the urgent need for contextual theorizations that draw upon rich but varied African entrepreneurial contexts (compare, Morris et al., 2023) to fully explore each component independently. This is vital because some of the components of entrepreneurship education are delivered in line with local cultural and social contexts in Africa's higher education institutions. As, for example, the infusion of societal values that focus on collectivism and social responsibility in South Africa's higher education systems (see Nkomo, 2015) indicates the urgent need for contextualizing theory building in entrepreneurship education research.

Focusing on such contexts from a novice African entrepreneur perspective, as this study attempts to do, not only deepens the understanding of soft skills in African entrepreneurship, but such focus moves beyond averages to increase their theoretical value through examining the heterogeneous aspects of context and factoring them in theory development in the mainstream entrepreneurship research (Newbert et al., 2022; Zahra & Wright, 2011).

Arguably, such theorizations are important because they consider the socio-political, institutional, cultural, and economic contexts in which novice entrepreneurs, at the center of this study, engage in their everyday entrepreneurship.

Soft skills and entrepreneurial readiness in Africa

The debate on the essence of soft skills in entrepreneurship has yielded an array of competencies including, but not limited to, opportunity identification, analysis and critical thinking, creativity, innovation, negotiation, marketing, and resilience (Baručić & Umihanić, 2016; Mitchelmore & Rowley, 2010; Richards et al., 2020). This literature identifies these soft skills as essential in business development. In the developing world context like Africa, some of these skills that include critical thinking, innovation, and resilience are ever more essential. Indeed, and considering that in many regions of the developing world there are severe resource shortages (Simba et al., 2021), entrepreneurship education must focus on developing such skills to prepare their student population aspiring to start, launch, and run new enterprises.

Research suggests that developing the soft skills of young individuals, especially novice African entrepreneurs, not only increases their confidence, self-efficacy, and resilience, but also enhances their other skills including leadership, decision making, and conflict management (Rosekrans & Hwang, 2021). Elsewhere commentators and scholars have noted that there is increased recognition in higher education institutions and tertiary colleges of the need to include twenty-first century life skills to prepare their student population for the world of business (Akyeampong, 2014; UNESCO, 2022). According to Campos et al. (2017), the soft skills entrepreneurs develop through entrepreneurship education/training, particularly those that focus on their ability to deploy a proactive business mentality, equips and prepares them for venture development.

Similarly, Ubfal et al. (2022) explained that developing such soft skills will enable entrepreneurs to not only benefit from learning entrepreneurship techniques they can deploy for their cognitive transformations including introducing new product changes, but also from gaining knowledge about the type of modifications in terms of business practices that can be essential for their entrepreneurship. Because of Africa's cultural and social values that have infiltrated the business world, such modifications become important, hence the following hypothesis that:

H1: *The soft skills novice entrepreneurs develop through the entrepreneurship education systems in South Africa have an impact on their ability to create new ventures and innovatively finance and grow them.*

Mediating the soft skills—venture creation link

Scholarly research that has focused on entrepreneurship as a process describes it as a systematically choreographed journey entrepreneurs go through to establish a venture (Baron, 2007, 2008; Kojana & Mamabolo, 2020). This literature recognizes that an entrepreneur's behavioral and cognitive abilities influence how they engage the entrepreneurship process (Morris et al., 2013; Pryor et al., 2016). Within this body of knowledge, there seems to be an assumption that the entrepreneurial journeys entrepreneurs go through are linear, which negates the fact that local cultural and social dynamics may define their journeys and ultimately the skill sets they need.

As an example, research that has focused on African entrepreneurship suggests that regardless of an entrepreneur's cognitive abilities, their entrepreneurial contexts define their entrepreneurial journey (Kuada, 2022; Sorensen & Kuada, 2022). Recently, entrepreneurship education has become integral in the African education system (see Nkomo, 2015). Elsewhere, scholarly research has shown that within this system, societal aspects of collective responsibility and social cohesion form a core set of values (Waghid, 2020; West, 2014). These are disseminated through the entrepreneurship education system in Africa in such a way that complements the broad base of the skills entrepreneurs need in their new venture creation processes (see Nkomo, 2015; Pais–Zozimo et al., 2022).

In considering the foregoing discussion, there is ground for arguing that the link between soft skills and new venture creation may not be linear. Indeed, and depending on the entrepreneurial trajectories (Long, 1983) novice African entrepreneurs follow, the link between their competencies and their propensity to create new ventures and innovatively finance and grow them is likely to be moderated by other factors. From that perspective, it is logical that their entrepreneurial journeys embedded in their entrepreneurial processes can be a factor that either amplifies or attenuates the impact of their soft skills on their entrepreneurial readiness within their entrepreneurial context. To that end, the following hypothesis is established.

H2: *The entrepreneurship processes that define the entrepreneurial trajectories of novice entrepreneurs in South Africa mediate the link between the soft skills they acquire through the southern African country's entrepreneurship education system and their ability to create new ventures, innovatively finance and grow them.*

A mediated soft skills—innovative financing link

Research identifies financial resources as the single most important factor in entrepreneurship (Bruton et al., 2015; Dahlstrand & Cetindamar, 2000; Satar & John, 2019). In the context of novice entrepreneurship, it would mean that entrepreneurs must draw on their soft skills to do well in business (Alunni, 2019). In some way, they must use their high-order cognitive abilities (Kuratko, 2005) to showcase the feasibility of their business concepts (Adomdza et al., 2016; Politis, 2008). From that perspective such an attempt, by entrepreneurs, to find suitable means for financing new ventures is one of the most important phases of engaging in entrepreneurship (Lawal et al., 2018).

Existing scholarly research recognizes that although entrepreneurs may deploy their high-order skills to secure funding for their business ideas (Kuratko, 2005), it is their entrepreneurial journeys that determine the type of funding they get (Berguiga & Adair, 2021; Brière et al., 2014). For example, prior scholarly research has shown that in resource-constrained African contexts, financial resources for business purposes are hard to get and this often shapes the entrepreneurship trajectories of many novice entrepreneurs (compare, Simba et al., 2021). According to Lawal et al. (2018), a successful entrepreneurship process encompasses developing opportunities, assembly of necessary assets, financial resources, and human capital.

Considering the above, there is some logic in the argument that although novice African entrepreneurs may be adept at using limited resources to start a business (Fatoki, 2013) and from drawing on their high-order cognitive abilities (Kuratko, 2005), the entrepreneurship processes they go through can define their dexterous approaches in developing new ventures. While research generally hints at a multidimensional connectivity of the entrepreneurship process (for example, Mitchell et al., 2000), soft skills, and innovative financing, more empirical work focusing on Africa is essential. Hence, and to advance research that heeds this context, this study theorizes that:

H3: *In South African entrepreneurship, the link between soft skills and innovative financing is mediated by the entrepreneurship processes (that is, opportunity identification, validation, exploitation, resource mobility) that define the entrepreneurial trajectories of novice South African entrepreneurs.*

Mediating the soft skills—venture growth link

The value of soft skills in business development is well documented in the extant literature on entrepreneurship education (Cheung, 2008; Martin &

Iucu, 2014; Richardson & Hynes, 2008; Ubfal et al., 2022). This view about the essence of soft skills, which is advanced within this body of knowledge, suggests that developing such skills increases the chances of entrepreneurs to establish new ventures (Rotger et al., 2012). However, it is highly likely that in entrepreneurial contexts such as Africa where the entrepreneurial journeys of novice entrepreneurs are defined by localized cultural and societal systems, their entrepreneurship processes will regulate the soft skills and venture growth link (Kloepfer & Castrogiovanni, 2018). For example, research on African entrepreneurship describes how entrepreneurial women at the initial stages of their entrepreneurship journeys must contend with societal and cultural biases to succeed in creating new businesses (Ogundana et al., 2021; Ojong et al., 2021). Because such biases are embedded in their entrepreneurial contexts, they are likely to hinder the development of their ventures regardless of their abilities (Simba, Ogundana, et al., 2023).

Taking the above into consideration, it can be argued that the entrepreneurship process defining the trajectory of many novice entrepreneurs, in resource-constrained contexts of Africa (Simba et al., 2021), determine how their skills (soft skills) can help them to establish and grow their ventures. The complexities inherent in their environment are known to influence the extent to which their skills can be helpful in their venture growth endeavors (Ibeh, 2003; Lamine et al., 2014). Accordingly, this study offers the following hypothesis:

H4: *In South African entrepreneurship, the link between soft skills and venture growth is mediated by the entrepreneurship processes of opportunity identification, validation, exploitation, and resource mobility because they define the entrepreneurial journeys of novice South African entrepreneurs.*

Conceptual model

Figure 1 is derived from theese hypotheses. It is a mediated model of entrepreneurship education illustrating that soft skills determine the entrepreneurial readiness of novice South African entrepreneurs. Moreover, it indicates that the effects of their soft skills on venture creation, innovative financing, and venture growth are mediated by the entrepreneurship processes that often define the entrepreneurial journeys of this group of South African entrepreneurs.

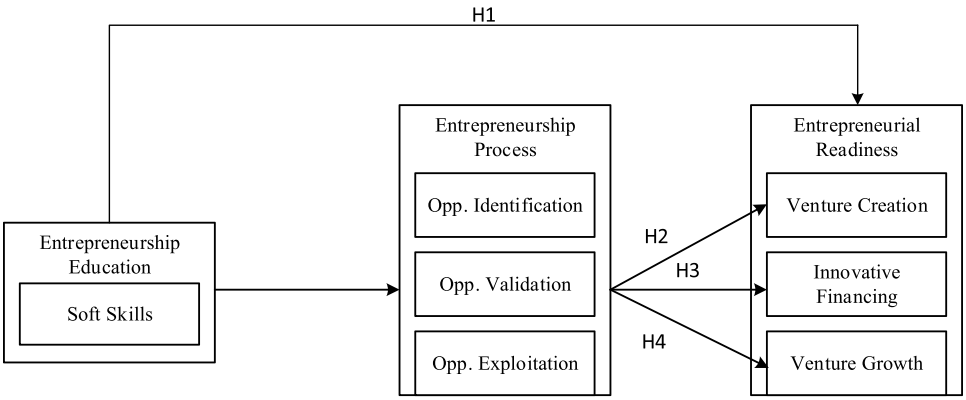

Figure 1. Mediated entrepreneurship education (soft skills) and entrepreneurial readiness model.

Research methods

Context

To encourage widespread entrepreneurial activity in South Africa, the country's Department for Higher Education and Training rolled out a program that focused on Entrepreneurship Development in Higher Education (EDHE). Its remit was to enhance entrepreneurial activity across the tertiary and higher education sectors (Omotosho et al., 2021). Further, and as part of its responsibilities, EDHE embarked on a mission to promote the development of entrepreneurship skills in universities by encouraging new curriculum designs that embrace entrepreneurship education (Omotosho et al., 2021; Ncanywa, 2019) across the country's 26 public universities. This focus on entrepreneurship education and training in South Africa provided us a unique research opportunity to study the essence of developing soft skills and their impact on the venture creation process, financing, and venture growth in a resource-constrained environment.

In most African countries, the scarcity of financial resources in South Africa means that aspiring South African entrepreneurs must adopt innovative financing approaches including bootstrapping or community-based financing to support their business development endeavors (compare, Aliber, 2015). Cultural, societal norms, and values (for example, *Ubuntu*) are also known to have a strong bearing on the types of skills entrepreneurs in South Africa must develop either through entrepreneurship education or training (see Nkomo, 2015). Another important element related to that is their mindset. For example, and because of the resource shortages they must confront, aspiring South African entrepreneurs are forced to develop a mindset that induces behaviors akin to improvisation (bricolage) (compare, Simba et al., 2021). Thus, in resource-constrained entrepreneurial scenarios, contextual factors play some role when it comes to developing the soft skills aspiring

entrepreneurs need to engage in productive entrepreneurship, be it in South Africa or other similar settings.

Sample description

The sample for this study comprises 366 students identified in two South African institutions. For the initial search for a suitable student population, the prime focus was on courses that involved entrepreneurship education. Students were studying various courses that included economic and management sciences, natural and agricultural sciences, health and environmental sciences, engineering and information technology, and education. Based on the search criteria above, 7,352 students across the two higher education institutions were considered for data collection. From this student population, the study employed the principles of an online Raosoft calculator to ensure that the study used a representative sample. The calculator was set at 95% confidence level with 5% as the margin of error. The sample distribution was pegged at 50%. Consequently, this process yielded 366 students from a student population of 7,352.

Our sample is evenly distributed between men and women. The age distribution shows that the majority (67%) are between 18 and 25 years old, followed by 21% between 26 and 35 years old, 10% between 36 and 49 years old, and 2% over 50 years old. Fifty-two percent of our sample has neither received entrepreneurial education nor attended a course, while 48% had received education. When analyzing the highest educational degree within our sample, different categories emerge. Most have a bachelor's degree (29%), followed by certificates (24%), master's degrees (10%), doctoral degrees (2%), and diplomas (8%). In addition, there are other individuals with various educational degrees such as courses, advanced diplomas, and honors degrees. Interestingly, when asked "Do you consider yourself adequately prepared by your higher education institution (HEI) to become an entrepreneur?" 45% answered "No," 27% answered "Yes," and 29% were unsure and answered "Maybe."

Data collection

Once the sample was determined, the next step involved distributing a survey questionnaire to capture data for analysis. The questionnaire used structured questions (Bell et al., 2022) to ensure that there was a focus on soft skills and its multidimensional connections to venture creation, innovative financing, and venture group within the context of the entrepreneurship process in Africa. To maximize the response rate (Deutskens et al., 2004), the study employed Google Forms, an online questionnaire tool. This data collection technique provided several advantages. It enabled the research team to reach a large

group of those students who were considered suitable for the data collection phase. Since this is a freely available tool, it meant that there were no financial commitments from the researchers.

Crucially, the tool allowed easy tabulation of collected data (McMillan & Schumacher, 2006). To complement this less-expensive data collection method, a QuestionPro tool was also used to deliver the same questionnaire to students at one of the two institutions, which has an installed IT base that is compatible with the QuestionPro tool. In addition, e-mails were sent to students to encourage them to complete and return the questionnaire (Edwards et al., 2002). Following this intensive and rigorous process (Manfreda et al., 2008), 324 questionnaires were received from a potential pool of 366. Out of these questionnaires the authors completed a thorough check which yielded 300 usable and four incomplete questionnaires.

Measures

This study developed hypotheses by using three main concepts: entrepreneurship education, entrepreneurial process, and entrepreneurial readiness. A thorough examination of relevant literature identified and analyzed seven constructs related to these concepts. In particular, the research centered around the concept of entrepreneurship education, with an emphasis on identifying soft skills as one of its core components. The study dedicated specific attention to the entrepreneurial processes covering opportunity identification, validation, and exploitation (Baron, 2008). This allowed for a deeper understanding of the actions taken by the novice entrepreneurs assembled for the purpose of this study. Furthermore, the study explored entrepreneurial readiness by examining aspects of venture creation, innovative financing, and venture growth. The questionnaire used for data collection was designed based on these constructs, with a meticulous selection of the most reliable items from previous studies that have focused on entrepreneurship education, entrepreneurship process, and entrepreneurial readiness (for example, Baron, 2007; Kuratko, 2005; Ripollés & Blesa, 2023).

Convergent validity and reliability

To evaluate convergent validity, the study uses factor analysis and average variance extracted (AVE) to examine the alignment of a measure with other measures that are theoretically intended to measure the same construct. Factor analysis identifies the latent factors that explain the relationships among the observed variables or items. It helps to uncover the underlying dimensions or constructs that contribute to the observed data. In a way, it reduces the dimensionality of a dataset

Table 1. Construct reliability and convergent validity.

Indicator	Factor loadings	Variable/Construct	Cronbach's alpha (α)	Average variance extracted
SS1	0.7872	Soft skills	0,9491	0,6220
SS2	0.8089			
SS3	0.8176			
SS4	0.7489			
SS5	0.8217			
SS6	0.7634			
SS7	0.8127			
SS8	0.8018			
SS9	0.8456			
SS10	0.8402			
SS11	0.8088			
SS12	0.6708			
SS13	0.7046			
OI1	0.7381	Opportunity identification	0.7362	0.5601
OI2	0.7930			
OI3	0.7803			
OI4	0.6767			
OV1	0.7382	Opportunity validation	0.9396	0.6251
OV2	0.7308			
OV3	0.8087			
OV4	0.7443			
OV5	0.7334			
OV6	0.8083			
OV7	0.8088			
OV8	0.8437			
OV9	0.8562			
OV10	0.8243			
OV11	0.7868			
OE1	0.8142	Opportunity exploitation	0.8966	0.7090
OE2	0.7874			
OE3	0.8893			
OE4	0.9007			
OE5	0.8122			
VC1	0.7959	Venture creation	0.8116	0.6350
VC2	0.8056			
VC3	0.8038			
VC4	0.7819			
IF1	0.7864	Innovative financing	0.8132	0.6411
IF2	0.8356			
IF3	0.8014			
IF4	0.7783			
VG1	0.7819	Venture growth	0.8132	0.6247
VG2	0.8245			
VG3	0.7451			
VG4	0.8145			

and provides insights into the interrelationships among variables, allowing for a better understanding of the underlying factors influencing the data. Adequate convergent validity is indicated when items load onto the same factor.

A value of 0.5 or above for AVE indicates satisfactory convergent validity. Table 1 demonstrates that the principal component analysis (PCA) yielded satisfactory results in terms of the percentage of explained variance for the three variables. For example, the eigenvalue of soft skills factor was higher than 1 which explains 62% of variance. The last column of Table 1 shows the percentage of variance explanations for an eigenvalue > 1.

In addition, the study evaluated the reliability of the construct, which focuses on its consistency and stability across different elements like time, measurement instruments, and populations. This assessment guarantees that the scores derived from multiple items measuring the same construct are dependable and enable valid conclusions to be drawn. By conducting Cronbach's alpha test, the study examined the internal consistency for the construct's reliability. Internal consistency, indicated by a high Cronbach's alpha coefficient (typically 0.7 or above), signifies strong coherence among the items within a measure. The Cronbach's alpha of the seven constructs confirms high reliability of these factors, for example, Cronbach's alpha coefficient of soft skills is 0.94. Table 1 shows factor loadings, Cronbach's alpha (α), and AVE scores. Thus, the independent variables (IVs) include soft skills, opportunity identification, opportunity validation, and opportunity exploitation. The dependent variables (DVs) address entrepreneurial readiness consisting of venture creation, innovative financing, and venture growth.

There is a logical time frame from the initiation of entrepreneurial training (IV: soft skills) to the application of these training skills by the entrepreneurs (DV/entrepreneurial readiness: creating new ventures, innovative financing, and growth). This period allows for the necessary incubation and application of learned concepts, enabling us to effectively measure the outcomes of their training.

Apart from evaluating construct reliability and convergent validity, this study employed tests that were designed to ensure discriminant validity, which ensures that the measurement instrument accurately captures the intended constructs without interference from unrelated factors. Discriminant validity examines the correlation between scores on a measure and measures of unrelated constructs. Thus, verifying that the measure measures what it is intended to measure without capturing other factors.

The Fornell–Larcker criterion and the heterotrait-monotrait (HTMT) ratio were employed in this study to assess discriminant validity. The Fornell–Larcker criterion compares the AVE for each construct with the correlations between them. A construct demonstrates good discriminant validity when its AVE is higher than its correlation with other constructs. However, the Fornell–Larcker criterion has been criticized for its conservative nature, particularly in complex models. To mitigate this limitation, the HTMT ratio was used as an alternative measure. It compares the correlations between constructs and their indicators, and an HTMT ratio below 0.9 indicates good discriminant validity. The results of both discriminant validity tests, presented in Appendixes 1 and 2, reveal satisfactory levels of discriminant validity for all the constructs examined.

Common method variance (CMV)

To mitigate the risk of common method variance (CMV) arising from the fact that both the DV and IV were assessed using the same participants (the principal entrepreneurs) with the same instrument (a questionnaire), two methods were used. First, we adopted Tehseen et al. (2017) five procedural strategies, which they recommended for researchers to use when dealing with issues associated with common variance. Using Tehseen et al. (2017) procedural strategies, we initially established a temporal division by arranging the measurement of the DV and the IV in separate sections of the questionnaire. The main goal was to induce a psychological distinction in the measurement process through incorporating a clarifying statement to show how the measurements of our mediators were independent from those of the IV and DV. This clarification served two purposes. It helped us to separate these measurements psychologically as well as reduce the influence of social desirability bias in the responses.

Furthermore, we assured the confidentiality of participant responses and reduced their sense of being evaluated by highlighting the voluntary nature of their participation. In addition, alternating the sequence in which the IV and DV were measured helped us to diminish potential methodological biases that could arise from the order of questions and the context within which they were placed. Moreover, we also refined the scale items, customizing them in such a way that accurately reflects the entrepreneurial context—a procedure which enhanced the reliability and validity of our measures.

Second, we employed a statistical test to manage the CMV risk and verify the effectiveness of these procedural safeguards. For this procedure, we employed Harman's single factor test to address the potential issue of common method bias (see Podsakoff et al., 2003). This test suggests that the presence of a single factor accounting for the variance in all variables implies a critical concern of CMV (Podsakoff & Organ, 1986). According to the outcomes of our analysis, the data converged on a single factor that explained a total variance of 16.8%. Given that this percentage falls well below the 50% threshold, it led us to determine that common method bias was not a serious issue.

Data analysis

To examine the potential mediating role of entrepreneurship process indicators (opportunity identification, opportunity validation, and opportunity exploitation) in the relationship between soft skills and the indicators of entrepreneurial readiness (venture creation, innovative financing, and venture growth), the study used Baron and Kenny's (1986) triple test for mediation. First, it is necessary for the IV (soft skills) to demonstrate a predictive relationship with the mediators (opportunity identification, opportunity validation, and opportunity exploitation).

Second, the effect of soft skills on DVs including venture creation, innovative financing, and venture growth, should be significant when the mediators are absent. Third, the introduction of the mediators in the entrepreneurial readiness (venture creation, innovative financing, and venture growth) equation should be significant, and at the same time the effect of soft skills should either decrease in magnitude or disappear. As an extreme case, full mediation would mean that the direct effect of soft skills on entrepreneurial readiness (venture creation, innovative financing, and venture growth) should not be significant. The conventional approach to test for mediation involves independently estimating three equations using ordinary least squares (OLS). In accordance with Baron and Kenny (1986), the study proceeds by estimating the following three sets of equations:

$$\begin{aligned}&\text{Opportunity Identification} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \varepsilon\\&\text{Opportunity Validation} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \varepsilon\\&\text{Opportunity Exploitation} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \varepsilon\end{aligned} \tag{1}$$

$$\begin{aligned}&\text{Venture Creation} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \varepsilon\\&\text{Innovative Financing} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \varepsilon\\&\text{Venture Growth} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \varepsilon\end{aligned} \tag{2}$$

$$\begin{aligned}&\text{Venture Creation} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \beta \text{ opportunity identification} + \beta \text{opportunity validation} + \beta \text{ opportunity exploitation} + \varepsilon\\&\text{Innovative Financing} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \beta \text{ opportunity identification} + \beta \text{ opportunity validation} + \beta \textit{ opportunity exploitation} + \varepsilon\\&\text{Venture Growth} = \alpha + \beta \text{ control variables} + \beta \text{ soft skills} + \beta \text{ opportunity identification} + \beta \text{ opportunity validation} + \beta \text{ opportunity exploitation} + \varepsilon\end{aligned} \tag{3}$$

In these equations, α represents a constant, β signifies the coefficient vector, and ε denotes the error term. While the outcomes of these three sets of equations indicate the presence of an indirect effect, either in full or partial mediation, it is crucial to ascertain the magnitude of the indirect effect exerted by our mediators. To evaluate the suggested indirect effects of the mediators on entrepreneurial readiness (venture creation, innovative financing, and venture growth), a multiple-mediation model using the PROCESS syntax for SPSS developed by Hayes (2013) was performed with 5,000 bootstrap samples. This feature of process analysis allows for the simultaneous computation of all connections, addressing the challenge of non-normality in interaction terms by using bootstrapping, which involves repeated sampling with replacement.

The study employed Model 4 of Hayes (2013) to examine the multiple-mediation effect. Hayes's (2013) multiple-mediation models are employed to estimate Equation 3, which represents the key advantage of using the Hayes approach. In addition, Sobel's (1982) tests and bootstrapping confidence intervals (CIs) as robustness tests were employed. These tests provided evidence of the mediating effect and indicated the magnitude of the indirect effect of the IV (soft skills) on the DV (entrepreneurial readiness including venture creation, innovative financing, and venture growth) through each of the entrepreneurship process steps (mediators) that were considered in this study.

Results

Before focusing on the study's hypotheses, a correlation test was conducted to examine the afore-mentioned relationships. Venture creation shows significant positive correlations with soft skills ($r = 0.133$), opportunity identification ($r = 0.408$), opportunity validation ($r = 0.398$, $P < .001$), opportunity exploitation ($r = 0.350$), innovative financing ($r = 0.420$), and venture growth ($r = 0.539$). Likewise, innovative financing exhibits significant positive correlations with soft skills ($r = 0.332$), opportunity identification ($r = 0.512$), opportunity validation ($r = 0.532$), opportunity exploitation ($r = 0.534$), and venture growth ($r = 0.553$). Last, venture growth demonstrates significant positive correlations with soft skills ($r = 0.189$), opportunity identification

Table 2. Correlation.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Soft Skills	1.00							
(2) Opp. Identification	.285**	1.00						
(3) Opp. Validation	.212**	.534**	1.00					
(4) Opp. Exploitation	.139*	.440**	.501**	1.00				
(5) Res. Mobilization	.233**	.601**	.653**	.576**	1.00			
(6) Venture Creation	.133*	.408**	.398**	.350**	.486**	1.00		
(7) Innovative Financing	.332**	.512**	.532**	.534**	.594**	.420**	1.00	
(8) Venture Growth	.189**	.440**	.477**	.584**	.571**	.539**	.553**	1.00
(9) Age	.037	.045	−.033	.031	.012	−.024	−.029	.079
(10) Gender	.095	.015	−.022	−.150**	.006	.096	−.039	−.040
(11) Education	−.055	.036	.065	.069	.020	−.001	.037	−.016
(12) Study Field	.008	−.042	−.104	−.101	−.115*	−.135*	−.134*	−.127*
(13) Intention	.085	.027	−.011	−.020	.041	−.136*	.044	−.034
(14) Equip.	.073	−.076	.003	−.003	−.029	−.012	.040	−.003
(15) Entr. Education	−.044	−.078	−.128*	−.225**	−.139*	−.153**	−.107	−.220**
(16) Highest Education	−.159**	−.024	.008	.089	−.041	.041	−.048	.065

Variables	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(9) Age	1.00							
(10) Gender	−.078	1.00						
(11) Education	−.345**	−.032	1.00					
(12) Study Field	−.077	.126*	.033	1.00				
(13) Intention	−.047	.145*	.138*	.126*	1.00			
(14) Equip.	−.082	.053	.030	−.036	.181**	1.00		
(15) Entr. Education	−.122*	.276**	.054	.306**	.233**	−.001	1.00	
(16) Highest Education	.546**	−.128*	.045	−.148*	−.130*	−.083	−.216**	1.00

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

($r = 0.440$), opportunity validation ($r = 0.477$), and opportunity exploitation ($r = 0.584$). These findings indicate favorable associations between the soft skills and abilities essential for entrepreneurship and the outcomes of venture creation, innovative financing, and venture growth (Table 2).

To evaluate the study's hypotheses, the authors proceeded to estimate the three sets of equations as previously outlined. The researchers first verified the explanatory relationship between the soft skills variable and opportunity identification, opportunity validation, and opportunity exploitation (Equation 1, Table 3). The resultant analysis revealed that the coefficients linked to opportunity identification (ß = 0.28; $P < .001$), opportunity validation (ß = 0.22; $P < .001$), and opportunity exploitation (ß = 0.15; $P < .001$) exhibited positive associations with soft skills, in order of importance.

The outcomes presented in Table 4 pertain to the equations (2 and 3) that relate to venture creation, innovative financing, and venture growth. To examine H1, an estimation of the second set of equations as in the Baron and Kenny (1986) procedure was conducted. This model focused on the relationship between the soft skills variable and DVs including venture creation, innovative financing, and venture growth (Equation 2). Table 4 illustrates that soft skills are significant in Models A.1, B.1, and C.1, which indicates a positive effect on venture creation (ß = 0.139; $P < .001$), innovative financing (ß = 0.334; $P < .001$), and venture growth (ß = 0.184; $P < .05$), respectively. This leads to the conclusion that soft skills play an essential role in the readiness of novice African entrepreneurs (see Table 4). Thus, the results support H1.

To determine whether opportunity identification, opportunity validation, and opportunity exploitation have a mediating influence on venture creation, innovative financing, and venture growth, a full model, accounting for the effect of soft skills, the mediators, and the control variables on venture creation, innovative financing, and venture growth (Equation 3), was tested. As previously stated, to validate Hypotheses 2, 3, and 4, it is necessary for both the

Table 3. The effect of soft skills on mediators.

	Opp. Identification		Opp. Validation		Opp. Exploitation	
Variables	Coeff.	SE	Coeff.	SE	Coeff.	SE
Age	.0928	.0991	−.0805	.1007	−.0223*	.0998
Gender	.0329	.1157	−.0065	.1175	−.2087	.1165
Education	.1087	.0833	.0828	.0846	.0962	.0839
Study Field	−.0194	.0317	−.0420	.0322	−.0176	.0319
Intention	.0316	.0716	−.0004	.0727	.0333	.0721
Equip.	−.1402*	.0766	−.0261	.0778	−.0179	.0771
Entr. Education	−.1414	.1249	−.1913	.1269	−.3549**	.1258
Highest Education	−.0223	.0364	.0198	.0370	.0324	.0367
Soft Skills	.2806***	.0577	.2224***	.0586	.1551**	.0581
Constant	.2151	.3620	.3754	.3678	.6210*	.3645
R^2	.1031		.0741		.0906	
F	3.7032		2.5775		3.2100	
*df*2	290		290		290	

*$P < .10$, **$P < .05$, ***$P < .001$.

Table 4. Mediators—the effect of soft skills on entrepreneurial readiness.

	Venture Creation				Innovative Financing				Venture Growth			
	Model A.1		Model A.2		Model B.1		Model B.2		Model C.1		Model C.2	
Variable	Coeff.	SE	Coeff.	SE	Coeff.	SE.	Coeff.	SE	Coeff.	SE	Coeff.	SE
Age	−.1086	.1000	−.1143	.0896	−.0576	.0970	−.0522	.0776	.0497	.0999	.0594	.0804
Gender	.2967**	.1167	.3218**	.1049	−.0939	.1132	−.0356	.0908	.0183	.1166	.1011	.0942
Education	.0092	.0840	−.0468	.0752	.0534	.0815	−.0172	.0651	.0240	.0840	−.0459	.0675
Study Field	−.0529*	.0319	−.0381	.0286	−.0661**	.0310	−.0473*	.0247	−.0368	.0319	−.0194	.0256
Intention	−.1456**	.0722	−.1584**	.0644	.0518	.0701	.0351	.0558	.0079	.0722	−.0104	.0579
Equip.	−.0182	.0772	.0238	.0693	.0007	.0749	.0414	.0600	−.0216	.0772	.0107	.0622
Entr. Education	−.2515**	.1261	−.1290	.1139	−.1190	.1223	.0618	.0986	−.3725	.1260	−.1720*	.1023
Highest Education	.0341	.0368	.0313	.0329	−.0019	.0357	−.0115	.0285	.0114	.0367	−.0022	.0295
Soft Skills	.1396**	.0582	.0080	.0542	.3343***	.0565	.1784**	.0469	.1842**	.0582	.0409	.0486
Opp. Identification			.2474***	.0630			.2096***	.0546			.1449**	.0566
Opp. Validation			.1725*	.0639			.2235***	.0553			.1729***	.0573
Opp. Exploitation			.1536**	.0613			.3053***	.0531			.4141***	.0551
Constant	.3754	.3653	.1620	.3273	.4438	.3544	.1253	.2833	.5234	.3650	.1702	.2938
R^2	.0869		.2821		.1405		.4620		.0881		.4214	
F	3.0670		9.3972		5.2653		20.5345		3.1126		17.4179	
df	290		287		290		287		290		287	

mediators and soft skills to account for variance in venture creation, innovative financing, and venture growth.

The full model should also show that the magnitude of the coefficient associated with the DVs (venture creation, innovative financing, and venture growth) either decreases or disappears when the mediators are introduced into the estimations. In Model A.2 of Table 4, the inclusion of mediators in the estimation of H2 is observed.

The coefficient associated with the mediating variables are positive and highly significant, indicating their significant impact on venture creation. In addition, by comparing the coefficients of soft skills, the researchers were able to reveal a positive but nonsignificant relationship (ß = 0.058; $P > .1$) in Model A.2, whereas it was positive and significant in Model A.1 (ß = 0.139; $p < .001$). Therefore, the effect of soft skills has been fully mediated by opportunity identification, opportunity validation, and opportunity exploitation, meaning that H2 is supported (Table 4).

In Model B.2, where H3 was tested, the results show that the coefficients associated with the mediating variables are positive and highly significant, indicating their impact on innovative financing. In addition, comparing the coefficients of soft skills reveals a positive and significant relationship (ß = 0.178; $P < .05$) in Model B.2, whereas it was positive and significant with a higher coefficient in Model B.1 (ß = 0.334; $P < .001$). Therefore, the effect of soft skills has been partially mediated by opportunity identification, opportunity validation, and opportunity exploitation, meaning that H3 is supported (Table 4).

To test H4, Model C.2 (see Table 4), which shows the positive and significant mediating effects of opportunity identification, opportunity validation, and opportunity as well as the absence of the effect of soft skills compared to Model C.1, was run. Thus, a fully mediating role of opportunity identification, opportunity validation, and opportunity exploitation for the relationship between soft skills and venture growth was evidenced, meaning that H4 is supported (Table 4). To assess the indirect effects, both Sobel tests (Baron & Kenny, 1986; Sobel, 1982) and bootstrap CIs were employed by implementing a multiple-mediation model (Hayes, 2013). In mediation analysis, both the Sobel test and bootstrapping approach are employed to evaluate the significance of indirect effects. The Sobel test assumes that the indirect effect of the IV follows a normal distribution, although this assumption is somewhat conservative.

A significant Sobel test Z value, typically exceeding 1.96, indicates that the indirect effect is statistically significant. Conversely, the bootstrapping approach is a nonparametric method that does not rely on assumptions of normality or symmetry in variables. By repeatedly sampling from the data, it generates bootstrapped CIs for the indirect effect. If the resulting CIs do not include the value 0, it suggests that the indirect effect is different from 0. Since the Sobel test and bootstrapping approach have different underlying

Table 5. Bootstrapping and Sobel's test: The test of indirect effect—venture creation.

	Bootstrapping				Sobel's test	
	Effect	Boot SE	BootLLCI	BootULCI	Z	*P*
Opp. Identification	.0694	.0292	.0262	.1205	3.0164	.0026
Opp. Validation	.0384	.0213	.0081	.0765	2.1511	.0315
Opp. Exploitation	.0238	.0170	.0015	.0561	1.7622	.0780

Table 6. Bootstrapping and Sobel's test: The test of indirect effect—innovative financing.

	Bootstrapping				Sobel's test	
	Effect	Boot SE	BootLLCI	BootULCI	Z	*P*
Opp. Identification	.0588	.0240	.0194	.0987	2.9758	.0029
Opp. Validation	.0497	.0256	.0134	.0964	2.7223	.0065
Opp. Exploitation	.0474	.0272	.0100	.0989	2.3916	.0168

Table 7. Bootstrapping and Sobel's test: The test of indirect effect—venture growth.

	Bootstrapping				Sobel's test	
	Effect	Boot SE	BootLLCI	BootULCI	Z	*P*
Opp. Identification	.0407	.0243	.0012	.0815	2.2290	.0258
Opp. Validation	.0384	.0226	.0072	.0798	2.3115	.0208
Opp. Exploitation	.0642	.0313	.0149	.1179	2.4961	.0126

assumptions, Tajeddin and Carney (2019) recommend using both methods to gain a comprehensive understanding of the indirect effects.

The results of the bootstrap provide significant evidence for the existence of indirect effects, with a bootstrapped 90% of CIs not containing 0 for all our mediators associated with all DVs (see Tables 5, 6 and 7). The bootstrap results confirm the indirect effect of soft skills on DVs (venture creation, innovative financing, and venture growth) through increased opportunity identification, opportunity validation, and opportunity exploitation. The Sobel test results also confirm the bootstrap test since the Sobel Z is significant: $Z > 1.96$ or $Z < -1.96$ (See Tables 5, 6 and 7).

Discussion

Research on entrepreneurship tends to apply the components of the entrepreneurship education as a whole (Aparicio et al., 2019; Hahn et al., 2020; Lyu et al., 2023, Robinson & Stubberud, 2014; St–Jean & Audet, 2013; Ulvenblad et al., 2013). While this has provided some understanding of the unified impact of entrepreneurship education on entrepreneurial behavior, intentions, and passion (Ajzen, 1991; Fayolle, 2008), in varied contexts like Africa, where cultural and social values have penetrated high education institutions (Waghid, 2020), focus must shift toward developing knowledge on the effects of its individual components. For example, soft skills are hard to detect at the

surface because they can be subjected to localized cultural and social modifications (Ubfal et al., 2022).

On this basis, the process of developing the soft skills of aspiring South African entrepreneurs must be linked to the indigenous values and ethics of that country, traditional forms of teaching and learning, guardianship, and apprenticeship (Akolgo–Azupogo et al., 2021). In a sense, the epistemology that modern sociology employs in such a context must reflect sociocultural dynamics and honor the study of soft skills development. Therefore, efforts to develop an understanding of the impact of soft skills on aspiring South African entrepreneurs, as this study does, contribute to mainstream research in entrepreneurship education in several ways.

Contribution

First, the mediated entrepreneurship education model derived from the study's hypotheses depicting the multidimensional soft skills, entrepreneurial process and entrepreneurial readiness connections, and empirical evidence generated from survey data advances new theoretical perspectives. They offer alternative theoretical avenues to account for how soft skills, from an African entrepreneurship education perspective, influence the entrepreneurial readiness of the continent's novice entrepreneurs. Prior research hints that soft skills considered relevant for African entrepreneurship should also encompass cultural and social aspects of collectivism and responsible behavior in entrepreneurship (Nkomo, 2015; Waghid, 2020; West, 2014).

This research emphasizes that the premise of such values lies in the idea that, as one becomes successful in entrepreneurship, the entrepreneur must not divert from their social obligations. Building on this literature, the soft skills novice African entrepreneurs analysis engendered in this study has revealed penetrating insights into an African education system. Such perspectives contribute to knowledge on entrepreneurship education by clarifying how entrepreneurship processes unfolding in an African context mediate the effects of soft skills on novice African entrepreneurs' ability to create new ventures and innovatively finance and grow them.

Second, the study responds to research calls, initially by Zahra (2007), Welter (2011), Zahra and Wright (2011), and recently Newbert et al. (2022), Bruton et al. (2022), and Simba, Ogundana, et al. (2023) for contextualizing theory building in entrepreneurship research by elaborating on the casual and mediating relationships inherent in an African entrepreneurship education system. Arguably, such a research approach integrates African entrepreneurship education into mainstream entrepreneurship research (Morris et al., 2023). Indeed, the knowledge and skills as well as resources that may be needed to start and grow ventures in the developing world may vary (Bergmann et al., 2016; Dodd & Hynes, 2012; Leitch et al., 2012). Hence, enabling scholarly conversation with the context enriches research that has

long relied on recycling universal theories of entrepreneurship education often influenced by Western views dominating the field of entrepreneurship (compare, Bruton et al., 2022).

Research implications

The theorizations and empirical outcomes of this research have implications for various stakeholders. First, the theorizations of how Africa's cultural and societal values embedded in the entrepreneurial process of novice entrepreneurs can be part of the soft skills they must develop to be successful entrepreneurs inspires new academic research. Furthermore, the mediated entrepreneurship education model representing an African entrepreneurship education system can be a baseline for research that studies the effects on soft skills in another country/other countries on the African continent.

Second, the theorizations and empirical evidence of this study potentially inspire policy institutions in Africa to consider entrepreneurship policy reforms that support novice entrepreneurship on the continent. Particularly, reforms that enable access to resources needed to support novice entrepreneurs in converting their ideas into businesses. Consequently, increasing entrepreneurial activity can contribute to economic development and goes some way toward meeting Sustainable Development Goals (SDGs). Especially SDG 8 which is related to creating decent work for disadvantaged communities like novice African entrepreneurs. Thus, this can lead to positive social transformation in some of the world's poorest neighborhoods in Africa.

Limitations and suggestion for future research

Like any other research projects, this study has limitations. Its findings are derived from a single country in Africa. While this is a limitation of the study, it provides opportunities for future research. Indeed, future studies can consider using panel data covering a sizable number of African countries to further explore the interplay between entrepreneurship processes and soft skills and entrepreneurial readiness. In that way, entrepreneurship research can integrate a contextualized mediated entrepreneurship education model that accounts for African entrepreneurship. As previously mentioned, such an approach aligns with calls for contextualizing theory development in entrepreneurship research (Welter, 2011). Given the transient nature of cultural, economic, political, and social environments in countries such as South Africa, the way entrepreneurship education is experienced by those who undergo or experience it may vary. We recommend that future studies focus on the temporality of entrepreneurship education and, in particular, on development of soft skills.

Concluding remarks

This study argued that because of prior scholarly research that has used the concept of entrepreneurship education as a whole, much more work remains to be done to articulate its core components individually. In the context of African entrepreneurship, components of entrepreneurship education such as soft skills can be subjected to localized cultural and societal influences. Hence, applying the entrepreneurship education paradigm as a whole can overshadow the understanding of the mechanisms underlying casual and mediating relationships of soft skills, and yet it is a component of entrepreneurship education that is prone to modifications. Therefore, theorizing how soft skills determine the entrepreneurial readiness of novice entrepreneurs, from an African perspective, integrates African entrepreneurship into mainstream entrepreneurship education research. Building such inclusive research is important as it showcases the effects of culture, social norms, and values on the abilities of African entrepreneurs to create new ventures and innovatively finance and grow. Crucially, this study not only clarifies the multidimensional effects of soft skills in African entrepreneurship, but also responds to several recent research calls (for example, Newbert et al., 2022; Simba et al., 2024; Wickert et al., 2024) advocating for contextualizing theory development in entrepreneurship research.

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Appendicies

Appendix 1. Fornell–Larcker criterion

Construct	Opportunity validation	Soft skills	Opportunity identification	Opportunity exploitation	Innovative financing	Venture creation	Venture growth	Resource mobilization
Opportunity validation	0.6251							
Soft skills	0.0487	0.6220						
Opportunity identification	0.2832	0.0838	0.5601					
Opportunity exploitation	0.2534	0.0227	0.1920	0.7090				
Innovative financing	0.2865	0.1140	0.2629	0.2897	0.6411			
Venture creation	0.1736	0.0192	0.1785	0.1461	0.1907	0.6350		
Venture growth	0.2394	0.0415	0.2040	0.3662	0.3165	0.826	0.6274	
Resource mobilization	0.4263	0.0574	0.3591	0.3315	0.3548	0.2499	0.3423	0.6687

Squared correlations, AVE in the diagonal.

Appendix 2. HTMT results

Construct	Opportunity validation	Soft skills	Opportunity identification	Opportunity exploitation	Innovative financing	Venture creation	Venture growth	Resource mobilization
Opportunity validation								
Soft skills	0.2243							
Opportunity identification	0.6451	0.3417						
Opportunity exploitation	0.5442	0.1525	0.5416					
Innovative financing	0.6064	0.3780	0.6622	0.6275				
Venture creation	0.4614	0.1572	0.5341	0.4195	0.5201			
Venture growth	0.5485	0.2182	0.5780	0.6890	0.6834	0.6694		
Resource mobilization	0.7369	0.2602	0.7662	0,6651	0.7217	0.5955	0.6986	

Appendix 3. Explanation of key variables

Soft Skills	Leadership—The ability to inspire and unlock the staff's potential to fulfil the company vision.
	Creative thinking—The ability to incorporate new perspectives and different angles.
	Critical thinking—The analysis of facts to form a judgment.
	Emotional learning—An educational intervention to improve social and emotional skills.
	Communication—The ability to express and receive information.
	Teamwork—An integrating collaboration to achieve a common goal.
	Collaboration—The act of cooperation with different people.
	Initiative—The ability to decide and act independently to solve a problem.
	Adaptability—The capacity to adjust to new situations.
	Growth mindset—A belief in improving ability and intelligence through effort and learning.
	Self-confidence—The attitude where you trust and accept your abilities and skills.
	Cultural awareness—The sensitivity to accept different cultures.
	Empathy—The capability to share other persons' feelings.
Opportunity Identification	Opportunity identification involves scanning the environment for information that enhances the business.
	Opportunity identification requires the ability to effectively use changing information from transformed external environments.
	Opportunity identification involves adapting an opportunity to suit the market need.
	Opportunity identification involves conducting systematic research to cultivate an idea to a high potential opportunity that transforms into marketable items.
Opportunity Validation	Opportunity validation involves establishing the competitive advantage/benefit of a product/service.
	Opportunity validation involves ascertaining the required customers of a product/service.
	Opportunity validation involves determining the size of market demand.
	Opportunity validation involves locating the target market.
	Opportunity validation involves determining the market share.
	Opportunity validation involves ascertaining the level of competition in the market.
	Opportunity validation involves determining the cost of product development.
	Opportunity validation involves comparing the prices of products/services with those of competitors.
	Opportunity validation involves determining the gross margins of the venture.
	Opportunity validation involves determining the capital required to create a new venture.
	Opportunity validation involves establishing the risks inherent with the product/service.
Opportunity Exploitation	Opportunity exploitation involves developing a good business plan.
	Opportunity exploitation involves the management of a venture successfully.
	Opportunity exploitation involves determining the required resources.
	Opportunity exploitation involves obtaining the appropriate resources.
	Opportunity exploitation involves dealing with competition.
Venture Creation	Venture creation involves establishing departments for a business.
	Venture creation involves filing for corporate tax.
	Venture creation involves establishing an office for operations.
	Venture creation involves marketing the operations of a business.
Innovative Financing	Innovative financing facilitates the flow of cash and finances.
	Innovative financing involves influencing productivity growth.
	Innovative financing involves human resources which increases the growth of new ventures.
	Innovative financing contributes to the increases in turnover.
Venture Growth	Venture growth involves firms' use of technology adaption to change.
	Venture growth involves firms' exploiting new products and markets to sustain strategic change.
	Venture growth involves using the venture's internal systems to promote structural change.
	Venture growth involves using managerial processes that sustain organizational change.

5-point Likert scale: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, and 5 = *strongly agree*

Appendix 4. Multicollinearity test

	Venture Creation		Innovative Financing		Venture Growth	
Variable	*VIF*	*Tolerance*	*VIF*	*Tolerance*	*VIF*	*Tolerance*
Age	1.21	0.828	1.21	0.828	1.07	0.935
Gender	1.13	0.882	1.13	0.882	1.13	0.887
Education	1.29	0.776	1.29	0.776	1.23	0.815
Study Field	1.11	0.898	1.11	0.898	1.09	0.917
Intention	1.12	0.890	1.12	0.890	1.10	0.913
Equip.	1.13	0.888	1.13	0.888	1.11	0.902
Entr. Education	1.28	0.782	1.28	0.782	1.24	0.804
Highest Education	1.11	0.898	1.11	0.898	1.08	0.928
Soft Skills	1.10	0.910	1.10	0.910	1.10	0.910