Publisher: Centre for Behaviour and Wellness Advocacy, Ghana
Co-publisher: Cherkas Global University, USA
Has been issued since 2014
ISSN 2410-4981. E-ISSN 2508-1055
2025. 12(1): 17-32

DOI: 10.13187/jare.2025.1.17

Journal homepage:
http://kadint.net/our-journal.html

Entrepreneurial Orientation and Absorptive Capacity for Employability Skills Development through Extra-Curricular Activities

Keren Naa Abeka Arthur [a, *]

[a] University of Cape Coast, Ghana

Abstract

The unemployment challenges graduates face are alarming. Entrepreneurship education and training programmes have been proffered as a key solution to addressing this problem. This study investigates the relationship between students' entrepreneurial orientation and their absorptive capacity to enhance their ability to assimilate and apply new knowledge from extra-curricular activities, eventually leading to improved employability skills and competitive advantage. Using a cross-sectional descriptive survey design and a sample size of 283 respondents, the study revealed a significant positive relationship between entrepreneurial orientation and knowledge acquisition. Additionally, the study revealed a direct and indirect relationship, mediated by knowledge acquisition, between entrepreneurial orientation and knowledge assimilation, transformation and exploitation. The study concludes that entrepreneurial orientation is crucial to students' ability to spot opportunities for employability skill development through extra-curricular activities. The study recommends that higher education institutions should incentivise knowledge acquisition beyond the classroom to get the desired outcomes from knowledge assimilation, transformation and exploitation.

Keywords: Entrepreneurial Orientation, Absorptive Capacity, Employability Skills, Extra-Curricular Activities, Entrepreneurship Education, Public Universities.

1. Introduction

Universities have long served as production houses for talent across industries globally, with a large number of higher education graduates serving as a pool for entrepreneurship (Kang, Xiong, 2021). This supports the critical role of people in organisations. Despite advancements in artificial intelligence, humanness continues to be indispensable to firms (Rasmus et al., 2024). Humanness is evident in several soft skills that are key to graduate employability today. Researchers (Fajaryati et al., 2020; Rakowska, de Juana-Espinosa, 2021) suggest that human skills like self-awareness, communication, technology, and problem-solving are in high demand in the job market. Nevertheless, studies (Bauman, Lucy, 2021; Kang, Xiong, 2021) show a mismatch between university curricula and job market requirements, which affects not only the employability of graduates seeking traditional jobs or entrepreneurship opportunities. While employers blame academia for using pedagogies that emphasise theory over practice (Akdur, 2022; Kaiser, 2019), academia accuses the industry of shirking its responsibilities in providing on-the-job training to

* Corresponding author
E-mail addresses: keren.arthur@ucc.edu.gh (K.N.A. Arthur)
Received: 30 January 2025 Revised: 20 April 2025 Accepted: 23 April 2025
Published: 30 April 2025

bridge the gap (Palsokar, Tajne, 2018). In response, there have been calls for universities to produce graduates who can transition more effectively from education to the workforce and entrepreneurship (Akdur, 2022).

To encourage their students to become entrepreneurs, universities are developing environments that promote entrepreneurship and innovation (Adomdza et al., 2022). These environments include, among other things, educational programs on entrepreneurship (Guerrero et al., 2020). Entrepreneurship education programmes have rapidly expanded globally within higher education systems in response to the potential gains that entrepreneurship offers to mindset development (Mawson et al., 2023), fulfilling self-employment aspirations, wealth creation, and stimulating the economy (Bauman, Lucy, 2021; Mensah et al., 2023). Universities with strong entrepreneurship support systems are key to developing students' entrepreneurial abilities. These universities provide students with the resources, networks, and guidance needed to start and grow their businesses (Ayala-Gaytán et al., 2024). In response to the calls for universities to adopt more business-oriented practices (Pacheco et al., 2023), some institutions in Ghana offer entrepreneurship as a required university-wide course taken by all students at specific levels to develop their entrepreneurial mindset (Adomdza et al., 2022; Appiah-Nimo et al., 2018). Studies in teaching and learning in higher education highlight the learning atmosphere as the primary setting for generic skills development (Virtanen et al., 2022; Virtanen, Tynjälä, 2019). Thus, factors like large classroom sizes and limited infrastructure, especially in large public universities in developing countries, may limit the opportunities for experiential learning activities that can foster the crucial 21st-century skills that are lacking. This reality places the onus on students to seek other avenues for cultivating relevant employability skills.

Some empirical studies (Chapman et al., 2023; Lau et al., 2014) have revealed the proliferation of extra-curricular activities within higher education institutions to address this gap; and an entrepreneurial student will learn how to recognise, assimilate and exploit new external information from these sources to their benefit. Practical and empirical evidence shows that the entrepreneurial process begins with an individual's intention and idea generation, followed by searching the environment for opportunities, which culminate in the realisation of the idea (Bauman, Lucy, 2021). Entrepreneurship education is designed to inspire individuals to actively pursue and implement new opportunities by embracing challenges. It can spur students to start their businesses or seize new opportunities (Kim, Park, 2023). Central to this process is how entrepreneurship education influences students' entrepreneurial orientation, which can potentially enhance the absorptive capacity of undergraduates enrolled in entrepreneurship programmes. This paper argues that entrepreneurial orientation is a strategic mindset that can impact the absorptive capacity of students. Cohen and Levinthal (1990) describe absorptive capacity (AC) as the ability of a firm to recognise the value of new information, integrate it, and apply it to commercial ends based on prior related knowledge.

This study employs the resource-based view theory (Barney, Arikan, 2005) to investigate the relationship between students' entrepreneurial orientation and their absorptive capacity. Entrepreneurial orientation is conceptualised as a resource that predicts the increase in absorptive capacities of students enrolled in an entrepreneurship course in a Ghanaian public university. By using the strengths of the unique resources and capabilities, students can enhance their ability to assimilate and apply new knowledge from extra-curricular activities, eventually leading to improved employability skills and competitive advantage. To address the research objective stated above, the rest of the paper is organised as follows: first, a review of the literature on entrepreneurial orientation and absorptive capacity is conducted. This is followed by a description of the methods used in the study, a presentation of results, and a discussion of the results in relation to the literature. Conclusions, policy implications and limitations, as well as suggestions for future research, are then highlighted.

2. Literature review

Absorptive Capacity

Absorptive capacity has mainly been explored as an organisational-level construct in the literature. It refers to how well a company can learn and grow its skills by using new information and knowledge (Dzhengiz, Niesten, 2020). It describes how companies can take external knowledge and convert it into internal skills and capabilities (Gluch et al., 2009). Despite its exploration at firm level,

there is a consensus among scholars that the foundation of an organisation's absorptive capacity lies within its employees (Junni, Sarala, 2013; Tian, Soo, 2018), and this necessitates its study also at an individual level. Individual absorptive capacity can be considered a dynamic capability (Zahra, George, 2002; Lowik et al., 2017) that requires prior knowledge and experience, strong networks and mental models that foster creative decision-making (Adner, Helfat, 2003; Lowik et al., 2017). For the purpose of this study, individual absorptive capacity is described as the ability of an individual to identify valuable knowledge, understand the knowledge, and use it to create new ideas or products to enhance the person's competitiveness.

Building on the original work of Cohen and Levinthal (1990), Zahra and George (2002) identified four key components of absorptive capacity: acquisition, assimilation, transformation, and exploitation. Knowledge assimilation involves the ability to analyse, process, interpret, and comprehend information acquired from external sources. When an individual or firm has a strong capacity for assimilation, it enhances its ability to integrate existing knowledge with newly acquired insights. The effectiveness of transformation capability relies on how well external information has been previously assimilated within the organisation. Knowledge exploitation is about using existing knowledge to learn more and create practical outcomes (Zobel, 2017). Zahra and George (2002) reconceptualised absorptive capacity as potential and realised capacities. Among students, potential absorptive capacity focuses on knowledge acquisition and assimilation, involving processes like learning and understanding new information, seeking information outside lecture rooms, scanning the external environment for new information, and analysing and interpreting the impact of changing market trends. Realised absorptive capacity centres on knowledge transformation and exploitation, which entails applying new knowledge to create commercial value.

Zahra and George (2002) and Vega-Jurado et al. (2008) argued that prior knowledge is the main antecedent to individual absorptive capacity. Among students, knowledge transformation is manifested in the process of recording and storing newly acquired knowledge for future reference and the ability to link existing knowledge with new knowledge or insights. Knowledge exploitation is demonstrated by the ability to apply acquired knowledge to develop new products, services, or processes, as well as leverage emerging technologies or knowledge. Cohen and Levinthal (1990) explain that an individual or firm's ability to evaluate and utilise knowledge depends largely on prior related knowledge. This makes the knowledge acquisition process a crucial starting point that connects to the other dimensions of absorptive capacity. Past research on absorptive capacity aggregates its features into a global construct to investigate its influence on firm performance or how other antecedents impact it. This study deconstructs absorptive capacity into its dimensions and focuses on the causal mechanisms by which those factors are collectively affected by entrepreneurial orientation.

Entrepreneurial Orientation

Entrepreneurial orientation refers to the strategic posture of an individual regarding issues of entrepreneurship (Covin, Lumpkin, 2011), which serves as a basis for entrepreneurial decision-making and actions (Rauch et al., 2009). It is considered an important construct in entrepreneurship, with empirical findings on the topic indicating, generally, a positive contribution to firm growth and performance (Usman, Mat, 2017; Smith, Jambulingam, 2018; Kosa et al., 2018; Okangi, 2019). Within the literature, entrepreneurial orientation is described using behaviours like innovativeness, proactiveness, competitive aggressiveness, risk-taking propensity and autonomy. However, this study emphasises four of these variables in entrepreneurial orientation research; namely, innovativeness, autonomy, risk-taking propensity and proactiveness (Rauch et al., 2009). These dimensions act as catalysts that propel entrepreneurs to leverage the acquired knowledge actively and strategically (Riaz et al., 2024).

Innovativeness refers to the individual's tendency to adopt mechanisms and creative systems that foster new products, processes, services and technologies (Lumpkin, Dess, 1996; Zhai et al., 2018). Among students, innovativeness may be evident in their affinity for innovative lecturers and their possession of high levels of creativity, which render entrepreneurship an attractive and feasible option for creative jobs (Laguía et al., 2019). Proactiveness emphasises the tendency of the individual to fashion out a strategy for the commercialisation of his or her innovations in a way that grants some competitive advantages (Lumpkin, 1996; Zhai et al., 2018). Proactive individuals are more likely to take initiative and set targets (Su, Zhang, 2020). Further, risk-taking propensity

regards the tendency of the individual to initiate action amid uncertainties in exchange for some valuable return (Lumpkin, 1996; Zhai et al., 2018). Risk-taking tendency grows as the desire for success develops; hence, motivating students to make quick decisions in rugged environments with scarce information available (Al-Mamary, Alshallaqi, 2022). Autonomy provides entrepreneurs with the freedom and flexibility to develop and execute their business plans without undue constraints (Koloba, 2016). Al-Mamary and Alshallaqi (2022) found that students who scored higher on autonomy measures were more likely to perceive themselves as likely to start a business, including social enterprises.

Entrepreneurial orientation, knowledge acquisition and assimilation

Regardless of whether new knowledge is created internally or externally, it is essential for employees within an organisation to effectively understand and adopt it (Li et al., 2009). Learning and knowledge acquisition are shown to be very important in the entrepreneurship process (Ruiz-Arroyo et al., 2012). Dung et al. (2020) examined the relationship between entrepreneurial orientation, knowledge acquisition and collaborative performance in traditional smallholder agri-food value chains in an emerging economy and found that knowledge acquisition mediated this relationship. The mediating effect of knowledge acquisition in this relationship lends support to the argument that knowledge acquisition is an important starting point for the development of the other dimensions of absorptive capacity. Ruiz-Arroyo et al. (2012) found a significant positive relationship between innovation and knowledge acquisition from customers. Similarly, Becheikh (2013) emphasises that the ability of firms to acquire external knowledge and technologies increases their propensity to innovate, underscoring the importance of external knowledge sources in driving innovation.

Hock-Doepgen et al. (2021) further assert that strong knowledge acquisition processes not only keep firms aware of changes in the business environment but also enhance their alertness to potential threats, thus fostering organisational creativity and innovation. The interaction between absorptive capacity and entrepreneurial orientation is also significant. Kohtamäki et al. (2020) argued that the interplay of these two factors increases strategic agility and innovation capabilities, leading to business model innovation, firm growth, and profitability. Pinho et al. (2024) also add that firms with low absorptive capacity may struggle to identify promising market segments or react to industry trends, limiting entrepreneurial orientation's potential to enhance performance. Riaz et al. (2024) demonstrated that entrepreneurial orientation positively moderates the relationship between knowledge acquisition and entrepreneurial success by allowing entrepreneurs to better utilise their network resources and pursue more innovative opportunities. Similarly, Wahyuni and Sara (2020) found that entrepreneurial orientation indirectly enhances innovation through knowledge competence, particularly in processing customer and competitor knowledge.

Zhai et al. (2018) explored the moderating role of absorptive capacity in the relationship between entrepreneurial orientation and innovation performance, finding that firms with higher absorptive capacity can more effectively leverage entrepreneurial orientation to drive innovation. This relationship is further supported by Raisal et al. (2020), who found that absorptive capacity mediates the relationship between entrepreneurial orientation and financial performance. Sarsah et al. (2020) also found a positive relationship between entrepreneurial orientation and potential absorptive capacity (acquisition and assimilation) in manufacturing SMEs in Ghana.

Entrepreneurial orientation and knowledge transformation

Mao et al. (2021) examined the linkage between entrepreneurial orientation and realised absorptive capacities of managers of top Chinese companies. They found that entrepreneurial orientation positively impacted realised absorptive capacities, leading to the conclusion that absorptive capacity could help organisations, through the rapid absorption and transformation of knowledge, to issue innovative products that meet current market needs. Similarly, Wach et al. (2018) found a significant positive relationship between entrepreneurial orientation and how IT firms applied the acquired knowledge. Thus, an organisation that is high on entrepreneurial orientation will support the transformation of knowledge. Ha et al. (2021) examined the role of entrepreneurial orientation in the relationship between knowledge application and firm performance among leaders of SMEs in Malaysia. It was shown that entrepreneurial orientation was critical to the effective deployment of knowledge transformation.

Entrepreneurial orientation and knowledge exploitation

Lisboa et al. (2011), using data from 254 firms in Portugal, found that acquiring entirely new knowledge and skills, as well as discovering products and overseas markets, is motivated by the acceptance of risk and uncertainty, experimentation, and a forward-looking perspective. Furthermore, the study's results revealed that entrepreneurial orientation serves as a stimulus for the development of product development and overseas market-related exploitative capabilities. In a follow-up study, Lisboa et al. (2016) made an interesting finding that a firm characterised by a low propensity for risk-taking, which exhibits reluctance towards undertaking audacious initiatives, may nonetheless possess substantial capabilities for exploratory product development, provided that it concurrently adopts a proactive, future-oriented approach. They convincingly argued that a firm that is both forward-thinking and proactive in identifying, predicting, and responding promptly to forthcoming market shifts may mitigate the limitations of its conservative risk-taking stance and consequently enhance its exploratory capabilities in product development. Hou et al. (2019) also share this stance, finding a positive relationship between entrepreneurial orientation and exploitative capabilities among start-ups in China. Darwis (2022) maintains that Indonesian small and medium-sized enterprises (SMEs) should prioritise knowledge management and learning that is supported by a high level of entrepreneurial orientation. This approach is crucial for SMEs to compete effectively, maintain a long-term competitive edge, and eventually grow into larger corporations.

Conceptual framework

The reviewed studies examining the relationship between entrepreneurial orientation and various aspects of absorptive capacity have focused on the firm. However, since individuals form the foundation of organisations, it is valuable to explore this relationship at the individual level. Treating absorptive capacity as a firm-level capability hides a sufficient understanding of individuals' crucial role in absorbing new knowledge (Emre Yildiz et al., 2024). While there is a growing body of research emphasising the importance of understanding absorptive capacity at the individual level, the concept has primarily been explored at the organisational level. There is a growing interest in understanding innovation at the individual level because individuals bring innovation into practice (Lowik et al., 2017). Prior research predominantly examines absorptive capacity as an aggregate construct or its collective dimensions in linking EO to outcomes like innovation and firm performance (Makhloufi et al., 2024; Sun et al., 2023). These studies often overlook knowledge acquisition's unique mediating role between EO and subsequent absorptive capacity dimensions. As the foundational stage of absorptive capacity (Zahra, George, 2002), knowledge acquisition enables individuals and firms to capture external knowledge spurred by EO. While EO drives exploration (e.g., innovation, risk-taking), its influence on later absorptive capacity processes (assimilation, transformation, exploitation) depends first on effective knowledge acquisition.

To date, few studies have delved into the micro-foundations of individual absorptive capacity. This calls for an investigation into the subject, particularly among university undergraduates who are taking entrepreneurship courses to shape their absorptive capacity. Entrepreneurial orientation has received substantial attention in academic research due to its significant impact on organisational performance (Ibarra-Cisneros, Hernandez-Perlines, 2020). The reviewed studies indicate that there is a notable lack of research on the relationship between entrepreneurial orientation and certain dimensions of absorptive capacity, specifically knowledge assimilation and knowledge transformation. The literature has consistently demonstrated that knowledge acquisition plays a crucial role in driving innovation within firms. Thus, at the individual level, among students taking entrepreneurship programmes, the following hypotheses are proposed (see Figure 1):

H1: *Entrepreneurial orientation will significantly predict (a) knowledge acquisition, (b) knowledge assimilation, (c) knowledge exploitation and (d) knowledge transformation*

H2: *Knowledge acquisition will partially mediate the relationship between entrepreneurial orientation and knowledge assimilation.*

H3: *Knowledge acquisition will partially mediate the relationship between entrepreneurial orientation and knowledge transformation.*

H4: *Knowledge acquisition will partially mediate the relationship between entrepreneurial orientation and knowledge exploitation.*

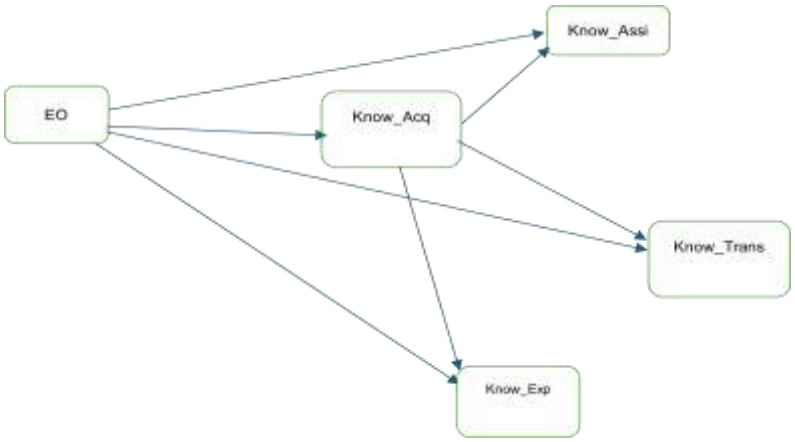

Fig. 1. Conceptual framework linking entrepreneurial orientation and individual absorptive capacity
Notes: EO – Entrepreneurial orientation; Know_Acq – Knowledge Acquisition;
Know_Exp – Knowledge Exploitation; Know_Trans – Knowledge Transformation;
Know_Assi – Knowledge Assimilation.

3. Methods and Materials

The study employed a quantitative research approach using a cross-sectional survey design to investigate the relationship between entrepreneurial orientation and different elements of absorptive capacity. This section describes the data sources and data collection procedure, as well as the dimension reduction and justification for the data analysis method employed.

Primary data for the study was obtained through a questionnaire administered to final-year undergraduate accounting students taking an introductory course in entrepreneurship. The belief is that the entrepreneurship mindset of these students constitutes a basis for the extent of their engagement in entrepreneurial projects. After a pre-test of the research instrument to ensure reliability and validity, the instrument was administered to a sample of 283 randomly selected students from a target population of 366, representing approximately 77 % of the target population. The items on the questionnaire were organised in three parts: first, a focus on demographic characteristics, specifically gender and age; second, data collection on student entrepreneurial orientation; and third, an investigation into students' absorptive capacity. All the materials were presented in English, the official language used in Ghana.

Entrepreneurial orientation was measured by innovativeness, proactiveness, autonomy and risk-taking propensity with 14 items on a Likert scale ranging from strongly disagree (1) to strongly agree (5). This scale was adapted from the 32-item entrepreneurial orientation scale by Gorostiaga et al. (2019). While proactiveness (I like to take initiative in almost everything I do) was measured with five items, autonomy (I try to learn new things each day) was captured with three items. Innovativeness (My goal is to have a job that is more about routine than creativity) featured four items, while risk-taking (I like to make risky decisions) was assessed with two items. The scale had a Cronbach's alpha of 0.90.

Absorptive capacity was measured using dimensions of knowledge acquisition, assimilation, transformation and exploitation with a 20-item instrument. Each dimension of absorptive capacity was measured using 5 items (e.g., "I regularly scan the external environment for new information, knowledge, or technologies" for knowledge acquisition; "I quickly recognised and understood the usefulness of new external knowledge" for knowledge assimilation; "My team was able to apply new knowledge in our practical work" for knowledge transformation; and "My team regularly reconsidered our current ideas on products, services, or processes and adapted them in accordance with new knowledge or technologies" for knowledge exploitation). Likert scale ranging from strongly disagree (1) to strongly agree (5). The Cronbach's alpha of the absorptive capacity dimensions ranged from 0.79 to .092

Partial Least Squares Structural Equation Modelling (PLS-SEM) was utilised as a data analysis method. PLS-SEM was chosen because it allowed for the estimation of a complex model

that contained numerous constructs, indicator variables, and structural paths, all without imposing distributional assumptions on the data (Hair et al., 2019). Further, PLS-SEM is capable of estimating statistical models with considerably smaller sample size requirements compared to factor-based SEM methods (Sarstedt et al., 2021). The SmartPLS 4 software was employed to aid the analysis. In line with the guidelines by Hair et al. (2019) on reporting results for PLS-SEM analysis, the measurement model was first evaluated, followed by the assessment of the structural model. All the constructs used in this study were reflective. Also, this analytic approach has been used in other similar studies, and it aligns well with the study's focus (Fourie, Schlebusch, 2023).

4. Results

Descriptive Analysis

Table 1 is an overview of the distribution of the participants based on gender, age and academic level. The total sample size was 283, with males (n = 183) constituting the majority of the participants. Most of the participants belonged to the age group of 21 to 25 (n = 248) with only two participants being in the ages of 31 to 35.

Table 1. Demographic characteristics of the participants (n = 283)

Variables	Frequency	Percentage
Gender		
Male	183	64.7
Female	100	35.3
Age		
16-20	6	2.1
21-25	248	87.6
26-30	27	9.5
31-35	2	0.7

The descriptive statistics presented in Table 2 indicate that respondents rate their knowledge-related capabilities, including knowledge assimilation, acquisition, transformation, and exploitation, relatively highly, with mean scores ranging from 3.55 to 4.38. The consistency of these scores is reflected in the narrow standard deviations, indicating relatively uniform perceptions among respondents. Conversely, the dimensions of entrepreneurial orientation (autonomy, innovativeness, proactiveness and risk-taking) show higher average scores. The variability in responses for these dimensions is slightly higher, especially in innovativeness and autonomy, though still relatively moderate.

Table 2. Descriptive statistics of the study variables

Variable	Mean	Median	St.	Min	Max
Knowledge	3.99	4.00	0.73	1	5
Knowledge	3.55	3.60	0.77	1	5
Knowledge	3.88	4.00	0.72	1	5
Knowledge	3.90	4.00	0.71	1	5
Autonomy	4.38	4.67	0.72	1	5
Innovativeness	4.03	4.00	0.62	1	5
Risk taking	3.81	4.00	0.75	1	5
Proactiveness	4.38	4.67	0.72	1	5

Measurement model

Tables 3 and 4 present the results of the final measurement models for the reflective constructs. First, indicators with loadings below 0.70 were eliminated while checking the corresponding increase of the Average Variance Extracted (AVE). All the scales except entrepreneurial orientation had AVEs above the acceptable 0.50 (Garson, 2016). Although knowledge exploitation had an AVE of greater than 0.50, the loading of indicator 5 of that scale

(My team had difficulty in implementing new products and services) was very low (0.26). This was due to poor fit, possibly reflecting measurement error; hence, a decision was taken to delete it. It was also noted during the initial assessment of the entrepreneurial orientation that its AVE was 0.43 due to low indicator loadings for three items. It was observed that Items 4 (My goal is to have a job that is more about routine than creativity) (0.14), 7 (In class, I'm often the first person to propose things) (0.26) and 5 (I like to make risky decisions) (0.40) still needed clarity although they had been straight worded and did not require to be reversed before scoring. Therefore, the items were removed and this significantly enhanced the AVE (0.53).

The discriminant validity was assessed using the Heterotrait-monotrait ratio and did not exceed the threshold of 0.90 (Henseler et al., 2015). The composite reliabilities ranged from 0.84 to 0.92 and Cronbach's alphas ranged from 0.79 to 0.92. These figures were above the minimum threshold of 0.70 (Hair et al., 2019).

Table 3. Item listings, CR, AVE and outer loadings for the variables

Constructs	**Outer Loadings**				
	Knowledge Acq	Knowledge Assi	Knowledge Exp	Knowledge Trans	Entrepreneurial Orientation
Knowledge Acquisition (CR = 0.84; AVE = 0.54)					
KAcq_1	0.58				
KAcq_2	0.78				
KAcq_3	0.57				
KAcq_4	0.84				
KAcq_5	0.84				
Knowledge Assimilation (CR = 0.91 ; AVE = 0.73)					
KAss_1		0.86			
KAss_2		0.87			
KAss_3		0.85			
KAss_4		0.88			
KAss_5		0.81			
Knowledge Exploitation (CR = 0.91; AVE = 0.65)					
KExp_1			0.88		
KExp_2			0.91		
KExp_3			0.87		
KExp_4			0.91		
Knowledge Transformation (CR = 0.91; AVE = 0.64)					
KTrans_1				0.85	
KTrans_2				0.84	
KTrans_3				0.45	
KTrans_4				0.85	
KTrans_5				0.85	
Entrepreneurial Orientation (CR = 0.91; AVE = 0.54)					
Orient_1					0.65
Orient_2					0.67
Orient_3					0.68
Orient_6					0.67
Orient_8					0.71
Orient_9					0.79
Orient_10					0.68
Orient_11					0.80

Constructs	Outer Loadings				
	Knowledge Acq	Knowledge Assi	Knowledge Exp	Knowledge Trans	Entrepreneurial Orientation
Orient_12					0.81
Orient_13					0.78
Orient_14					0.74

Table 4. Summary of the psychometric properties of the reflective measures

	Variable	Cronbach's α	Rho_a	Rho_c	AVE	Heterotrait-Monotrait Ratio				
						1	2	3	4	5
1	Entrepreneurial Orientation	0.91	0.91	0.92	0.53	-	0.62	0.73	0.75	0.70
2	Knowledge Acquisition	0.79	0.84	0.93	0.54		-	0.65	0.73	0.60
3	Knowledge Assimilation	0.91	0.91	0.93	0.73			-	0.90	0.85
4	Knowledge Transformation	0.85	0.87	0.90	0.64				-	0.90
5	Knowledge Exploitation	0.92	0.92	0.94	0.80					-

Assessment of multicollinearity

To assess multicollinearity among the constructs in the path model, variance inflation factor (VIF) values were analysed (Hair et al., 2019). The analysis revealed no evidence of multicollinearity concerns since the VIF values fell between 1.00 and 1.45 (see Table 5).

Table 5. Collinearity statistics (VIF) for the mediation model

Latent Construct	KAcq	KAss	KExp	KTrans	Orient
K_Acq	-	1.45		-	1.45
K_Ass	-	-	1.45	-	-
K_Exp	-	-	-	-	-
K_Trans	1.45	-	-	-	1.45
Orient	1.00	1.45	1.45	-	-

Notes: K_Acq = Knowledge Acquisition; K_Ass = Knowledge Assimilation; K_Exp = Knowledge Experience; K_Trans = Knowledge Transformation

Assessment of model fit, predictive ability and predictive relevance of model

The standardised root mean square residual (SRMR) was employed to evaluate the path model's fit. With an SRMR value of 0.07, the model demonstrated a good fit because it was below the recommended threshold of ≤ 0.10 (Hair et al., 2019). In assessing the structural model, the coefficient of determination (R^2), which explains the variance in the hypothesised relationships, was also used. Additionally, the model's predictive accuracy was assessed using Q^2. This metric was computed using blindfolding, a technique that systematically omits individual data points, replaces them with the data's mean, and recalculates the model parameters (Rigdon, 2012). Q^2 values greater than zero indicate that the model has predictive relevance, whereas those less than zero indicate a lack of it (Sarstedt et al., 2023). The results of the R^2 and Q^2 are shown in Table 6.

The significance levels of the model were assessed with the path coefficients and the p-values. The path diagram and the path estimates are shown in Figure 2 and Table 7, respectively. The first hypothesis postulated that: entrepreneurial orientation will positively predict (a) knowledge acquisition, (b) knowledge assimilation, (c) knowledge exploitation and (d) knowledge transformation. The results from the model show that entrepreneurial orientation had a significant

direct effect on knowledge acquisition (β = 0.56, p = 0.001), knowledge assimilation (β = 0.48, p = 0.001), knowledge exploitation (β = 0.48, p = 0.001), and knowledge transformation (β = 0.48, p = 0.001), This means that hypothesis 1 was supported. The results show that entrepreneurial orientation could increase the absorptive capacity (knowledge acquisition, knowledge assimilation, knowledge exploitation and knowledge transformation) of students.

Table 6. Results of the R^2 and Q^2

Variables	R2 values	Predictive power (Q2)
Knowledge Acquisition	0.31	0.31
Knowledge Assimilation	0.52	0.43
Knowledge Exploitation	0.47	0.41
Knowledge Transformation	0.53	0.44

Hypotheses 2, 3 and 4 tested the potential of knowledge acquisition as a mediating mechanism in the relationship between (a) entrepreneurial orientation and knowledge assimilation, (b) entrepreneurial orientation and knowledge exploitation, and (c) entrepreneurial orientation and knowledge transformation, respectively. To assess the mediating role of knowledge acquisition in the relationship between entrepreneurial orientation and the other dimensions of absorptive capacity, a bootstrapping procedure with bias-corrected intervals and 5,000 resamples was performed (Hair et al., 2019).

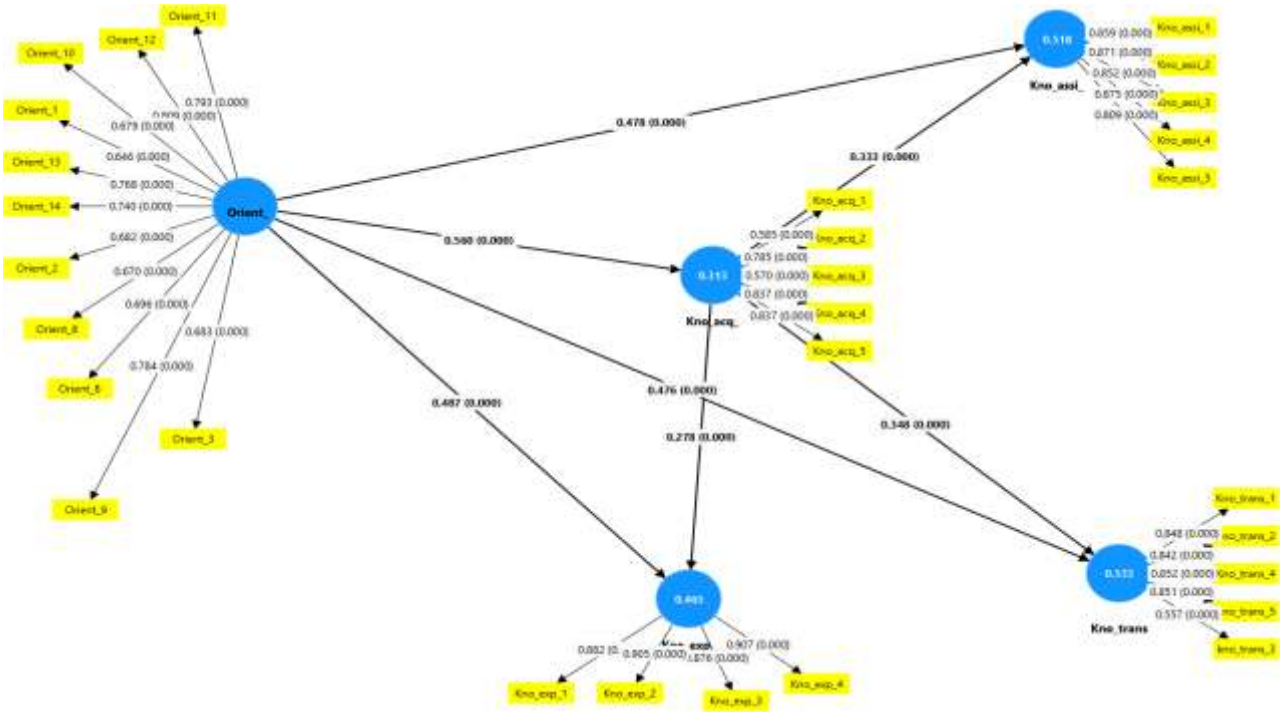

Fig. 2. The structural analysis showing the path estimates of the hypothesised relationships

The results are presented in Table 7. Mediation analysis was conducted to examine the mediating role of knowledge acquisition in the relationship between entrepreneurial orientation and knowledge assimilation. Results (Table 7) indicated a significant direct effect of entrepreneurial orientation on knowledge assimilation (β = 0.48, p < 0.001). This relationship was still significant, after introducing knowledge acquisition as a mediator (β = 0.19, p < 0.001).

The combined direct and indirect effects (total effect) were also significant (β = 0.67, p < 0.001). These findings support a partial mediation model, confirming Hypothesis 2.

Table 7. Summary of the psychometric properties of the reflective measures

Paths	**Path Coefficient (95 % CI)**	***SD***	***t*-value**	f^2
Direct effect (without mediator)				
EO -> K_Acq	0.56*** (0.47, 0.65)	0.05	12.06	0.45
EO -> K_Assi	0.48*** (0.33, 0.60)	0.07	7.00	0.32
EO -> K_Exp	0.48*** (0.34, 0.60)	0.07	7.18	0.29
EO -> K_Trans	0.48*** (0.33, 0.61)	0.07	6.89	0.34
Direct Effect (with mediator)				
EO -> K_Assi	0.19*** (0.12, 0.26)	0.04	5.38	
EO -> K_Exp	0.16*** (0.01, 0.23)	0.04	4.58	
EO -> K_Trans	0.20*** (0.13, 0.27)	0.04	5.26	
Specific Indirect Effect				
EO -> K_Acq -> K_Assi	0.66*** (0.55, 0.76)	0.05	12.20	
EO -> K_Acq -> K_Exp	0.64*** (0.54, 0.73)	0.05	12.68	
EO -> K_Acq -> K_Trans	0.67*** (0.56, 0.76)	0.05	13.19	

Notes: ***p < .001 EO = Entrepreneurial orientation; K_Acq = Knowledge acquisition; K_Assi = Knowledge assimilation; K_Exp = Knowledge exploitation; K_Trans = Knowledge transformation

Hypothesis 3 also supported the mediation effect of knowledge acquisition in the relationship between entrepreneurial orientation and knowledge exploitation. Both the direct effect (β = 0.49, p < 0.001) and the indirect effect (β = 0.16, p < 0.001) were significant, indicating partial mediation. Lastly, hypothesis 4 was supported by the presence of both significant direct (β = 0.48, p < 0.001) and indirect effects (β = 0.20, p < 0.001). Based on the confirmation of all the hypotheses, we conclude that knowledge acquisition serves as a mechanism through which students' entrepreneurial orientation can influence the other components of absorptive capacity.

5. Discussion

The relevance of this study stems from the desire to empower university graduates to seek and use knowledge gained from extra-curricular activities to improve their employability by investigating the relationship between 1) entrepreneurial orientation and knowledge acquisition and 2) the mediating role of knowledge acquisition in the relationship between entrepreneurial orientation and knowledge assimilation, transformation and exploitation. Findings from the study revealed a significant positive relationship between entrepreneurial orientation and knowledge acquisition as well as a direct and indirect relationship, mediated by knowledge acquisition, between entrepreneurial orientation and knowledge assimilation, transformation and exploitation. These results mirror findings observed by Mao et al. (2021) on the positive linkage between entrepreneurial orientation and both potential and realised absorptive capacity at the firm level.

As highlighted earlier in the literature, potential absorptive capacity comprises knowledge acquisition and assimilation, while realised absorptive capacity encompasses knowledge transformation and exploitation. Wach et al. (2018) also found a significant positive relationship between entrepreneurial orientation and knowledge acquisition in IT firms in Poland. Additionally, Ha et al. (2021) discovered that entrepreneurial orientation was critical to the effective deployment of knowledge transformation, while Hou et al. (2019) identified a positive relationship between entrepreneurial orientation and the exploitative capabilities of start-ups in China. It is interesting to note that knowledge acquisition recorded the lowest mean score compared to other elements of absorptive capacity among participants in our study. Having established the important role of knowledge acquisition in fostering absorptive capacity, this finding could imply limitations to

knowledge assimilation, transformation and exploitation as respondents may be relying only on what they learn in class.

As explained in the background to the study, there are constraints with the traditional classroom and its suitability for fostering soft skill development, especially in public universities with resource constraints. This comparatively low engagement of respondents in knowledge acquisition may be due to their low risk-taking propensity, as Lisboa et al. (2011) highlight the crucial role that acceptance of risk and uncertainty plays in motivating the acquisition of new knowledge. In this study, respondents' risk-taking propensity was the least contributing variable to entrepreneurial orientation. Nevertheless, Lisboa et al. (2016) also argue that proactivity could mitigate the limitations of a conservative risk-taking stance and contribute substantially to exploratory capabilities in firm product development. This may be a reason for the above-average values observed for knowledge transformation and exploitation in this study since our findings showed that proactivity and autonomy contributed most to the entrepreneurial orientation of respondents.

6. Implications for Management Education

Findings from this study suggest that entrepreneurship education is essential for all students, regardless of their academic programme. As students improve their entrepreneurial orientation, they are likely to develop a greater desire and capacity to seek new knowledge beyond what they learn in class, thereby preparing themselves more effectively for the world of work. Higher education institutions must start exploring creative ways of embedding an entrepreneurial mindset training into the curriculum without overburdening students to create a fine balance between technical and 21st-century skills training. This will require innovative pedagogies that allow for the scalability of entrepreneurship education opportunities without compromising quality. Based on the study's results, we can also argue that management educators should intentionally create more opportunities for knowledge acquisition in their curricula and connect these to assimilation, transformation, and exploitation activities throughout the course. Effective curricular re-designing and implementing innovative pedagogies that align with experiential learning may require additional capacity building for both students and faculty.

7. Conclusion

The study concludes that entrepreneurial orientation is crucial to students' ability to spot opportunities for employability skill development through extra-curricular activities. The study also concludes that the effectiveness of knowledge assimilation, transformation and exploitation will depend, to some extent, on the strength of knowledge acquisition; therefore, higher education institutions need to be intentional in incentivising knowledge acquisition outside regular academic work. Policies that make participation in relevant extra-curricular activities easier, like freeing up time for these kinds of engagements so that they do not conflict with regular academic work, could be useful in this regard. Additionally, higher education institutions could explore the possibility of including participation in extra-curricular activities in the computation of cumulative grade point averages.

8. Strengths and Limitations

Despite the contributions of this study to management education, there are limitations that should be acknowledged. First, the study's focus on accounting students only could be seen as a limitation, considering that accounting knowledge, its form and how it is used could vary significantly from knowledge types, forms and use in other subject areas. Secondly, findings from this study may differ for students at different academic levels, although this was not considered. Additionally, convenience sampling restricts the generalizability of the findings and limits the external validity of the study. Future studies should include students in multiple subject areas and academic levels and consider alternative sampling methods to enhance the representativeness of the results. It will be interesting to understand how other characteristics aside from age and gender, like prior experiences, alter the findings of this study in future investigations. Due to software constraints (expiration of the SmartPLS trial version), measurement invariance for composite models analysis could not be conducted. While this does not affect the estimation of path coefficients, future studies should confirm measurement invariance across groups (if applicable) to ensure robust comparisons.

9. Declarations

Ethics approval and consent to participate

The study received the requisite institutional approval, and all participants provided informed consent for their participation in this study.

Consent for publication

Not applicable.

Availability of data and materials

All data are available in a password-protected file maintained by the researcher.

Conflict of interest statement

The author declares no conflict of interest.

Funding

This research received no external funding. However, the author sincerely thanks the Centre for Behaviour and Wellness Advocacy, Ghana, for providing financial support through the Institutional Open Access Publication Fund.

Authors' contribution

K.N.A.A. conceptualised, initiated, implemented, and wrote the paper.

Acknowledgements

The author acknowledges the contributions of participants who made time to complete the data collection instrument.

Author's ORCID

Keren Naa Abeka Arthur https://orcid.org/0000-0002-9904-4323

References

Adner, Helfat, 2003 – *Adner, R., Helfat, C.E.* (2003). Corporate effects and dynamic managerial capabilities. *Strategic Management Journal*. 24(10): 1011-1025. DOI: https://doi.10.1002/smj.331

Adomdza et al., 2003 – *Adomdza, G., Asiedu, M., Sarfo, J.O.* (2022). Impact of entrepreneurial learning on entrepreneurial self-efficacy and intention: Role of a design-based entrepreneurship education. *European Journal of Contemporary Education*. 11(3): 674-685. DOI: https://doi.10.13187/ejced.2022.3.674.

Akdur, 2022 – *Akdur, D.* (2022). Analysis of Software Engineering Skills Gap in the Industry. *ACM Transactions on Computing Education*. 23(1). DOI: https://doi.org/10.1145/3567837

Al-Mamary, Alshallaqi 2022 – *Al-Mamary, Y.H., Alshallaqi, M.* (2022). Impact of autonomy, innovativeness, risk-taking, proactiveness, and competitive aggressiveness on students' intention to start a new venture. *Journal of Innovation and Knowledge*. 7(4): 100239. DOI: https://doi.org/10.1016/j.jik.2022.100239

Sarsah et al., 2020 – *Sarsah, A.S., Tian, H., Dogbe, C.S.K., Bamfo, B.A., Pomegbe, W.W.K.* (2020). Effect of entrepreneurial orientation on radical innovation performance among manufacturing SMEs: The mediating role of absorptive capacity. *Journal of Strategy and Management*. 13(4): 551-570. DOI: https://doi.org/10.1108/JSMA-03-2020-0053

Ayala-Gaytán, 2024 – *Ayala-Gaytán, E., Villasana, M., Naranjo-Priego, E.E.* (2024). University entrepreneurial ecosystems and graduate entrepreneurship. *Journal of Entrepreneurship*. 33(1): 88-117. DOI: https://doi.org/10.1177/09713557241233905

Becheikh, 2013 – *Becheikh, N.* (2013). The impact of knowledge acquisition and absorptive capacity on technological innova-tions in developing countries: Evidence from Egyptian small and medium-sized enterprises. *Journal of African Business*. 14(3): 127-140. DOI: https://doi.org/10.1080/15228916.2013.843997

Chapman et al., 2023 – *Chapman, G., Emambocus, W., Obembe, D.* (2023). Higher education student motivations for extra-curricular activities: Evidence from UK universities. *Journal of Education and Work*. 36(2): 138-152. DOI: https://doi.org/10.1080/13639080.2023.2167955

Cohen et al., 1990 – *Cohen, W.M., Levinthal, D.A.* (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*. 35(1): 128-152.

Darwis, 2022 – *Darwis, G.* (2022). Accelerated transformation of Indonesian SME's: Embracing entrepreneurial orientation and innovation on achieving dynamic capability to increase

competitiveness. In *Borderless Communities & Nations with Borders: Challenges of Globalistion*, February 2017.

Dung et al., 2020 – *Dung, T.Q., Bonney, L.B., Adhikari, R.P., Miles, M.P.* (2020). Entrepreneurial orientation, knowledge ac-quisition and collaborative performance in agri-food value-chains in emerging markets. *Supply Chain Management*. 25(5): 521-533. DOI: https://doi.org/10.1108/SCM-09-2019-0327

Dhengiz, Niesten 2020 – *Dzhengiz, T., Niesten, E.* (2020). Competences for environmental sustainability: A systematic review on the impact of absorptive capacity and capabilities. *Journal of Business Ethics*. 162(4): 881-906. DOI: https://doi.org/10.1007/s10551-019-04360-z

Fajaryati et al., 2020 – *Fajaryati, N., Budiyono, B., Akhyar, M., Wiranto, W.* (2020). The employability skills needed to face the demands of work in the future: Systematic literature reviews. *Open Engineering*. 10(1): 595-603. DOI: https://doi.org/10.1515/eng-2020-0072

Fourie, Schlebusch, 2023 – *Fourie, M., Schlebusch, G.* (2023). A Cognitive Stance to Enhance Learner Information Processing Ability in the Classroom: Structural Equation Modelling Approach. *Journal of Advocacy, Research and Education*. 10(1): 18-31.

Garson, 2016 – *Garson, G.D.* (2016). *Partial Least Squares. Regression and Structural Equation Models*. Statistical Publishing Associates. DOI: https://doi.org/1626380392

Gluch et al., 2009 – *Gluch, P., Gustafsson, M., Thuvander, L.* (2009). An absorptive capacity model for green innovation and performance in the construction industry. *Construction Management and Economics*. 27(5): 451-464. DOI: https://doi.org/10.1080/01446190902896645

Gorostiae et al., 2019 – *Gorostiaga, A., Aliri, J., Ulacia, I., Soroa, G., Balluerka, N., Aritzeta, A., Muela, A.* (2019). Assessment of entrepreneurial orientation in vocational training students: Development of a new scale and relationships with self-efficacy and personal initiative. *Frontiers in Psychology*. 10(MAY): 1-10. DOI: https://doi.org/10.3389/fpsyg.2019.01125

Guerrero et al., 2020 – *Guerrero, M., Urbano, D., Gajón, E.* (2020). Entrepreneurial university ecosystems and graduates' career patterns: Do entrepreneurship education programmemes and university business incubators matter? *Journal of Management Development*. 39(5): 753-775. DOI: https://doi.org/10.1108/JMD-10-2019-0439

Ha et al., 2021 – *Ha, S.T., Lo, M.C., Suaidi, M.K., Mohamad, A.A., Razak, Z.B.* (2021). Knowledge management pro-cess, entrepreneurial orientation and performance in SMEs: Evidence from an emerging economy. *Sustainability* (Switzerland). 13(17). DOI: https://doi.org/10.3390/su13179791

Hair et al., 2019 – *Hair, J.F., Risher, J.J., Sarstedt, M., Ringle, C.M.* (2019). When to use and how to report the results of PLS-SEM. *European Business Review*. 31(1): 2-24. DOI: https://doi.org/10.1108/EBR-11-2018-0203

Henseler et al., 2015 – *Henseler, J., Ringle, C.M., Sarstedt, M.* (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*. 43(1): 115-135. DOI: https://doi.org/10.1007/s11747-014-0403-8

Hock-Doepgen et al., 2021 – *Hock-Doepgen, M., Clauss, T., Kraus, S., Cheng, C.F.* (2021). Knowledge management capabilities and or-ganizational risk-taking for business model innovation in SMEs. *Journal of Business Research*. 130(2020): 683-697. DOI: https://doi.org/10.1016/j.jbusres.2019.12.001

Junni, Sarala, 2013 – *Junni, P., Sarala, R.M.* (2013). The role of absorptive capacity in acquisition knowledge transfer. *Thunderbird International Business Review*. 55(4): 419-438. DOI: https://doi.org/10.1002/tie.21554

Kaiser, 2019 – *Kaiser, S.K.* (2019). Employer reports of skills gaps in the workforce (Issue August). University of Lincoln, Ne-braska.

Kohtamäki et al., 2020 – *Kohtamäki, M., Heimonen, J., Sjödin, D., Heikkilä, V.* (2020). Strategic agility in innovation: Unpacking the interaction between entrepreneurial orientation and absorptive capacity by using practice theory. *Journal of Business Research*. 118(June): 12-25. DOI: https://doi.org/10.1016/j.jbusres.2020.06.029

Koloba, 2016 – *Koloba, H.A.* (2016). Investigating generation Y students' entrepreneurial autonomy: A comparison of gen-der and race. *International Journal of Business and Management Studies*. 8(1): 185-201.

Laguía et al., 2019 – *Laguía, A., Moriano, J.A., Gorgievski, M.J.* (2019). A psychosocial study of self-perceived creativity and entrepreneurial intentions in a sample of university students. *Thinking Skills and Creativity*. 31(October 2017): 44-57. DOI: https://doi.org/10.1016/j.tsc.2018.11.004

Lau et al., 2014 – *Lau, H.H., Hsu, H.Y., Acosta, S., Hsu, T.L.* (2014). Impact of participation in extra-curricular activities dur-ing college on graduate employability: an empirical study of graduates of Taiwanese business schools. *Educational Studies*. 40(1): 26-47. DOI: https://doi.org/10.1080/03055698.2013.830244

Li et al., 2009 – *Li, Y., Liu, X., Wang, L., Li, M.* (2009). How entrepreneurial orientation moderates the effects of knowledge management on innovation. *Systems Research and Behavioral Science*. 26(6): 645-660. DOI: https://doi.org/10.1002/sres.980

Lisboa et al., 2011 – *Lisboa, A., Skarmeas, D., Lages, C.* (2011). Entrepreneurial orientation, exploitative and explorative capa-bilities, and performance outcomes in export markets: A resource-based approach. *Industrial Marketing Management*. 40(8): 1274-1284. DOI: https://doi.org/10.1016/j.indmarman.2011.10.013

Lisboa et al., 2016 – *Lisboa, A., Skarmeas, D., Saridakis, C.* (2016). Entrepreneurial orientation pathways to performance: A fuzzy-set analysis. *Journal of Business Research*. 69(4): 1319-1324. DOI: https://doi.org/10.1016/j.jbusres.2015.10.099

Makhloufi et al., 2024 – *Makhloufi, L., Laghouag, A.A., Ali Sahli, A.* (2024). Mediating effect of absorptive capacity on the relationship between knowledge sharing and entrepreneurial orientation and the moderating role of opportunity recognition. *Journal of Research in Marketing and Entrepreneurship*. 26(2): 415-439. DOI: https://doi.org/10.1108/JRME-07-2023-0123

Mao et al., 2021 – *Mao, H., Wang, Z., Yi, L.* (2021). Does entrepreneurial orientation lead to successful sustainable innovation? The evidence from Chinese environmentally friendly companies. *Sustainability*. 13(18). DOI: https://doi.org/10.3390/su131810294

Mawson et al., 2024 – *Mawson, S., Casulli, L., Simmons, E.L.* (2023). A competence development approach for entrepreneurial mindset in entrepreneurship education. *Entrepreneurship Education and Pedagogy*. 6(3): 481-501. DOI: https://doi.org/10.1177/25151274221143146

Pacheco et al., 2023 – *Pacheco, A., Ferreira, J.J., Simões, J.* (2023). The Role of higher education institutions and entrepreneurial orientation in the creation and development of academic spinoffs. *Journal of Entrepreneurship*. 32(3): 495-524. DOI: https://doi.org/10.1177/09713557231210674

Palsokar, Tajne, 2018 – *Palsokar, G., Tajne, M.* (2018). A study on the perceived gap in between industry and academia with reference to the curriculum of post-graduate courses in pharmaceutical sciences in India. *Indian Journal of Pharmaceutical Education and Research*. 52(1): 10-20. DOI: https://doi.org/10.5530/ijper.52.1.2

Pinho et al., 2024 – *Pinho, P.H.S., de Sousa Filho, J.M., de Souza Lessa, B., Sousa Costa, J.* (2024). Absorptive capacity, entrepreneurial orientation and organizational performance in state-owned companies. *International Journal of Public Sector Management*. DOI: https://doi.org/10.1108/IJPSM-12-2023-0372

Raisal et al., 2020 – *Raisal, I., Tarofder, A.K., Ilmudeen, A.* (2020). The nexus between entrepreneurial orientation and performance: Enabling roles of absorptive capacity. *World Journal of Entrepreneurship, Management and Sustainable Development*. 17(2): 153-166. DOI: https://doi.org/10.1108/WJEMSD-06-2019-0041

Rakowska, de Juana-Espinosa, 2021 – *Rakowska, A., de Juana-Espinosa, S.* (2021). Ready for the future? Employability skills and competencies in the twenty-first century: The view of international experts. *Human Systems Management*. 40(5): 669-684. DOI: https://doi.org/10.3233/HSM-201118

Riaz et al., 2024 – *Riaz, S., Yanqing, W., Ishaq, M.I., Raza, A., Siddiqui, R.A.* (2024). Role of social networks and entrepreneurial success: Understanding the dynamics of knowledge acquisition and green entrepreneurial orientation. *Journal of Cleaner Production*. 468(June), 143065. DOI: https://doi.org/10.1016/j.jclepro.2024.143065

Rigdon, 2012 – *Rigdon, E.E.* (2012). Rethinking Partial Least Squares Path Modeling: In Praise of Simple Methods. *Long Range Planning*. 45(5–6): 341-358. DOI: https://doi.org/10.1016/j.lrp.2012.09.010

Ruiz-Arroyo et al., 2012 – *Ruiz-Arroyo, M., del Mar Fuentes-Fuentes, M., Bojica, A.M., Rodríguez-Ariza, L.* (2012). Innovativeness and performance in women-owned small firms: The role of knowledge acquisition. *Journal of Small Business and Entrepreneurship*. 25(3): 307-326. DOI: https://doi.org/10.1080/08276331.2012.10593575

Sarstedt et al., 2023 – *Sarstedt, M., Hair, J.F., Ringle, C.M.* (2023). "PLS-SEM: indeed a silver bullet"–retrospective observations and recent advances. *Journal of Marketing Theory and Practice*. 31(3): 261-275. DOI: https://doi.org/10.1080/10696679.2022.2056488

Sarstedt et al., 2021 – *Sarstedt, M., Ringle, C.M., Hair, J.F.* (2021). Partial Least Squares Structural Equation Modeling. In *Handbook of Market Research* (Issue July, pp. 1–47). Springer International Publishing. DOI: https://doi.org/10.1007/978-3-319-05542-8_15-2

Su, Zhang, 2020 – *Su, F., Zhang, J.* (2020). Proactive personality and innovative behavior: A moderated mediation model. *Social Behavior and Personality*. 48(3). DOI: https://doi.org/10.2224/SBP.8622

Sun et al., 2023 – *Sun, W., Hou, X., Liang, L., Bi, X.* (2023). Many roads lead to Rome: How improvisation and absorptive capacity affect entrepreneurial orientation and new venture performance relationship. *PLoS ONE*. 18(3 March): 1-19. DOI: https://doi.org/10.1371/journal.pone.0281456

Tian, Soo, 2018 – *Tian, A.W., Soo, C.* (2018). Enriching individual absorptive capacity. *Personnel Review*. 47(5): 1121-1137. DOI: https://doi.org/10.1108/PR-04-2017-0110

Virtanen et al., 2022 – *Virtanen, A., Lauritsalo, K., Mäkinen, T., Hurskainen, H., Tynjälä, P.* (2022). The role of positive atmosphere on learning generic skills in higher education –Experiences of physical education students. *Frontiers in Education*. 7(July): 1-9. DOI: https://doi.org/10.3389/feduc.2022.886139

Virtanen, Tynjälä, 2019 – *Virtanen, A., Tynjälä, P.* (2019). Factors explaining the learning of generic skills: A study of university students' experiences. *Teaching in Higher Education*. 24(7): 880-894. DOI: https://doi.org/10.1080/13562517.2018.1515195

Wach et al., 2018 – Wach, K., Glodowska, A., Maciejewski, M. (2018). Entrepreneurial orientation, knowledge utilization and internationalization of firms. *Sustainability*. 10(12). DOI: https://doi.org/10.3390/su10124711

Wahyuni, Sara, 2020 – *Wahyuni, N.M., Sara, I.M.* (2020). The effect of entrepreneurial orientation variables on business performance in the SME industry context. *Journal of Workplace Learning*. 32(1): 35-62. DOI: https://doi.org/10.1108/JWL-03-2019-0033

Zahra, George, 2002 – *Zahra, S.A., George, G.* (2002). Absorptive capacity: A review, reconceptualization, and extension. *The Academy of Management*. 27(2): 185-203.

Zhai et al., 2018 – *Zhai, Y.M., Sun, W.Q., Tsai, S.B., Wang,Z., Zhao,Y., Chen, Q.* (2018). An empirical study on entrepreneurial orientation, absorptive capacity, and SMEs' innovation performance: A sustainable perspective. *Sustainability*. 10(2). DOI: https://doi.org/10.3390/su10020314

Zobel, 2017 – *Zobel, A.K.* (2017). Benefiting from open innovation: A multidimensional model of absorptive capacity. *Journal of Product Innovation Management*. 34(3): 269-288. https://doi.org/10.1111/jpim.12361