Human Capital and Business Performance of Malagasy Entrepreneurs: The Influence of Perceived Behavioural Control and Transaction Costs

by

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Declaration

I, Radomalala RATSIMANETRIMANANA, hereby declare that this thesis is the result of my own research work. It is submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy in Management at the Graduate School of Business of the Faculty of Commerce, Law and Management of the University of the Witwatersrand, Johannesburg.

To the best of my knowledge, it has neither been submitted previously for any degree nor has it been presented for examination at any other institution. Furthermore, I confirm that all necessary authorizations and consents required to conduct this research have been duly obtained.

21st August 2025

Radomalala RATSIMANETRIMANANA Date

Signed at Johannesburg.

Abstract

Purpose – Human capital is crucial for enabling individuals to become productive members of society, which in turn stimulates economic growth. This study investigates the predictive role of human capital in business performance (BP), focusing on Madagascar, a country with high entrepreneurial activity but a low human capital index. The research transcends knowledge restrictions by examining the influence of specific dimensions of human capital, such as experiential knowledge (EK) and prior knowledge (PK), on business performance, particularly through the moderating role of perceived behavioural control (PBC) and the mediating role of transaction costs (TC). Demographic and personal experience factors such as biological sex, age, education, work experience, and entrepreneurial experience were also accounted for.

Methodology – The study utilised a cross-sectional survey of business owners aged 18 and above operating in Analamanga, the central region of Madagascar. A sample of 465 self-employed individuals, distributed across four municipal areas, was surveyed using cluster sampling with a quota method. The research instrument was a structured interview questionnaire with five sections, based on questions that had been successfully tested in previous research. This non-experimental investigation applied bootstrapping techniques using the PROCESS Macro for SPSS to examine moderation and mediation effects, accommodating the non-normal distribution of the data.

Findings – The findings reveal that perceived behavioural control moderates the positive relationship between experiential knowledge and transaction costs for the overall sample, as well as for women, individuals with no formal qualifications, and those with extensive work or entrepreneurial experience. However, PBC's moderating effect on the

relationship between prior knowledge and transaction costs was observed only among the group lacking formal academic qualifications, with a negative correlation identified between the two variables. Transaction costs were found to mediate solely the positive relationship between prior knowledge and business performance for those with a tertiary education certificate or higher qualifications. The results emphasise the importance of fostering experiential learning, nurturing self-efficacy, empowering women, providing targeted business skills training for individuals lacking formal education qualifications, and promoting access to higher education as critical factors in enhancing business outcomes in Madagascar.

Keywords: Human capital, experiential knowledge, prior knowledge, business performance, perceived behavioural control, transaction costs, Madagascar, entrepreneurship.

Dedication

To my devoted parents, whose work ethic and honourable pursuit of making the world a better place, day by day, inspire my strive for excellence.

To my beloved grandmother, whose youthful spirit and wisdom are a constant source of strength and joy.

In memory of my late grandmother and grandfathers, whose tireless prayers and boundless love continue to guide us.

By God's grace, every endeavour finds its course.

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Chapter 1: Introduction

"The beginning is the most important part of the work."

Plato

1.1. Background of the thesis

1.1.1. The role of human capital in fostering entrepreneurship

There is a two-way relationship between human capital and entrepreneurship (Braunerhjelm & Lappi, 2023). Firstly, human capital drives entrepreneurship and enhances the performance of entrepreneurial ventures. In turn, enterprise performance boosts enterprise longevity, which strengthens entrepreneurial human capital.

Human capital remains a pivotal element in driving entrepreneurship, as evidenced by recent studies that reinforce foundational theories established by earlier research. Human capital factors such as an individual's innovativeness, competence, and adroitness are essential for identifying and exploiting entrepreneurial opportunities. Higher educational levels and specialised training correlate with entrepreneurial innovation and success (Mir, Hassan & Khan, 2022). Furthermore, human capital not only influences the initial decision to become an entrepreneur but also enhances the performance and sustainability of new ventures (Shen, Wang, Hua & Zhang, 2021). These capabilities enable entrepreneurs to better navigate the complexities of market dynamics and technological advancements. Similarly, the relationship between human capital and entrepreneurial outcomes is significant, suggesting that educational programs aimed at enhancing entrepreneurial skills could effectively boost economic development (Hanushek & Woessmannl, 2021). Collectively, these observations suggest that the role of human capital in entrepreneurship is vital, as it equips individuals with the necessary tools to thrive in increasingly competitive and dynamic markets.

Entrepreneurial experience significantly enhances human capital by providing practical skills and insights that are often unattainable through formal education alone. In the realm of entrepreneurship, hands-on

experience acts as a crucial educator, offering lessons in resilience, problem-solving, and strategic thinking. Entrepreneurs acquire unique competencies and adaptive skills through the iterative processes of planning, launching, and managing a business, which are invaluable to personal and professional development (Pennetta, Anglani & Mathews, 2021). This experiential learning fosters an agile mindset, essential for navigating the uncertainties typical of entrepreneurial ventures (Kong, 2021). Moreover, the challenges faced during entrepreneurial endeavours enhance critical thinking and innovation capacities, thereby enriching an individual's human capital. These experiences not only increase the likelihood of future entrepreneurial success but also enhance employability in broader career paths, demonstrating the multifaceted value of entrepreneurial experience in building robust human capital (Braunerhjelm & Lappi, 2023).

This thesis further explores the critical relationship between human capital and firm performance within the context of Madagascar, a low-income and under-researched country. The study focuses on discerning the influence of perceived behavioural control and transaction costs on this relationship, highlighting how these factors might either hinder or facilitate entrepreneurial success in challenging economic environments. Specifically, the research seeks to establish practical contributions by determining how enhanced human capital can reduce transaction costs and improve firm performance, thereby stimulating economic growth in Madagascar. This approach not only sheds light on the unique entrepreneurial challenges in Madagascar but also suggests broader implications for similar economies, emphasizing the transformative potential of human capital development in fostering economic resilience and growth (Krishnakumar & Nogales, 2020).

1.1.2. Human capital and economic growth

A steady growth of the GDP (Gross Domestic Product) per capita – a fundamental constituent of economic development – has been recorded in Sub-Saharan Africa since the late 1990's (Ogundari, & Awokuse, 2018, pp. 132-133). Based on numerical data, Sub-Saharan Africa's economies average GDP per capita has considerably increased from 3.5 percent in the 1980's to a monumental level of 29 percent in the 2000's (Sajoh, 2021, p.3). The extent of the progress presented in these figures are noteworthy, particularly in light of a comparison with corresponding data in other regions. The average growth rate of the GDP per capita in East Asia throughout the 1980-2000 timeframe was 4.9 percent, while that recorded in Latin America was 0.5 percent, Middle East 1.2 percent, and South Asia 3.6 percent (Sajoh, 2021, p.3).

The increase in the average primary school enrolment rate, from 56 percent in the early 2000s to 73 percent in 2010, played a significant role in stimulating the overall economic growth of Sub-Saharan African countries (Ogundari & Awokuse, 2018, p. 133). Attaining a higher level of education results in the development of enhanced cognitive skills, such as acquired knowledge, and non-cognitive skills, including personal traits, behaviour, and socio-emotional abilities. These skills are instrumental in generating higher income, thereby contributing to overall economic growth. It is important to note that both the quantity and the quality of education are significant (Krishnakumar & Nogales, 2020). In lower-middle-income countries, inadequate educational quality results in a lack of the cognitive and mathematical skills required to succeed in further schooling or to secure higher-earning employment.

"Over-education," a situation in which an employee's level of education exceeds the requirements of their job, constitutes a job mismatch. This can result in lower workplace well-being due to wage penalties, a misalignment

between worker wages and their education level, and the underutilisation of skills. Such a mismatch can stimulate boredom, job dissatisfaction, and reduced motivation and productivity, thereby negatively impacting economic growth (Shi, Yu, Huang, Shen & Guo, 2022). The implementation of the Triple Helix Model may help to prevent over-education. Specifically, this model proposes that universities, industries, and governments collaborate to increase opportunities for internships and practical training. This collaboration aims to provide learners with a clear understanding of the skills and qualifications necessary for their chosen careers (Seraphin, Bah, Fyall & Gowreesunkar, 2021).

A significant factor driving economic growth is labour productivity, which refers to the volume of goods and services an individual produces within a given period. Work experience is one of the many factors contributing to increased productivity in both the short and long term (Le, Duy & Ngoc, 2019). More extensive work experience provides workers with enhanced training and skills to perform their jobs. Fulfilling a job for an extended period enhances expertise and ultimately boosts productivity (Setiadi, Ursula, Rismawati & Setini, 2020).

However, employees with more extensive work experience may become less productive than their peers when confronted with a lack of motivation, which can lead to a complacent work attitude and behaviour. Employees with different levels of seniority possess varied motivational factors that must be carefully observed to encourage their engagement and sustain their productivity (Hitka & Balazova, 2015). Furthermore, greater work experience can result in employees becoming more resistant to change, thus impeding productivity. Experienced workers may be resistant to change due to uncertainty, concerns about losing power, internal conflicts, and work-related stress. Consequently, promoting authentic leadership—which enhances positive psychological capacities, cultivates an ethical climate, and fosters transparent relationships between leaders and their

subordinates—can help alleviate individuals' resistance to change (Mousa, Massoud & Ayoubi, 2019).

Overall, education level and work experience are important components of human capital that contribute to economic growth. However, it is crucial to address issues such as over-education, as well as the complacency and resistance to change that may arise from an extensive work experience. To prevent such issues from hindering labour productivity and impending economic development, the implementation of the Triple Helix Model and the cultivation of authentic leadership are recommended. The Triple Helix Model incites collaboration between universities, industries, and governments to develop adequate skills relevant to the workforce. While fostering authentic leadership can create a positive work environment, increase employee engagement and motivation, and promote agility and adaptability to change. By addressing these issues and implementing effective strategies, we can contribute to ensuring a thriving economy with a skilled and productive workforce.

1.1.3. Entrepreneurial orientation, business performance, and economic growth

1.1.3.1. Economic growth overview

Economic growth is defined as the increase in gross domestic product (GDP) per capita (Xu, Loh, Mei & Liang, 2023). It pertains to the increase in the quantity and quality of goods and services that a country produces per person over a specific period. Four significant factors contribute to economic growth (Xu, Loh, Mei & Liang, 2023):

- international trade,
- energy consumption,
- capital, technology and labour, and
- industrialisation.

International trade contributes to economic growth by attracting foreign direct investment (FDI) and resources. These are then distributed and utilised by various stakeholders to develop and refine products and services, which enhances their offerings and fosters a competitive advantage. In addition, international trade facilitates the exchange of new techniques and technologies, leading to innovation in both products and processes, thereby increasing productivity levels, particularly in developing countries. As a result, there is a virtuous cycle that sustains a bidirectional causality between international trade and economic growth (Ji, Dong, Zheng & Bu, 2022).

A bidirectional causality also exists between **energy consumption** and economic growth, wherein each variable influences the other (Shahbaz, Raghutla, Chittedi, Jiao & Vo, 2020). Energy consumption plays a crucial role in promoting economic growth, as it enhances productivity and enables the consumption of goods and services. In turn, economic growth further drives energy consumption, as an expanding economy requires more energy to sustain its activities.

Technology, capital, and labour are essential production factors that drive the economy (Widarni & Bawono, 2021). Capital investments facilitate the acquisition of technology, which enhances human performance and increases productivity, thereby having a crucial function in promoting economic growth (Sukharev & Voronchikhina, 2020; Wildarni & Bawono, 2021).

Industrialisation is characterised by an increase in the proportion of the manufacturing industry's added value in the GDP. It stimulates job creation, fosters innovation, and enhances productivity. Therefore, industrialisation is a reliable precursor to steady and rapid economic growth (Saba and Ngepah, 2022).

1.1.3.2. Entrepreneurial orientation, business performance, and economic growth in the context of Madagascar

Classified as a low-income economy, Madagascar features among the countries of which the economic growth was particularly hampered by the incidence of the COVID-19 pandemic in 2020 (World Bank, 2020a). The interruption of all economic activities that occurred led the country to one of the worse recessions that compromised a decade of poverty reduction efforts pioneered by relevant institutions. Table 1 displays World Bank's (2024) method of country classification according to four income groups: low, lower-middle, upper-middle, and high-income countries.

Table 1.1: Country classification based on income level (World Bank, 2024)

Classification	GNI per capital*
High-income economies	14,005 USD or more
Upper-middle-income economies	4,516 USD to 14,005USD
Lower-middle-income economies	1,146 USD to 4,515USD
Low-income economies	Up to 1,145 USD

*The GNI (Gross National Income) per capita is the dollar value of a country's total earnings in a given year divided by the population (World Bank, 2015).

Entrepreneurial orientation in enhancing SME performance: Encouraging dimensions of entrepreneurial orientation, such as innovativeness and proactiveness, is an effective method for enhancing the performance of small and medium-sized enterprises (SMEs) (Isichei, Agbaeze & Odiba, 2020). Through entrepreneurial orientation, entrepreneurship stimulates economic growth by fostering an organisation's behavioural tendency to innovate, take risks, and proactively seek opportunities (Huang, Huang & Soetanto, 2023). These activities, whether internally focused (i.e., processes and managerial advancements within the organisation) or externally focused (i.e., mergers, joint ventures, or acquisitions), trigger creativity. This, in turn, leads to increased market

advantage, new business opportunities, and ultimately, enhanced business performance (Isichei et al., 2020).

Local business support as a growth strategy: To promote economic growth, supporting local business performance features among the key measures advocated by decision makers (World Bank, 2020a). These resolutions have been proven to be coherent, particularly when considering Fomum and Opperman's (2023) findings asserting that there is a significantly positive correlation between enterprise performance and GDP per capita. This relationship is mediated by the ability of high performing firms to create jobs, drive innovation, and enhance productivity. Consequently, investing in and supporting local businesses can lead to significant economic growth.

Complexity in the Entrepreneurship-Economic Growth nexus: The relationship between entrepreneurship and economic growth is complex and multifaceted (Neumann, 2021). While some studies suggest that entrepreneurship can have a positive impact on the economy (Fomum & Opperman, 2023), others demonstrate the opposite (Herreno & Ocampo, 2023). The impact of entrepreneurship is influenced by various factors, including industrial affiliation, a country's level of development, the local density of business owners, the survival rates of new firms, institutional and cultural settings, and the motivations and qualifications of the entrepreneur (Neumann, 2021). Schumpeter's process of 'creative destruction' demonstrates that new economic value is generated only by innovative and high-growth new firms (Campello, Kankanhalli & Kim, 2024). In contrast, subsistence entrepreneurship, often motivated by necessity, creates jobs only for the business owners and does not benefit the economy as a whole (Herreno & Ocampo, 2023). It is, therefore, paramount to differentiate between productive entrepreneurship, which promotes socio-economic value, and unproductive entrepreneurship, which does not (Herreno & Ocampo, 2023). Government institutions play a crucial role in encouraging

productive entrepreneurship (Gan, Zhang & Zhang, 2023). Institutional support is a key moderating variable in the relationship between entrepreneurship and economic growth.

In summary, economic growth is driven by fundamental factors including international trade, energy consumption, capital investment, technology, labour, and industrialisation (Xu et al., 2023). International trade boosts economic growth through foreign direct investments and the exchange of new technologies, enhancing productivity, especially in developing countries (Ji et al., 2022). Energy consumption and economic growth exhibit a bidirectional causality, where each drives the other, promoting overall economic activity (Shahbaz et al., 2020). Capital investments facilitate the acquisition of technology, which enhances human performance and increases productivity (Sukharev & Voronchikhina, 2020; Widarni & Bawono, 2021). Industrialisation represents a reliable precursor of steady and fast economic growth by stimulating job creation, boosting innovation, and rising productivity (Saba & Ngepah, 2021).

In the specific context of Madagascar, economic recovery post-COVID-19 requires supporting local businesses to stimulate growth. This strategy could be backed by Fomum and Opperman's (2023) study, which confirms a positive correlation between enterprise performance and GDP. Furthermore, dimensions of entrepreneurial orientation like innovativeness and proactiveness can be fostered to enhance small and medium-sized enterprises (SMEs) performance, which in turn drives economic growth (Isichei et al., 2020). It is, however, important to note that the impact of entrepreneurship on economic growth is nuanced and influenced by various factors including industrial affiliation, the development level of the country, and institutional support, highlighting the complexity of the entrepreneurship-economic growth nexus (Neumann, 2021; Gan et al., 2023).

1.1.4. The perceived behavioural control (PBC) factor

Perceived behavioral control (PBC) is equated with self-efficacy (Yzer, 2012). Self-efficacy refers to an individual's confidence in their capability to execute actions and capitalize on critical circumstances to achieve success (Memon, Soomroh & Shah, 2019). It is correlated with growth, venture creation, investor confidence, and entrepreneurial success. When individuals believe in their ability to complete tasks and overcome challenges, their aspirations expand, their motivation intensifies, and their potential for achievement is significantly enhanced (Bandura, 1993).

Perceived behavioural control (PBC) enhances the predictive role of attitudes on intentions (La Barbera & Ajzen, 2021). Specifically, the more an individual perceives they can perform a certain behaviour (i.e., their PBC), the stronger the relationship between their attitudes and intentions becomes. Furthermore, PBC can augment work performance. For instance, among older workers who are experiencing cognitive decline, higher self-efficacy can mitigate the negative impact of diminished working memory. The adverse indirect effect of age on task performance is less pronounced when self-efficacy is high, which suggests that self-efficacy can serve as a buffer against the detrimental effects of aging on performance (Li, Liu, Zhang & Huang, 2022).

Moreover, perceived behavioural control mediates the relationship between entrepreneurial education, a factor in human capital development, and entrepreneurial performance. It positively predicts entrepreneurial performance (Shen, Wang, Hua & Zhang, 2021; Caliendo, Kritikos, Rodriguez & Stier, 2023).

In the context of Madagascar, Perceived Behavioural Control (PBC) is an emergent yet underexplored theme within academic literature. Its significance is particularly noted in the domains of entrepreneurship, ethical decision-making, and youth development. Entrepreneurial intentions appear to be fostered by both

internal self-efficacy and external controllability, with higher education and access to finance acting as crucial antecedents to strengthening this self-belief (Urban and Ratsimanetrimanana, 2019). Similarly, a higher perceived behavioural control is predictive of ethical decision-making, indicating that individuals with stronger self-efficacy are more likely to act ethically (Rakotoarisoa, Kurnia, and Lia, 2022). This emphasis on self-efficacy extends to broader youth development initiatives across education, entrepreneurship, and community involvement (USAID, 2020).

The current study seeks to further clarify the role of PBC and its influence on the relationship between human capital and business performance among Malagasy entrepreneurs. Although factors such as age, prior training experiences, and an enabling environment are known to nurture self-efficacy (Roy, Morton, and Bhattacharya, 2018), these conditions seem to be largely absent in the Malagasy context.

A clear disparity exists between normative entrepreneurial models and the reality in Madagascar. While successful entrepreneurs are often expected to establish their businesses in their mid-40s (Shaw & Sørensen, 2022, p.2), Malagasy entrepreneurs operate largely within the informal sector, which is dominated by a young workforce mostly under 26 years old. Furthermore, a significant share of these entrepreneurs possesses limited education and qualifications (Afavi, Agossou, Benlamine, Rasoamanana, Razafinisoa, & Salins, 2023, p.4). The business environment presents another challenge, as many Malagasy entrepreneurs are driven by necessity rather than opportunity. This reality frames them less as high-potential individuals identifying market gaps and more as inadequately qualified professionals struggling to secure better employment (Lawson & Lahiri-Dutt, 2022). Consequently, a compelling need exists for further research into the role of perceived behavioural control in entrepreneurship and business performance in Madagascar.

1.1.5. The role of age and biological sex in shaping entrepreneurial dynamics

A notable discrepancy exists between established entrepreneurial models and the demographic realities in Madagascar. While a correlation between age and entrepreneurial success suggests that founders typically establish their companies in their mid-40s (Shaw & Sørensen, 2022, p. 2), the Malagasy context presents a much younger entrepreneurial landscape. The majority of entrepreneurs in Madagascar are necessity-driven (African Development Group, 2020), with an overwhelming 99.9% operating within the informal sector (Afavi et al., 2023, p. 3). A large proportion of this informal workforce is under the age of 26, highlighting a significantly younger demographic driving entrepreneurial activities in the country (Afavi et al., 2023, p. 4).

The role of age in Madagascar is further complicated by societal structures that may influence entrepreneurial dynamics. The culture operates on an age-based hierarchy where elders, or Zokiolona (individuals aged 65 and above), command the highest symbolic status. Despite being a demographic minority, elders wield considerable influence, a status attributed to their association with ancestral wisdom (World Bank, 2022b; Andrianantoandro, 2011). This reverence is deeply embedded in the cultural practice of ancestor worship, or "*fanajana ny razana*," which posits that individuals accumulate ancestral wisdom as they age (Randriamasitiana, 2009). Furthermore, the cultural norm of "*valimbabena*," which directly translates to "the backs that support one another," reinforces a system of reciprocal responsibility between generations, compelling the active population to care for their elderly parents in return for the support they once received (Andriamisaina, 2021).

Regarding biological sex, entrepreneurship globally remains a male-dominated field, with men being more likely to form entrepreneurial

intentions than women (Krieger, Block, Stuetzer, Obschonka, & Salmela-Aro, 2022). This disparity is evident even at high levels of education, where female PhD students are found to be less likely to commercialise their research, patent innovations, or disclose inventions (Muscio and Vallanti, 2024). Women in academia often appear to avoid high-risk entrepreneurial ventures, opting instead for other professional or academic career paths. This suggests that fostering a more gender-balanced academic environment could be a key factor in enhancing entrepreneurial intentions among female academics and increasing their likelihood of founding new businesses (Muscio and Vallanti, 2024).

In Madagascar, the entrepreneurial gender gap is shaped by a confluence of factors including human capital deficits, inadequate government support, and restrictive cultural norms (OECD, 2019; Afavi et al., 2023; Berger & Soubaya, 2019; Nordman & Vaillant, 2014). The society is structured around a patriarchal system where social norms inherently favour men (Andriamanondehibe, 2020). This systemic bias has tangible consequences; for instance, girls are more likely to drop out of school during adolescence and experience reduced access to healthcare, which elevates their risk of reproductive and sexual health issues (UNICEF, 2022). As a result, women tend to possess lower levels of human and physical capital compared to men, contributing to higher unemployment rates and compelling them into the informal sector to improve their employability (OECD, 2019; Afavi et al., 2023). This situation is exacerbated by a lack of government support programs for female entrepreneurship and by cultural norms that relegate women primarily to household responsibilities, further pushing them into low-productivity sectors (Nordman & Vaillant, 2014).

Given these contextual specificities, advancing the understanding of entrepreneurial dynamics in Madagascar necessitates an exploration of the differences across age and gender groups. It is paramount to examine these

demographic factors when analysing the relationship between human capital and business performance.

1.2. Knowledge restrictions

Despite a considerable wealth of natural resources, the long-term economic performance of Madagascar has been qualified as “disastrous” (Razafindrakoto, Roubaud, & Wachsberger, 2020). The country’s economic growth is negligible as compared to that of its peers. After the island’s independence in 1960, the GDP per capita was estimated at 132 USD. It rose to 402 USD in 2015. If these figures are juxtaposed with the average economic growth of countries in Sub-Saharan Africa and that of those in Eastern Asia, it can be observed that (Razafindrakoto et al., 2020, p.10):

(i) The average GDP per capita in Sub-Saharan Africa was 117 USD (slightly lower than that of Madagascar) in 1960 and rose to 1,588 USD (about 4 times higher than that of Madagascar) in 2015.

(ii) The GDP per capita in Southern Asia and the Pacific was 90 USD (lower than that of Madagascar) in 1960 and rose to 6,552 USD (over 16 times higher than that of Madagascar) in 2015.

The overall economic performance of Madagascar is insubstantial. As a result, the country needs better performing entrepreneurial ventures, which further values, stimulate profitability and promote economic growth when characterised with a high level of institutionalisation (Sergi, Popkova, Bogoviz, & Ragulina, 2019). For that purpose, instead of relying on decision-makers’ *“gut”*, a research-based approach is favoured to reduce risks and ensure an unbiased strategy and policy development (Marra, Mazzocchitti, & Sarra, 2018). Nonetheless, it has been noticed that with respect to entrepreneurship, Madagascar is an under-research country (Urban &

Ratsimanetrimanana, 2015), and the majority of entrepreneurship research are run in developed countries (Polin & Golla, 2016). Therefore, a thorough investigation is required to establish theories and improve understanding of the factors influencing the effectiveness of entrepreneurial ventures in Madagascar.

Being a complex phenomenon, entrepreneurship is recommended to be explored through the integration of multiple theories, otherwise called a multi-theory approach (Marvel, Davis & Sproul, 2016). It enables an exhaustive examination of the concept with a variety of lenses that can cultivate understanding. On that account, several theories are inspected in this study, including those related to the constructs of: (i) human capital, (ii) business performance, (iii) perceived behavioural control, and (iv) transaction costs.

The study of human capital theories has gained considerable scholarly momentum. An improved comprehension of human capital is understood to spur a better apprehension of entrepreneurship, yet a critical frontier remains in exploring the relationship between human capital constructs and transaction costs to advance the field (Marvel et al., 2016).

Recent research confirms a positive relationship between the level of human capital and business performance (Aman-Ullah, Mehmood, Amin, & Abbas, 2022). This relationship, however, is not direct but is mediated by several variables. Key among these are organisational culture, innovation capability, and management control systems (Telyani, Farmanesh, & Zargar, 2022; Chiganze & Sagsan, 2022; Akankunda, Nkundabanyanga, Kaawaase, Adaramola, Nkurunziza, & Tumwine, 2024).

The mechanisms through which these mediators operate are becoming clearer. For instance, the diversity of experience among employees—a dimension of human capital—correlates positively with a firm's innovative

culture and its overall performance. A culture of innovation facilitates the sharing of diverse perspectives, which in turn enhances performance (Telyani et al., 2022). Regarding innovation capability, entrepreneurs with exceptional human capital are generally more open to experimentation and implementing new processes, which boosts enterprise performance (Chiganze & Sagsan, 2022). Furthermore, Management Control Systems (MCS) also serve as a crucial channel, as the link between human capital and sustainable performance is actualised through the effective implementation and use of MCS components (Akankunda et al., 2024).

Despite these insights, the role of transaction cost levels within the human capital-business performance relationship remains ambiguous. It is established that cost reduction fosters business performance (Handoyo, Suharman, Ghani, & Soedarsno, 2023), and lower transaction costs are thought to improve performance by optimizing the economic efficiency of market exchanges (Sun, Garimella, Han, Chang, & Shaw, 2020). Nevertheless, the direct relationship between human capital levels and transaction cost levels requires further exploration. Establishing this link is essential to clarify the precise role that transaction costs play in the correlation between human capital and enterprise performance.

Regarding Malagasy entrepreneurs, a vast majority—99.9%—are informal (Afavi et al., 2023, p.3), often starting entrepreneurial ventures out of necessity (Estrin, Guerrero, & Mickiewicz, 2024). In other words, they found businesses for survival purposes (Huang, Li, Chen, & Wang, 2023). Due to a lack of qualifications, the majority of venture creators in Madagascar cannot access adequate employment opportunities. Furthermore, they lack the skills to develop and assess their performance using objective business measures, including financial ones. They often fail to consider transaction costs when assessing enterprise performance (International Monetary Fund, 2023; Nunez & Morales-Alonso, 2024). This could explain the poor performance and impact of the country's venture creators and justify

Ratsimbazafy's (2020) observation that Madagascar lacks innovative venture creators capable of identifying and leveraging entrepreneurial opportunities. Despite a high total entrepreneurial activity (TEA), Madagascar remains among the world's poorest economies (Ratsimbazafy, 2020; World Bank, 2024), highlighting a missing positive correlation between entrepreneurship levels and the country's economic growth.

To address these restrictions, this study seeks to explore the role of transaction costs in the relationship between human capital and business performance among Malagasy entrepreneurs. The study aligns with Marvel et al.'s (2016) recommendation that to foster a greater understanding of how financially disadvantaged entrepreneurs, such as those operating in Madagascar, generate sufficient resources to run a venture, it is essential to enquire into transaction costs economics. Henceforth, delving into the nature of the correlations among human capital, business performance and transaction costs carried by Malagasy entrepreneurs is a key theoretical contribution of the study.

1.3. Purpose of the thesis

This research aims to contribute to expanding explicit knowledge on the concept of human capital and further the understanding of how business performance is enhanced among Malagasy entrepreneurs.

More specifically, the study responds to the following research questions:

- To what extent does perceived behavioural control moderate the relationship between human capital and transaction costs and what are the roles played by demographics (biological sex, age, and education level) and personal experiences (work experience and entrepreneurial experience) in this relationship?

- To what extent do transaction costs mediate the relationship between human capital and business performance, and what are the roles played by demographics (biological sex, age, and education level) and personal experiences (work experience and entrepreneurial experience) in this relationship?

1.3.1. Main objective

The primary objective of the thesis is to explore the predictive role of some human capital constructs, including experiential knowledge and prior knowledge, in the generation process of business performance and to evaluate the influence of perceived behavioural control and transaction costs – including search and information costs, bargaining costs, and policy and enforcement costs – on the relationship between human capital and business performance within the context of Malagasy entrepreneurs.

1.3.2. Sub-objectives

The first sub-objective of the thesis is to study if perceived behavioural control moderates the relationship between experiential knowledge and transaction costs (search and information costs, bargaining costs, policy and enforcement costs), where biological sex, age, education level, work experience, and entrepreneurial experience play a role.

The second sub-objective is to examine if perceived behavioural control moderates the relationship between prior knowledge and transaction costs (search and information costs, bargaining costs, policy and enforcement costs), where biological sex, age, education level, work experience, and entrepreneurial experience play a role.

The third sub-objective is to examine if transaction costs (search and information costs, bargaining costs, policy and enforcement costs) mediates

the relationship between experiential knowledge and business performance, where biological sex, age, education level, work experience, and entrepreneurial experience play a role.

The fourth sub-objective is to examine if transaction costs (search and information costs, bargaining costs, policy and enforcement costs) mediates the relationship between prior knowledge and business performance, where biological sex, age, education level, work experience, and entrepreneurial experience play a role.

1.4. Significance of the thesis

From a theoretical standpoint, this study is positioned to clarify the interplay between human capital level, transaction cost level, and business performance among Malagasy entrepreneurs. A positive correlation between human capital and business performance is well-documented (Aman-Ullah et al., 2022), just as it is affirmed that a low transaction cost level helps enhance enterprise performance (Sun et al., 2020). Despite these established links, significant restrictions remain in understanding the precise role of transaction costs in the relationship between human capital and business performance. This research, therefore, addresses this theoretical lacuna. It seeks to bridge the gap by first, exploring the nature of the relationship between human capital level and transaction cost level, investigating the significance of perceived behavioural control (PBC) within this dynamic. Thereafter, it will examine the influence of transaction cost level on the overarching relationship between human capital and enterprise performance in the Malagasy context.

This theoretical advancement is especially crucial for gaining a deeper understanding of the entrepreneurial sector in Madagascar. Although entrepreneurship is recognized as a fundamental pillar of economic growth

(Ghura & Harraf, 2021), Madagascar's high rate of entrepreneurial activity has not significantly impacted the country's economy (Ratsimbazafy, 2020; World Bank, 2024). Several factors may explain the missing link between the two variables, including the types of entrepreneurial activities prevalent on the island. A significant majority of new venture creators in Madagascar are informal entrepreneurs who start businesses out of necessity (International Monetary Fund, 2023; Estrin et al., 2024). Furthermore, many lack the managerial competencies needed to objectively assess their enterprise performance and often overlook the importance of transaction cost levels in enhancing financial performance (Nunez & Morales-Alonso, 2024). These deficiencies are compounded by limited access to education and training programmes (Ratsimbazafy, 2020) and may exacerbate the level of transaction costs incurred by Malagasy entrepreneurs. Therefore, it is crucial to examine the roles of performance-catalysing variables such as human capital (Aman-Ullah et al., 2022) and perceived behavioural control (Saks, 2024) in lowering transaction costs, to deepen insights into how entrepreneurs in low-income settings, like that of Madagascar, can effectively manage these costs.

The performance of companies, encompassing both quantitative and qualitative measures, is an essential driver of economic development and international competitiveness (Kreydenko, Bogdanova & Prozorov, 2020). This principle is reinforced by evidence showing that a venture's adoption of Information Communication Technology (ICT) can promote increased productivity and contribute directly to GDP growth (Vu, Hanafizadeh & Bohlin, 2020). Given the established link between enterprise performance and national economic health, a deeper understanding of the factors influencing Malagasy entrepreneurs is critical. Investigating the role of transaction cost levels in the relationship between human capital and business performance could, therefore, provide new insights into the reasons behind the missing connection between entrepreneurial activity and economic growth in the country.

Additionally, Madagascar is an under-researched country in the field of entrepreneurship (Urban & Ratsimanetrimanana, 2015). It is important to explore the variables that contribute to improved entrepreneurial performance—i.e., entrepreneurs' business performance (Paudel, 2019)—on the island. Identifying the factors that should be considered in national policies to enhance SME performance is crucial to achieving the necessary GDP and GNI growth that can propel Madagascar toward the levels of prosperity enjoyed by middle- and high-income economies. Pinpointing the variables that require particular attention is pivotal for eradicating poverty and lifting people out of hardship, given that 79.8% of the population (including 9.4 million children) live on less than $2.15 per day (World Bank, 2023a, p.1; UNICEF, 2021, p.4).

From a practical standpoint, these insights could inform the development of improved policies, training programmes, and entrepreneurial initiatives. Policymakers could be empowered to support informal entrepreneurs in recognising the importance of managing transaction costs, while fully leveraging their human capital to improve enterprise performance. Ultimately, this could contribute to stimulating economic growth in Madagascar by enabling entrepreneurs to overcome structural challenges and create more sustainable business models.

Practically, studying the significance of perceived behavioural control (PBC) and transaction costs on the relationship between human capital and the business performance of Malagasy entrepreneurs is critical for several reasons, including:

- **Understanding entrepreneurial behaviour:** By examining PBC, the researcher can gain insights into the factors that influence entrepreneurial behaviour in the context of Malagasy entrepreneurs. This understanding can help identify barriers and facilitators to entrepreneurial activities, enabling policymakers and practitioners to

develop targeted interventions and support mechanisms (Vamvaka, Stoforos, Palaskas & Botsaris, 2020).

- **Enhancing human capital development:** Investigating the relationship between human capital and business performance allows researchers to assess the effectiveness of human capital development initiatives and interventions in Malagasy entrepreneurship. Through a better understanding of how human capital influences business performance, policymakers and educators can design programs that enhance the relevant skills and knowledge required for entrepreneurial success.

- **Addressing transaction costs:** Analysing the impact of transaction costs on the relationship between human capital and business performance helps identify the specific challenges faced by Malagasy entrepreneurs in Madagascar in conducting their business activities. This knowledge can inform policy and regulatory changes aimed at reducing transaction costs and improving the overall business environment.

- **Tailoring support mechanisms:** By considering the influence of PBC and transaction costs on the relationship between human capital and business performance, the researcher can identify specific areas where entrepreneurs may need additional support. This knowledge can be used to design targeted training programs, mentorship initiatives, and networking opportunities that address the identified barriers. By tailoring support mechanisms to the unique context of Madagascar, policymakers and practitioners can increase the likelihood of entrepreneurial success and economic growth.

- **Informing policy decisions:** The research findings can provide valuable insights for policymakers and government agencies. They can utilise this information to design policies that create an enabling

environment for entrepreneurship, foster human capital development, reduce transaction costs, and promote economic growth. Evidence-based policymaking grounded in research can lead to more effective interventions and contribute to the sustainable development of the entrepreneurial ecosystem in Madagascar.

- **Breaking the cycle of poverty:** The combination of these three factors—human capital, PBC, and transaction costs—provides a comprehensive framework for understanding the challenges faced by Malagasy entrepreneurs and how to overcome them. The research findings will enable policymakers to develop a deeper understanding of the specific interventions needed to foster entrepreneurship, create jobs, and drive economic growth (Hechavarria, Bullough, Brush & Edelman, 2019). Henceforth, the country can improve living standards, reduce inequality, and enhance the overall well-being of its population (Shahbaz, Shafiullah & Mahalik, 2019; Islam & McGillivray, 2020).

1.5. Research approach

The research was conducted using a scientific approach, which could be either inductive or deductive. The inductive approach begins with specific observations or data and draws general conclusions or theories based on those observations. It moves from the particular to the general, aiming to identify patterns, themes, or trends that can lead to the formulation of hypotheses. On the other hand, the deductive approach starts with general theories or hypotheses and seeks to test or confirm them through specific observations or data. It moves from the general to the specific, using logic and empirical evidence to verify or refute existing theories (Hall, Savas-Hall & Shaw, 2022).

For this research, the goal is to develop hypotheses based on existing theories and then test them using relevant data and statistical analyses. The study seeks to generate findings that can be replicated over time and under the same conditions. Therefore, the deductive approach has been chosen for this study. By employing the deductive approach, the research strives to validate evidence and extend existing theories by observing the specific situation of Malagasy entrepreneurs.

Considering the research objectives and the desire to test hypotheses and theories, a quantitative research method is deemed appropriate. The quantitative approach involves collecting numerical data and analysing it statistically to draw conclusions. This method is commonly associated with the deductive approach. It allows for rigorous measurement scales and sampling methods to be employed (Taherdoost, 2022).

The study aims to assess several relationships and effects. These include the relationship between human capital (education level, work experience, entrepreneurial experience, prior knowledge, experiential knowledge) and transaction costs (search and information costs, bargaining costs, and policy and enforcement costs). It also aims to examine the moderation effect of perceived behavioural control on the relationship between human capital and transaction costs. Additionally, the study intends to explore the relationship between human capital and business performance, as well as the mediation effect of transaction costs on the relationship between human capital and business performance. To achieve these objectives, the research will employ a quantitative methodology, utilizing robust measurement scales and rigorous sampling methods. This approach will enable the collection of relevant data, statistical analysis, and the testing of hypotheses to either accept or reject them, thereby contributing to the existing body of knowledge on the topic.

1.6. Research context: The entrepreneurial landscape in Madagascar

1.6.1. The key economic sectors in the island

Agriculture, low-value goods manufacturing, tourism, and mining are the main economic sectors in Madagascar (International Fund for Agricultural Development, 2021). Sixty percent of the active population works in agriculture, contributing to around thirty percent of the country's economy (Diao, Ellis , Pauw , Randriamamonjy & Thurlow, 2023). However, Madagascar struggles to produce sufficient food for its population, as 8.8 million people (33 percent of the population) face food insecurity (Fayad, 2023, p.2). Key challenges in the agricultural sector include fragmented production, low productivity, rural insecurity, overuse of natural resources, environmental vulnerabilities, and limited access to economic and commercial opportunities (International Fund for Agricultural Development, 2021).

The clothing and textile sector contributes to 19.35 percent of the country's GDP and employs 180,000 people (International Labour Organization, 2023, p.iii). Out of the 249 free-zone enterprises registered in Madagascar, 101 operate in the clothing and textile sector (World Bank, 2022a, p.9). Moreover, 42.8 percent of workers in the textile value supply chain are informal self-employed workers (International Labour Organization, 2023, p.34).

The tourism industry benefits from Madagascar's status as the largest island in the Indian Ocean and one of the most biodiverse countries globally, with abundant and unique animal and plant species. Despite creating 750,000 jobs—12 percent of the country's total employment (Mamiarisoa, Raherivelo, Radimilahy, Randiranjafy & Bela, 2021, p.369)—Madagascar's tourism sector is much smaller than that of neighbouring countries. The

island receives six times fewer tourists than Mauritius and an astounding 40 times fewer tourists than South Africa (Casse, Razafintsalama & Mihoj, 2022, p.6).

Madagascar's mining sector contributes to 29 percent of the country's total exports (EITI, 2022, p. 34). The industry formally employed 11,348 people in 2021 (EITI, 2022, p. 35), while approximately 1 million informal workers are estimated to be involved in artisanal and small-scale mining (ASM). This number excludes smallholder farmers who practice mining during non-agricultural seasons (EITI, 2022, p.29).

1.6.2. Entrepreneurship rate and performance

The 2019-2020 Global Entrepreneurship Monitor (GEM) report by Ratsimbazafy (2020, p.22) reveals that 94.4 percent of Madagascar's active population holds a positive view of entrepreneurship, considering it a desirable career. This enthusiasm leads to 19.5 percent of the population being start-up owners, ranking the country eighth among 50 evaluated nations. The majority of entrepreneurs focus on retail trade (33.9 percent), followed by agriculture (17.5 percent), and manufacturing (12.6 percent) (Ratsimbazafy, 2020, p. 28). Despite the high entrepreneurial activity, its impact remains limited, contributing only 1.5 percent to job creation and ranking Madagascar 41st among 50 countries (Ratsimbazafy, 2020, p.22).

The entrepreneurial landscape in Madagascar is characterised by a significant duality, presenting both favourable and unfavourable conditions for venture creation. On one hand, the ecosystem is supported by the availability of entrepreneurial education in higher learning institutions and a dynamic local market with competent subcontractors, suppliers, and consultants. This is further bolstered by cultural norms that celebrate entrepreneurship as a desirable career, with its high status motivating 80.6 percent of entrepreneurs (Ratsimbazafy, 2020, p.22). Conversely, these advantages are undermined by critical deficiencies. A notable human

capital gap exists due to the lack of basic entrepreneurship education in school programs. This educational shortfall, combined with insufficient funding opportunities, creates significant barriers that hinder effective value creation and sustainable business development (Ratsimbazafy, 2020).

A significant proportion of Malagasy business owners are informal entrepreneurs (Afavi, Agossou, Benlamine, Rasoamanana, Razafinisoa, & Salins, 2023). More precisely, they are involuntary informal entrepreneurs awaiting formal employment opportunities (Erica, 2021). Indeed, business creation in Madagascar is primarily driven by survival rather than opportunity identification (Erica, 2021). The performance of Malagasy entrepreneurs is constrained by low human capital level and their focus on fulfilling physiological needs instead of on key performance factors such as profitability, growth, and solvency (Afavi et al., 2023; Ratsimbazafy, 2020; Erica, 2021; Mouzas & Bauer, 2022).

1.6.3. Entrepreneurship, human capital, and socio-economic dynamics

Age and gender significantly shape the socio-economic dynamics of Madagascar, influencing human capital levels and entrepreneurial processes.

The Malagasy society is hierarchically organized with elders (referred to as *Zokiolona*), individuals aged 65 years and above, at the apex (World Bank, 2022b; Andrianantoandro, 2011). This structure is rooted in the community's belief in ancestral blessings and the ancestors' administration of divine justice (Champion, 2017). Allegiance to elders is tied to the belief that individuals embody ancestral wisdom as they age (Randriamasitiana, 2009). As a result, entrepreneurial leadership in the country is influenced by age (Vaughan-Johnston, Imtiaz, Lee, & Ji, 2021).

Another key cultural aspect of age relationships affecting socio-economic dynamics in Madagascar is the expectation for the youth to reciprocate the support received from their parents until they achieved financial independence. This practice is known as *valimbabena*, which literally translates to "the backs that support one another." It limits individuals' ability to invest in their children's and their own human capital development (Rahman & Akhter, 2021). Additionally, it impedes their capacity to mobilise financial resources for entrepreneurial opportunities (Rannikko, Buffart, Isaksson, Löfsten, & Tornikoski, 2022).

Regarding gender, the Malagasy society operates under a patriarchal system where male dominance is evident both in the political sphere and within families (Andriamanondehibe, 2020). This dominance begins as children transition into adolescence, driven by their increased sensitivity to cultural perceptions at this age (Qu, 2023). This cultural bias hinders teenage girls' and women's opportunities for human capital development and for creating, leading, and growing entrepreneurial ventures (OECD, 2019; Afavi et al., 2023; Berger & Soubaya, 2019).

1.7. Delimitation of the thesis

The study complements prior theoretical findings, which highlight that human capital, encompassing five key elements: education, work experience, prior knowledge, experiential knowledge, and entrepreneurial experience, serves as a predictor variable for business performance (Tran and Vo, 2020). With this foundation, the research aims to confirm the predictive role of human capital on business performance while considering the influence of moderating and mediating factors. Specifically, the investigation examines how this relationship is shaped by factors such as perceived behavioural control (as a moderating factor) and transaction costs, which encompass search and information costs, bargaining costs, as well as policy

and enforcement costs (as mediating factors). In essence, the examination strives to contend that entrepreneurs' self-belief in their own abilities and the cost structure associated with each trade critically impact both the financial and non-financial achievements of an enterprise.

To contribute to the advancement of knowledge, particularly within the realm of entrepreneurship and its intricate interplay with human capital and business performance, the research underpinning this thesis examines a representative sample of business owners in Madagascar's central region, Analamanga, with an age range starting from 18 years and above. Despite the fact that individuals aged 25 to 44 have demonstrated greater entrepreneurial intentions compared to their counterparts (Awar & Saleem, 2019, p.283), a broader age range was purposefully chosen for the study to emphasise inclusivity. This approach aligns with the investigation of all individuals within the working-age bracket, as defined by the OECD (2021), while also taking into consideration the country's age-related regulations (McLain, Ranjatson, Heidenrich, Rakotonirina, Nomenjanahary & Razafimbelo, 2021).

Respecting scientific accuracy, the sample was drawn from self-employed individuals living and operating in both rural and urban municipalities of Analamanga.

This study excludes entrepreneurs operating outside the Analamanga region, as well as non-self-employed individuals, such as employees and managerial staff. Additionally, it does not include entrepreneurs under the age of 18. The study further narrows its scope by focusing on specific dimensions of human capital, as defined by Urban (2015), namely experiential knowledge, prior knowledge, education, work experience, and entrepreneurial experience. Furthermore, it examines human capital, perceived behavioural control, and transaction cost variables directly related to business performance, while excluding broader macroeconomic or political factors that may also influence entrepreneurship in Madagascar.

1.8. Assumptions

The study is underpinned by several key assumptions:

(i) The extrapolation of business owner percentages in Madagascar, as unveiled by Ratsimbazafy (2020), is deemed applicable universally across all territorial divisions, encompassing the Analamanga region.

(ii) The population of the Analamanga region at the time of disseminating the thesis mirrors the enumeration set forth by the Ministry of Decentralisation and Territorial Planning (Ministère de la décentralisation et de l'aménagement du territoire, 2021).

(iii) All participants engaged in the survey were presumed to possess the requisite ability to answer the questions to the fullest extent of their competencies.

1.9. Structure of the thesis

The thesis follows a logical structure, with its progression outlined as follows:

- In **Chapter 1**, the context of the thesis is introduced. It establishes the relevance of the thesis in today's world and outlines the research questions it aims to address.

- **Chapter 2** establishes the state of the art by defining and discussing pertinent literature on entrepreneurship and the conceptual frameworks surrounding the thesis. These discussions lead to the formulation of the research hypotheses.

- **Chapter 3** provides an in-depth look at the methodology employed throughout the research. This encompasses the sampling method, research instrument, data collection, data processing, and data analysis methods.

- In **Chapter 4**, the research findings are analyzed, covering sample characteristics, reliability and validity tests, and hypothesis testing. It integrates statistical results with a detailed discussion, elucidating how these findings contribute to advancing knowledge on the relationship between entrepreneurs' human capital and business performance.

- **Chapter 5** concludes the study, synthesizing key findings, highlighting theoretical and practical contributions, and addressing limitations. Furthermore, this final chapter proposes new avenues for future research, stemming from the study outcomes.

Chapter 2: Literature review

"Knowledge is like a garden: if it is not cultivated,
it cannot be harvested."

African proverb

2.1. Introduction

This chapter delivers a critical analysis, evaluation, and synthesis of a vast body of literature on entrepreneurship, human capital, perceived behavioural control, transaction costs, and business performance. It starts by defining fundamental concepts such as entrepreneurship, human capital, and business performance within the thesis framework. Subsequently, it delves into key human capital theories, exploring the evolution of human capital research and its principal paradigms. From this vantage point, the primary group factors influencing the relationship between human capital and business performance, including perceived behavioural control and transaction costs, are thoroughly analysed and evaluated. This forms the central theme of the thesis, offering a robust and valid theoretical foundation pertinent to the entrepreneurial context in Madagascar.

2.2. Foundation theories

2.2.1. Key terminology definitions

2.2.1.1. Definition of Entrepreneurship

Fairlie and Fossen (2019) define entrepreneurship as business creation consisting of two components, determined according to the founders' pre-venture launch motivations: opportunity and necessity entrepreneurship. They are the two main driving forces to start a new endeavour. Opportunity entrepreneurship is undertaken by individuals who identified a new opportunity in the market and aim to take advantage of it. While necessity entrepreneurship is ventured on by individuals who started a business for survival reasons as they do not have any better choice for work (Weber, Fasse, Haugh & Grote, 2023).

There are different ways of classifying business owners as opportunity entrepreneurs or necessity entrepreneurs (Fairlie et al., 2019). Firstly, a due observation of their pre-entrepreneurship endeavours may be carried out. Individuals who are not actively looking for a job prior to founding an enterprise, i.e., individuals with a full-time paid employment contract, and those enrolled at a school or a university, are identified as opportunity entrepreneurs. Nonetheless, individuals who are actively looking for a job prior to founding an enterprise, i.e., those registered as unemployed, are categorised as necessity entrepreneurs.

Secondly, the reasons why an individual ended up losing their previous job may be explored (Fairlie et al., 2019). Unemployed workers who quit their jobs before venturing into entrepreneurship are classified as opportunity entrepreneurs. Nevertheless, job seekers who were dismissed by their firm or whose employing firm closed down are classified as necessity entrepreneurs.

Thirdly, business owners' level of agreement with the following statements could be examined (Fairlie et al., 2019):

- "I have always wanted to be my own boss."
- "I had an idea that I really wanted to implement."
- "I did not want to be unemployed anymore."
- "I did not find employment anymore."

Opportunity entrepreneurs are the individuals who tend to desire to work for themselves and derive benefits from their own business ideas. While necessity entrepreneurs' priority is to move out of unemployment amidst a situation of persisting difficulty to secure a remunerative endeavour.

With regards to their impacts, Fairlie and Fossen (2019) discovered that opportunity entrepreneurs are more consequential at founding legally

registered businesses and creating jobs. The latter form of entrepreneurship is procyclical as it is positively related to economic growth. While necessity entrepreneurship is counter cyclical and displays a significantly negative correlation with economic conditions. More opportunity entrepreneurs received a tertiary level of education than necessity entrepreneurs. Furthermore, an opportunity-based business creation boosts the formation of more high growth enterprises as compared to the firm establishment for survival purposes.

Necessity entrepreneurship is preponderant in developing countries, such as Madagascar (Lawson & Lahiri-Dutt, 2020). Due to high unemployment rate and low wages, low-income countries' workforce tends to start their own ventures to make the ends meet (Ratsimbazafy, 2020). They are usually unincorporated businesses formed without any further vision than satisfying the owners' physiological needs (Afavi et al., 2023). As such, less value is given to the firms' non-financial performance, consisting of customer experience, innovation, and employee satisfaction to name a few. It negatively affects their financial performance, which in turn hampers economic growth (Zheng & Walsh, 2019). As a result, the high entrepreneurial rate in Madagascar does not contribute to strengthening the country's economy (Ratsimbazafy, 2020). A scholar (Rajerison, 2013) even went on to advance that the country's business owners are not authentic entrepreneurs. They are not currently equipped to disrupt industries or even expand their own businesses. They fail to satisfy Schumpeter's (1934) definition of entrepreneurship as a *creative destruction* (Gupta, Srivastava & Alzugaiby, 2024, p.1).

Within the framework of the research, entrepreneurship relates to the creation of a new enterprise (Prince, Chapman and Cassey, 2021). Henceforth, the term 'entrepreneur' conveys both opportunity and necessity business owners.

2.2.1.2. Definition of human capital

Human Capital is defined as knowledge and skills procured through commitment on different edification experiences such as education and on-the-job training (Leoni, 2023). Entrepreneurial ability is categorised as a form of human capital (Shultz, 1975). This assertion has been favoured by Marvel et al. (2016) who claimed that the exploration of human capital constructs is critical to entrepreneurship research; wherefore, among the most commonly studied measures are education and experience-based scales like time spent schooling, accomplishment of a tertiary education qualification, work experience in a particular field of trade and previous involvement in managerial endeavours (Marvel et al., 2016). Moreover, Urban (2015) argues that (i) education, (ii) work experience, (iii) entrepreneurial experience, (iv) experiential knowledge and (v) prior knowledge are pertinent human capital paradigms required to build up entrepreneurial ability. Figure 1 illustrates the human capital framework.

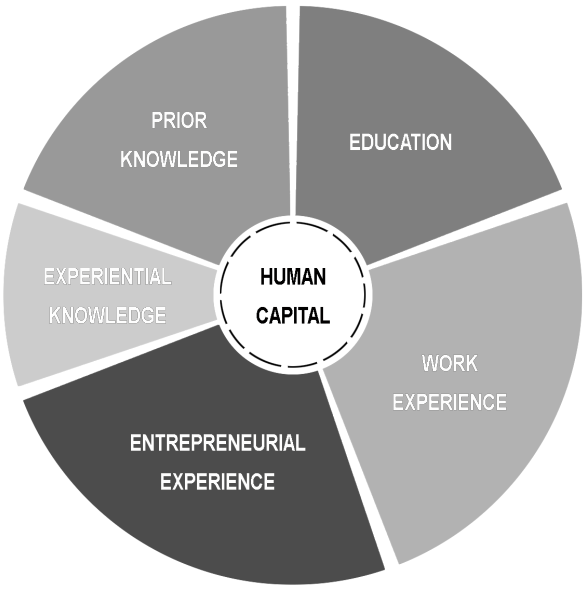

Figure 2.1: Human Capital framework (Urban, 2015)

World Bank (2019) suggests that human capital is paramount in enabling individuals to become productive members of society. Through its Human Capital Project, the institution acknowledges the critical importance of human capital in enhancing productivity, which, in turn, stimulates economic growth. Investing in people's knowledge and skills not only promotes equity but also drives productivity, and subsequently fosters economic growth. As a result, economic growth leads to improved living conditions, encompassing job creation and the availability of high-quality education. These factors, in turn, further stimulate stronger human capital, and this virtuous cycle, underpinned by the bidirectional relationship between human capital and economic growth, carries on (De Guimaraes, Severo, Júnior, Da Costa & Salmoria, 2020).

Education is a key human capital antecedent (Anosike, 2019). Naros and Simionescu (2019) suggest that it plays a vital role in promoting the flexibility and the adaptability of individuals in today's dynamic market. As we live in the post-COVID 19 pandemic world, characterised by its VUCA-BANI (Volatile, Uncertain, Complex and Ambiguous - Brittle, Anxious, Non-linear, and Incomprehensible) attributes (Worley & Jules, 2020 ; Evseeva, Evseeva & Rawat, 2022), observers suggest that change is the only constant, and the rate of change is increasing (Burk, 2019; Diamandis, 2023). In this ever-evolving landscape, whereby one's actions seldom lead to the expected outcomes (Gjerde, Grossman & Cole, 2019), Egert, de la Maisonneuve and Turner (2022) suggest that, at the industry level, a high level of productivity can still be predicted, given its positive correlation with individuals' quality and quantity of education.

The present study specifically centres its focus on the quantity of education. According to Jafari-Sadeghi, Kimiagari, and Biancone (2020), education level in itself constitutes a pivotal component of human capital. Moreover, given that Malagasy individuals typically undergo only 8.4 years of schooling on average before reaching the age of 18 (World Bank, 2020a,

p.1), their educational attainment remains notably limited. As a result, to make optimal use of the resources at hand for this study, a deliberate emphasis has been placed on conducting a comprehensive analysis of education level.

De Sivatte, Gordon, Olmos, and Simòn (2021) describe professional experience as the events undergone by an individual linked to the performance of a specific job. This experience can be expressed in various forms, including:

(i) Job experience, which determines the amount of time an individual has been engaged in a specific job;

(ii) Organisational tenure, which relates to the duration an individual has worked within a specific organisation; and

(iii) Site experience, defining the time an individual has spent working at a specific site for their organization.

According to Becker (1962), professional experience plays a significant role in developing individuals' knowledge and skills, enabling them to refine themselves and enhance their business performance quality. Alongside the development of human capital, De Sivatte et al. (2021) propose that professional experience also contributes to the growth of an individual's social capital. In simpler terms, the more time an individual dedicates to a particular field of work, the more connections and collaborations they establish with a diverse range of partners. This process fosters the cultivation of mutual trust and confidence among these connections (Mahfud, Triyono, Sudira & Mulyani, 2020). Building a robust social capital subsequently facilitates access to vital market information, resources, and customers, thereby boosting productivity and fortifying business performance (Nguyen, An, Ngo & Hau, 2020).

Fergusson (2022) characterises experiential knowledge as a proficiency cultivated through the learning-by-doing approach. This acumen is acquired by transforming novel experiences into a *savoir-faire* that bolsters levels of fulfilment, motivation, and performance. On the other hand, Paiola, Schiavone, Khvatova, and Grandinetti (2021) delineate prior knowledge as the knowledge amassed by the entrepreneur and their enterprise over time. Expanding on this concept, the researchers (Paiola et al., 2021) propose that this form of knowledge holds a pivotal role in augmenting the enterprise's capacity for innovation and, consequently, enhancing its productivity.

2.2.1.3. Parallels and contrasts between entrepreneurial success and business performance

Entrepreneurial success and business performance exhibit parallels, as business performance is a composite of entrepreneurial success. According to Angel, Jenkins, and Stephens (2018), the measurement of entrepreneurial success encompasses two levels: the firm level, pertaining to business performance, and the entrepreneur level. This implies that for an individual who is a business owner, entrepreneurial success encapsulates dual fundamental components.

Firstly, a successful entrepreneur manages a business that fulfils its key performance indicators (KPIs). Without the success of their business – the core essence of their endeavour – a business owner cannot be deemed successful. The KPIs of a company are intertwined with its performance outcomes, encompassing critical aspects like profitability, growth, and solvency. Within an enterprise, diverse stakeholders, including banks, institutional investors, employees, and suppliers, hold distinct concerns regarding performance outcomes. A prosperous entrepreneur adeptly addresses these stakeholders' concerns by nurturing all three critical performance outcomes (i.e., profitability, growth, and solvency). This

strategic approach ensures that the firm satisfies its present needs without compromising its future viability (Mouzas & Bauer, 2022).

Secondly, a thriving entrepreneur attains personal objectives. Entrepreneurs are driven to initiate and operate their enterprises for individual motivations (Agolla, Monametsi & Phera, 2019). Therefore, the accomplishment of entrepreneurial success is intertwined with the fulfillment of personal aspirations. An entrepreneur's goals can be categorized into two distinct groups: monetary and non-monetary objectives. Monetary goals encompass financial targets such as income levels and personal wealth creation, among others. On the other hand, non-monetary goals encompass objectives beyond financial gains, embracing personal satisfaction and community impact through the promotion of innovation, to name a few (Angel et al., 2018).

This research specifically centres on business performance, as it aspires to contribute to job creation and sustainable economic growth in Madagascar. This objective can be realized by cultivating a deeper comprehension of the factors that drive SME performance, enhance their productivity, and amplify their pivotal role in bolstering the country's GDP (Fomum & Opperman, 2023).

2.2.2. Human capital theories

2.2.2.1. Theoretical roots of human capital

The human capital theory, conceptualised by Gary Becker (1964), posits that the skills, knowledge, experience, and competencies individuals acquire over time contribute significantly to their productivity and, consequently, their value in the labour market. This statement laid the foundation for human capital theories in modern economies, where knowledge and innovation are vital. By developing *the economic approach*

to human behaviour, Gary Becker established human capital as a key determinant of firm performance, particularly in dynamic entrepreneurial contexts. More recent works emphasize that human capital is not only a factor for individual economic success but also a critical organisational resource that influences a firm's competitive position and innovative capacity (Eckardt, Tsai, Dionne, Dunne, Spain, Park, Cheong, Kim, Guo, Hao & Kim, 2021). This concept has evolved to acknowledge the broader value that human capital brings to organizational resilience and adaptability (Shela, Ramayah & Hazlina, 2021). In the contemporary business landscape, characterized by an accelerated pace of change, the capacity for innovation is critical for fostering a sustainable competitive advantage. This advantage is achieved through the development of unique, inimitable resources that are predominantly rooted in an organisation's human capital (Aman-Ullah et al., 2022).

The Resource-Based View (RBV), articulated by Wernerfelt (1984) and Barney (1991), posits that an organisation's ability to maintain a sustained competitive advantage hinges on its ability to strategically orchestrate its internal resources. For these resources to confer such an advantage, they must adhere to the VRIN framework, being valuable, rare, inimitable, and non-substitutable. This perspective is foundational within strategic management literature for explaining how a firm's distinct range of capabilities, such as physical assets, organisational processes, and intangible resources like human capital, can generate a durable competitive edge (Barney, Ketchen & Wright, 2021). More recent scholarly work has extended the RBV to include the concept of dynamic capabilities, underlining firms' imperative to reconfigure their resource base in response to shifting market conditions (Teece, 2023).

Within the RBV framework, human capital emerges as one of the key resources that can provide a firm with sustainable competitive advantage,

particularly in knowledge-intensive industries and entrepreneurial settings. Human capital fulfils the VRIN criteria in various ways:

- **Valuable:** Human capital is crucial for innovation, problem-solving, and overall firm performance, particularly in industries that depend on specialised skills and creativity. It enhances a firm's capacity to leverage individual knowledge, skills, abilities, and other characteristics (KSAOs) to drive unit-level performance (Nyberg & Moliterno, 2019). The aggregation of human capital resources enables firms to respond effectively to changing market demands, foster innovation, and improve operational efficiency, making human capital an essential contributor to a firm's success.

- **Rare:** The unique combination of education, experiences, and skills that individuals bring to organisations is often rare. In highly specialised sectors, finding individuals with the right expertise becomes a competitive differentiator, especially when such expertise cannot be easily sourced or replaced (Bentley & Kehoe, 2020).

- **Inimitable:** The unique combination of individual KSAOs, along with the complex interactions of these attributes within a specific organisational context, makes human capital difficult to replicate. These resources provide a competitive advantage because they are not easily transferable or imitable by competitors, primarily due to the social complexity, interdependencies, and tacit knowledge inherent in human capital resources (Ployhart, Nyberg, Reilly, & Maltarich, 2014).

- **Non-substitutable:** Certain elements of human capital, such as unique knowledge, skills, and abilities (KSAs) deeply embedded within the organisation, cannot be easily replaced or substituted by other resources or employees. Firm-specific KSAs contribute to a company's competitive advantage, as they are difficult to replicate in the broader labour market (Wright, 2021).

The critical role of human capital to firm performance is further emphasised in the context of entrepreneurial learning and self-efficacy. Investments in human capital are integral to enhancing firm performance, operating primarily through entrepreneurial learning such as formal education, intergenerational knowledge transfer, and social network. This learning process not only equips entrepreneurs with knowledge and skills but also cultivates their entrepreneurial self-efficacy, i.e., their perceived behavioural control (PBC), which is a critical determinant of firm agility and innovation. Although entrepreneurial learning positively correlates with firm performance, this relationship is fully mediated by perceived behavioural control (Shen et al., 2021). This indicates that the benefits of entrepreneurial learning enhance firm performance only indirectly. Learning must first bolster an entrepreneur's confidence in their abilities, and it is this heightened self-efficacy that subsequently drives improved business outcomes.

The Malagasy context underscores the critical role of human capital in driving economic growth and ensuring competitive advantage, particularly in developing economies. Madagascar’s investment in human capital development, particularly through educational advancement and workforce capacity-building, is essential for fostering long-term productivity, as emphasised by the World Bank's (2020b) report on the country’s human capital development policies. The government has initiated efforts to enhance educational outcomes, develop work-related skills, and promote experiential learning to equip individuals with the knowledge required to thrive in key sectors such as agriculture and tourism (World Bank, 2020b). However, challenges remain in aligning education quality and workforce development with the demands of a competitive and evolving market.

The importance of entrepreneurial experience, prior knowledge, and experiential knowledge is particularly evident in Madagascar’s growing entrepreneurial ecosystem, where individuals' knowledge and business

acumen are critical resources for productivity and competitive advantage (Ratsimbazafy, 2020; World Bank, 2020b). This perspective complements Penrose's (1959) assertion that firm growth is driven by the strategic development of unique resources. Assets such as entrepreneurial experience, prior knowledge, and experiential knowledge are vital for the sustainable expansion of organisations (Lau & Michie, 2024).

Understanding the theoretical roots of human capital within the Resource-Based View (RBV) framework strengthens the conceptual foundation of this research. By situating human capital as a resource that meets the VRIN criteria, it becomes evident that this intangible asset plays a critical role in determining a firm's competitive positioning. The integration of human capital into the RBV framework not only clarifies its significance in driving firm performance but also highlights its irreplaceable role in fostering innovation and long-term success (You, Zhou & Jia, 2021**;** Garrido-Moreno, Martìn-Rojas & Garcìa-Morales, 2024). In the Malagasy context, this theoretical understanding underscores the importance of human capital investments in ensuring sustainable competitive advantages for emerging enterprises.

2.2.2.2. Importance of human capital in Entrepreneurship theories

The relationship between human capital and entrepreneurship is bidirectional. Human capital fosters entrepreneurship by nurturing entrepreneurial intention, enhancing entrepreneurial innovation, and ensuring entrepreneurial performance, i.e., entrepreneurs' business performance (Shen et al., 2021; Rafique, Mohsin, Abid, Ashrif, & Anwar, 2024; Paudel, 2019). In turn, the entrepreneurial experience gained from creating, leading, and growing a venture fosters human capital development (Braunerhjelm & Lappi, 2023).

Human capital is a critical determinant in shaping entrepreneurial intention (Aboobaker & Renjini, 2020). A strong positive relationship exists between the extent of entrepreneurial training received and an individual's inclination toward entrepreneurship. In this dynamic, human capital—defined as the skills, knowledge, and attributes that enhance productivity—serves as a significant mediator. The findings from a study on postgraduate students in India suggest that entrepreneurial training effectively builds human capital, which in turn fosters entrepreneurial intention (Aboobaker & Renjini, 2020). Therefore, nurturing human capital through such training not only prepares individuals for the practicalities of venture creation but also promotes a shift towards opportunity-driven entrepreneurship, a key contributor to sustainable economic growth (Cervello-Royo, Moya-Clemente, Perello-Marin & Riber-Giner, 2020).

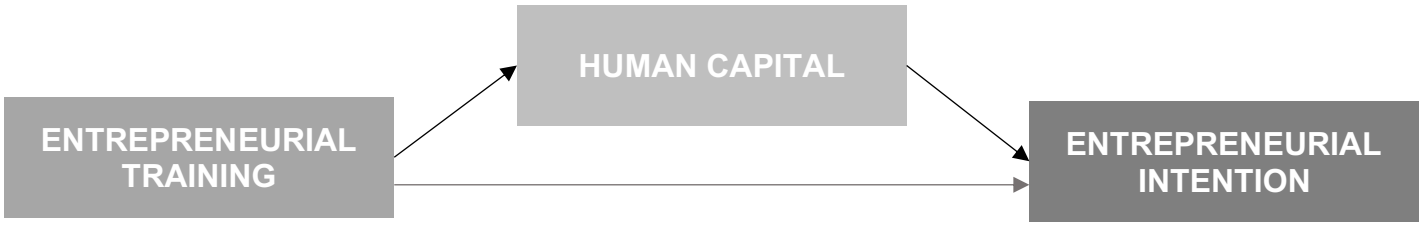

Figure 2.2: Aboobaker and Renjini's (2020) findings on the mediation effect of human capital on the relationship between entrepreneurship training and entrepreneurial intention

The influence of human capital extends beyond merely predicting entrepreneurial intention to actively supporting entrepreneurial innovation. A significantly positive correlation exists between human capital and both radical and incremental innovation, as demonstrated in a study of Pakistani entrepreneurs across diverse industries (Rafique et al., 2024).

This relationship is quantifiable. Radical innovation, defined as progressive offerings that are a total departure from current products, and incremental

innovation, described as minor enhancements to existing offerings, are both substantially impacted by human capital. A one-unit increase in human capital is projected to yield approximately a 14.5 percent rise in radical innovation and a 14.3 percent rise in incremental innovation (Rafique et al., 2024, p.8). The connection, however, is not direct. The influence of human capital on innovation is significantly mediated by two key psychological constructs: entrepreneurial passion and entrepreneurial alertness.

Entrepreneurial passion, characterized as a strong enthusiasm for activities like inventing and venture development (Cardon, Gregoire, Stevens & Patel, 2013), channels a substantial portion of human capital's effect on innovation. Likewise, entrepreneurial alertness—the capacity to remain vigilant in identifying new ideas and opportunities (Wang, Singh & Khan, 2024)—further strengthens the link between human capital and innovative outcomes. These findings collectively underscore the critical role of human capital development in fostering innovation, which stands as a key dimension of entrepreneurship (Abdissa, Ayalew, Illés, & Dunay, 2021).

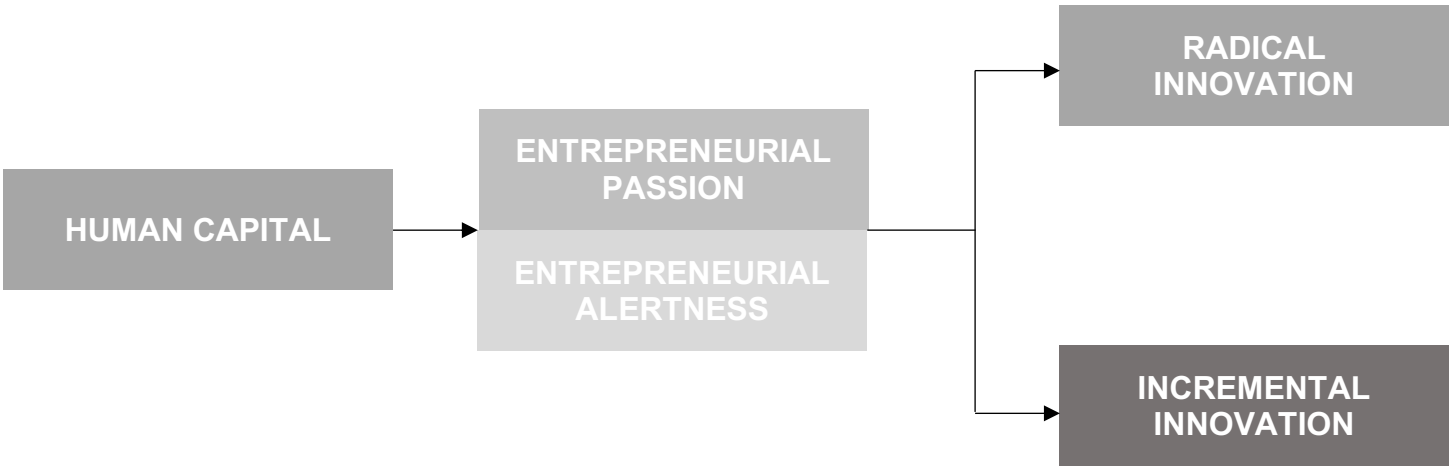

Figure 2.3: Rafique et al's (2024) predictive role of human capital in promoting entrepreneurial innovation

In addition to encouraging entrepreneurial innovation, human capital catalyses entrepreneurial performance (Shen et al., 2021). A survey of 411

nascent entrepreneurs in China, comprising individuals who earnestly endeavour to turn business concepts into successful new enterprises, established the groundwork for examining the relationship between entrepreneurial learning, a human capital development factor, and new venture performance, encompassing enterprise market share, operating profits, sales volume, and employee growth relative to their competitors'. A statistically significant positive correlation between entrepreneurial learning and entrepreneurial performance was discovered. This relationship is mediated by entrepreneurial self-efficacy, also referred to as perceived behavioural control (PBC) (Kojan, Burbach, Ziefle, & Valdez, 2022).

The indirect relationship between entrepreneurial learning and entrepreneurial performance contributes to explaining the mixed results observed in various studies exploring the direct correlation between the two variables. The mediating effect of self-efficacy is instrumental in clarifying why some research outcomes suggest a positive connection (Iyiola, Alzubi, & Dappa, 2023), while others propose no relationship or even a negative one (Ripollés & Blesa, 2023; Avendaño, Coulon, & Nafilyan, 2020; Duncan, Patte, & Leatherdale, 2021).

Recent studies substantiate the existence of a positive relationship between entrepreneurial learning and perceived behavioural control (Shen et al., 2021; Yousaf, Ali, Ahmed, Usman, & Sameer, 2021). This theoretical model indicates that as an entrepreneur's learning accumulates, so too does their confidence in their capacity to achieve specific performance objectives. This enhanced perceived behavioural control subsequently fosters improved entrepreneurial performance (Shen et al., 2021; Caliendo, Kritikos, Rodriguez & Stier, 2023). To optimise the positive impact of entrepreneurial learning on perceived behavioural control, and thereby maximise entrepreneurial performance through education, it is recommended to cultivate a strong entrepreneurial orientation, predominantly encompassing

dimensions such as innovativeness, a propensity for calculated risk-taking, and proactiveness (Shen et al., 2021).

Figure 2.4: Shen et al's (2021) mediating effect of perceived behavioural control on the relationship between entrepreneurial training and entrepreneurial performance

Entrepreneurial experience fosters entrepreneurial human capital, which comprises the abilities and skills acquired or possessed through establishing and operating a business (Braunerhjelm & Lappi, 2023). Experiential learning enhances human capital by stimulating adaptive skills such as the development of practical competencies, robust decision-making capabilities, increased confidence, and improved problem-solving abilities (Waheed & Waseem, 2023). Furthermore, it facilitates the acquisition of expert knowledge, cultivates generative capacities, reinforces prior experience, and promotes professional development.

Figure 2.5: Braunerhjelm and Lappi's (2023) correlation between entrepreneurial experience and entrepreneurial human capital, explained by Waheed and Wasseem's (2023) entrepreneurial learning's predictive role on entrepreneurial human capital

2.2.2.3. Linking human capital theories to business performance

Adam Smith (1776) pioneered the description of acquired skills and useful abilities, as a critical asset for wealth generation and economic progress. Nevertheless, it's only 200 years later that Becker (1964) popularised the modern use of the word 'human capital', which has been integrated in the vocabularies of human resource professionals. Becker's (1964) human capital theory suggests that investment in education and apprenticeship rises labour productivity. There is a positive relationship between human capital and entrepreneurial performance, i.e., entrepreneurs' business performance (Paudel, 2019; Shen et al., 2021; Ashenfelter et al., 1999; Haelermans & Borghans, 2011). An investment in formal education provides 6.8 percent of return per year (Psacharopoulos & Patrinos, 2018, p. 5). While a 2.6 percent return per course is expected from on-the-job training (Haelermans & Borghans, 2011, p.2). Furthermore, human capital is a source of sustained competitive advantage when it is valuable, rare, inimitable, and non-substitutable (Barney et al., 2021). This indicates that firms which develop and retain specialised human capital can create economic value and outperform competitors by leveraging the unique skills and knowledge embedded within their workforce.

There are two primary types of human capital: general human capital and firm-specific human capital (Becker, 1964). General human capital enhances productivity both within the acquiring firm and beyond its boundaries. In contrast, firm-specific human capital primarily boosts productivity exclusively within the nurturing organisation. Expanding upon this framework, there is an additional facet of human capital, known as task-specific human capital (Gibbons & Waldman, 2004; Takii, Sasaki & Wan, 2020; Kempa, 2022). Every job consists of a collection of tasks necessitating specific skills unique to it. The Great Resignation, characterised by a rise in employee turnover rates, has shaped the current global dynamic (Batiste, 2024). In this context, individuals are incentivised to cultivate knowledge and skills relevant to transferable tasks rather than fostering competencies that might lose relevance outside of a specific company. As a result, two distinct categories of individuals emerge, classified by the prevailing type of human capital they nurture. Individuals inclined towards the development of general human capital are labelled as *generalists*, while those prioritizing the cultivation of task-specific human capital are known as *specialists.* Fostering general human capital consistently correlates with improved entrepreneurial performance for versatile entrepreneurs, i.e., individuals who operate in more flexible roles and cover various aspects of the business as needed. In contrast, promoting task-specific human capital yields positive outcomes for specialised entrepreneurs, i.e., individuals who are deeply involved in specific, core aspects of their business (Kempa, 2022).

The positive relationship between human capital and entrepreneurial performance is well-established (Egert et al., 2022; Shen et al., 2021; Becker, 1962; Okrah & Irene, 2023; Cerne, Cater, Cater, Koman, & Redek, 2023; Braunerhjelm & Lappi, 2023; Paiola et al., 2021; Cohen and Levinthal, 1990; Na & Kang, 2019; Goni & Van Looy, 2022; Augusti, Ramos-Hidalgo, and Moreno-Menéndez, 2021; Tao, Wang, Robson, and Hughes, 2024).

The subsequent section presents a theoretical analysis of this correlation, focusing on different dimensions of human capital as independent variables.

- Education

Education is positively correlated with entrepreneurial performance, particularly when measured in terms of productivity. The higher the level of education individuals possess, the more productive they are. The quality of education, measured by PISA (Programme for International Student Assessment) scores, representing students' grades from standardised tests to evaluate their knowledge and skills in mathematics, reading, and science, has a larger impact on productivity than the quantity of education, measured by years of schooling (Egert et al., 2022). An increase in the quality of education results in three to four times more increase in human capital stock than an increase in the quantity of education. Productivity gains from an increase in education quality are also comparable to those acquired from improved product market regulation. Nonetheless, the effects of the former, from a macroeconomic perspective, may take much longer to materialise than those of the latter, often taking several decades.

Focusing particularly on individual entrepreneurs, there is a significantly positive correlation between entrepreneurial education and entrepreneurial performance, especially in terms of market share, operating profits, sales volume, and employee growth (Shen et al., 2021). Entrepreneurial education, such as formal organisational learning (formal training programs nurturing both business skills and entrepreneurship attitude), intergenerational learning (transfer of entrepreneurial knowledge and skills from one generation to another, especially in the context of a family business), and social network learning (acquisition of entrepreneurial knowledge and skills through social ties), provides essential knowledge and skills, which are critical for the growth and competitive advantage of new ventures. It improves entrepreneurial self-efficacy, which in turn enhances

the confidence of entrepreneurs in managing tasks and making decisions, leading to better firm performance. This entails that entrepreneurial self-efficacy mediates the relationship between entrepreneurial education and firm performance. The positive effects of entrepreneurial education on firm performance are significantly influenced by the level of self-efficacy developed through learning activities. Furthermore, entrepreneurial orientation, pertaining to dimensions like innovativeness, propensity for calculated risk-taking, and proactiveness, fosters the positive relationship between entrepreneurial education and entrepreneurial self-efficacy (Shen et al., 2021). Therefore, fostering an entrepreneurial culture that supports innovation, calculated risk-taking, and proactive behaviour is essential to optimise the effectiveness of entrepreneurial learning in stimulating self-efficacy and performance.

- Work experience

There is a positive correlation between the amount of work experience entrepreneurs possess and their subsequent earnings and productivity (Becker, 1962). Individuals with more experience are likely to have higher skills, enabling them to perform better in entrepreneurial activities. Investing time in work experience, therefore, yields higher returns in terms of productivity and business performance. Moreover, the combination of formal education and work experience enhances an individual's human capital more than either alone. Education provides foundational knowledge, while work experience offers practical application and skill refinement.

This observation is supported by recent studies demonstrating that prior work experience is positively correlated with firm performance (Shen et al., 2021). Notably, work experience, especially in management positions, fosters entrepreneurial innovation, which in turn enhances firm performance (Okrah & Irene, 2023; Cerne et al., 2023). Work experience equips business leaders to navigate complex, ambiguous, and diverse inputs more

effectively, enabling them to use mental shortcuts and experiential knowledge to make informed decisions (Okrah & Irene, 2023). It helps them build extensive networks and leverage these connections, to facilitate the exchange of ideas and collaboration that are critical for innovation. Furthermore, it nurtures the understanding that bringing the right people with the right expertise, rather than relying solely on their own knowledge, enhances their venture's capability to implement innovative processes. Entrepreneurs' beliefs, shaped over years of experience, also play a crucial role in how they perceive and encourage innovation within their firms. Additionally, seasoned business leaders generally exhibit higher confidence, enabling them to create environments that reduce the fear of failure and encourage experimentation, creativity, and innovation within their teams.

There is also a positive correlation between entrepreneurial innovation and firm performance (Cerne et al., 2023). Changes in structures, approaches, and processes triggered by entrepreneurial innovation allow entrepreneurs to leverage technological and human resource investments more effectively, enhancing the overall efficiency of these assets. Entrepreneurial innovation facilitates the creation of new knowledge and supports research and development (R&D) initiatives, which are crucial for technological advancements and competitive advantage. Firms that effectively combine technological investments with management innovation and human resource development can build sustainable competitive advantages. These firms are better positioned to capitalise on market opportunities and respond swiftly to market changes, resulting in improved performance metrics.

- Entrepreneurial experience

Human capital has a positive correlation with enterprise growth, profitability, and size (Braunerhjelm & Lappi, 2023). Starting and managing an

enterprise provides individuals with a unique set of skills and abilities, including innovation, opportunity detection and exploitation, and calculated risk-taking. These skills complement formal education and work experience, enhancing their firm's productivity in terms of value added (the difference between total outputs and intermediate inputs), labour productivity, sales, and innovation. Not all forms of entrepreneurial human capital (EHC) promote firm productivity. In fact, EHC acquired from successful entrepreneurs (with high income) drives productivity improvements, while EHC acquired from unsuccessful entrepreneurs (with low income) negatively affects productivity. Furthermore, a longer time spent in entrepreneurship correlates with stronger positive impacts on productivity.

- Prior knowledge

Prior knowledge significantly fosters innovation capacity (Paiola et al., 2021; Cohen & Levinthal, 1990). Prior knowledge forms the foundation of entrepreneurs' absorptive capacity, i.e., their ability to recognise the value of new information, assimilate it, and apply it for commercial purposes. Accumulated prior knowledge increases both the acquisition of new knowledge and its subsequent utilisation. This is because new information is more easily understood and integrated when it can be related to existing knowledge structures. For example, students who have mastered basic algebra are better equipped to learn advanced mathematics like calculus. Furthermore, individuals and firms who continuously invest in and possess a stronger absorptive capacity can better predict and respond to technological advances. They have an advanced ability to leverage both their own innovations and external knowledge, leading to higher innovation performance.

Innovation is positively associated with business performance (Na & Kang, 2019). Firms introducing new or significantly improved products or services experience better sales performance. The introduction of innovative

products tends to enhance customer satisfaction and protect firms from market threats, thereby boosting their competitiveness and sales. Similarly, there is a positive correlation between process innovation and firm performance through enhanced efficiency, effectiveness, and competitive advantage, manifesting as improved product quality, cost reduction, and faster response times (Goni & Van Looy, 2022). However, process innovation can also introduce challenges. Factors such as adjustment periods causing productivity declines, substantial capital investment strains, a shortage of skilled labour, operational difficulties, and market environment mismatches related to process innovation may lead to temporary inefficiencies and reduced short-term performance (Na & Kang, 2019). Nonetheless, when capabilities are developed, including employee skills, adequate external partnerships, entrepreneurial capabilities, task heterogeneity and impactful social interaction, efficient knowledge and resource allocation, and information systems capabilities, firms can enhance process innovation, leading to improved organisational performance (Goni & Van Looy, 2022).

- Experiential knowledge

Experiential knowledge acquisition, defined as knowledge gained through direct experience, significantly and positively influences firm performance (Augusti et al., 2021). As enterprises incrementally accumulate knowledge through hands-on experience, their performance is enhanced. Experiential knowledge reduces the perceived risks associated with entrepreneurial activities and increases commitment to venture growth. Furthermore, the knowledge gained through direct experience nurtures firms' capacity to assimilate, transform, and exploit new knowledge, which in turn positively affects performance.

Experiential learning from failure fosters new product performance (Tao et al., 2024). As entrepreneurs reflect on and analyse their failures, they gain

a better understanding of the underlying reasons, derive insights, and apply these lessons to improve future projects. Individuals who engage in experiential learning from their own failures can identify and correct issues more quickly, thus reducing the time required to bring new products to market. By critically analysing their failures, new venture creators can develop new ideas and alternative approaches that address deficiencies, leading to the creation of more innovative products that are better suited to market needs.

In a systematic review of experimental and quasi-experimental studies, Hogendoorn, Rud, Groot, and Van den Brink (2019) found a contrasting pattern. Most of these studies did not show statistically significant effects of human capital on entrepreneurs' business performance. Even when significance was observed, the effects ranged from very small to moderately small. Notably, among the human capital components studied, Hogendoorn et al. (2019) discovered that formal education was the only element consistently associated with positive effects on entrepreneurial performance; however, these effects were generally modest. Moreover, the review did not provide any evidence that these effects endured over time.

In light of these findings, the scholars (Hogendoorn et al., 2019) proposed further research into the underlying mechanisms that shape the impact of human capital on entrepreneurial performance. Following this recommendation, Valiente, Zancajo, and Jacovkis (2020) enhanced Cunha and Heckman's (2007) inquiry, corroborating that skill formation, as described by Human Capital Theory (HCT), validates the relationship between human capital and productivity—a critical component of entrepreneurial performance (Csiki, Demeter, & Losonci, 2023)—which is influenced by complementarities both within and between skills.

Hogendoorn et al's (2019) insights further refine this observation by discussing the influence of individuals' skill accumulation over time on skill

formation and entrepreneurial performance. They found that the greater an individual's skill stock is in one period, the more it will increase in the next period. Specifically, exercising a skill is essential for its development and improvement. Therefore, if two individuals possess the same level of human capital, but individual A is currently employed while individual B is unemployed, individual A would likely outperform individual B if presented with the same entrepreneurial opportunity. This is because the impact of human capital interventions on the entrepreneurial performance of previously unemployed individuals tends to be smaller.

Organisational constraints also moderate the relationship between human capital and business performance. Unlike employees, entrepreneurs operate with fewer constraints related to organisational structures, policies, and procedures. This reduced level of restriction allows entrepreneurs to leverage their human capital more effectively, thereby enhancing their business outcomes. Consequently, the impact of human capital interventions on performance is more pronounced for entrepreneurs than for employees. This difference arises because entrepreneurs can more freely apply their skills, knowledge, and education to optimise their business operations without the limitations often imposed by organisational frameworks (Van Praag, Van Witteloostuijn, & Van der Sluis, 2013; Pindek, Howard, Krajcevska & Spector, 2019).

The current study expands on the existing body of research on the mechanisms shaping the impact of human capital on entrepreneurial performance, following Hogendoorn et al.'s (2019) recommendation. This research explores the influence of transaction costs and perceived behavioural control on the connection between these variables, specifically in the context of Malagasy entrepreneurs.

2.2.2.4. Advancing theories on the human capital – transaction costs nexus

The concept of transaction costs was pioneered by the British economist Ronald Coase, who defined it as "the cost of using the price mechanism" (Coase, 1988, p. 38). For a long time, economists disregarded the significant impact of transaction costs on entrepreneurial profitability, instead focusing on "blackboard economics", a theoretical realm where such costs are assumed to be non-existent, such as the zero transaction cost world. Consequently, they neglected the study of "real-world economics," which pertains to the actual economic dynamics that entrepreneurs operate within (Candela & Geloso, 2019).

Recognising the importance of transaction costs in business dealings, Shahab (2022) refined the concept's definition by characterising it as all expenses associated with a transaction, excluding production costs. These costs are classified into three categories (Sun, Garimella, Han, Chang & Shaw, 2020):

- **Search and Information Costs:** These are the expenses entrepreneurs incur in acquiring the necessary information required to successfully complete a business transaction.

- **Bargaining Costs:** These represent the charges entrepreneurs must pay during the negotiation process to establish the terms of a business transaction.

- **Policy and Enforcement Costs:** These encompass the charges entrepreneurs must bear to ensure the rigorous enforcement of all transaction terms.

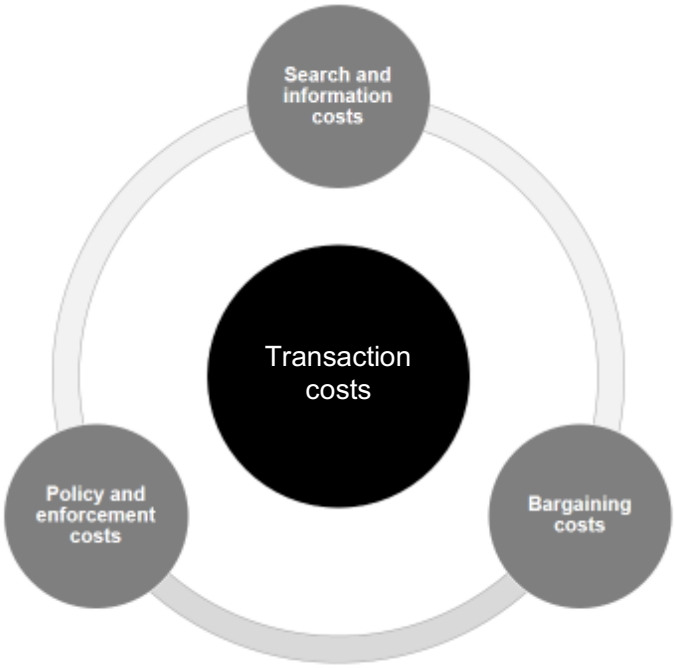

Figure 2.6: Transactional costs framework (Sun et al., 2020)

A critical component of New Institutional Economics, a school of thought advocating for the creation of stronger property rights for private entrepreneurs and the design of a more favourable entrepreneurship environment characterised by greater market certainty, transaction costs play a crucial role in organising economic activities. While transaction cost reduction through the meticulous design of institutional arrangements by policymakers can enable more effective handling of market failures, an uncontrolled increase in these costs and their inadequate management could hinder the successful realisation of entrepreneurial ventures (Shahab, 2022). Therefore, a thorough examination of the concept and its components is instrumental in understanding how under-resourced entrepreneurs, such as those in the informal sector in Madagascar, can enhance their venture profitability, growth, and solvency (Afavi et al., 2023; Mouzas & Bauer, 2022).

To this end, the influence of transaction costs on the established relationship between human capital levels and business performance warrants further exploration. There is a limited body of research that delves into the nexus between human capital and transaction costs (Williamson, 1975; Williamson, 1985; Qamruzzaman, Jianguo, Jahan & Yingjun, 2020; Ketokivi & Mahoney, 2020; Ferreira & Franco, 2020). The volume of research on the correlation between the magnitude of transaction costs and business performance is also limited (Ferreira & Franco, 2020; Nikolaeva & Pletnev, 2016; Li, Khaliq, Chinove, Khaliq, Ullah, Lakner & Popp, 2023).

Qamruzzaman et al. (2020) notably integrated the reduction of transaction costs into the realm of financial innovation constructs. While Scott D. Anthony (2012) defines innovation as ″Something different that has impact″, Qamruzzaman et al. (2020) propose that financial innovation involves the development of new financial institutions, instruments, and mechanisms, along with the enforcement of new rules and regulations, ultimately aimed at increasing profits, reducing transaction costs, and fostering sustainable financial development.

The authors (Qamruzzaman et al., 2020) assert that there exists a correlation between financial innovation, human capital development, and economic growth. This discovery underscores the significance of transaction cost economics within the realm of human capital theories. A more profound understanding of transaction cost economics empowers to identify effective strategies for minimising these costs, thereby optimising the allocation of resources for human capital development.

Ferreira and Franco (2020) categorise the reduction of transaction costs as an efficiency construct. They built upon Williamson's (1975, 1985) transaction cost theory, suggesting that for an organisation to achieve efficiency, it should adopt a structure that minimises the combined production and transaction costs. Efficiency begins with the cultivation of

tacit knowledge, which refers to experience-based insights into the minimisation of production and transaction costs (Thomas & Gupta, 2022). Subsequently, this knowledge is formalised and codified into explicit knowledge, which can be expressed in formal language and easily shared among individuals (Berraies, Hamza & Chtioui, 2021). As a next step, routines and regulations are established based on this newly developed knowledge to ensure its proper adoption and adaptation, thus sustaining the resulting efficiency.

The knowledge that emerges from this process enriches the enterprise's human capital, particularly in the context of firm-specific human capital, as emphasised by Becker (1964). Ferreira and Franco's (2020) findings underscore the critical role of comprehending transaction cost economics, especially in its capacity as a pivotal driver of efficiency, in the cultivation of firm-specific human capital.

Nikolaeva and Pletnev's (2016) findings suggest a strong negative relationship between transaction cost levels and sales profitability. While studying small and medium-sized enterprises in Russia across various industries, the scholars (Nikolaeva & Pletnev, 2016) discovered that the higher the average transaction cost level displayed by an industry, the lower the sales profitability generated. Specifically, they found that industries such as metallurgical production, wholesale, and construction exhibited high average transaction cost levels and low or negative sales profitability. The agricultural industry was characterized by high transaction costs and negative sales profitability. In contrast, transport and communications exhibited the lowest transaction cost levels and the highest economic efficiency, clearly demonstrating the inverse relationship. The linear correlation coefficient between transaction costs and sales profitability was found to be -0.83 across all sectors studied (Nikolaeva & Pletnev, 2016, p.179).

A more detailed analysis of the relationship between transaction cost levels and sales profitability enabled Nikolaeva and Pletnev (2016) to establish that the correlation between the two variables is not linear. Indeed, each industry has an optimal range of transaction costs. In other words, sales profitability initially increases with rising transaction costs up to a certain point. This increase suggests that some level of transaction costs is necessary for optimal business operations. Beyond an optimal range, further increases in transaction costs lead to a decline in sales profitability. This indicates a critical threshold of transaction costs, beyond which the costs become detrimental to business performance.

Erdogan and Yamaltdinova (2019), Prasad, Shanka, and Roy (2019), Gago-Rodriguez, Marquez-Illescas, and Nunez-Nickel (2021), and Venegas (2023) support Nikolaeva and Pletnev's (2016) findings by asserting the importance of investing in each of the transaction cost components to drive performance. Nonetheless, these investments should not exceed an optimal range, or they will produce a decrease in performance levels. Erdogan and Yamaltdinova (2019) discovered that there is an inverted U-shaped relationship between research investment and firm performance. Initial increases in research intensity boost profitability, but beyond a certain point, further increases may lead to diminishing returns.

Regarding bargaining costs, Prasad et al. (2019) revealed that the distribution of profits in a supply chain is significantly influenced by the relative bargaining power of the parties involved. Firms with greater bargaining power can secure a larger share of the supply chain surplus. Conversely, an extended bargaining process results in the accumulation of delay costs, which have a direct mathematical effect on profits (Gago-Rodriguez et al., 2021). Notably, in settings with higher delay costs, the expenses of extending negotiations are higher than in settings with lower delay costs. Therefore, for the same final price and number of rounds

negotiated, profits will be lower in settings with higher delay costs. This creates a systematic difference in bargaining profits based on the level of delay costs.

Regarding policy enforcement costs, Venegas (2023) contends that, on one hand, investment in enforcement actions (including monitoring and surveillance expenses, administrative costs, and compliance costs, to name a few) prevents potential violation of contract terms, thereby protecting entrepreneurs' interests and enhancing the stability and profitability of their business by ensuring adherence to agreed-upon terms. On the other hand, a high burden of these costs can reduce entrepreneurs' profitability and business performance.

Li et al. (2023) expanded upon these observations by revealing that, in addition to business-incurred transaction costs, perceived transaction costs from the customers' perspective also affect business performance. Specifically, the scholars (Li et al., 2023) ascertained that increased perceived transaction costs, arising from factors such as high perceived asset specificity (the necessity for specialised investments in equipment or skills to use products and/or services), high perceived complexity (difficulty involved in using products and/or services), high perceived product uncertainty (unpredictability regarding the quality and performance of products and/or services), high perceived behaviour uncertainty (unpredictability about the behavioural patterns of the product and/or service providers), low dependability (reliability of the products and/or services), low convenience (user-friendliness of the products and/or services), and high limitations (restrictions customers might face while using the products and/or services), negatively affect customers' adoption intentions, which is an antecedent of business performance (Nyadzayo, Casidy, & Mohan, 2023).

Given the correlation between transaction cost levels and both human capital and business performance, this research delves deeper into these relationships. It leverages these insights to develop research-based recommendations for optimising business performance and enhancing the economic growth contributions of entrepreneurs, particularly in a low-income country context like Madagascar.

2.2.2.5. Exploring the relevance of perceived behavioural control within human capital theories

Ajzen's (1991) Theory of Planned Behaviour suggests that attitude, subjective norm and perceived behavioural control are three antecedents of entrepreneurial intention. Perceived behavioural control refers to individuals' perception of their abilities to perform a specific behaviour (Ajzen, 1991), which usually reflects past experience as well as anticipated obstacles (Doll & Ajzen, 1992). While researchers such as Yzer (2012) claim that perceived behavioural control is conceptually similar to self-efficacy, Kraft, Rise, Sutton and Roysamb (2005) argue that the concept has two components: (i) self-efficacy (SE) and (ii) controllability. Believing in their ability to perform a specific behaviour motivates people to disburse their efforts and persevere in their attempts (Bandura & Locke, 2003). Yzer (2012) asserted that an individual's level of perceived behavioural control depends on resources and opportunities. They believe that they can perform a specific activity if they believe they have resources and opportunities to do so, and they can freely make decision to use those resources and opportunities.

Memon and colleagues (2019) define entrepreneurial self-efficacy as the individuals' manifestation of their assurance in their personal capabilities to display astuteness and make the most of circumstances that are critical for their success. The scholars (Memon et al., 2019) link self-efficacy with growth and venture creation, investors' confidence, and entrepreneurial

success. The lack of entrepreneurial self-efficacy is a key stumbling block impeding the effectiveness of business owners in developing countries such as Madagascar. For this reason, the school of thought paralleling perceived behavioural control with entrepreneurial self-efficacy will be adopted in the study.

Figure 2.7 displays the disposition of perceived behavioural control within the theory of planned behaviour.

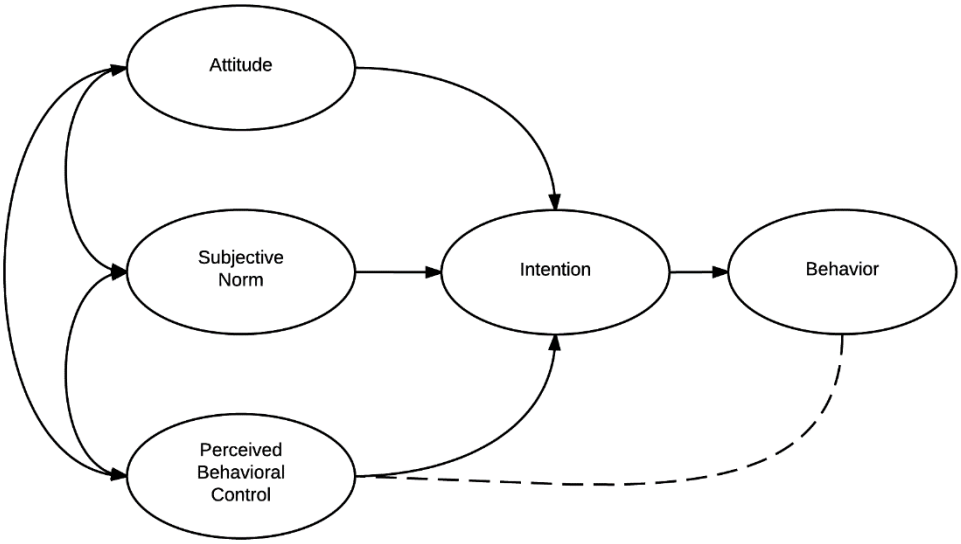

Figure 2.7: Theory of Planned Behaviour (Ajzen, 1991)

Roy, Morton, and Bhattacharya (2018) describe self-efficacy as a "hidden" form of human capital. This perspective aligns with Bandura's (1997) assertion that self-efficacy is an important constituent of psychological empowerment. When an individual firmly believes in their ability to accomplish any given task and navigate through challenges, their aspirations become boundless, their motivation knows no limits, and their potential for achievement becomes measureless (Bandura, 1993). Consequently, their behaviour is profoundly impacted. They tend to persevere in the face of adversity, exhibit optimism over pessimism, and naturally gravitate towards engaging in challenging undertakings.

Roy et al. (2018) categorise self-efficacy as a dimension of non-cognitive skills. While cognitive skills are characterized by deliberate cerebral efforts, such as thinking, reasoning, and remembering, non-cognitive skills encompass competencies that are less conscious, including motivation, perseverance, mindsets, and social skills (Demange, Hottenga, Abdellaoui, Eilersten & Malanchini, 2022). In essence, non-cognitive skills represent abilities that differ from the traditional indicators of human capital, such as education and training.

Self-efficacy, as a non-cognitive ability, is a predictor variable of an individual's level of human capital. Roy et al. (2018) propose that a higher level of self-efficacy can elevate individuals' educational and employment aspirations. Moreover, increased aspirations act as a mediator variable to the relationship between self-efficacy and educational and employment outcomes.

Several individual and household factors contribute to the development of self-efficacy, including age, prior training experiences, and the presence of an enabling environment, such as family and social support, feeling connected, and having educated parents or other successful role models to look up to (Roy et al., 2018).

In this context, perceived behavioural control (PBC) appears to be an elusive privilege for most Malagasy entrepreneurs. Firstly, many of them are unable to leverage their experience and age. This is due to the fact that, while successful entrepreneurs generally start their companies in their mid-40’s (Shaw & Sørensen, 2022, p.2), most entrepreneurs in Madagascar operate within the informal sector, where 33 percent of the workforce is under 26 years of age, and 70 percent acquire their tasks and responsibilities through on-the-job learning. Moreover, they cannot rely on prior training experiences, as most possess limited education and qualifications (Afavi et al., 2023, p.4). Additionally, a conducive

entrepreneurial environment is lacking in Madagascar, where the majority of entrepreneurs are driven by necessity. Rather than being perceived as high-potential individuals seizing identified market opportunities, business owners in the country are more often viewed as inadequately qualified professionals struggling to secure better employment opportunities (Lawson & Lahiri-Dutt, 2022).

Nonetheless, perceived behavioural control (PBC) plays a crucial role in understanding the extent to which individuals feel they have control over performing a behaviour (La Barbera & Ajzen, 2021). PBC has been found to moderate the effects of individuals' attitudes—defined as the degree to which they have a favourable or unfavourable evaluation of performing the behaviour—and subjective norms—defined as the perceived social pressure to engage in or refrain from a behaviour—on their intentions. Intentions refer to how hard individuals are willing to try and how much effort they plan to exert to perform a behaviour. La Barbera and Ajzen (2021) demonstrated that the higher individuals' perceptions of their abilities to perform a specific behaviour (i.e., their PBC), the stronger the association between their attitudes and their intentions. Conversely, the higher individuals' PBC, the weaker the association between subjective norms and their intentions.

PBC was also found to moderate the relationship between work engagement and work-family conflict (Balogun, 2023). Highly engaged individuals with a strong belief in their ability to manage and control conflicts between work and family roles experienced lower levels of work-family conflict compared to those with low self-efficacy. Furthermore, a moderating effect of self-efficacy was identified on the relationship between working memory capacity and task performance (Li, Liu, Zhang, & Huang, 2022). Enhancing PBC among individuals can mitigate the negative effects of reduced working memory capacity, which is particularly beneficial for older workers who may experience cognitive decline. Consequently, the negative

indirect effect of age on task performance is weaker when self-efficacy is higher, indicating that self-efficacy can significantly buffer against the adverse effects of aging on performance.

The current study advances the understanding of perceived behavioural control by investigating its moderating effect on the relationship between human capital and transaction cost levels within the context of entrepreneurs in Madagascar, where none of Roy et al.'s (2018) PBC nurturing factors—age, prior training experiences, and the presence of an enabling environment—are met (Afavi et al., 2023; Lawson & Lahiri-Dutt, 2022). The findings will facilitate the development of research-based recommendations on the relevance of PBC in enhancing the impact of Malagasy entrepreneurs' human capital accumulation in minimising transaction costs, stimulating business performance, and fostering economic growth (Ferreira & Franco, 2020; Williamson, 1975, 1985; Fomum & Opperman, 2023).

2.2.3. The economic landscape of Madagascar: A comprehensive analysis

Madagascar is known for its rich biodiversity, natural resources, and agricultural potential. Despite these advantages, the country has faced numerous economic challenges that have hindered its development. Agriculture, low-value goods manufacturing, tourism, and mining feature among the main economic sectors in the country (International Fund for Agricultural Development, 2021).

Agriculture plays a crucial role in Madagascar's economy, employing 80 percent of the active population, and accounting for around thrity percent of the country's GDP (Diao et al., 2023). The agricultural sector contributes to both domestic consumption and exports. The main agricultural products include rice, vanilla, perfume plants, coffee, cocoa, and various fruits and

vegetables (International Fund for Agricultural Development, 2021). Rice is the leading sector, with 68.6 percent of smallholder agropreneurs involved in rice production (PRERAD, 2023). In the 1960s, Madagascar used to be a net exporter of food products. The country produced and sold more food products than it consumed and bought. However, today, the country cannot even produce the quantity of rice consumed by its population. It imports a staggering amount of 200,000 to 500,000 tonnes of rice to the international market (International Fund for Agricultural Development, 2021, p.2). As a result, 8.8 million people across the country, about 33 percent of the population, are food insecure (Fayad, 2023, p.2). Several factors contribute to the inadequate growth of the rice and agricultural sector in the country, leading to rural poverty. These factors include fragmented production, low productivity, rural insecurity, overuse of natural resources, vulnerability to natural hazards (cyclones, droughts, and floods), and limited access to economic and commercial opportunities due to isolation, aging infrastructure, and difficulty accessing agricultural markets and rural finance (International Fund for Agricultural Development, 2021).

The clothing and textile sector is the main manufacturing sector in Madagascar. It contributes to 19.35 percent of the country's GDP (International Labour Organization, 2023, p.iii). The clothing and textile sector employs around 180,000 people, among whom 50,000 are cotton seed producers, 550 are cotton fibre operators, producers, and exporters, 2,700 are involved in spinning and weaving, 100 work for fabric/accessories importers, and 120,000 work in garment factories (International Labour Organization, 2023, p.17). Among the 249 free zone status enterprises in Madagascar, 101 are in the clothing and textile sector (World Bank, 2022a, p.9). These companies benefit from a multitude of fiscal and non-fiscal incentives, including: (i) no income tax during the first five years if the company is engaged in intensive transformation and production, (ii) a reduced percentage of income tax after 5 years of transformation and production, and (iii) a 0 percent value-added tax (VAT) rate on exports and

sales benefiting from the free zone regime, to name a few (World Bank, 2022a). Although an important proportion of the textile value supply chain workers have a written contract, an astounding 42.8 percent of them have an informal job (International Labour Organization, 2023, p.34). In other words, they are self-employed individuals and workers with temporary contracts, with no social protection, no paid holidays, and no sick leave. Most informal workers (96.9 percent) are operating in the agricultural and ginning stage of the value supply chain (International Labour Organization, 2023, p.34).

The largest island in the Indian Ocean, Madagascar stands out as one of the most biodiverse countries in the world (Mamiarisoa, Raherivelo, Randiranjafy & Bela, 2021). Its abundant and unique animal and plant species constitute valuable assets for the country's tourism industry, which contributes to 13 percent of the GDP (Confédération du Tourisme de Madagascar, 2020, p.4). This thriving industry generates an annual revenue of 600 million € (Ministère du Tourisme, 2018, p.6), and creates 750,000 jobs, amounting to 12 percent of total employment in the country (Mamiarisoa et al., 2021, p.369). Madagascar's tourism industry encompasses a multitude of small businesses, including guesthouses, diners, independent travel agencies, tour guides, suppliers of raw materials to hotels, and community ecotourism among others (WWF, 2020). Despite these contributions, the island’s tourism sector still lags behind that of its neighbouring countries. Notably, Madagascar receives six times fewer tourists than Mauritius, an island over 280 times smaller, and an astounding forty times fewer tourists than South Africa (Casse et al., p.12). Tourists visiting the country fall into three main categories: adventure and discovery enthusiasts (43 percent), beach lovers (15.3 percent), and eco-conscious green tourists (41.7 percent) (Casse et al., 2022, p.12). Although iconic touristic destinations, such as the Ranomafana National Park, significantly support the local economy, offering income opportunities through guiding, handicrafts, agricultural product sales, hotels, and restaurants (Foundation

for the Protected Areas and Biodiversity of Madagascar, 2021), Rakotondramaro and Andriamasy (2016) argue that tourism development does not lead to poverty reduction in Madagascar. While it has the potential to spur economic growth, it could also exacerbate poverty levels due to the unequal distribution of benefits among the population, the fostering of inflation and an increased cost of living, the creation of low-paying, seasonal, and insecure jobs, and the displacement of local communities along with the reallocation of resources away from essential services such as healthcare and education.

A country is considered rich in natural resources when its natural resource exportation exceeds a quarter (25 percent) of its total exportation (FERDI, 2023, P.11). Madagascar's natural resource exportation represents 29 percent of its total exportation (EITI, 2022, p.34). The three key minerals produced in Madagascar include nickel (57 percent), ilmenite (13 percent), and cobalt (4 percent), with a total production value of 665 million US dollars in 2019 (FERDI, 2023, pp.12-13). The extractive industry contributed to 6.07 percent of Madagascar's GDP in 2018 and 6.41 percent in 2019 before declining to 3.58 percent at the beginning of the COVID-19 pandemic in 2020 (Figure 2.8).

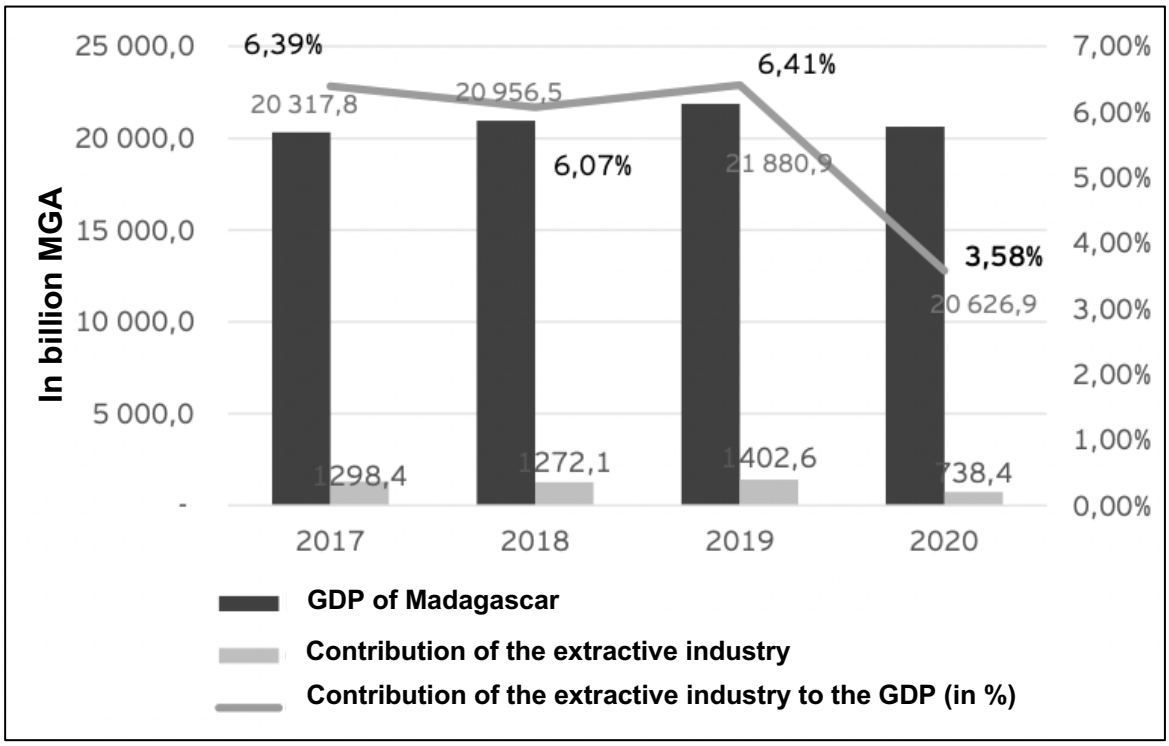

Figure 2.8: Contribution of the extractive industry to Madagascar's GDP (EITI, 2022, p.29)

There are seven main mining companies in Madagascar, including Dynatec Madagascar, Ambatovy Minerals, QIT Minerals Madagascar (QMM), Établissement Gallois, Holcim Madagascar, APC Mining, and RED Graniti Mada (FERDI, 2023). The industry's contribution to job creation is not ascertained. However, referring to the number of employees registered at the CNAPS (where all employees should be registered), the mining sector would formally employ 11,348 people in 2021, representing 1.59 percent of all employees in the country (EITI, 2022, p.36). Around 1 million informal workers are estimated to be involved in Artisanal and Small-scale Mining (ASM). This number excludes smallholder farmers who practice mining during non-agricultural seasons (EITI, 2022, p.29).

2.2.4. Entrepreneurial activities and ecosystem in Madagascar

According to the 2019-2020 GEM report (Ratsimbazafy, 2020, p.22), a remarkable 94.4 percent of the Malagasy active population holds a positive outlook towards entrepreneurship, considering it a desirable career option. This leads to a surge in entrepreneurial activity in Madagascar. Specifically, 19.5 percent of the active population are start-up owners who have established and are managing businesses up to 3.5 years old, earning the country the eighth spot among the 50 evaluated low-, middle-, and high-income countries. Distinctively, the retail trade sector constitutes the primary domain for most entrepreneurs (33.9 percent), followed by the agricultural industry (17.5 percent), and manufacturing (12.6 percent) (Ratsimbazafy, 2020, p.28). The key entrepreneurial skills observed among the active population are opportunistic behaviour (68.7 percent), proactivity (65 percent), and vision (82.6 percent) (Ratsimbazafy, 2020, p.55). Despite the high levels of entrepreneurial activity, the impact of entrepreneurship in Madagascar remains limited. It contributes only 1.5 percent to job creation, placing the country at the 41st position out of 50 countries assessed. Furthermore, the percentage of total entrepreneurial activity (TAE) in the service sector is remarkably low at 1.3 percent, leaving Madagascar ranked last among the 50 evaluated countries (Ratsimbazafy. 2020, p.22).

Based on these figures, entrepreneurship in Madagascar exemplifies the characteristics typical of a low-income economy. Key attributes include the predominance of the agricultural sector (Trentinaglia, Baldi, & Peri, 2023), a necessity-driven entrepreneurial landscape with limited economic impact, such as low job creation (O'Donnell, Leger, O'Gorman, & Clinton, 2023), and minimal entrepreneurial activity in the service sector due to factors such as lack of finance, inadequate business skills, poor market access, and insufficient operating space (Endris & Kassegn, 2022). The entrepreneurial skills observed among Malagasy business owners, such as opportunistic

behaviour, proactivity, and visionary thinking, present opportunities to foster more impactful entrepreneurship within the country.

This study promotes the leveraging of these observed skills by deepening the understanding of how human capital, including the skills of Malagasy entrepreneurs, interacts with perceived behavioural control and transaction cost levels to enhance business performance. This holistic approach aims to contribute to improving the entrepreneurial ecosystem and stimulate more substantial economic growth in Madagascar.

For a detailed overview of entrepreneurship in Madagascar based on the 2019-2020 GEM report, refer to Table 2.4, which displays the general characteristics of entrepreneurship in the country.

Table 2.1: General characteristics of entrepreneurship in Madagascar (Ratsimbazafy, 2020, p.22)

Characteristics	Value (%)	Rank (Out of 50 countries)
Entrepreneurial mindset and perceptions		
Encounter a new entrepreneur	51	30
Perceived opportunities	46.8	31
Ease of setting up a venture	38	32
Perceived capabilities	73.5	6
Fear of failure	41	30
Entrepreneurial intentions	44.5	6
Entrepreneurial skills		
Opportunistic behaviour	68.7	2
Proactivity	65	4
Innovation	55.5	24
Vision	82.6	3
Activity		
Total Entrepreneurial Activity (TEA - up to 3.5 years old)	19.5	8
Established Business Ownership rate (EBO)	20.2	1
Entrepreneurial Employee Activity (EEA)	0.6	38
Motivation index		
To be different	8.8	49
To build a fortune	23.5	46
To carry on a family tradition	36.8	16
To earn a living	81.1	15

Characteristics	Value (%)	Rank (Out of 50 countries)
Entrepreneurial impact		
Expectations / job creation	1.5	41
Industry (% TEA in the service sector)	1.3	50
Societal value of entrepreneurship		
High status of entrepreneurs	80.6	
Entrepreneurship, a good career choice	94.4	

Ratsimbazafy (2020) identified both major favourable and unfavourable conditions for entrepreneurship in Madagascar. Among the favourable conditions is the presence of entrepreneurial education in higher learning institutions, exemplified by the JMCT - Jeune Malgache Compétente au Travail – project. This initiative aims to promote cultural awareness and foster an entrepreneurial spirit among higher education students. Additionally, the island benefits from a dynamic local market, with competent subcontractors, service suppliers, and consultants readily available. Moreover, social and cultural norms celebrate entrepreneurship as a highly desirable career option, with 80.6 percent of entrepreneurs citing the high status associated with it as their motivation for entering the profession.

However, there are also two main unfavourable conditions for entrepreneurship in Madagascar. Firstly, there is a lack of basic entrepreneurship education that introduces the fundamental values shaping the entrepreneurial spirit in school programs. Secondly, the insufficient funding opportunities hinder entrepreneurs from effectively creating, delivering, and capturing value through their ventures.

2.2.5. Evaluating the business performance of entrepreneurs in Madagascar

Mouzas and Bauer (2022) contend that business performance is indicated by a venture's (i) profitability, (ii) growth, and (iii) solvency. These attributes, termed performance outcomes, are attained by fostering performance systems, described as a combination of (i) operational efficiency, (ii) market effectiveness, and (iii) financial resilience (Figure 2.9).

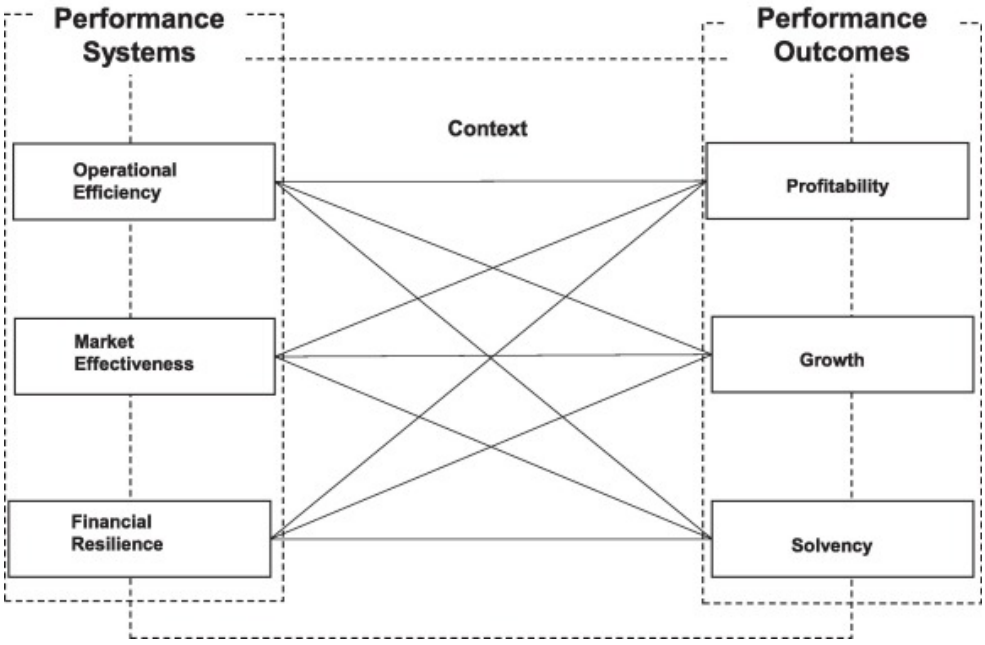

Figure 2.9: Dynamic interplay between performance systems and performance outcomes (Mouzas & Baurer, 2022)

Afavi et al. (2023) suggest that a significant proportion of entrepreneurs in Madagascar are engaged in the informal sector. More precisely, they manage unincorporated businesses that are not registered for tax and labour law compliance, as highlighted by the International Labour Organization (1993). Informal entrepreneurship can be categorized into two distinct groups, as outlined by Vaillant, Grimm, Lay & Roubaud (2011). The first category comprises individuals at the lower subsistence tier, often involving involuntary labour, as they await formal employment opportunities. Conversely, the second category encompasses the upper entrepreneurial tier, consisting of voluntary entrepreneurs who have identified market gaps and initiated new business ventures to exploit them.

The majority of entrepreneurs in Madagascar fall within the lower subsistence tier (Erica, 2021). The informal sector, indeed, is intrinsically linked to unfavourable working conditions, including inadequate employment arrangements, the absence of work contracts, lack of paid

leave, limited access to social protection, and absence of employment security (Afavi et al., 2023). Nevertheless, despite these challenges, many Malagasy entrepreneurs are compelled to continue operating within this sector. This inclination is primarily driven by their limited educational background, skills, and competencies, which restrict their access to alternative employment opportunities (Afavi et al., 2023; Erica, 2021).

In light of this, business creation in Madagascar is primarily driven by the imperative of survival rather than the factors of profitability, growth, and solvency (Erica, 2021). Consequently, the trajectory of entrepreneurship growth in the island leans towards being extensive rather than expansive. In simpler terms, growth occurs through the establishment of new enterprises rather than the expansion of existing ones (Vaillant et al., 2011). The motivation behind this trend lies in the fact that each individual endeavours to establish their own business, driven by the need to fulfil their physiological needs (Ratsimbazafy, 2020; Erica, 2021).

This context is what underpins Rajerison's (2013) assertion that Malagasy entrepreneurs lack the *'entrepreneurial spirit and dynamism'*. Despite the country exhibiting a total entrepreneurial activity that surpasses the global average, the enterprises they create often fall short in terms of profitability, growth, and solvency, which are pivotal for enhancing economic growth. Notably, the country's GDP per capita is alarmingly low at 528.7 US dollars (World Bank, 2023b). Rajerison (2013) further highlights that the country's difficulty to ascend out of poverty is evidence of the shortfall of high-performing entrepreneurs. That is why this thesis particularly investigates on Malagasy entrepreneurs' business performance. An evidence-based approach is required to support governing authorities and decision-makers in creating an enabling environment that fosters high-performing business leaders, key drivers of the country's economy (Isichei, Agbaeze & Odiba, 2020; Fomum and Opperman, 2023).

2.2.6. Human Capital Index in Madagascar

According to World Bank (2020a), Madagascar's Human Capital Index is below the worldwide average. Globally, a child born in 2020 can expect to achieve 56 percent of their productive potential by the time they turn 18. However, if they are born in Madagascar, only 39 percent of their productive potential will be fulfilled by the age of 18. Several factors contribute to this low Human Capital Index, including:

- **A low probability of survival to Age 5:** Only 95 percent of children born in Madagascar are expected to survive to age 5 (Word Bank, 2020a, p.1), compared to the global average of 96 percent (UNICEF, 2024).

- **Low expected years of schooling:** Children who begin school at the age of four are projected to complete only 8.4 years of education by the age of 18 (World Bank, 2020a, p. 1). In comparison, the global average years of schooling by income level are 7.6 years for low-income countries, 10.4 years for lower-middle-income countries, 11.8 years for upper-middle-income countries, and 13.2 years for high income countries (Gatti, Corral, Dehnen, D'Souza, Mejalenko, & Pennings, 2020, p. 174).

- **Low harmonised test scores:** Malagasy students score only 351 on a scale where 300 represents the minimum attainment and 625 the maximum. In comparison, the global average scores by income level are 356 for low-income countries, 392 for lower-middle-income countries, 411 for upper-middle-income countries, and 487 for high income countries (Gatti et al., 2020, p. 179).

- **Low learning-adjusted years of schooling:** Considering actual learning outcomes, students in Madagascar achieve an average of only

4.7 years of effective schooling (World Bank, 2020a, p. 1). In comparison, the average stands at 5.1 years across Africa and 10.2 years in high-income countries (World Bank, 2023c).

- **A low healthy growth:** Stunted growth can limit children's cognitive and physical abilities throughout their lifetime. In Madagascar, only 58 percent of children under the age of five are not stunted (World Bank, 2020a, p. 1). By contrast, the global averages by income level are 65 percent for low-income countries, 75 percent for lower-middle-income countries, and 87 percent for upper-middle-income countries (Gatti et al., 2020, p. 184).

- **A low adult survival rate:** In Madagascar, only 80 percent of 15-year-olds are expected to live until the age of 60. In comparison, the global averages by income level are 75 percent for low-income countries, 80 percent for lower-middle-income countries, 86 percent for upper-middle-income countries, and 92 percent for high income countries (Gatti et al., 2020, p. 188).

The low human capital index in the country impedes its entrepreneurs' ability to enhance enterprise performance and stimulate economic growth (Isichei et al., 2020; Fomum and Opperman, 2023). Consequently, this study delves into the relationship between human capital and business performance. A further investigation of this correlation is necessary to derive research-based solutions that adequately address the human capital issues hindering the realisation of the island’s full economic growth potential.

As the low Human Capital Index appears to be particularly an outcome of a low level of knowledge—resulting from limited years of schooling, low harmonised test scores, and low learning-adjusted years of schooling (World Bank, 2020a)—this study specifically investigates prior knowledge and experiential knowledge to advance the understanding of the human

capital of entrepreneurs in Madagascar. The author posits that examining the interaction of these types of knowledge with perceived behavioural control and transaction costs in enhancing business performance will uncover alternative pathways to acquiring business acumen. Such insights can inform policies and programs aimed at enhancing practical entrepreneurship education and training, thereby compensating for deficiencies in the formal education system.

It is crucial to note that, in addition to prior and experiential knowledge, other dimensions of human capital, such as education level, work experience, and entrepreneurial experience (Urban, 2015), are also considered in this study as control variables.

2.2.7. Transaction cost economics and perceived behavioural control in the context of developing countries

2.2.7.1. Transaction costs in developing countries

Transaction costs are pivotal in the economic development of developing countries, profoundly affecting various economic activities and outcomes. These costs are generally elevated in such regions due to weaker institutional frameworks, pervasive corruption, and inefficient bureaucratic processes (North, 1992).

Public sector procurement in developing countries frequently incurs substantial transaction costs, driven by factors including political interference, inadequate staffing, and ambiguous procurement regulations. These high costs undermine the efficiency and effectiveness of procurement processes, resulting in increased overall project expenses and diminished public trust (Yahaya, Ibrahim & Sani, 2020). Similarly, remittances are burdened by high transaction fees, which deter the use of formal channels and limit financial inclusion. Reducing these fees can shift

remittances from informal to formal channels, thereby enhancing economic stability and financial inclusion (Ahmed, Mughal & Martínez-Zarzoso, 2021).

The landscape of transaction costs in low- and middle-income countries is further complicated by asset specificity and corruption. High asset specificity necessitates considerable investments in specialised physical and human capital, potentially leading to opportunistic behaviours and increased transaction costs. Corruption exacerbates these costs by introducing inefficiency and unpredictability into the economic system. However, in some instances, corruption may ironically facilitate innovation by allowing firms to circumvent cumbersome regulations (Barasa, 2018).

Therefore, reducing transaction costs in developing countries necessitates comprehensive institutional reforms. Effective institutions provide clear property rights, robust enforcement mechanisms, and low-cost methods for measuring the attributes of goods and services. By streamlining bureaucratic processes and enhancing transparency, institutions can reduce transaction costs and promote economic growth (North, 1992). Such reforms are crucial for fostering a conducive environment for economic development, encouraging innovation, and ensuring efficient market operations (Kpodar & Imam, 2024).

Although recent literature on transaction costs in the context of developing countries is relatively sparse (Yahaya et al., 2020; Ahmed et al., 2021; Barasa, 2018; Kpodar & Imam, 2024), the articles specifically addressing Madagascar are even older and more limited. Among the prominent works on this subject are those by Dorosh and Stifel (2003), Razafimahefa and Hamori (2005), Okoye, Bachwenkizi, Asumugha, Alenkhe, Ranaivoson, Randrianarivelo, Rabemanantsoa, and Ralimanana (2016), and Brimont, Driss-Ezzine-de-Blas, and Karsenty (2017).

Transaction costs in Madagascar significantly hinder economic activities, particularly in agriculture and conservation, which encompasses the

protection of natural environments and biodiversity (Dorosh and Stifel, 2003; Okoye et al., 2016; Brimont et al., 2017). Poor infrastructure exacerbates these costs for smallholder farmers and rural communities, reducing their market participation and agricultural productivity. Improving roads and reducing travel time can mitigate these issues (Dorosh and Stifel, 2003). Inefficient economic policies also contribute to high transaction costs, often leading to increased borrowing and financial transaction burdens (Razafimahefa and Hamori, 2005).

Within conservation efforts, implementing compensation schemes for local communities involves substantial costs for identifying beneficiaries, administering payments, and monitoring compliance. These transaction costs frequently exceed available budgets, challenging the effectiveness and legitimacy of these initiatives (Brimont et al., 2017). Consequently, high transaction costs can undermine conservation efforts and disadvantage local populations on the island.

No research has been conducted on the influence of transaction costs on the relationship between human capital and business performance among Malagasy entrepreneurs. Despite high entrepreneurial activity (Ratsimbazafy, 2020), low entrepreneurial performance—potentially driven by a low human capital index—contributes to the country's poor economic performance (World Bank, 2020a; Shen et al., 2021; Isichei et al., 2020; Fomum & Opperman, 2023; Bosma & Kelley, 2019). Therefore, further investigation into the relationship between human capital and business performance is required to better understand this dynamic and leverage it for economic growth. In this context, examining the influence of transaction costs is essential, given their established effects on business performance (Ferreira & Franco, 2020; Nikolaeva & Pletnev, 2016; Li et al., 2023). This research sets a precedent in this area of study.

2.2.7.2. Perceived behavioural control (PBC) in the context of developing countries

Perceived behavioural control (PBC), often synonymous with self-efficacy, plays a critical role in domains such as entrepreneurship, education, and financial management in developing countries. Scholars argue that it is influenced by factors including education (Aga, 2023; She et al., 2023; Afful & Boateng, 2023), structural support (Otchengco & Akiate, 2021; Veselinovic, Antoncic, Antoncic, & Grbec, 2022), industry-specific experiences (Madawala, Foroudi & Palazzo, 2023; Msimango-Galawe & Mazonde, 2022), and gender-specific challenges (Madawala et al., 2023; Msimango-Galawe & Mazonde, 2022). Enhancing self-efficacy through targeted educational programs, supportive policies, and practical experiences is crucial for improving entrepreneurial and financial behaviours. Developing countries need to focus on creating supportive environments that build self-efficacy to foster innovation, growth, and overall economic development (Aga, 2023; Hasan, 2021; She, Rasiah, Weissmann & Kaur, 2023; Otchengco & Akiate, 2021; Afful & Boateng, 2023; Tadi, Aneesh, Neethu & Sia, 2023; Madawala et al., 2023; Msimango-Galawe & Mazonde, 2022; Veselinovic et al., 2022).

- Role of structural support and environment

The environment and structural support significantly influence PBC. Otchengco and Akiate (2021) found that structural support, such as government policies and financial resources, moderates the relationship between PBC and entrepreneurial intentions among tricycle drivers in the Philippines. Positive structural support enhances self-efficacy and entrepreneurial intentions, highlighting the need for supportive policies in developing countries.

- Education and training

Education and training are essential for developing self-efficacy. Aga (2023) demonstrated that entrepreneurship education significantly enhances students' PBC, which in turn increases their entrepreneurial intentions. Practical experiences such as business plan writing and case studies effectively build students' confidence. Hasan (2021) emphasised the influence of PBC on halal tourism intentions, noting that self-efficacy in managing tourism activities significantly impacts tourists' behaviours. This underscores the importance of sector-specific training in enhancing PBC.

- Gender and industry-specific challenges

Gender-specific challenges also impact PBC. Madawala et al. (2023) observed that social media, role models, and entrepreneurial passion significantly boost self-efficacy among women entrepreneurs in Sri Lanka. However, traditional education and work experience were less influential, suggesting that practical, industry-specific experience and support networks are more critical for women entrepreneurs. Similarly, Msimango-Galawe and Mazonde (2022) noted that industry-specific experience is crucial for building self-efficacy among women entrepreneurs in South Africa, leading to better business performance.

- Entrepreneurial self-efficacy and business performance

Entrepreneurial self-efficacy is pivotal for the success of small and medium-sized enterprises (SMEs). Veselinovic et al. (2022) highlight that financial self-efficacy significantly impacts SME profitability, growth, and the satisfaction of entrepreneurs. Entrepreneurs with higher financial self-efficacy are better at managing finances, which translates into superior business performance. Similarly, Tadi et al. (2023) found that self-efficacy and perceived controllability significantly enhance entrepreneurial intentions among rural college students, with entrepreneurial knowledge

further moderating this relationship. Educational programs play a critical role in building self-efficacy, as they enhance students' confidence in their entrepreneurial abilities.

- Financial self-efficacy and behavioural control

Financial self-efficacy is another critical dimension of PBC in developing countries. Afful and Boateng (2023) highlighted that self-efficacy significantly influences students' behavioural control towards mobile learning, indicating that confidence in one's ability to use technology enhances its adoption and effective use. She et al. (2023) found that self-efficacy impacts financial behaviour and retirement planning, with higher self-efficacy leading to better financial management and planning among working adults.

- Literature on Perceived behavioural control in the context of Madagascar

Similar to the concept of transaction costs, there is a dearth of academic literature addressing the concept of perceived behavioural control (PBC) in the context of Madagascar. Notable recent works in this area include those by Urban and Ratsimanetrimanana (2019), Rakotoarisoa, Kurnia, and Lia (2022), and the United States Agency for International Development (USAID, 2020).

Urban and Ratsimanetrimanana (2019) explored entrepreneurial intentions among Malagasy youth, emphasizing PBC as a crucial factor. They highlighted that both internal self-efficacy and external controllability are essential for fostering entrepreneurial intentions. Higher education levels were found to enhance knowledge and skills, thereby increasing self-efficacy and promoting entrepreneurial activities. The study also noted the

moderating role of access to finance, where perceived access to financial resources bolsters self-efficacy, enabling entrepreneurial intentions.

Rakotoarisoa et al. (2022) discovered that higher levels of self-efficacy significantly influence the ethical behaviour intentions of accounting students. When students believe they have control over their actions, they are more likely to intend to act ethically. This finding underscores the importance of self-efficacy in ethical decision-making within educational contexts.

The USAID (2020) Cross-Sectoral Youth Assessment provided a broader perspective on youth development, employing a Positive Youth Development framework. The assessment highlighted self-efficacy across various domains, including education, economic opportunities, health, and civic engagement. In education, stakeholders stressed the need for practical skills that enhance self-efficacy, preparing youth for future opportunities. The report emphasised entrepreneurship training and access to finance, aligning with the findings of Urban and Ratsimanetrimanana (2019). Addressing health issues, particularly early pregnancy, was identified as crucial for enhancing young women's self-efficacy, enabling them to pursue educational and economic opportunities.

The report also underscored the importance of youth-friendly services and safe spaces that support skill-building and personal development. These environments foster self-efficacy by providing the necessary resources and support for youth to develop their competencies and confidence. Civic engagement initiatives that involve youth in decision-making processes further enhance their sense of agency and self-efficacy, enabling meaningful contributions to their communities.

Collectively, these studies underscore the critical role of self-efficacy in various contexts within Madagascar. For entrepreneurial activities,

increasing financial literacy and providing resources are essential (Urban & Ratsimanetrimanana, 2019). In education, enhancing students' confidence in their decision-making abilities is crucial (Rakotoarisoa et al., 2022). In youth development, integrated approaches that include skill-building, access to resources, and supportive environments are vital for enhancing self-efficacy. Addressing health issues, providing relevant education, and promoting civic engagement all contribute to empowering youth and fostering socio-economic growth in Madagascar (USAID, 2020).

Perceived behavioural control is a fundamental factor influencing entrepreneurial activities, ethical behaviour, and overall youth development. Targeted interventions that build self-efficacy could therefore lead to positive outcomes, empowering individuals and supporting Madagascar's socio-economic growth. This research enriches the available literature on PBC in Madagascar by particularly focusing on its importance in the relationship between human capital and local entrepreneurs' business performance as a precursor to the country’s economic growth (Isichei et al., , 2020; Fomum & Opperman, 2023).

2.2.8. The significance of age and biological sex in the socio-economic landscape of Madagascar

Age relationships are instrumental in shaping the socio-economic dynamics of Madagascar. A generation- and age group-based hierarchy prevails in the Malagasy society, whereby the elders, also known as the *Zokiolona*, are at the apex. Despite constituting a mere three percent of the population, individuals aged 65 years and above wield significant symbolic influence within the community (World Bank, 2022b; Andrianantoandro, 2011). This allegiance to the elders is intertwined with the worship of ancestors, referred to as *"fanajana ny razana"* or *"razanism."* Ancestors are believed to administer divine justice in the world while bestowing essential gifts such as fertility and wealth (Champion, 2017). Likewise, the veneration of the elders

is reinforced by their profound life experiences and longevity. The perception is that individuals grow to embody ancestral wisdom as they age (Randriamasitiana, 2009).

Furthermore, a cultural norm compels the active population to care for their economically inactive parents, encapsulated in the concept of "*valimbabena*," which literally translates to "the backs that support one another." This concept underscores that just as parents provided for their children until they achieved financial independence, the children reciprocate by caring for their parents in their retirement years (Andriamisaina, 2021). However, given the complexities of the contemporary economic landscape, marked by brittleness, anxiety, non-linearity, and incomprehensibility (referred to as BANI) (Evseeva et al., 2022), the elders often continue to engage in economic activities as long as their capabilities allow. This extended economic activity serves to alleviate the burdens that would otherwise fall upon their children (Andrianantoandro, 2011).

The Malagasy society operates under a patriarchal system, characterized by social norms that revolve around men. This ideology, portrayed by Andriamanondehibe (2020), asserts male dominance, both in the political sphere and within families. Consequently, UNICEF (2022) notes an educational advantage for girls over boys in early childhood, especially in lower-income families, where child labour often involves boys. However, during adolescence, this gender gap reverses, with girls dropping out of high school more frequently than boys. A parallel trend emerges in healthcare provision. In early childhood, both girls and boys receive comparable levels of care from their families. Nevertheless, as they transition into adolescence, girls encounter disparities in essential healthcare, leading to heightened exposure to reproductive and sexual health risks.

These sociocultural dynamics contribute to women possessing less human and physical capital compared to men (Nordman and Vaillant, 2014). These

factors, in turn, contribute to elevated unemployment rates, workplace discrimination, gender-wage disparity, and a necessity for women in Madagascar to engage in the informal sector to increase their employability chances (OECD, 2019; Afavi et al., 2023). Within the realm of entrepreneurship, female progress is hindered by a lack of government support programmes designed to foster female entrepreneurship (Berger & Soubaya, 2019). Furthermore, as women's societal roles are often confined to homestead duties, female entrepreneurs gravitate towards lower productivity activities that enable them to balance income-generating endeavours with domestic responsibilities (Nordman and Vaillant, 2014).

As a result, using age and biological sex as control variables when investigating the relationship between human capital and the business performance of Malagasy entrepreneurs is crucial due to the profound sociocultural dynamics influencing these factors.

Age-related hierarchies and generational expectations shape economic participation, with older individuals culturally esteemed as natural leaders, and the younger generation culturally compelled to reciprocate the support they received from their parents when they were younger and economically inactive. These cultural norms impact the younger generation’s engagement in opportunity-based entrepreneurship, which involves leadership as a key constituent (Ataei, Karimi, & Zarei, 2024). Their business performance is further hindered by restricted access to finance, caused by the additional financial burdens of repaying the economic support previously received from their parents (Abebe & Kegne, 2023).

Moreover, the entrenched patriarchal system creates distinct challenges for male and female entrepreneurs. Women potentially face higher transaction costs stemming from lower access to information, reduced bargaining power, and increased difficulty in legally enforcing agreements. They also experience reduced access to capital and fewer support programs. The

male-dominated culture may further negatively affect their perceived behavioural control and impede their business performance (Pandang, Umar, Harum, Hajati, & Hamidi, 2022; Li et al., 2022).

Consequently, controlling for age and biological sex allows for a more nuanced understanding of how these variables intersect with human capital, PBC, and transaction costs, thereby providing a clearer picture of the determinants of business performance among entrepreneurs in Madagascar.

Table 2.2: Overview of key research insights related to the relationship between human capital and business performance

Authors	Independent variable(s)	Dependent variable(s)	Nature of the relationship	Moderator(s)	Mediator(s)
Shen et al. (2021)	Entrepreneurial education	Market share Operating profits Sales volume Employee growth	Significantly positive	Entrepreneurial orientation	Perceived behavioural control (PBC)
Iyiola et al. (2023)	Learning Orientation	Entrepreneurial performance	Significantly positive		Business Model Innovation (BMI)
Becker (1962, 1964)	Education On-the-job training	Earnings	Significantly positive		Productivity
Ployhart et al. (2014)	Human capital resources	Business outcomes	Significantly positive		
Bentley & Kehoe (2020)	Tacit knowledge Firm-specific knowledge	Firm performance	Significantly positive		
Wright (2021)	Human capital	Competitive advantage	Significantly positive		
Nyberg & Moliterno (2019)	Human capital	Firm performance	Significantly positive		
Penrose (1959)	Enterprising manager Knowledge	Firm growth	Significantly positive		
Ashenfelter et al. (1999)	Schooling	Earnings	Significantly positive		
Haelermans & Borghans (2011)	On-the-job training	Earnings	Significantly positive		
Kempa (2022)	General human capital	Earnings	Significantly positive	Versatile entrepreneurs	
Kempa (2022)	General human capital	Earnings	Significantly negative	Specialised entrepreneurs	
Kempa (2022)	Task specific human capital	Earnings	Significantly negative	Versatile entrepreneurs	

Authors	Independent variable(s)	Dependent variable(s)	Nature of the relationship	Moderator(s)	Mediator(s)
Kempa (2022)	Task specific human capital	Earnings	Significantly positive	Specialised entrepreneurs	
Egert et al. (2022)	Education	Productivity	Significantly positive		
Okrah & Irene (2023)	Years of experience	Innovation	Significantly positive		
Cerne et al. (2023)	Innovation	Firm performance	Significantly positive		Human capital investment
Paiola et al. (2021)	Prior knowledge	Digital servitisation success	Significantly positive	Market demand Competitive pressure	Technological capabilities
Cohen and Levinthal (1990)	Prior knowledge	Innovation	Significantly positive		Absorptive capacity
Na and Kang (2019)	Product innovation	Sales growth	Significantly positive		Customer satisfaction
Na and Kang (2019)	Process innovation	Sales growth	Significantly negative		
Goni and Van Looy (2022)	Process innovation	Business performance	Significantly positive		
Augusti et al. (2021)	Experiential knowledge	Business performance	Significantly positive		
Tao et al. (2024)	Experiential learning from failure	New product performance	Significantly positive		
Hogendoorn et al. (2019)	Business training Entrepreneurship education	Entrepreneurial performance (firm profits, firm size, entrepreneurial earnings)	Not statistically significant		
Hogendoorn et al. (2019)	Formal education	Firm profits Entrepreneurial earnings	Statistically significant and positive but small in magnitude		
Valiente et al. (2020)	Education	Earnings	Significantly positive		Productivity
Cunha and Heckman (2007)	Early childhood investment in cognitive and noncognitive skills	Wages Education outcomes Social behaviour	Significantly positive	Complementarities within and between skills	
Van Praag et al. (2013)	Formal education	Earnings	Significantly positive	Organisational constraints	

Source: Author

Table 2.3: Overview of key research insights on transaction costs

Authors	Independent variable(s)	Dependent variable(s)	Nature of the relationship	Moderator(s)	Mediator(s)
Qamruzzaman et al. (2020)	Financial innovation	Investment in human capital development	Significantly positive		Transaction cost reduction
Ferreira and Franco (2020)	Knowledge	Efficiency	Significantly positive		Production cost and transaction cost minimisation
Williamson (1975, 1985)	Production cost and transaction cost minimisation	Efficiency	Significantly positive		Productivity
Nikolaeva and Pletnev's (2016)	Transaction cost level	Sales profitability	Inverted U-shaped relationship		
Erdogan and Yamaltdinova (2019)	R&D investment	Firm performance	Inverted U-shaped relationship		
Prasad et al. (2019)	Bargaining power	Supply chain profits	Significantly positive		
Gago-Rodriguez et al. (2021)	Duration of the bargaining process	Bargaining profits	Significantly negative		Delay costs
Venegas (2023)	Enforcement costs	Profitability	Inverted U-shaped relationship		
Li et al. (2023)	Customer-perceived transaction costs	Firm performance	Significantly negative		Customers' adoption intentions
Yahaya et al. (2020)	Development level of a country (Developing/Developed)	Transaction cost level	Significantly negative	Procurement system Contract size Type of organisation	Political interference Poor staffing Poor implementation Ambiguity in procurement clauses
Ahmed et al. (2021)	Transaction costs	Remittance flows	Significantly negative	Exchange rate stability Financial development	

Authors	Independent variable(s)	Dependent variable(s)	Nature of the relationship	Moderator(s)	Mediator(s)
Barasa (2018)	Corruption	Innovation	Significantly negative	Asset specificity	Transaction costs
North (1992)	Effectiveness of institutions	Economic performance	Significantly positive	Effectiveness of enforcement mechanisms	Transaction costs
Kpodar and Imam (2024)	Transaction costs	Remittance flows	Significantly negative	Exchange rate stability Institutional quality Financial development	
Dorosh and Stifel (2003)	Transaction costs	Rice productivity	Significantly negative	Agricultural input use	
Razafimahefa and Hamori (2005)	Transaction costs	Import demand	Significantly negative	Exchange rate stability Income elasticity	
Okoye et al. (2016)	Transaction costs	Cassava sales	Significantly negative	Price elasticity	

Source: Author

Table 2.4: Overview of key research insights on perceived behavioural control (PBC)

Authors	Independent variable(s)	Dependent variable(s)	Nature of the relationship	Moderator(s)	Mediator(s)
Bandura (1993, 1997)	Self-efficacy	Potential for achievement	Significantly positive		Aspirations, motivation
Roy et al. (2018)	Self-efficacy	Education and employment outcomes	Significantly positive		Education and employment aspirations minimisation
La Barbera and Ajzen (2021)	Attitude	Intention	Significantly positive	PBC	
La Barbera and Ajzen, (2021)	Subjective norm	Intention	Significantly positive	PBC	
Balogun (2023)	Work engagement	Work-family conflict	Significantly positive	PBC	
Li et al. (2022)	Aging	Performance	Significantly negative	PBC	Working memory capacity
Aga (2023)	Entrepreneurship education	Entrepreneurial intention	Significantly positive		PBC
Hasan (2021)	PBC	Level of intention to choose halal tourism	Significantly positive		
She et al. (2023)	Financial knowledge	Financial behaviour	Significantly positive		PBC
Otchengco and Akiate (2021)	PBC	Entrepreneurial intention	Significantly positive	Perceived structural support (government policies, accessibility of infrastructure, and financial support)	
Afful and Boateng (2023)	Self-efficacy	Mobile learning usage	Significantly positive		Behavioural control
Tadi et al. (2023)	PBC	Entrepreneurial intention	Significantly positive	Entrepreneurial knowledge	Entrepreneurial desire

Authors	Independent variable(s)	Dependent variable(s)	Nature of the relationship	Moderator(s)	Mediator(s)
Madawala et al. (2023)	Social media Entrepreneurial passion Entrepreneurial role models	Entrepreneurial self-efficacy	Significantly positive		
Msimango-Galawe and Mazonde (2022)	Business experience	Business performance	Significantly positive		Entrepreneurial self-efficacy (particularly its innovation dimension)
Veselinovic et al. (2023)	Financial self-efficacy	SME performance	Significantly positive	Gender Age of the entrepreneur Age of the company Size of the company Industry	
Urban and Ratsimanetrimanana (2019)	PBC	Entrepreneurial intention	Significantly positive	Access to finance	
Rakotoarisoa et al. (2022)	PBC	Ethical behaviour intention	Significantly positive	Cultural background	
USAID (2020)	PBC	Youth engagement and contribution Skill-building outcomes	Signficantly positive	Access to assets and resources	

Source: Author

2.3. Hypotheses and conceptual framework

2.3.1. Designing the research moderation model

2.3.1.1. Established relationship between human capital and transaction costs

Transaction costs are defined as the costs of using the price mechanism (Coase, 1937). They incorporate all expenses involved in identifying the individuals that an entrepreneur and/or a firm wishes to deal with, informing them of the desire to engage, presenting the terms, conducting negotiations, drawing up the contract, undertaking the required inspections to ensure compliance with the contract terms, and so on. They form part of the total expenses that companies should manage to improve performance.

Human capital development is instrumental in mitigating costs and attaining superior firm performance, especially within the domain of supply chain management (Santa, Ferrer, Tegethoff & Scavarda, 2022). It serves as a significant determinant of a firm's cost strategy, culminating in cost savings and enhanced operational efficiency. Critical areas such as training and teamwork substantially contribute to the enhancement of total quality management (TQM) and just-in-time (JIT) systems, thereby augmenting performance and diminishing transaction costs. Moreover, the implementation of effective human resource practices bolsters operational efficiency and cost management. The outsourcing of logistics operations increases organisational flexibility and allows firms to concentrate on core activities. This focus is further enhanced by the strategic deployment of human capital.

An examination of the interplay between human capital and transaction cost theory reveals that human capital is crucial for reducing the expenses typically encountered by entrepreneurs (Shree & Urban, 2012). For instance, when comparing internationalized and non-internationalized firms,

higher levels of human capital (i.e., having team members with experience in the global market) facilitate a firm's internationalisation by lowering total expenses, which include transaction costs.

More specifically, knowledge is pivotal in mitigating transaction costs within strategic alliances (Ferreira & Franco, 2020). Alliances enable firms to share risks, resources, and expertise, which can cultivate enhanced efficiency and innovation. By facilitating knowledge transfer and collaboration, these partnerships help firms minimise the transaction costs associated with market exchanges and production processes. This strategic cooperation augments a firm's competitive advantage by leveraging collective knowledge and reducing inefficiencies.

2.3.1.2. Possible correlation between perceived behavioural control and transaction costs

Perceived behavioural control entails people's perception of their ability or control over performing a specific behaviour (Aga, 2023). Conceptually the same as self-efficacy, it has been established to affect business performance (Msimango-Galawe & Mazonde, 2022; Veselinovic et al., 2023). Rajerison (2013) prescribed perceived behavioural control as a key ingredient missing to Malagasy entrepreneurs for an enhanced commercial effectiveness. Additionally, Stevens and Gist (1997) and Szczerbowski (2018) suggested the possible effects of perceived behavioural control on transaction costs through influencing negotiation skills.

2.3.1.3. Hypothesis 1

If human capital serves as a predictor variable for transaction costs (Ferreira & Franco, 2020), and similarly, perceived behavioural control may influence transaction costs (Stevens & Gist, 1997; Szczerbowski, 2018), then the perceived behavioural control construct could function as a second independent variable in the relationship between human capital and

transaction costs. It may modify the strength of this relationship and act as a moderator variable, according to Namazi and Namazi's (2016) definition.

Therefore, considering that Section 2.2.6 of this thesis justifies the key dimensions of human capital examined in this study—namely, experiential knowledge and prior knowledge—while other dimensions such as education level, work experience, and entrepreneurial experience (Urban, 2015) are accounted for as control variables, and acknowledging that Section 2.2.8 outlines the significance of biological sex and age within the socio-economic landscape of Malagasy entrepreneurs, the first hypothesis is proposed as follows:

Hypothesis 1: The relationship between some human capital dimensions (experiential knowledge, prior knowledge) and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

H1a: The relationship between experiential knowledge and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

H1b: The relationship between prior knowledge and transaction costs is moderated by perceived behavioural control among Malagasy

entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

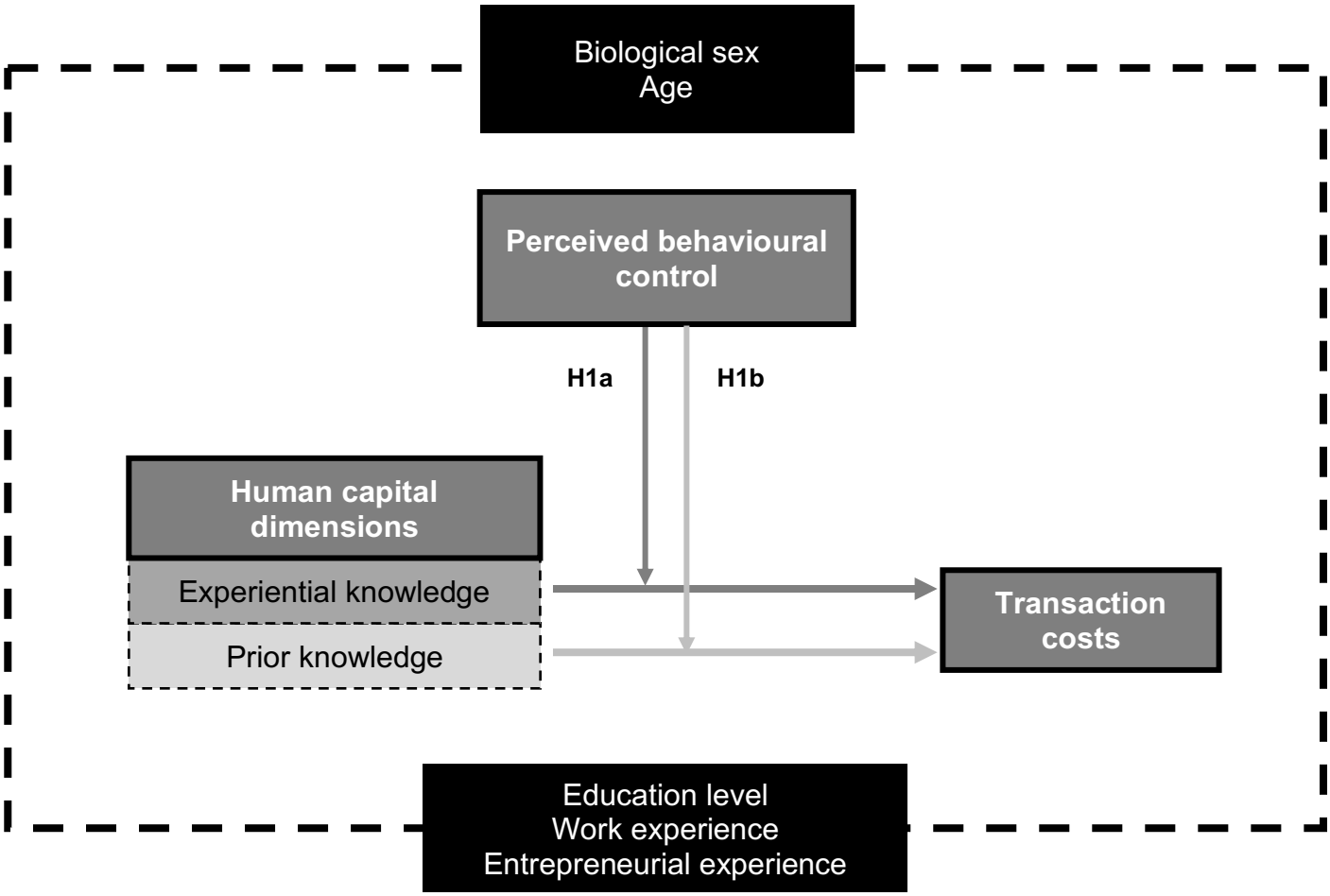

Figure 2.10: Research moderation model - Experiential knowledge, prior knowledge, perceived behavioural control, and transaction costs

2.3.2. Designing the research mediation model

2.3.2.1. Established relationship between human capital and business performance

Human capital efficiency makes a positive contribution to firm performance (Tran & Vo, 2020). Strategic human capital is a fundamental driver of Return on Equity (ROE). It enhances this key metric by simultaneously increasing profitability and optimising the use of shareholder equity. A skilled workforce bolsters profits through operational efficiency and innovation, while ensuring capital is allocated to activities that generate maximum value.

Notably, experiential knowledge acquisition (KA), i.e., learning through direct experience, is instrumental in enhancing a firm's international performance, as it equips firms to navigate the complexities and uncertainties of foreign markets (Augusti et al., 2021). However, the value derived from this experience is not automatic; it is critically moderated by a firm's absorptive capacity (ACAP), which is its ability to recognise, assimilate, and apply new external knowledge. This interaction explains why recruiting personnel with international experience is a key strategic imperative. It infuses the organisation with valuable tacit knowledge that can be leveraged for performance. Therefore, while direct experience is a pivotal driver of international success, its ultimate impact is contingent upon the organisation's internal capacity to absorb and integrate that knowledge.

Furthermore, a firm's reservoir of prior knowledge is a fundamental asset that determines its capacity to translate innovation into tangible performance gains. Accumulated industry experience equips an organisation to more effectively implement both product and process innovations, navigating complexities to enhance productivity and customer satisfaction. The strategic value of this knowledge is particularly pronounced in high-tech sectors within dynamic environments, such as

those in Southeast Asia, where the successful adoption of new technologies is heavily contingent on a pre-existing foundation of technical and market understanding (Na & Kang, 2019). Therefore, in these contexts, building and leveraging an internal knowledge base is not merely beneficial, it is a strategic imperative for achieving competitive advantage through innovation.

2.3.2.2. Established correlation between transaction costs and business performance

Transaction costs represent a critical, yet often overlooked, determinant of business performance, particularly for small and medium-sized enterprises (SMEs). These enterprises, valued for their agility and potential to address socio-economic challenges, are disproportionately affected by such frictional costs, which have a statistically significant relationship with their overall performance (Nikolaeva & Pletnev, 2016). The impact of these costs becomes clearer when disaggregated into three primary dimensions: the costs of research and information, the costs of bargaining and negotiation, and the costs of monitoring and enforcement (Erdogan & Yamaltdinova, 2019; Gago-Rodriguez et al., 2021; Prasad et al., 2019; Venegas, 2023).

Investment in research and information gathering is pivotal for enhancing performance metrics like Return on Assets (ROA) and Return on Equity (ROE). However, this relationship is not linear. It follows an inverted U-shaped curve, where initial investments yield substantial returns, but beyond an optimal threshold, further spending leads to diminishing returns and potential inefficiencies (Erdogan & Yamaltdinova, 2019). This underscores the necessity for a strategic, rather than maximalist, approach to R&D budget allocation to ensure that investments translate into tangible profitability.

The bargaining process itself is a complex arena where transaction costs manifest in non-obvious ways. The duration of negotiations, for instance,

has a direct and negative correlation with profitability, as extended delays erode value. This effect is moderated by the initial bargaining gap and the perceived costs of delay, which can incentivise faster agreements (Gago-Rodriguez et al., 2021). Furthermore, the dynamics of bargaining power are not always straightforward. Seemingly disadvantageous traits, such as impatience, can paradoxically be leveraged to secure a greater share of profits if the counterparty strategically recognizes and adapts to them (Prasad et al., 2019). This highlights the complex interplay of time, cost, and psychology in negotiation outcomes.

Finally, enforcement costs, particularly those associated with securing intellectual property rights (IPR), represent a substantial and often underestimated transaction cost. The expenses tied to litigation and defense against infringement can place a significant financial strain on innovators. Crucially, these costs are frequently overlooked within existing competition law frameworks, creating a potential misalignment where the legal structure intended to protect innovation inadvertently discourages it by imposing prohibitive enforcement burdens (Venegas, 2023). Properly accounting for these costs is therefore essential to ensuring that legal frameworks for competition and innovation function as intended.

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2.3.2.3. Hypothesis 2

If the correlation between human capital and business performance is significantly positive (Tran & Vo, 2020; Augusti et al., 2021; Na & Kang, 2019), and human capital is a predictor variable for transaction costs (Shree & Urban, 2012; Ferreira & Franco, 2020), which in turn is a predictor variable for business performance (Nikolaeva & Pletnev, 2016; Erdogan & Yamaltdinova, 2019; Prasad et al., 2019; Gago-Rodriguez et al., 2021; Venegas, 2023), it can be conjectured that within the relationship between human capital and business performance, the transaction costs construct both influences the dependent variable (i.e., business performance) and is influenced by the independent variable (i.e., human capital). This dual

influence suggests that transaction costs may function as a mediator variable, as per Namazi and Namazi's (2016) definition.

Accordingly, considering that Section 2.2.6 of this thesis justifies the key dimensions of human capital examined in this study—namely, experiential knowledge and prior knowledge—while other dimensions such as education level, work experience, and entrepreneurial experience (Urban, 2015) are accounted for as control variables, and acknowledging that Section 2.2.8 outlines the significance of biological sex and age within the socio-economic landscape of Malagasy entrepreneurs, the following hypothesis will be explored within the framework of this research.

Hypothesis 2: The relationship between some human capital dimensions (experiential knowledge, prior knowledge) and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

H2a: The relationship between experiential knowledge and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

H2b: The relationship between prior knowledge and business performance, among Malagasy entrepreneurs, is mediated by transaction

costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

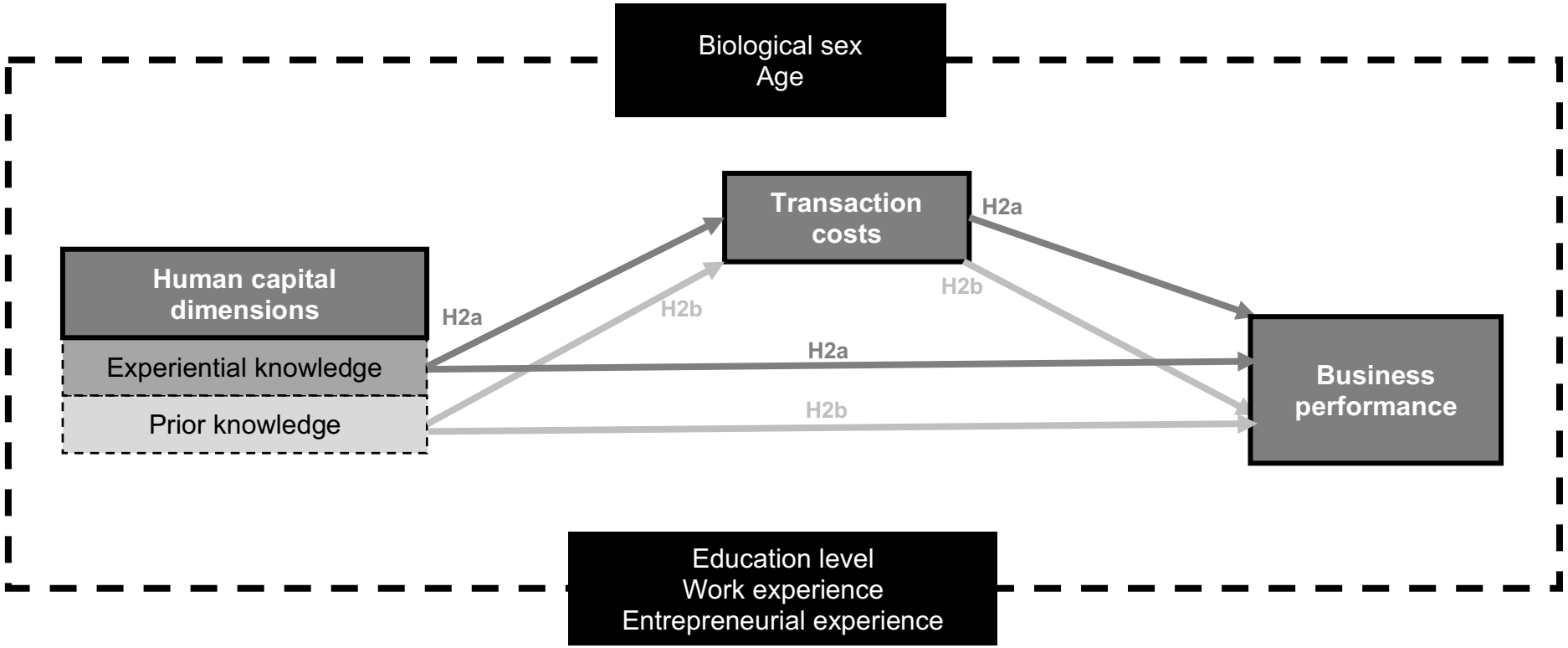

Figure 2.11: Research mediation model - Experiential knowledge, prior knowledge, transaction costs, and business performance

2.3.3. Research conceptual model

Figure 2.12 presents the research conceptual model, which illustrates all the hypotheses, taking into account the environmental factors, as well as the moderator and mediator variables.

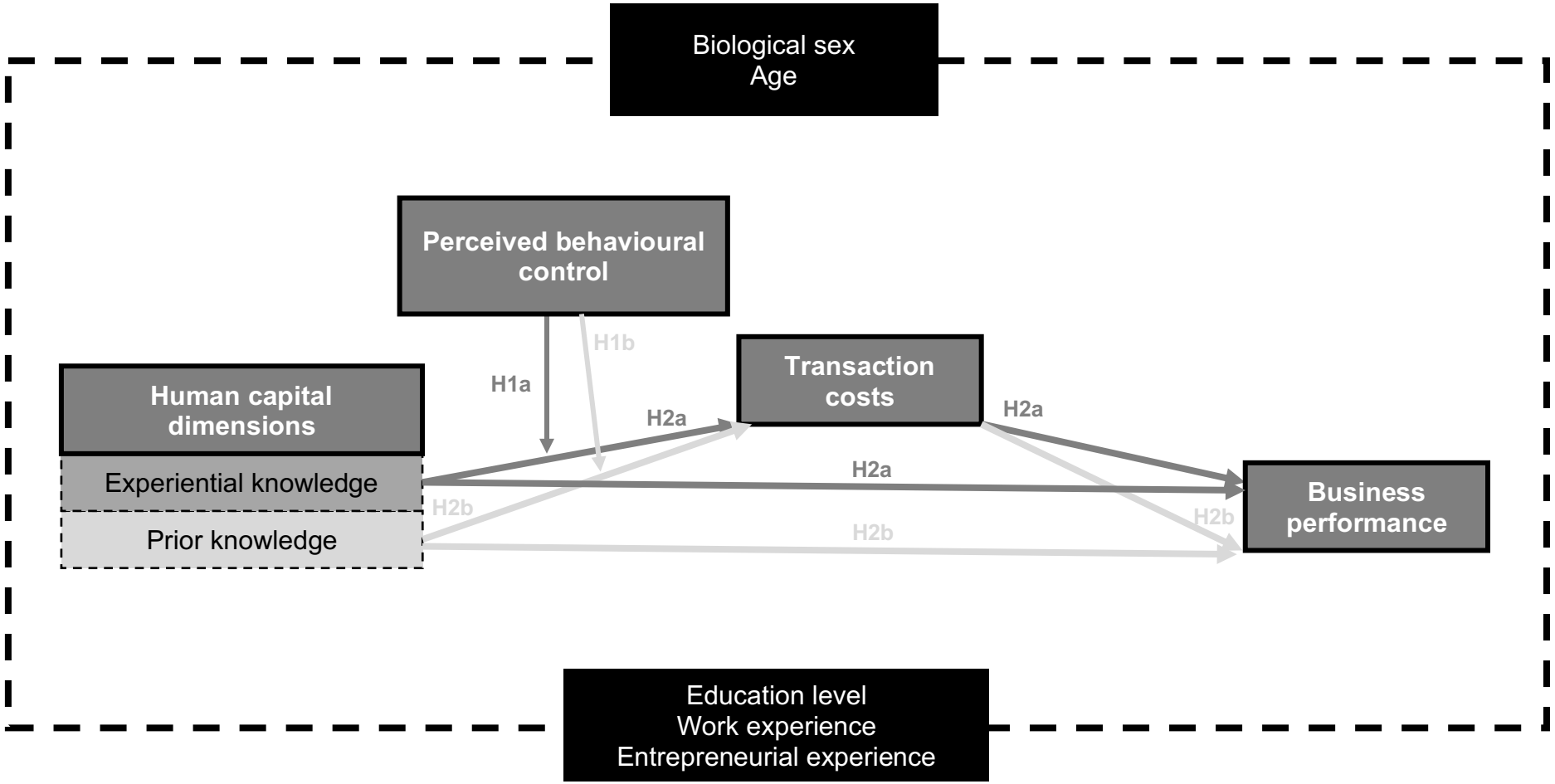

Figure 2.12: Research conceptual model

Chapter 3: Research methodology

"Science is not only a disciple of reason but, also, one of romance and passion."

Stephen Hawking

3.1. Research design

Given the nature of the research concepts under investigation—human capital, perceived behavioural control, transaction costs, and business performance—and the need to measure associated variables and test the dynamics of their relationship using statistical methods, a non-experimental, cross-sectional survey research design employing a structured questionnaire is most appropriate.

Using a structured questionnaire in cross-sectional surveys allows for the measurement of both independent and dependent variables simultaneously. Cross-sectional surveys offer several advantages:

- their external validity (through a design that involves large, randomly selected samples from a population, enhancing the generalizability of the findings);

- their capture of a wide range of variables at a single point in time, facilitating comprehensive data collection; and

- their capacity to study a problem from multiple theoretical perspectives and evaluate associations through complex relationships.

However, cross-sectional surveys present inherent limitations in establishing temporal causality due to the single-point-in-time data collection. This limitation necessitates caution when addressing internal validity—cause-effect relationships. Since the data are collected simultaneously, careful consideration is required when testing hypotheses involving temporal relationships, such as those where one variable leads to or causes an effect (Maier, Thatcher, Grover, & Dwivedi, 2023).

Inquiring into the entrepreneurship context in Madagascar presents challenges related to physical access, information and communication technology coverage, and education levels. To effectively address these issues, it is recommended to conduct face-to-face interviews in collaboration with trained interviewers utilising a standardised set of questions.

To ensure quality and avoid potential issues such as breaches of non-medical human research ethics protocols and interviewer-induced bias, significant attention was given to interviewer training. Measures were taken to ensure that each interviewer could: (i) prepare for the Interview (properly understand the research objectives and questionnaire content); (ii) verify that necessary permissions from relevant authorities were obtained before conducting interviews; (iii) efficiently find and secure the cooperation of respondents; (iv) encourage respondents to participate willingly and provide accurate information; (v) protect the respondents' confidentiality and anonymity; (vi) ensure clear consent from respondents to participate in the study; (vii) address any questions or concerns respondents might have about the study or questionnaire; and (viii) ensure the integrity and accuracy of responses.

3.2. Data collection and population sampling

3.2.1. Population

The research population comprise all business owners aged 18 and above, aligning with the OECD's (2021) definition of the working-age population, operating within Analamanga, the most populous region of Madagascar (Ministère de la décentralisation et de l'aménagement du territoire, 2021). This region was specifically selected for this study due to its accessibility and substantial entrepreneurial activity. Analamanga also hosts the highest

proportion of respondents surveyed during the Global Entrepreneurship Monitor (GEM) study (Ratsimbazafy, 2020), underscoring the region's significance for entrepreneurship research in the context of Madagascar.

The Analamanga region is divided into eight districts, located in the East, West, Centre, and South of the region, as detailed in Table 3.1.

Table 3.1: Localisation of the population object of the research (Ministère de la décentralisation et de l'aménagement du territoire, 2021)

Location	Districts
East	Anjozorobe, Manjakandriana
West	Ankazobe, Ambohidratrimo, Antananarivo Atsimondrano
Centre	Antananarivo Avaradrano, Antananarivo Renivohitra
South	Andramasina

Source: Author

3.2.2. Sample and Sampling method

The research focused on business owners aged 18 and above, representing approximately 39.7 percent (P=0.397) of the general population (Ratsimbazafy, 2020, p.22). According to the Ministry of Decentralisation and Territorial Planning (Ministère de la décentralisation et de l'aménagement du territoire, 2021) survey, Analamanga accounts for 4,325,226 inhabitants. Krejcie and Morgan's (1970) equation, as illustrated in Figure 3.1, was employed to calculate the requisite sample size.

$$s = X^2NP(1- P) \div d^2 (N -1) + X^2P(1- P)$$

Where:

s = required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size (4,325,226).

P = the proportion of business owners aged between 18 and above (0.397).

d = the degree of accuracy expressed as a proportion (.05).

Figure 3.1: Sampling equation (Krejcie & Morgan, 1970)

After calculation, a required sample size of 368 business owners aged 18 and above was determined for the study.

Noting the requisite for scientific rigour in running the research and the available budget, the cluster sampling method, as per Berndt's (2020) definition, was used according to the following procedure:

- Firstly, a random selection of one district per location (East, West, Centre, and South)—district sample—was done (Ministère de la décentralisation et de l'aménagement du territoire, 2021);

- Secondly, in each district sample, a random selection of one municipality for each district sample—municipality sample—was carried out as displayed in Table 3.2 (Ministère de la décentralisation et de l'aménagement du territoire, 2021);

Table 3.2: List of districts, district samples, municipality samples and population size

Location	Districts	District samples	Municipality samples	Districts population size
East	Anjozorobe Manjakandriana	Manjakandriana	Ambohibary	449,210
West	Ankazobe Ambohidratrimo Antananarivo Atsimondrano	Antananarivo Atsimondrano	Soalandy	1,533,365
Centre	Antananarivo Avaradrano Antananarivo Renivohitra	Antananarivo Renivohitra	Antananarivo IV	2,107,779
South	Andramasina	Andramasina	Anosibe Trimoloharano	234,872
			Analamanga population size	**4,325,226**

Source: Ministère de la décentralisation et de l'aménagement du territoire (2021)

- Thirdly, from each municipality sample, a random selection of a minimum of 368 business owners was undertaken using quota sampling. To maintain research accuracy, a sampling frame was utilised to ensure an accurate representation of the population. This approach accounted for the population weight of each municipal sample location in relation to the overall regional population and biological sex.

At the beginning of the field data collection, the interviewers convened at a central location within the municipality. Subsequently, they visited businesses and households to conduct interviews with entrepreneurs, ensuring adherence to the predetermined sampling frame.

To ensure the robustness of the data collection process, interviewers received comprehensive training to ensure they were adequately prepared to conduct interviews in a rigorous and ethical manner, prior to field data collection. This training, conducted by the researcher, was grounded in a certification in research ethics and aligned with the ethical standards set by Wits Business School, under protocol number H22/02/24. The training provided a detailed explanation of research ethics, with particular emphasis

on voluntary participation, confidentiality, and respect for participants' rights. Furthermore, interviewers were instructed to strictly adhere to the sampling frame and accurately select participants, ensuring both biological sex balance and appropriate municipality population weighting.

The structured survey, originally written in English, was translated into Malagasy, the native language of Madagascar, by a Sworn Translator to ensure linguistic accuracy. It was then administered in Malagasy to facilitate effective communication with respondents. Data collection took place between June and August 2022. Throughout the process, participants were fully informed of the research objectives and their rights, ensuring that informed consent was obtained in accordance with ethical guidelines.

By applying the population weight of each municipality sample location relative to the total regional population, the distribution of the sample size across municipality samples, as presented in Table 3.3, was determined.

Table 3.3: Distribution of the sample size across municipality samples

Location	District samples	Municipality samples	Required sample size
East	Manjakandriana	Ambohibary	38
West	Antananarivo Atsimondrano	Soalandy	131
Centre	Antananarivo Renivohitra	Antananarivo IV	179
South	Andramasina	Anosibe Trimoloharano	20
		Required sample size	**368**

Source: Ministère de la décentralisation et de l'aménagement du territoire (2021)

By applying the rates of female (50.99%) and male (49.01%) entrepreneurship in Madagascar (Ratsimbazafy, 2020, p.22), the distribution of the sample size based on biological sex, as presented in Table 3.4, was determined.

Table 3.4: Distribution of the sample size based on biological sex

Location	Municipality samples	Biological sex	Required sample size
East	Ambohibary	Male	19
		Female	19
West	Soalandy	Male	64
		Female	67
Centre	Antananarivo IV	Male	88
		Female	91
South	Anosibe Trimoloharano	Male	10
		Female	10
Overall			**368**

Source: Author

3.3. Research instrument

Given the research focus on the interactions of human capital, perceived behavioural control, and transaction costs in enhancing business performance, the research instrument employed was a structured questionnaire inspired by those successfully tested in prior studies.

3.3.1. Independent variables

The independent variables studied within the framework of the research include:

3.3.1.1. Human capital dimensions

The scales utilised were derived from two previously validated questionnaires:

- The first questionnaire, tested by Leal-Rodriguez and Albort-Morant (2018), comprises **experiential knowledge scales**, encompassing 6 questions rated on a Likert scale ranging from one (never true) to seven (always true).

- The second questionnaire, embraced by Sukavejworakit (2018), consists of **prior knowledge scales**, incorporating 9 questions rated on a Likert scale ranging from one (never true) to seven (always true).

3.3.1.2. Perceived behavioural control

The **perceived behavioural control** scales utilised were derived from the work of Glackin & Hohenstein (2018) encompassing 21 questions rated on a Likert scale ranging from one (never true) to seven (always true).

3.3.2 Dependent variables

The dependent variables studied within the framework of the research include:

3.3.2.1. Transaction costs

The scales utilised were derived from the work of Lijia & Xuexi (2014) involving:

- **Search and information costs scales:** encompassing 5 questions rated on a Likert scale ranging from one (never true) to seven (always true).
- **Bargaining costs scales:** encompassing 5 questions rated on a Likert scale ranging from one (never true) to seven (always true).
- **Policy and enforcement costs scales:** encompassing 5 questions rated on a Likert scale ranging from one (never true) to seven (always true).

3.3.2.2. Business performance

The **business performance** scales utilised were derived from the work of Namagembe, Ryan, & Sridham (2017) encompassing 11 questions rated on a Likert scale ranging from one (never true) to seven (always true).

Correspondingly, the questionnaire comprised five main sections, namely: demographic information (biological sex, age), human capital dimensions (education, work experience, entrepreneurial experience, experiential knowledge, prior knowledge), perceived behavioural control, transaction costs dimensions (search and information costs, bargaining costs, and policy and enforcement costs) and business performance.

Table 3.5 provides an illustrative summary of the components of the research instrument and their corresponding items.

Table 3.5: Research instrument components and items

Components	**Items**
Human Capital dimensions (Bao, Miao, Liu, & Garst, 2016 ; Leal-Rodriguez & Albert-Morant, 2018 ; Sukavejworakit, 2018)	
Education Level (Bao et al., 2016)	1. No qualification 2. High School qualification 3. Tertiary education Certificate 4. Bachelor's degree 5. Master's degree and higher
Work experience (Bao et al., 2016)	2. No more than 5 years 2. More than 5 years
Entrepreneurial experience (Bao et al., 2016)	1. No more than 5 years 2. More than 5 years
Experiential knowledge (Leal-Rodriguez & Albert-Morant, 2018) *Each statement is rated based on the following scale:* *1= Never true* *2= Rarely true* *3= Sometimes but infrequently true* *4= Neutral* *5= Sometimes true* *6= Usually true* *7= Always true*	1. My past experience has been highly beneficial for the attainment of key insights that can only be learned through experience and direct observation. 2. My past experience made me aware of connections between theoretical concepts and real entrepreneurial problems. 3. My past experience enabled me to apply theoretical skills and knowledge and contextualize them in real situations. 4. My past experience was a great opportunity to learn about how we may react to real life situations and business problems. 5. My past experience was a great way to interact with market stakeholders and learn entrepreneurial skills by mutual knowledge exchange and by observing others. 6. My past experience really helped me to learn from observation and to assimilate concepts and theories in a practical manner.

Components	Items
Prior knowledge (Sukavejworakit, 2018) *Each statement is rated based on the following scale:* *1= Never true* *2= Rarely true* *3= Sometimes but infrequently true* *4= Neutral* *5= Sometimes true* *6= Usually true* *7= Always true*	1. I am in touch with an entrepreneur who helped me to refine my understanding of entrepreneurship before I launched my own venture. 2. I am part of a business association that helped me to refine my understanding of entrepreneurship before I launched my own venture. 3. I am affiliated to business promotion bodies that helped me to refine my understanding of entrepreneurship before I launched my own venture. 4. My prior knowledge has been highly beneficial for the attainment of key insights that can only be learned through academic training. 5. My prior knowledge made me aware of connections between theoretical concepts and real entrepreneurial problems. 6. My prior knowledge enabled me to study theoretical knowledge and contextualize them in real situations. 7. My prior knowledge was a great opportunity to learn about how we may react to real life situations and business problems. 8. My prior knowledge helped determine how to interact with market stakeholders and explore entrepreneurial theories and skills. 9. My past experience really helped me to develop reliable insights and master entrepreneurial theories.
Perceived behavioural control (Glackin & Hohenstein, 2018)	
Each statement is rated based on the following scale: *1= Never true* *2= Rarely true* *3= Sometimes but infrequently true* *4= Neutral* *5= Sometimes true* *6= Usually true* *7= Always true*	1. When a business does better than competitors, it is often because the entrepreneur exerted a little extra effort. 2. I am continually finding better ways to run my business. 3. When the profitability of a business improves, it is most often because of the entrepreneur having found a more effective entrepreneurship approach. 4. I know the steps necessary to run a business effectively. 5. I am not very effective in running my own business. 6. If a business is under achieving, it is most likely due to ineffective management and entrepreneurship. 7. I generally run my business ineffectively. 8. Inadequacies from a business' past failure can be overcome by good entrepreneurship. 9. The low achievement of some businesses cannot generally be blamed on their leaders. 10. When a low achieving business grows, it is due to an extra commitment of the entrepreneur. 11. I understand entrepreneurship concepts well enough to be effective in leading initiatives outside my business. 12. Increased commitment in running a business produces little change in a company's achievement. 13. The entrepreneur is generally responsible for the achievement of his business. 14. A company's achievement is directly related to the entrepreneur's effectiveness. 15. I find it difficult to explain to employees why an entrepreneur succeeds. 16. I am typically able to answer employees' entrepreneurial success questions. 17. I wonder if I have the necessary skills to run initiatives outside my business. 18. Effectiveness in business running has little influence on the achievement of an organisation with low motivation.

Components	Items
	19. Given a choice, I would not invite shareholders to evaluate my entrepreneurial performance. 20. When my business has difficulty, I am usually at a loss as to how to help the business get back on the right track. 21. Even business leaders with good entrepreneurship skills cannot help some businesses to succeed.
Transaction costs dimension (Lijia & Xuexi, 2014)	
Search and information costs *Each statement is rated based on the following scale:* *1= Never true* *2= Rarely true* *3= Sometimes but infrequently true* *4= Neutral* *5= Sometimes true* *6= Usually true* *7= Always true*	1. I can quickly obtain market price information prior to sale. 2. I can quickly find buyers when selling products. 3. It does not cost me much to go to the marketplace in order to sell my products. 4. I have never made a loss due to the resources required for search and information. 5. I have never made a loss due to the lack of accessibility and availability of essential information.
Bargaining costs *Each statement is rated based on the following scale:* *1= Never true* *2= Rarely true* *3= Sometimes but infrequently true* *4= Neutral* *5= Sometimes true* *6= Usually true* *7= Always true*	1. It doesn't take me much time to negotiate with available buyers and fix trading price and transacting place. 2. It doesn't cost me much resource to negotiate with available buyers and fix trading price and transacting place. 3. It doesn't take me much time to get my products ready and up to standards prior to selling. 4. It doesn't cost me much resource to get my products ready and up to standards prior to selling. 5. It does not cost me much resource to treat available buyers with small gifts and extras.
Policy and enforcement costs *Each statement is rated based on the following scale:* *1= Never true* *2= Rarely true* *3= Sometimes but infrequently true* *4= Neutral* *5= Sometimes true* *6= Usually true* *7= Always true*	1. Buyers pay me in full quickly. 2. Buyers are never delayed in paying me. 3. I have never made a loss due to buyers' breaking the arrangement. 4. It doesn't cost me much resource to get buyers to follow the agreement. 5. It doesn't take me much time to get buyers to follow the agreement.
Business Performance (Namagembe, Ryan, & Sridham, 2017)	
Business Performance *Each statement is rated based on the following scale:* *1= Never true* *2= Rarely true*	1. Employees are viewed as the most valuable asset of the business. 2. Employees are highly committed to the business. 3. The moral (job satisfaction) of employees has improved over the past few years. 4. The image (stature) of the business, relative to competitors, has grown over the past few years. 5. The effectiveness (doing the right things) of the business has improved over the past few years.

Components	Items
3= Sometimes but infrequently true *4= Neutral* *5= Sometimes true* *6= Usually true* *7= Always true*	6. During difficult economic periods, investments in research and development/innovative projects continue with no significant financial cuts. 7. The efficiency (during things right) of the business has improved over the past few years. 8. The business has experienced growth in profits over the past few years. 9. The business has experienced growth in turnover over the past few years. 10. The business has experienced growth in market share over the past few years. 11. The competitive position of the business has improved over the past few years.

Source: Author

To assess the suitability of the research instrument for the intended population, a pilot study was conducted in the municipality of Masindray, located approximately 20 kilometres south of Antananarivo, the capital city of Madagascar. A sample of 70 self-employed individuals was surveyed for the pilot study. The successful outcomes, observed after analysing the findings, facilitated the enhancement of the research instrument and data collection methodology.

3.4. Hypothesis testing method

Table 3.6: Overview of relevant analysis methods for hypotheses testing

Hypotheses	Observations	Analysis Methods
Hypothesis 1. The relationship between some human capital dimensions (experiential knowledge and prior knowledge) and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs.	Here, the dependent variable (DV) is the measure of the transaction cost construct; the independent variables (IV) are the magnitude of experiential knowledge and the extent of prior knowledge; and the moderator is the level of perceived behavioural control.	Testing the research hypothesis requires the evaluation of the influence of a third variable (moderator variable) on the relationship between the independent and dependent variables. If the data follow a normal distribution, the moderation effect will be analysed using Baron and Kenny's (1986) method for testing moderation. However, if the data do not follow a normal distribution, bootstrapping will be employed to assess conditional indirect effects. For this purpose, the PROCESS Macro for SPSS, developed by Andrew Hayes, will be utilised, as it supports bootstrapping for moderation, enabling non-parametric testing of conditional indirect effects (Hayes & Rockwood, 2020).
Hypothesis 2. The relationship between some human capital dimensions (experiential knowledge and prior knowledge) and business performance is mediated by transaction costs among Malagasy entrepreneurs.	Here, the dependent variable (DV) is the measure of business performance; the independent variables (IV) are the magnitude of experiential knowledge and the extent of prior knowledge; and the mediator is the measure of the transaction cost construct.	Testing the research hypothesis requires the evaluation of the influence of a third variable (mediator variable) on the relationship between the independent and dependent variables. If the data follow a normal distribution, the mediation effect will be analysed using Baron and Kenny's (1986) method for testing mediation. However, if the data do not follow a normal distribution, bootstrapping will be employed to assess conditional indirect effects. For this purpose, the PROCESS Macro for SPSS, developed by Andrew Hayes, will be utilised, as it supports bootstrapping for mediation, enabling non-parametric testing of conditional indirect effects (Hayes & Rockwood, 2020).

Source: Author

3.5. Reliability and validity

3.5.1. Reliability

Research reliability is involved with determining the repeatability of the study (Cooper & Schindler, 2011). That is to say, a scale is considered to be reliable if a repeat evaluation conducted under matching conditions will produce the same results.

To measure the internal consistency reliability among a group of items combined to form a single scale, the Cronbach's coefficient alpha – a valuation of the degree to which the scale items are homogenous and reflect the same underlying constructs – will be used (Cooper & Schindler, 2011).

More precisely, to test the reliability of a given scale composed of *n* items, and in order to determine the final item composition of the scale, three types of indicators will be studied (Senawi, Harun, Latif & Isa, 2021):

[1] The overall Cronbach's alpha which provides the extent of the internal consistency among the *n* items;

[2] The corrected item-total correlation, related to each item, which assesses the item's score, with the composite scores from all other items that remain. *If this correlation is weak (<.30), then that item should be removed* and not used to form a composite score for the considered scale; and

[3] The Cronbach's alpha, if an item is deleted, gives the value of the overall Cronbach's alpha.

It is worth noting that *a Cronbach's alpha of .60 or higher is the minimum acceptable level*. Preferably, a Cronbach's alpha should be .70 or higher

(Gustafsson, Engström, Lindgren & Gabrielsson, 2020; Hernández-Castorena, Carvajal-Sandoval, , Adriano-Rodriguez & Velasquez-Espinoza, 2021).

3.5.2. External validity

Pound and Ritskes-Hoitinga (2018) argue that to ensure a dependable translation of research findings from one setting, population, or species to others, taking note of the external validity determines the magnitude to which discoveries can be valid in other contexts.

The sampling method is a key methodological consideration establishing the generalizability of study findings (Elfil & Negida, 2017). Within the framework of the research, the cluster sampling method will be utilised to determine the study sample. Cluster sampling involves vigorous randomisations, which if performed befittingly will produce a sample that unequivocally represents the characteristics of the entire population and ensures a prominent external validity (Elfil & Negida, 2017).

3.5.3. Internal validity

Research results may be impaired by methodological errors. Internal validity measures the magnitude at which the study outcomes truly portray the characteristics of the population, and thus, do not emerge from such error (Patino & Ferreira, 2018). Measurement scales successfully tested in previous studies will be used and the cluster sampling method will be rigorously applied to ensure that the recorded results are free from inaccuracies.

To test the validity of a scale, the procedure advocated by Taherdoost (2022) will be adopted. Henceforth, at first, the *ratio of cases to variables* will be checked to ensure that the minimum requirement of *5 to 1* is

respected. Subsequently, the presence of substantial correlations will be examined to ascertain the appropriateness of the factor analysis, necessitating the observation of *some correlations greater than .30 between the variables involved in the analysis*. After that, the sampling adequacy of individual variables will be explored to confirm the appropriateness of the factor analysis, with *Principal Component Analyses* entailing the *Kaiser-Meyer-Olkin Measure of Sampling Adequacy to be greater than .50* for each individual variable as well as the set of variables. Then, the result of the Bartlett's Test of Sphericity will be inspected to make sure about the appropriateness of the factor analysis, with *Principal Component Analyses* demanding *the probability associated with the Bartlett's Test of Sphericity to be less than the level of significance*. Finally, communalities will be evaluated to determine if there is a need to remove any variable. The factor solution should explain at least half of each original variable's variance. Thereupon, *the communality value for each variable should be .50 or higher*.

Chapter 4: Research results and discussions

"Without data, you're just another person with an opinion."

W. Edwards Deming

This chapter presents the collected data and the outcomes of their analyses realised according to the methodology described in Chapter 3. It comprises the following components: sample completeness, test of scales reliability, test of scales validity, profile of the respondents (including their distribution according to biological sex, age group, education level, work experience, and entrepreneurship experience), test of the hypotheses listed in Chapter 2, and the associated discussions.

4.1. Sample completeness

As per the recommendations in keeping with the sampling method, a sample size of 368 Malagasy business owners was required for the study. During the field data collection, 465 individuals responded to the questionnaire (involving the participation of 263 male respondents and 202 female respondents). The overall response rate, accordingly, is very satisfactory at the admeasurement of 126.36 percent, with a response rate of 145.83% among male respondents and 107.65 percent among female respondents.

Table 4.1: Entrepreneurs' response rate during the data collection process

Municipality samples location	Biological sex	Population size	Required sample size	Number of respondents	Response rate percentage
East	Male	460,015	19	31	166,45%
	Female		19	17	87.74%
West	Male	1,373,918	64	80	124,60%
	Female		67	57	85.33%
Centre	Male	1,804,956	88	132	150.47%
	Female		91	114	124.90%
South	Male	173,237	10	20	204.21%
	Female		10	14	137.28%
Overall		**3,812,126**	**368**	**465**	**126.36%**

A high response rate strengthens the validity and reliability of a study (Holtom, Baruch, Aguinis & Ballinger, 2022). At the same time, within the

framework of the research, to comply with ethics considerations, the interviewers were instructed to give respondents the choice to participate or not in filling in the questionnaire, and to withdraw from the study at any time they deem appropriate. The magnitude of the response rate is, therefore, contingent on the respondents' willingness to take part in the research for its entire duration. In this respect, a response rate of 126.36 percent is regarded as highly satisfactory for it suggests an actual number of participants exceeding the required sample size computed in accordance with Krejcie and Morgan's (1970) recommendations. The sphericity of the sample size is further confirmed by the robust scales reliability and the firm scales validity demonstrated in the subsequent sections.

4.2. Tests of scales characteristics

4.2.1. Test of scales reliability

This section presents the outcomes of the assessment of the reliability of each one of the five scales connected to the study. In this sense, PASW Statistics 18 (formerly known as SPSS Statistics) was used to process the raw data so as to compute (i) the overall Cronbach's alpha, (ii) the corrected item-total correlation related to each item, and (iii) the overall Cronbach's alpha if an item is deleted. It expands from subsection 4.2.1.1 to subsection 4.2.1.5 to present discoveries from the data processing endeavour in tabular form, discuss them, and submit revisions in the same format, when deemed to be relevant.

4.2.1.1. Experiential knowledge (EK) scale

Table 4.2: Reliability and item-total statistics related to EK scale

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.963			6	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
EK1	33.267	13.791	.889	.956
EK2	33.292	13.634	.914	.953
EK3	33.387	13.708	.877	.957
EK4	33.437	13.514	.839	.962
EK5	33.370	13.708	.885	.956
EK6	33.323	13.663	.897	.955

The experiential knowledge (EK) scale was excellent in height (α=.963) (Table 4.2). This figure is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and 443. Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.3. Furthermore, the corrected item-total correlation related to each item is strong (>.30) (Table 4.2), in conformity with Senawi et al.'s (2021) guidelines as presented in Chapter 3, section 3.5

4.2.1.2. Prior knowledge (PK) scale

Table 4.3: Reliability and item-total statistics related to PK scale

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.797			9	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PK1	42.991	69.526	.683	.748
PK2	44.114	73.722	.534	.783
PK3	45.398	98.460	.089	.845
PK4	41.951	86.711	.666	.758
PK5	41.854	87.104	.724	.754
PK6	41.553	94.088	.606	.774
PK7	41.613	92.820	.666	.769
PK8	41.680	94.572	.645	.773
PK9	41.660	96.699	.531	.781

The prior knowledge (PK) scale was satisfactory in height with nine items (α=.797) (Table 4.3). This figure is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2022) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.3 suggests that the PK scale's reliability will be stronger if the PK3 item is removed.

Table 4.4: Reliability and item-total statistics related to PK scale after removing PK3

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.845			8	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PK1	40.538	64.184	.597	.841
PK2	41.660	66.182	.503	.864
PK4	39.497	75.841	.729	.811
PK5	39.400	76.370	.786	.807
PK6	39.099	83.145	.671	.825
PK7	39.159	81.914	.734	.820
PK8	39.226	83.356	.730	.823
PK9	39.206	85.414	.611	.832

Posterior to the removal of the PK3 item, the prior knowledge (PK) scale was greater in height with eight items (α=.845) (Table 4.4). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.4 suggests that the PK scale's reliability will be stronger if the PK2 item is removed.

Table 4.5: Reliability and item-total statistics related to PK scale after removing PK2

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.864			7	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PK1	36.800	42.553	.439	.933
PK4	35.759	46.403	.801	.821
PK5	35.662	47.181	.845	.817
PK6	35.361	52.593	.740	.838
PK7	35.422	51.628	.803	.831
PK8	35.488	53.112	.781	.837
PK9	35.469	54.616	.669	.847

Posterior to the removal of the PK3 item, the prior knowledge (PK) scale was greater in height with seven items (α=.864) (Table 4.5). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.5 suggests that the PK scale's reliability will be stronger if the PK1 item is removed.

Table 4.6: Reliability and item-total statistics related to PK scale after removing PK1

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.933			6	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PK4	30.899	26.388	.839	.920
PK5	30.802	27.232	.870	.913
PK6	30.501	30.983	.805	.921
PK7	30.561	30.411	.856	.915
PK8	30.628	31.898	.805	.922
PK9	30.609	32.765	.717	.931

Posterior to the removal of the PK1 item, the prior knowledge (PK) scale was excellent in height with six items (α=.933) (Table 4.6). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al.

(2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.3. Furthermore, the corrected item-total correlation related to each item is strong (>.30) (Table 4.6), in conformity with Senawi et al.'s (2021) guidelines as presented in Chapter 3, section 3.5.1.

4.2.1.3. Perceived behavioural control (PBC) scale

Table 4.7: Reliability and item-total statistics related to PBC scale

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.681			21	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	103.822	117.694	.169	.678
PBC2	103.535	120.426	-.085	.684
PBC3	103.938	114.201	.342	.668
PBC4	104.798	128.136	-.332	.720
PBC5	107.557	96.144	.617	.623
PBC6	104.424	104.620	.612	.641
PBC7	107.929	100.307	.595	.632
PBC8	104.422	108.602	.368	.659
PBC9	104.794	102.574	.569	.638
PBC10	104.092	110.075	.528	.656
PBC11	105.604	110.481	.289	.666
PBC12	107.037	92.897	.450	.642
PBC13	103.845	116.437	.243	.674
PBC14	103.720	117.288	.221	.676
PBC15	107.065	102.349	.489	.643
PBC16	104.323	117.943	.080	.682
PBC17	106.282	119.479	-.037	.694
PBC18	106.716	109.294	.152	.686
PBC19	105.858	80.075	.668	.595
PBC20	103.735	122.669	-.215	.694
PBC21	106.054	130.516	-.314	.746

The perceived behavioural control (PBC) scale was inadequate with 21 items (α=.681) (Table 4.7). This figure is lower than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Table 4.7 exhibits that the Cronbach's Alpha will increase to a satisfactory level (α=.746) if the PBC21 item is removed.

Table 4.8: Reliability and item-total statistics related to PBC scale after removing PBC21

Reliability Statistics	
Cronbach's Alpha	Number of Items
.746	20

Item-Total Statistics				
Variables	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
PBC1	99.398	127.619	.210	.744
PBC2	99.112	130.755	-.051	.750
PBC3	99.514	123.737	.390	.736
PBC4	100.374	140.614	-.380	.783
PBC5	103.133	105.155	.633	.704
PBC6	100.000	113.129	.672	.713
PBC7	103.505	107.988	.666	.706
PBC8	99.998	116.881	.436	.727
PBC9	100.370	110.255	.648	.710
PBC10	99.669	118.998	.595	.725
PBC11	101.181	120.920	.279	.739
PBC12	102.613	105.121	.389	.734
PBC13	99.422	126.305	.281	.741
PBC14	99.297	127.351	.251	.743
PBC15	102.641	112.519	.477	.722
PBC16	99.899	126.945	.160	.745
PBC17	101.858	130.799	-.064	.761
PBC18	102.292	124.302	.044	.769
PBC19	101.434	84.893	.762	.676
PBC20	99.312	132.969	-.192	.758

The perceived behavioural control (PBC) scale was satisfactory in height with 20 items (α=.746) (Table 4.8). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.8 suggests that the PK scale's reliability will be stronger if the PBC4 item is removed.

Table 4.9: Reliability and item-total statistics related to PBC scale after removing PBC4

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.783			19	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	93.718	137.384	.228	.782
PBC2	93.432	140.815	-.043	.787
PBC3	93.834	133.518	.394	.776
PBC5	97.454	114.076	.640	.750
PBC6	94.320	122.162	.689	.756
PBC7	97.826	116.342	.697	.749
PBC8	94.318	125.886	.459	.768
PBC9	94.690	118.891	.674	.752
PBC10	93.989	128.196	.621	.765
PBC11	95.501	132.087	.231	.782
PBC12	96.933	114.511	.387	.779
PBC13	93.742	136.123	.290	.780
PBC14	93.617	137.263	.258	.781
PBC15	96.961	121.606	.489	.764
PBC16	94.219	136.594	.177	.783
PBC17	96.178	140.979	-.064	.798
PBC18	96.613	135.104	.028	.808
PBC19	95.755	92.004	.789	.727
PBC20	93.632	143.142	-.190	.794

The perceived behavioural control (PBC) scale was satisfactory in height with 19 items (α=.783) (Table 4.9). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.9 suggests that the PK scale's reliability will be stronger if the PBC18 item is removed.

Table 4.10: Reliability and item-total statistics related to PBC scale after removing PBC18

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.808			18	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	89.957	131.727	.245	.806
PBC2	89.671	135.118	-.014	.811
PBC3	90.073	128.133	.395	.801
PBC5	93.692	108.813	.648	.779
PBC6	90.559	116.519	.711	.782
PBC7	94.065	109.992	.744	.774
PBC8	90.557	119.631	.497	.792
PBC9	90.929	112.682	.716	.778
PBC10	90.228	122.280	.658	.790
PBC11	91.740	127.072	.219	.808
PBC12	93.172	112.996	.312	.817
PBC13	89.981	130.726	.288	.805
PBC14	89.856	131.753	.263	.806
PBC15	93.200	116.816	.477	.793
PBC16	90.458	130.085	.236	.806
PBC17	92.417	135.869	-.079	.824
PBC19	91.994	86.519	.813	.760
PBC20	89.871	136.992	-.152	.817

The perceived behavioural control (PBC) scale was satisfactory in height with 18 items (α=.808) (Table 4.10). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.10 suggests that the PK scale's reliability will be stronger if the PBC17 item is removed.

Table 4.11: Reliability and item-total statistics related to PBC scale after removing PBC17

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.824			17	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	85.761	132.281	.261	.823
PBC2	85.475	135.763	.005	.827
PBC3	85.877	128.910	.393	.818
PBC5	89.497	110.427	.620	.800
PBC6	86.363	116.534	.742	.799
PBC7	89.869	110.946	.735	.794
PBC8	86.361	119.658	.524	.809
PBC9	86.733	113.088	.727	.796
PBC10	86.032	122.708	.675	.807
PBC11	87.544	127.430	.232	.825
PBC12	88.976	113.588	.315	.836
PBC13	85.785	131.273	.303	.821
PBC14	85.660	132.509	.263	.823
PBC15	89.004	118.478	.447	.813
PBC16	86.262	130.625	.248	.823
PBC19	87.798	86.636	.825	.782
PBC20	85.675	137.733	-.150	.833

The perceived behavioural control (PBC) scale was satisfactory in height with 17 items (α=.824) (Table 4.11). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.11 suggests that the PK scale's reliability will be stronger if the PBC12 item is removed.

Table 4.12: Reliability and item-total statistics related to PBC scale after removing PBC12

Reliability Statistics	
Cronbach's Alpha	**Number of Items**
.836	16

Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	82.320	109.576	.324	.834
PBC2	82.034	113.253	.046	.839
PBC3	82.437	106.738	.425	.830
PBC5	86.056	91.074	.594	.817
PBC6	82.923	95.662	.755	.810
PBC7	86.428	89.987	.769	.804
PBC8	82.920	98.362	.539	.821
PBC9	83.292	92.113	.756	.806
PBC10	82.591	101.699	.666	.819
PBC11	84.103	107.093	.181	.842
PBC13	82.344	108.450	.376	.832
PBC14	82.219	109.969	.313	.834
PBC15	85.563	99.272	.388	.831
PBC16	82.822	107.427	.328	.832
PBC19	84.357	69.450	.810	.806
PBC20	82.234	114.719	-.112	.845

The perceived behavioural control (PBC) scale was satisfactory in height with 16 items (α=.836) (Table 4.12). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.12 suggests that the PK scale's reliability will be stronger if the PBC20 item is removed.

Table 4.13: Reliability and item-total statistics related to PBC scale after removing PBC20

Reliability Statistics	
Cronbach's Alpha	**Number of Items**
.845	15

Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	75.578	110.809	.313	.845
PBC2	75.292	114.492	.027	.850
PBC3	75.695	107.816	.426	.840

PBC5	79.314	91.647	.609	.828
PBC6	76.181	96.597	.760	.821
PBC7	79.686	91.104	.764	.816
PBC8	76.178	99.556	.533	.833
PBC9	76.551	93.278	.750	.819
PBC10	75.849	102.796	.665	.831
PBC11	77.361	108.171	.182	.853
PBC13	75.602	109.615	.371	.843
PBC14	75.477	111.254	.297	.845
PBC15	78.822	99.789	.407	.842
PBC16	76.080	108.888	.306	.844
PBC19	77.615	69.724	.827	.818

The perceived behavioural control (PBC) scale was satisfactory in height with 15 items (α=.845) (Table 4.13). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.13 suggests that the PK scale's reliability will be stronger if the PBC11 item is removed.

Table 4.14: Reliability and item-total statistics related to PBC scale after removing PBC11

Reliability Statistics				
Cronbach's Alpha			**Number of Items**	
.853			14	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	70.705	104.027	.344	.852
PBC2	70.419	107.830	.048	.858
PBC3	70.822	101.104	.451	.848
PBC5	74.441	86.213	.593	.838
PBC6	71.308	90.653	.757	.829
PBC7	74.813	84.846	.781	.823
PBC8	71.305	93.083	.548	.840
PBC9	71.677	87.473	.745	.827
PBC10	70.976	96.765	.654	.839
PBC13	70.729	102.905	.396	.850
PBC14	70.604	104.597	.316	.853
PBC15	73.948	93.976	.395	.851
PBC16	71.206	102.156	.327	.851
PBC19	72.742	64.951	.816	.831

The perceived behavioural control (PBC) scale was satisfactory in height with 14 items (α=.853) (Table 4.14). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.14 suggests that the PK scale's reliability will be stronger if the PBC2 item is removed.

Table 4.15: Reliability and item-total statistics related to PBC scale after removing PBC2

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.858			13	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	63.763	103.759	.338	.858
PBC3	63.880	100.839	.447	.854
PBC5	67.499	85.595	.604	.843
PBC6	64.366	90.336	.757	.835
PBC7	67.871	84.591	.779	.829
PBC8	64.363	92.934	.541	.846
PBC9	64.735	87.225	.742	.833
PBC10	64.034	96.495	.650	.845
PBC13	63.787	102.621	.392	.856
PBC14	63.662	104.319	.311	.859
PBC15	67.006	93.368	.405	.856
PBC16	64.265	102.005	.316	.858
PBC19	65.800	64.501	.822	.836

The perceived behavioural control (PBC) scale was satisfactory in height with 13 items (α=.858) (Table 4.15). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.15 suggests that the PK scale's reliability will be stronger if the PBC14 item is removed.

Table 4.16: Reliability and item-total statistics related to PBC scale after removing PBC14

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.859			12	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC1	57.006	100.403	.330	.860
PBC3	57.123	97.608	.434	.856
PBC5	60.742	82.071	.617	.842
PBC6	57.609	87.204	.753	.836
PBC7	61.114	81.403	.782	.829
PBC8	57.606	89.942	.528	.848
PBC9	57.978	84.030	.744	.833
PBC10	57.277	93.210	.647	.846
PBC13	57.030	99.400	.374	.859
PBC15	60.249	89.735	.417	.857
PBC16	57.508	98.763	.304	.860
PBC19	59.043	61.615	.826	.836

The perceived behavioural control (PBC) scale was satisfactory in height with 12 items (α=.859) (Table 4.16). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.16 suggests that the PK scale's reliability will be stronger if the PBC1 and PBC16 items are removed.

Table 4.17: Reliability and item-total statistics related to PBC scale after removing PBC1 and PBC16

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.863			10	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC3	44.312	89.146	.409	.864
PBC5	47.931	72.900	.657	.843
PBC6	44.798	78.856	.755	.840
PBC7	48.303	73.763	.765	.834
PBC8	44.796	82.103	.499	.856
PBC9	45.168	76.558	.711	.840
PBC10	44.467	84.680	.643	.852

PBC13	44.219	91.120	.322	.867
PBC15	47.439	79.734	.476	.859
PBC19	46.232	54.252	.837	.838

The perceived behavioural control (PBC) scale was satisfactory in height with 10 items (α=.863) (Table 4.17). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.17 suggests that the PK scale's reliability will be stronger if the PBC13 item is removed.

Table 4.18: Reliability and item-total statistics related to PBC scale after removing PBC13

Reliability Statistics				
Cronbach's Alpha			**Number of Items**	
.867			9	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC3	37.680	85.416	.389	.871
PBC5	41.299	68.956	.670	.846
PBC6	38.166	75.285	.744	.845
PBC7	41.671	70.152	.764	.838
PBC8	38.163	78.396	.492	.862
PBC9	38.535	73.081	.700	.845
PBC10	37.834	80.695	.650	.857
PBC15	40.806	75.458	.495	.863
PBC19	39.600	51.266	.832	.843

The perceived behavioural control (PBC) scale was satisfactory in height with nine items (α=.867) (Table 4.18). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.18 suggests that the PK scale's reliability will be stronger if the PBC3 item is removed.

Table 4.19: Reliability and item-total statistics related to PBC scale after removing PBC3

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.871			8	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
PBC5	34.759	63.847	.675	.849
PBC6	31.626	70.205	.738	.850
PBC7	35.131	65.162	.762	.841
PBC8	31.624	73.158	.488	.868
PBC9	31.996	68.103	.693	.850
PBC10	31.295	75.256	.655	.862
PBC15	34.267	70.015	.504	.867
PBC19	33.060	47.100	.827	.846

The perceived behavioural control (PBC) scale was excellent in height with eight items (α=.871) (Table 4.19). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Furthermore, the corrected item-total correlation related to each item is strong (>.30) (Table 4.19), in conformity with Senawi et al.'s (2021) guidelines as presented in Chapter 3, section 3.5.1.

4.2.1.4. Transaction costs (TC) scale

Table 4.20: Reliability and item-total statistics related to TC scale

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.785			15	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC1	68.394	106.631	.519	.768
TC2	69.286	104.269	.555	.764
TC3	69.112	102.324	.624	.759
TC4	69.400	121.193	-.175	.842
TC5	69.983	119.478	-.133	.826
TC6	68.413	102.239	.608	.759
TC7	68.381	101.236	.618	.758
TC8	69.527	91.819	.637	.747

TC9	69.497	92.022	.644	.747
TC10	69.473	97.392	.575	.756
TC11	69.062	111.761	.267	.781
TC12	69.230	106.173	.501	.768
TC13	70.626	108.424	.229	.786
TC14	69.148	96.778	.667	.750
TC15	68.968	98.057	.666	.751

The transaction costs (TC) scale was satisfactory in height with 15 items (α=.785) (Table 4.20). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.20 suggests that the PK scale's reliability will be stronger if the TC4 item is removed.

Table 4.21: Reliability and item-total statistics related to TC scale after removing TC4

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.842			14	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC1	63.615	111.104	.466	.834
TC2	64.508	105.600	.656	.824
TC3	64.333	104.986	.659	.823
TC5	65.204	129.512	-.276	.892
TC6	63.634	106.125	.586	.827
TC7	63.602	105.287	.589	.826
TC8	64.748	91.413	.754	.810
TC9	64.718	91.694	.759	.810
TC11	64.284	115.036	.282	.842
TC12	64.452	108.860	.540	.830
TC13	65.847	116.470	.081	.858
TC14	64.370	97.953	.749	.814
TC15	64.189	99.537	.742	.815

The transaction costs (TC) scale was satisfactory in height with 14 items (α=.842) (Table 4.21). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results

displayed in Table 4.21 suggests that the PK scale's reliability will be stronger if the TC5 item is removed.

Table 4.22: Reliability and item-total statistics related to TC scale after removing TC5

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.892			13	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC1	59.419	119.274	.457	.890
TC2	60.312	113.051	.672	.882
TC3	60.138	111.908	.698	.880
TC6	59.439	113.941	.586	.885
TC7	59.406	113.181	.585	.885
TC8	60.553	96.731	.816	.871
TC9	60.523	96.991	.823	.871
TC10	60.499	103.393	.745	.876
TC11	60.088	123.313	.274	.896
TC12	60.256	116.286	.564	.886
TC13	61.652	128.469	-.033	.915
TC14	60.174	104.485	.787	.874
TC15	59.994	106.455	.768	.875

The transaction costs (TC) scale was satisfactory in height with 13 items (α=.892) (Table 4.22). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.22 suggests that the PK scale's reliability will be stronger if the TC13 item is removed.

Table 4.23: Reliability and item-total statistics related to TC scale after removing TC13

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.915			12	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC1	55.867	118.590	.440	.916
TC2	56.759	111.666	.691	.907
TC3	56.585	110.873	.701	.907
TC6	55.886	113.011	.584	.911
TC7	55.854	112.517	.572	.912
TC8	57.000	95.121	.839	.900
TC9	56.970	95.434	.845	.899
TC10	56.946	101.547	.777	.902
TC11	56.535	122.581	.259	.921
TC12	56.703	115.304	.563	.912
TC14	56.622	103.184	.801	.901
TC15	56.441	105.553	.766	.903

The transaction costs (TC) scale was satisfactory in height with 12 items (α=.915) (Table 4.23). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.23 suggests that the PK scale's reliability will be stronger if the TC11 item is removed.

Table 4.24: Reliability and item-total statistics related to TC scale after removing TC11

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.921			11	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC1	50.751	112.675	.453	.924
TC2	51.643	106.161	.692	.915
TC3	51.469	105.435	.699	.914
TC6	50.770	106.984	.606	.918
TC7	50.738	106.478	.594	.918
TC8	51.884	89.736	.849	.906
TC9	51.854	90.138	.852	.906

TC10	51.830	96.611	.766	.910
TC12	51.587	110.622	.518	.921
TC14	51.505	97.988	.797	.909
TC15	51.325	100.306	.762	.911

The transaction costs (TC) scale was satisfactory in height with 11 items (α=.915) (Table 4.24). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.24 suggests that the PK scale's reliability will be stronger if the TC1 item is removed.

Table 4.25: Reliability and item-total statistics related to TC scale after removing TC1

Reliability Statistics				
Cronbach's Alpha			**Number of Items**	
.924			10	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC2	45.858	96.812	.698	.917
TC3	45.684	96.505	.685	.918
TC6	44.985	98.506	.568	.923
TC7	44.953	97.929	.562	.923
TC8	46.099	81.046	.856	.908
TC9	46.069	81.478	.858	.907
TC10	46.045	87.211	.789	.911
TC12	45.802	101.181	.518	.925
TC14	45.720	88.779	.811	.910
TC15	45.540	90.973	.778	.912

The transaction costs (TC) scale was satisfactory in height with 10 items (α=.924) (Table 4.25). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.25 suggests that the PK scale's reliability will be stronger if the TC12 item is removed.

Table 4.26: Reliability and item-total statistics related to TC scale after removing TC12

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.925			9	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC2	40.910	86.117	.700	.919
TC3	40.735	85.971	.680	.920
TC6	40.037	87.785	.566	.925
TC7	40.004	87.190	.562	.926
TC8	41.151	70.913	.871	.907
TC9	41.120	71.378	.871	.907
TC10	41.097	77.381	.777	.913
TC14	40.772	78.737	.804	.911
TC15	40.591	80.807	.770	.914

The transaction costs (TC) scale was satisfactory in height with nine items (α=.925) (Table 4.26). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.26 suggests that the PK scale's reliability will be stronger if the TC7 item is removed.

Table 4.27: Reliability and item-total statistics related to TC scale after removing TC7

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.926			8	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC2	35.112	73.009	.712	.920
TC3	34.938	73.102	.678	.922
TC6	34.239	76.264	.483	.933
TC8	35.353	58.776	.891	.904
TC9	35.323	59.159	.893	.904
TC10	35.299	64.624	.801	.911
TC14	34.974	66.327	.809	.911
TC15	34.794	68.457	.763	.915

The transaction costs (TC) scale was satisfactory in height with eight items (α=.926) (Table 4.27). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.27 suggests that the PK scale's reliability will be stronger if the TC6 item is removed.

Table 4.28: Reliability and item-total statistics related to TC scale after removing TC6

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.933			7	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
TC2	29.346	62.977	.714	.931
TC3	29.172	63.134	.675	.933
TC8	29.587	49.622	.901	.912
TC9	29.557	49.967	.903	.911
TC10	29.533	54.883	.818	.919
TC14	29.209	56.941	.801	.921
TC15	29.028	59.075	.746	.926

The transaction costs (TC) scale was excellent in height with seven items (α=.933) (Table 4.28). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Furthermore, the corrected item-total correlation related to each item is strong (>.30) (Table 4.28), in conformity with Senawi et al.'s (2021) guidelines as presented in Chapter 3, section 3.5.1.

4.2.1.5. Business Performance (BP) scale

Table 4.29: Reliability and item-total statistics related to BP scale

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.883			11	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
BP1	55.970	99.555	-.133	.895
BP2	56.340	98.535	-.014	.895
BP3	57.159	79.414	.791	.860
BP4	57.409	77.130	.918	.852
BP5	57.131	78.019	.830	.857
BP6	58.869	96.800	-.073	.947
BP7	57.202	76.006	.910	.851
BP8	57.142	75.777	.921	.851
BP9	57.077	75.787	.886	.852
BP10	57.213	75.280	.908	.851
BP11	57.133	75.655	.907	.851

The business performance (BP) scale was satisfactory in height with 11 items (α=.883) (Table 4.29). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.29 suggests that the BP scale's reliability will be stronger if the BP6 item is removed.

Table 4.30: Reliability and item-total statistics related to BP scale after removing BP6

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.947			10	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
BP1	51.974	97.176	-.071	.961
BP2	52.344	98.041	-.136	.964
BP3	53.163	76.934	.830	.938
BP4	53.413	75.764	.900	.935
BP5	53.135	75.471	.872	.936
BP7	53.206	73.543	.949	.932
BP8	53.146	73.164	.968	.931

BP9	53.082	72.786	.950	.932
BP10	53.217	72.912	.942	.933
BP11	53.138	72.938	.959	.932

The business performance (BP) scale was satisfactory in height with 10 items (α=.947) (Table 4.30). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.30 suggests that the BP scale's reliability will be stronger if the BP2 item is removed.

Table 4.31: Reliability and item-total statistics related to BP scale after removing BP2

Reliability Statistics				
Cronbach's Alpha			**Number of Items**	
.964			9	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
BP1	45.449	98.524	-.085	.982
BP3	46.639	78.063	.829	.961
BP4	46.888	76.927	.897	.958
BP5	46.611	76.493	.875	.959
BP7	46.682	74.541	.954	.955
BP8	46.622	74.145	.973	.954
BP9	46.557	73.713	.958	.955
BP10	46.692	73.955	.943	.956
BP11	46.613	73.914	.964	.955

The business performance (BP) scale was satisfactory in height with nine items (α=.964) (Table 4.31). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.31 suggests that the BP scale's reliability will be stronger if the BP1 item is removed.

Table 4.32: Reliability and item-total statistics related to BP scale after removing BP1

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.982			8	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
BP3	39.744	78.480	.829	.984
BP4	39.994	77.308	.900	.981
BP5	39.716	76.915	.876	.982
BP7	39.787	74.935	.955	.978
BP8	39.727	74.548	.973	.977
BP9	39.662	74.142	.957	.978
BP10	39.798	74.334	.945	.979
BP11	39.718	74.336	.964	.978

The business performance (BP) scale was satisfactory in height with eight items (α=.982) (Table 4.32). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.32 suggests that the BP scale's reliability will be stronger if the BP3 item is removed.

Table 4.33: Reliability and item-total statistics related to BP scale after removing BP3

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.984			7	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
BP4	34.288	59.727	.895	.984
BP5	34.011	59.416	.869	.986
BP7	34.082	57.580	.955	.981
BP8	34.022	57.215	.976	.979
BP9	33.957	56.821	.961	.980
BP10	34.092	56.942	.952	.981
BP11	34.013	56.974	.969	.980

The business performance (BP) scale was satisfactory in height with seven items (α=.984) (Table 4.33). The Cronbach's alpha is higher than the

minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.33 suggests that the BP scale's reliability will be stronger if the BP5 item is removed.

Table 4.34: Reliability and item-total statistics related to BP scale after removing BP5

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.986			6	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
BP4	28.555	43.454	.879	.990
BP7	28.348	41.400	.957	.983
BP8	28.288	41.055	.980	.981
BP9	28.224	40.717	.965	.982
BP10	28.359	40.757	.960	.983
BP11	28.280	40.874	.972	.981

The business performance (BP) scale was satisfactory in height with six items (α=.986) (Table 4.34). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Nonetheless, the results displayed in Table 4.34 suggests that the BP scale's reliability will be stronger if the BP4 item is removed.

Table 4.35: Reliability and item-total statistics related to BP scale after removing BP4

Reliability Statistics				
Cronbach's Alpha			Number of Items	
.990			5	
Item-Total Statistics				
Variables	**Scale Mean if Item Deleted**	**Scale Variance if Item Deleted**	**Corrected Item-Total Correlation**	**Cronbach's Alpha if Item Deleted**
BP7	22.892	28.256	.958	.989
BP8	22.832	27.972	.982	.985
BP9	22.768	27.666	.969	.987
BP10	22.903	27.678	.965	.988
BP11	22.824	27.840	.971	.987

The business performance (BP) scale was excellent in height with five items (α=.990) (Table 4.35). The Cronbach's alpha is higher than the minimum of .70 recommended by Gustafsson et al. (2020) and Hernández-Castorena et al. (2021) as detailed in Chapter 3, section 3.5.1. Furthermore, the corrected item-total correlation related to each item is strong (>.30) (Table 4.28), in conformity with Senawi et al.'s (2021) guidelines as presented in Chapter 3, section 3.5.1.

4.2.2. Test of scales validity

This section presents the outcomes of the assessment of the validity of each one of the five scales connected to the study. In this sense, PASW Statistics 18 (formerly known as SPSS Statistics) was used to process the raw data so as to compute (i) the descriptive statistics, (ii) the correlation matrix, (iii) the KMP and Bartlett's Test, (iv) the Anti-image matrix, and (v) the communalities. It expands from subsection 4.2.2.1 to subsection 4.2.2.5 to present discoveries from the data processing endeavour in tabular form, examine them, and submit revisions in the same format, when deemed to be relevant.

4.2.2.1. Experiential knowledge (EK) scale

Table 4.36: Descriptive statistics connected with the EK scale

Variables	Mean	Std. Deviation	Analysis N	Number of variables	Ratio of case to variables
EK1	6.748	.779	465	6	77.5 to 1
EK2	6.723	.784	465		
EK3	6.628	.800	465		
EK4	6.578	.858	465		
EK5	6.645	.794	465		
EK6	6.692	.792	465		

For the experiential knowledge (EK) scale, the ratio of cases to variables was far higher than the minimum requirement of 5 to 1 – as per Taherdoost's

(2022) suggestions, detailed in Chapter 3, section 3.5.3 - as it was 77.5 to 1 (Table 4.36).

Table 4.37: Correlation matrix connected with the EK scale

	EK1	EK2	EK3	EK4	EK5	EK6
EK1	1.000	.866	.822	.776	.793	.845
EK2	.866	1.000	.818	.816	.849	.848
EK3	.822	.818	1.000	.761	.810	.847
EK4	.776	.816	.761	1.000	.796	.757
EK5	.793	.849	.810	.796	1.000	.837
EK6	.845	.848	.847	.757	.837	1.000

For the experiential knowledge (EK) scale, each variable was correlated with another one, with a coefficient greater than .30 (Table 4.37). It complies with Taherdoost's (2022) suggestions, detailed in Chapter 3, section 3.5.3.

Table 4.38: KMO and Bartlett's test connected with the EK scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA)		**.932**
Bartlett's Test of Sphericity	Approx. Chi-Square	3268.512
	df	15
	Sig.	.000

For the experiential knowledge (EK) scale, the overall measure of sampling adequacy was .932 (Table 4.38). It is higher than the minimum requirement of .50 (Taherdoost, 2022). The probability related to the Bartlett's test was less than .001 (Table 4.38). It complies with Taherdoost's (2022) suggestions, detailed in Chapter 3, section 3.5.3.

Table 4.39: Anti-image matrix connected with the EK scale

	EK1	EK2	EK3	EK4	EK5	EK6
EK1	.925[a]	-.373	-.208	-.133	.033	-.268
EK2	-.373	.917[a]	-.070	-.254	-.282	-.173
EK3	-.208	-.070	.944[a]	-.122	-.172	-.322
EK4	-.133	-.254	-.122	.951[a]	-.248	.021
EK5	.033	-.282	-.172	-.248	.932[a]	-.271
EK6	-.268	-.173	-.322	.021	-.271	.925[a]

For the experiential knowledge (EK) scale, the value of the measure of sampling adequacy for each item was more than the minimum required of .50 (Table 4.39). It suggests that there was no need to remove any of them from the composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

Table 4.40: Commonalities connected with the EK scale

	Initial	Extraction
EK1	1.000	.855
EK2	1.000	.887
EK3	1.000	.839
EK4	1.000	.787
EK5	1.000	.848
EK6	1.000	.866

For the experiential knowledge (EK) scale, the value of the commonalities for each item was higher than the minimum requirement of .50 (Table 4.40). It suggests that there was no need to remove any of them from the composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

4.2.2.2. Prior Knowledge (PK) scale

Table 4.41: Descriptive statistics connected with the PK scale

Variables	Mean	Std. Deviation	Analysis N	Number of variables	Ratio of case to variables
PK1	4.860	2.777	465		
PK2	3.738	2.910	465		
PK3	2.454	2.463	465		
PK4	5.901	1.584	465		
PK5	5.998	1.454	465	9	51.7 to 1
PK6	6.299	1.144	465		
PK7	6.239	1.147	465		
PK8	6.172	1.051	465		
PK9	6.191	1.057	465		

For the prior knowledge (PK) scale, the ratio of cases to variables was far higher than the minimum requirement of 5 to 1 – as per Taherdoost's (2022)

suggestions, detailed in Chapter 3, section 3.5.3 - as it was 51.7 to 1 (Table 4.41).

Table 4.42: Correlation matrix connected with the PK scale

	PK1	PK2	PK3	PK4	PK5	PK6	PK7	PK8	PK9
PK1	1.000	.659	.369	.411	.456	.318	.379	.414	.303
PK2	.659	1.000	.199	.308	.365	.259	.298	.333	.241
PK3	.369	.199	1.000	-.061	-.047	-.097	-.090	-.158	-.171
PK4	.411	.308	-.061	1.000	.867	.706	.742	.693	.630
PK5	.456	.365	-.047	.867	1.000	.754	.769	.718	.633
PK6	.318	.259	-.097	.706	.754	1.000	.832	.705	.543
PK7	.379	.298	-.090	.742	.769	.832	1.000	.712	.688
PK8	.414	.333	-.158	.693	.718	.705	.712	1.000	.739
PK9	.303	.241	-.171	.630	.633	.543	.688	.739	1.000

For the prior knowledge (PK) scale, the number of items with a correlation coefficient less than .30, non-compliant with Taherdoost's (2022) suggestions detailed in Chapter 3, section 3.5.3, was eight (PK2, PK3, PK4, PK5, PK6, PK7, PK8, PK9). The variables PK2 and PK3 had the most important number of correlation coefficients less than .30 with other variables (7 correlations out of 8 for PK3 and 4 correlations out of 8 for PK2), suggesting that it would be judicious to remove them from the composition of the scale.

Table 4.43: KMO and Bartlett's test connected with the PK scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA)		**.837**
Bartlett's Test of Sphericity	Approx. Chi-Square	3090.278
	df	36
	Sig.	.000

For the prior knowledge (PK) scale, the overall measure of sampling adequacy was .837 (Table 4.43). It is higher than the minimum requirement of .50 (Taherdoost, 2022). The probability related to the Bartlett's test was

less than .001 (Table 4.43). It complies with Taherdoost's (2022) suggestions, detailed in Chapter 3, section 3.5.3.

Table 4.44: Anti-image matrix connected with the PK scale

	PK1	PK2	PK3	PK4	PK5	PK6	PK7	PK8	PK9
PK1	.733[a]	-.544	-.414	-.041	-.100	.108	-.072	-.183	.038
PK2	-.544	.769[a]	.033	.054	-.075	.011	-.007	-.037	.017
PK3	-.414	.033	.547[a]	.000	.007	-.015	.010	.180	.075
PK4	-.041	.054	.000	.879[a]	-.614	-.024	-.108	-.069	-.083
PK5	-.100	-.075	.007	-.614	.874[a]	-.211	-.090	-.080	-.057
PK6	.108	.011	-.015	-.024	-.211	.825[a]	-.586	-.309	.287
PK7	-.072	-.007	.010	-.108	-.090	-.586	.858[a]	.056	-.368
PK8	-.183	-.037	.180	-.069	-.080	-.309	.056	.877[a]	-.470
PK9	.038	.017	.075	-.083	-.057	.287	-.368	-.470	.834[a]

For the prior knowledge (PK) scale, the value of the measure of sampling adequacy for each item was more than the minimum required of .50 (Table 4.44). It suggests that there was no need to remove any of them from the composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

Table 4.45: Commonalities connected with the PK scale

	Initial	Extraction
PK1	1.000	.806
PK2	1.000	.637
PK3	1.000	.606
PK4	1.000	.776
PK5	1.000	.823
PK6	1.000	.742
PK7	1.000	.812
PK8	1.000	.766
PK9	1.000	.656

For the prior knowledge (PK) scale, the value of the commonalities for each item was higher than the minimum requirement of .50 (Table 4.40). It suggests that there was no need to remove any of them from the

composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

4.2.2.3. Perceived behavioural control (PBC) scale

Table 4.46: Descriptive statistics connected with the PBC scale

Variables	Mean	Std. Deviation	Analysis N	Number of variables	Ratio of case to variables
PBC1	6.656	.547	465		
PBC2	6.942	.268	465		
PBC3	6.540	.722	465		
PBC4	5.680	1.309	465		
PBC5	2.920	1.725	465		
PBC6	6.054	1.127	465		
PBC7	2.548	1.470	465		
PBC8	6.056	1.274	465		
PBC9	5.684	1.354	465		
PBC10	6.385	.833	465		
PBC11	4.873	1.291	465	21	22.1 to 1
PBC12	3.441	2.437	465		
PBC13	6.632	.609	465		
PBC14	6.757	.5118	465		
PBC15	3.413	1.543	465		
PBC16	6.155	.811	465		
PBC17	4.196	1.224	465		
PBC18	3.761	2.047	465		
PBC19	4.619	2.722	465		
PBC20	6.742	.648	465		
PBC21	4.424	2.061	465		

For the perceived behavioural control (PBC) scale, the ratio of cases to variables was far higher than the minimum requirement of 5 to 1, as per Taherdoost's (2022) suggestions detailed in Chapter 3, section 3.5.3, as it was 22.1 to 1 (Table 4.46).

Table 4.47: Correlation matrix connected with the PBC scale

	PBC1	PBC2	PBC3	PBC4	PBC5	PBC6	PBC7	PBC8	PBC9	PBC10	PBC11	PBC12	PBC13	PBC14	PBC15	PBC16	PBC17	PBC18	PBC19	PBC20	PBC21
PBC1	1.000	.245	.368	-.232	.042	.268	.313	.297	.391	.116	-.166	-.159	.615	.278	-.133	.436	-.157	-.066	.249	.144	-.262
PBC2	.245	1.000	.196	-.053	-.299	.039	.108	.281	.127	.158	-.164	-.175	.172	.227	-.322	.438	-.182	-.170	-.075	.310	-.170
PBC3	.368	.196	1.000	-.168	.239	.383	.336	.253	.371	.220	-.088	.031	.438	.379	.117	.284	.007	.042	.391	-.056	-.329
PBC4	-.232	-.053	-.168	1.000	-.260	-.361	-.453	-.328	-.412	-.412	.316	-.111	-.175	-.139	-.250	-.211	.026	.131	-.419	.045	.363
PBC5	.042	-.299	.239	-.260	1.000	.498	.684	.150	.417	.321	.250	.348	.081	-.007	.684	-.059	.201	.035	.642	-.250	-.212
PBC6	.268	.039	.383	-.361	.498	1.000	.571	.550	.631	.575	.208	.256	.396	.329	.361	.222	-.272	-.029	.696	-.134	-.432
PBC7	.313	.108	.336	-.453	.684	.571	1.000	.447	.662	.547	.076	.184	.281	.215	.434	.395	.053	-.140	.639	-.007	-.468
PBC8	.297	.281	.253	-.328	.150	.550	.447	1.000	.382	.567	.023	.159	.263	.398	.174	.403	-.237	-.143	.508	.038	-.426
PBC9	.391	.127	.371	-.412	.417	.631	.662	.382	1.000	.618	.212	.198	.387	.228	.223	.471	-.108	-.126	.723	.020	-.508
PBC10	.116	.158	.220	-.412	.321	.575	.547	.567	.618	1.000	.240	.313	.127	.265	.277	.333	-.165	-.119	.621	-.031	-.464
PBC11	-.166	-.164	-.088	.316	.250	.208	.076	.023	.212	.240	1.000	.309	-.103	-.083	.184	-.088	-.129	.094	.252	-.031	-.015
PBC12	-.159	-.175	.031	-.111	.348	.256	.184	.159	.198	.313	.309	1.000	-.182	-.104	.409	-.232	-.029	.400	.384	-.232	.170
PBC13	.615	.172	.438	-.175	.081	.396	.281	.263	.387	.127	-.103	-.182	1.000	.466	-.086	.399	-.146	.045	.340	.043	-.258
PBC14	.278	.227	.379	-.139	-.007	.329	.215	.398	.228	.265	-.083	-.104	.466	1.000	-.077	.325	-.006	.000	.224	.233	-.215
PBC15	-.133	-.322	.117	-.250	.684	.361	.434	.174	.223	.277	.184	.409	-.086	-.077	1.000	-.277	.238	.114	.456	-.307	-.054
PBC16	.436	.438	.284	-.211	-.059	.222	.395	.403	.471	.333	-.088	-.232	.399	.325	-.277	1.000	-.113	-.301	.222	.314	-.453
PBC17	-.157	-.182	.007	.026	.201	-.272	.053	-.237	-.108	-.165	-.129	-.029	-.146	-.006	.238	-.113	1.000	.080	-.097	-.015	.159
PBC18	-.066	-.170	.042	.131	.035	-.029	-.140	-.143	-.126	-.119	.094	.400	.045	.000	.114	-.301	.080	1.000	.002	-.241	.532
PBC19	.249	-.075	.391	-.419	.642	.696	.639	.508	.723	.621	.252	.384	.340	.224	.456	.222	-.097	.002	1.000	-.243	-.508
PBC20	.144	.310	-.056	.045	-.250	-.134	-.007	.038	.020	-.031	-.031	-.232	.043	.233	-.307	.314	-.015	-.241	-.243	1.000	-.081
PBC21	-.262	-.170	-.329	.363	-.212	-.432	-.468	-.426	-.508	-.464	-.015	.170	-.258	-.215	-.054	-.453	.159	.532	-.508	-.081	1.000

For the perceived behavioural control (PBC) scale, each of the item composing the scale had correlation coefficients less than .30, i.e., non-compliant with Taherdoost's (2022) suggestions detailed in Chapter 3, section 3.5.3, with other variables composing the scale (Table 4.47). However, four variables had the most important number of correlation coefficient more than .030 with other variables (12 correlations out of 20 for respectively PBC6, PBC7, PBC9 and PBC19), suggesting that they should be the pillars of the composition of the scale.

Table 4.48: KMO and Bartlett's test connected with the PBC scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA)		**.809**
Bartlett's Test of Sphericity	Approx. Chi-Square	5426.730
	df	210
	Sig.	.000

For the perceived behavioural control (PCB) scale, the overall measure of sampling adequacy was .809 (Table 4.48). It is higher than the minimum requirement of .50 (Taherdoost, 2022). The probability related to the Bartlett's test was less than .001 (Table 4.48). It complies with Taherdoost's (2022) suggestions, detailed in Chapter 3, section 3.5.3.

Table 4.49: Anti-image matrix connected with the PBC scale

	PBC1	PBC2	PBC3	PBC4	PBC5	PBC6	PBC7	PBC8	PBC9	PBC10	PBC11	PBC12	PBC13	PBC14	PBC15	PBC16	PBC17	PBC18	PBC19	PBC20	PBC21
PBC1	.826[a]	-.004	-.130	.066	-.028	.085	-.073	-.179	-.180	.129	.074	.041	-.410	.102	.096	-.030	.088	-.013	.036	-.082	-.045
PBC2	-.004	.828[a]	-.194	-.055	.197	.004	-.187	-.130	-.005	-.088	.067	-.004	.019	.031	.092	-.111	.067	.039	.076	-.126	-.063
PBC3	-.130	-.194	.840[a]	-.128	-.090	-.081	.068	.094	-.044	.050	.156	-.071	-.086	-.216	-.076	-.070	-.061	-.137	-.040	.104	.217
PBC4	.066	-.055	-.128	.799[a]	-.050	.046	.100	-.035	.094	.182	-.515	.063	-.027	-.015	.115	-.030	-.031	-.002	.095	.039	-.093
PBC5	-.028	.197	-.090	-.050	.720[a]	-.235	-.598	.279	.237	.114	-.129	-.004	.070	.082	-.293	.056	-.178	.116	-.404	-.023	-.132
PBC6	.085	.004	-.081	.046	-.235	.884[a]	.034	-.278	-.270	-.081	-.048	-.002	-.191	-.154	-.061	.128	.329	-.024	.028	.076	.059
PBC7	-.073	-.187	.068	.100	-.598	.034	.838[a]	-.165	-.273	-.112	.100	-.004	-.016	-.027	-.089	-.217	-.019	-.056	.165	-.032	.128
PBC8	-.179	-.130	.094	-.035	.279	-.278	-.165	.780[a]	.348	-.186	.051	-.099	.114	-.194	-.203	-.217	.066	.074	-.299	-.012	.021
PBC9	-.180	-.005	-.044	.094	.237	-.270	-.273	.348	.828[a]	-.191	-.168	-.042	-.014	.105	.000	-.233	-.100	.070	-.416	-.112	-.036
PBC10	.129	-.088	.050	.182	.114	-.081	-.112	-.186	-.191	.906[a]	-.185	-.134	.145	-.147	-.049	-.074	.030	.009	-.090	.061	.094
PBC11	.074	.067	.156	-.515	-.129	-.048	.100	.051	-.168	-.185	.577[a]	-.106	.032	.029	-.038	.005	.141	-.052	-.071	-.132	.043
PBC12	.041	-.004	-.071	.063	-.004	-.002	-.004	-.099	-.042	-.134	-.106	.792[a]	.218	.104	-.066	.099	.070	-.281	-.218	-.055	-.239
PBC13	-.410	.019	-.086	-.027	.070	-.191	-.016	.114	-.014	.145	.032	.218	.791[a]	-.278	.003	-.133	.060	-.153	-.185	.054	-.037
PBC14	.102	.031	-.216	-.015	.082	-.154	-.027	-.194	.105	-.147	.029	.104	-.278	.763[a]	.101	.028	-.194	-.062	-.055	-.268	-.068
PBC15	.096	.092	-.076	.115	-.293	-.061	-.089	-.203	-.000	-.049	-.038	-.066	.003	.101	.846[a]	.286	-.214	.025	.012	.053	-.062
PBC16	-.030	-.111	-.070	-.030	.056	.128	-.217	-.217	-.233	-.074	.005	.099	-.133	.028	.286	.862[a]	-.077	.064	.047	-.116	.064
PBC17	.088	.067	-.061	-.031	-.178	.329	-.019	.066	-.100	.030	.141	.070	.060	-.194	-.214	-.077	.585[a]	-.059	.056	-.018	-.032
PBC18	-.013	.039	-.137	-.002	.116	-.024	-.056	.074	.070	.009	-.052	-.281	-.153	-.062	.025	.064	-.059	.645[a]	-.125	.119	-.464
PBC19	.036	.076	-.040	.095	-.404	.028	.165	-.299	-.416	-.090	-.071	-.218	-.185	-.055	.012	.047	.056	-.125	.836[a]	.228	.329
PBC20	-.082	-.126	.104	.039	-.023	.076	-.032	-.012	-.112	.061	-.132	-.055	.054	-.268	.053	-.116	-.018	.119	.228	.726[a]	.043
PBC21	-.045	-.063	.217	-.093	-.132	.059	.128	.021	-.036	.094	.043	-.239	-.037	-.068	-.062	.064	-.032	-.464	.329	.043	.823[a]

For the perceived behavioural control (PBC) scale, the value of the measure of sampling adequacy for each item was more than the minimum required of .50 (Table 4.49). It suggests that there was no need to remove any of them from the composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

Table 4.50: Communalities connected with the PBC scale

	Initial	Extraction
PBC1	1.000	.620
PBC2	1.000	.579
PBC3	1.000	.522
PBC4	1.000	.746
PBC5	1.000	.823
PBC6	1.000	.732
PBC7	1.000	.762
PBC8	1.000	.646
PBC9	1.000	.709
PBC10	1.000	.748
PBC11	1.000	.866
PBC12	1.000	.731
PBC13	1.000	.787
PBC14	1.000	.558
PBC15	1.000	.721
PBC16	1.000	.665
PBC17	1.000	.803
PBC18	1.000	.794
PBC19	1.000	.833
PBC20	1.000	.638
PBC21	1.000	.750

For the perceived behavioural control (PBC) scale, the value of the commonalities for each item was higher than the minimum requirement of .50 (Table 4.50). It suggests that there was no need to remove any of them from the composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

4.2.2.4. Transaction costs (TC) scale

Table 4.51: Descriptive statistics connected with the TC scale

Variables	Mean	Std. Deviation	Analysis N	Number of variables	Ratio of case to variables
TC1	5.785	.938	465		
TC2	4.892	1.071	465		
TC3	5.067	1.109	465		
TC4	4.778	2.241	465		
TC5	4.196	1.893	465		
TC6	5.766	1.140	465		
TC7	5.798	1.197	465		
TC8	4.652	1.833	465	15	31 to 1
TC9	4.682	1.805	465		
TC10	4.705	1.562	465		
TC11	5.116	.888	465		
TC12	4.948	1.005	465		
TC13	3.553	1.467	465		
TC14	5.030	1.429	465		
TC15	5.211	1.342	465		

For the transaction costs (TC) scale, the ratio of cases to variables was far higher than the minimum requirement of 5 to 1 – as per Taherdoost's (2022) suggestions, detailed in Chapter 3, section 3.5.3 - as it was 51.7 to 1 (Table 4.41).

Table 4.52: Correlation matrix connected with the TC scale

	TC1	TC2	TC3	TC4	TC5	TC6	TC7	TC8	TC9	TC10	TC11	TC12	TC13	TC14	TC15
TC1	1.000	.277	.469	.201	-.042	.668	.604	.354	.368	.173	-.017	.246	.130	.260	.228
TC2	.277	1.000	.592	-.479	-.214	.366	.344	.661	.657	.748	.201	.371	-.109	.530	.511
TC3	.469	.592	1.000	-.194	-.333	.379	.422	.676	.671	.588	.228	.430	.002	.515	.465
TC4	.201	-.479	-.194	1.000	.755	.050	.079	-.491	-.489	-.550	-.089	-.209	.672	-.383	-.357
TC5	-.042	-.214	-.333	.755	1.000	-.116	-.094	-.432	-.442	-.354	-.012	-.235	.662	-.330	-.276
TC6	.668	.366	.379	.050	-.116	1.000	.904	.424	.421	.332	-.069	.337	.034	.472	.504
TC7	.604	.344	.422	.079	-.094	.904	1.000	.422	.410	.330	-.071	.314	.108	.462	.511
TC8	.354	.661	.676	-.491	-.432	.424	.422	1.000	.978	.777	.155	.369	-.105	.721	.657
TC9	.368	.657	.671	-.489	-.442	.421	.410	.978	1.000	.771	.185	.384	-.097	.732	.666
TC10	.173	.748	.588	-.550	-.354	.332	.330	.777	.771	1.000	.343	.530	-.175	.671	.621
TC11	-.017	.201	.228	-.089	-.012	-.069	-.071	.155	.185	.343	1.000	.676	.119	.272	.269
TC12	.246	.371	.430	-.209	-.235	.337	.314	.369	.384	.530	.676	1.000	.021	.505	.492
TC13	.130	-.109	.002	.672	.662	.034	.108	-.105	-.097	-.175	.119	.021	1.000	-.061	.036
TC14	.260	.530	.515	-.383	-.330	.472	.462	.721	.732	.671	.272	.505	-.061	1.000	.906
TC15	.228	.511	.465	-.357	-.276	.504	.511	.657	.666	.621	.269	.492	.036	.906	1.000

For the transaction costs (TC) scale, each of the item composing the scale had correlation coefficients less than .30, i.e., non-compliant with Taherdoost's (2022) suggestions detailed in Chapter 3, section 3.5.3, with other variables composing the scale (Table 4.52). However, six variables had the most important number of correlation coefficient more than .030 with other variables (12 correlations out of 14 for respectively for TC8, TC9, and TC10; and 11 correlations out of 14 for respectively for TC3, TC14, and TC15), suggesting that they should be the pillars of the composition of the scale.

Table 4.53: KMO and Bartlett's test connected with the TC scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA)		**.784**
Bartlett's Test of Sphericity	Approx. Chi-Square	7373.000
	df	105
	Sig.	.000

For the transaction costs (TC) scale, the overall measure of sampling adequacy was .784 (Table 4.53). It is higher than the minimum requirement of .50 (Taherdoost, 2022). The probability related to the Bartlett's test was less than .001 (Table 4.53). It complies with Taherdoost's (2022) suggestions, detailed in Chapter 3, section 3.5.3.

Table 4.54: Anti-image matrix connected with the TC scale

	TC1	TC2	TC3	TC4	TC5	TC6	TC7	TC8	TC9	TC10	TC11	TC12	TC13	TC14	TC15
TC1	.840[a]	-.134	-.185	-.205	.072	-.345	.055	.053	-.160	.190	.007	-.081	.052	-.005	.129
TC2	-.134	.780[a]	-.435	.544	-.482	-.185	.026	.059	-.033	-.279	-.016	.067	-.130	-.014	.076
TC3	-.185	-.435	.795[a]	-.448	.439	.286	-.145	-.161	.029	-.101	-.012	-.102	.068	.041	-.075
TC4	-.205	.544	-.448	.640[a]	-.624	-.210	-.071	.099	.020	.149	-.085	.083	-.459	-.197	.315
TC5	.072	-.482	.439	-.624	.665[a]	.067	.070	-.102	.146	-.184	-.074	.148	-.216	.023	-.075
TC6	-.345	-.185	.286	-.210	.067	.724[a]	-.752	.020	-.058	-.012	.160	-.185	.245	.035	-.151
TC7	.055	.026	-.145	-.071	.070	-.752	.792[a]	-.095	.110	-.064	.096	.002	-.099	.067	-.130
TC8	.053	.059	-.161	.099	-.102	.020	-.095	.833[a]	-.899	-.126	.121	.015	-.009	-.029	.037
TC9	-.160	-.033	.029	.020	.146	-.058	.110	-.899	.829[a]	-.056	-.127	.101	-.142	-.108	.008
TC10	.190	-.279	-.101	.149	-.184	-.012	-.064	-.126	-.056	.935[a]	-.090	-.222	.099	-.085	.053
TC11	.007	-.016	-.012	-.085	-.074	.160	.096	.121	-.127	-.090	.628[a]	-.659	.030	.050	-.104
TC12	-.081	.067	-.102	.083	.148	-.185	.002	.015	.101	-.222	-.659	.780[a]	-.166	-.128	.044
TC13	.052	-.130	.068	-.459	-.216	.245	-.099	-.009	-.142	.099	.030	-.166	.621[a]	.267	-.364
TC14	-.005	-.014	.041	-.197	.023	.035	.067	-.029	-.108	-.085	.050	-.128	.267	.834[a]	-.794
TC15	.129	.076	-.075	.315	-.075	-.151	-.130	.037	.008	.053	-.104	.044	-.364	-.794	.793[a]

For the transaction costs (TC) scale, the value of the measure of sampling adequacy for each item was more than the minimum required of .50 (Table 4.49). It suggests that there was no need to remove any of them from the composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

Table 4.55: Communalities connected with the TC scale

	Initial	Extraction
TC1	1.000	.681
TC2	1.000	.653
TC3	1.000	.580
TC4	1.000	.907
TC5	1.000	.833
TC6	1.000	.897
TC7	1.000	.859
TC8	1.000	.894
TC9	1.000	.887
TC10	1.000	.809
TC11	1.000	.880
TC12	1.000	.884
TC13	1.000	.855
TC14	1.000	.727
TC15	1.000	.678

For the transaction costs (TC) scale, the value of the commonalities for each item was higher than the minimum requirement of .50 (Table 4.55). It suggests that there was no need to remove any of them from the composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

4.2.2.5. Business performance (BP) scale

Table 4.56: Descriptive statistics connected with the BP scale

Variables	Mean	Std. Deviation	Analysis N	Number of variables	Ratio of case to variables
BP1	6.895	.365	465		
BP2	6.525	.587	465		
BP3	5.705	1.257	465		
BP4	5.456	1.243	465		
BP5	5.733	1.297	465		
BP6	3.996	2.275	465	11	42.3 to 1
BP7	5.662	1.321	465		
BP8	5.723	1.322	465		
BP9	5.787	1.366	465		
BP10	5.652	1.369	465		
BP11	5.731	1.347	465		

For the business performance (BP) scale, the ratio of cases to variables was far higher than the minimum requirement of 5 to 1 – as per Taherdoost's (2022) suggestions, detailed in Chapter 3, section 3.5.3 - as it was 42.3 to 1 (Table 4.56).

Table 4.57: Correlation matrix connected with the BP scale

	BP1	BP2	BP3	BP4	BP5	BP6	BP7	BP8	BP9	BP10	BP11
BP1	1.000	.248	-.073	-.112	-.064	-.278	-.092	-.083	-.054	-.104	-.062
BP2	.248	1.000	-.076	-.054	-.144	.532	-.157	-.167	-.196	-.123	-.167
BP3	-.073	-.076	1.000	.788	.781	-.098	.810	.816	.793	.771	.792
BP4	-.112	-.054	.788	1.000	.865	.097	.857	.875	.857	.847	.874
BP5	-.064	-.144	.781	.865	1.000	-.107	.841	.846	.835	.810	.848
BP6	-.278	.532	-.098	.097	-.107	1.000	-.091	-.116	-.174	-.072	-.131
BP7	-.092	-.157	.810	.857	.841	-.091	1.000	.958	.939	.940	.931
BP8	-.083	-.167	.816	.875	.846	-.116	.958	1.000	.967	.957	.963
BP9	-.054	-.196	.793	.857	.835	-.174	.939	.967	1.000	.938	.960
BP10	-.104	-.123	.771	.847	.810	-.072	.940	.957	.938	1.000	.957
BP11	-.062	-.167	.792	.874	.848	-.131	.931	.963	.960	.957	1.000

For the business performance (BP) scale, each of the item composing the scale had correlation coefficients less than .30, i.e., non-compliant with Taherdoost's (2022) suggestions detailed in Chapter 3, section 3.5.3, with other variables composing the scale (Table 4.57). However, three variables

had the most important number of correlation coefficient less than .030 with other variables (10 correlations out of 10 for BP1, 9 correlations out of 10 respectively for BP2 and BP6), suggesting that it would be judicious to remove them from the composition of the scale.

Table 4.58: KMO and Bartlett's test connected with the BP scale

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA)		**.897**
Bartlett's Test of Sphericity	Approx. Chi-Square	7547.167
	df	55
	Sig.	.000

For the business performance (BP) scale, the overall measure of sampling adequacy was .897 (Table 4.58). It is higher than the minimum requirement of .50 (Taherdoost, 2022). The probability related to the Bartlett's test was less than .001 (Table 4.58). It complies with Taherdoost's (2022) suggestions, detailed in Chapter 3, section 3.5.3.

Table 4.59: Anti-image matrix connected with the BP scale

	BP1	**BP2**	**BP3**	**BP4**	**BP5**	**BP6**	**BP7**	**BP8**	**BP9**	**BP10**	**BP11**
BP1	.276[a]	-.500	.114	-.071	.031	.461	-.035	.002	-.019	.137	-.076
BP2	-.500	.430[a]	-.191	.087	-.027	-.590	.084	.044	.010	-.149	.048
BP3	.114	-.191	.957[a]	-.188	-.133	.188	-.159	-.151	.036	.109	.000
BP4	-.071	.087	-.188	.908[a]	-.449	-.462	.024	-.096	-.100	.073	-.176
BP5	.031	-.027	-.133	-.449	.940[a]	.194	-.163	.002	.048	.092	-.130
BP6	.461	-.590	.188	-.462	.194	.341[a]	-.100	-.010	.196	-.037	.062
BP7	-.035	.084	-.159	.024	-.163	-.100	.949[a]	-.325	-.167	-.294	.120
BP8	.002	.044	-.151	-.096	.002	-.010	-.325	.936[a]	-.399	-.274	-.170
BP9	-.019	.010	.036	-.100	.048	.196	-.167	-.399	.942[a]	.026	-.340
BP10	.137	-.149	.109	.073	.092	-.037	-.294	-.274	.026	.926[a]	-.466
BP11	-.076	.048	.000	-.176	-.130	.062	.120	-.170	-.340	-.466	.930[a]

For the business performance (BP) scale, the value of the measure of sampling adequacy for three items (BP1, BP2, and BP6) was less than the minimum required of .50. More precisely, BP1 has a value of the measure of sampling adequacy of .276. The value of the measure of sampling

adequacy of BP2 is .430, and that of BP6 is .341 (Table 4.59). It suggests that it is judicious to remove them from the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

Table 4.60: Communalities connected with the BP scale

	Initial	Extraction
BP1	1.000	.938
BP2	1.000	.887
BP3	1.000	.751
BP4	1.000	.883
BP5	1.000	.818
BP6	1.000	.895
BP7	1.000	.934
BP8	1.000	.962
BP9	1.000	.945
BP10	1.000	.920
BP11	1.000	.948

For the business performance (BP) scale, the value of the commonalities for each item was higher than the minimum requirement of .50 (Table 4.55). It suggests that there was no need to remove any of them from the composition of the scale, as per Taherdoost's (2022) recommendations, detailed in Chapter 3, section 3.5.3.

4.2.3. Overview of the scales' validity and reliability

Based on the above results of the tests of the reliability and the validity of scales, it could be concluded that within the framework of the research, the variables compositing each scale are detailed as follows (Table 4.61).

Table 4.61: Scales' item composition as a result of the validity and reliability tests

Scale	Variables	Cronbach's Alpha	MSA	Communality values
Experiential knowledge	EK1. My past experience has been highly beneficial for the attainment of key insights that can only be learned through experience and direct observation.	.963	.932	.855
	EK2. My past experience made me aware of connections between theoretical concepts and real entrepreneurial problems.			.887
	EK3. My past experience enabled me to apply theoretical skills and knowledge and contextualize them in real situations.			.839
	EK4. My past experience was a great opportunity to learn about how we may react to real life situations and business problems.			.787
	EK5. My past experience was a great way to interact with market stakeholders and learn entrepreneurial skills by mutual knowledge exchange and by observing others.			.848
	EK6. My past experience really helped me to learn from observation and to assimilate concepts and theories in a practical manner.			.866
Prior Knowledge	PK4. My prior knowledge has been highly beneficial for the attainment of key insights that can only be learned through academic training.	.933	.837	.776

Scale	Variables	Cronbach's Alpha	MSA	Communality values
	PK5. My prior knowledge made me aware of connections between theoretical concepts and real entrepreneurial problems.			.823
	PK6. My prior knowledge enabled me to study theoretical knowledge and contextualize them in real situations.			.742
	PK7. My prior knowledge was a great opportunity to learn about how we may react to real life situations and business problems.			.812
	PK8. My prior knowledge helped determine how to interact with market stakeholders and explore entrepreneurial theories and skills.			.766
	PK9. My past experience really helped me to develop reliable insights and master entrepreneurial theories.			.656
Perceived behavioural control	PBC5. I am not very effective in running my own business.			.823
	PBC6. If a business is under achieving, it is most likely due to ineffective management and entrepreneurship.			.732
	PBC7. I generally run my business ineffectively			.762
	PBC8. Inadequacies from a business' past failure can be overcome by good entrepreneurship.	.871	.809	.646
	PBC9. The low achievement of some businesses cannot generally be blamed on their leaders.			.709
	PBC10. When a low achieving business grows, it is due to an extra commitment of the entrepreneur.			.748

Scale	Variables	Cronbach's Alpha	MSA	Communality values
	PBC15. I find it difficult to explain to employees why an entrepreneur succeeds.			.721
	PBC19. Given a choice, I would not invite shareholders to evaluate my entrepreneurial performance.			.833
Transaction costs	TC2. I can quickly find buyers when selling products.	.933	.784	.653
	TC3. It does not cost me much to go to the marketplace in order to sell my products.			.580
	TC8. It doesn't take me much time to get my products ready and up to standards prior to selling.			.894
	TC9. It doesn't cost me much resource to get my products ready and up to standards prior to selling.			.887
	TC10. It does not cost me much resource to treat available buyers with small gifts and extras.			.809
	TC14. It doesn't cost me much resource to get buyers to follow the agreement.			.727
	TC15. It doesn't take me much time to get buyers to follow the agreement.			.678
Business Performance	BP7. The efficiency (doing things right) of the business has improved over the past few years.	.990	.897	.934
	BP8. The business has experienced growth in profits over the past few years.			.962
	BP9. The business has experienced growth in turnover over the past few years.			.945
	BP10. The business has experienced growth in market share over the past few years.			.920

Scale	Variables	Cronbach's Alpha	MSA	Communality values
	BP11. The competitive position of the business has improved over the past few years.			.948

Overall, following the reliability and validity tests conducted on the scales, it is confirmed that the research hypotheses remain unchanged. The independent variables (experiential knowledge, prior knowledge, and perceived behavioural control), and the dependent variables (transaction costs and business performance) have been retained as initially hypothesised. However, adjustments were made to improve the reliability of the scales, specifically by removing certain items from the prior knowledge, perceived behavioural control, transaction costs, and business performance scales. These adjustments did not alter the structure or intent of the hypotheses but were necessary to enhance the accuracy and consistency of the measurements.

4.3. Test of data normality

To determine whether the data for the dependent variables, transaction costs (TC) and business performance (BP), follow a normal distribution, a range of statistical analyses were employed. Assessing the normality of the data is crucial, as it influences the choice between parametric and non-parametric methods for subsequent statistical analyses (Vrbin, 2022). The tests applied include descriptive statistics as well as the Kolmogorov-Smirnov and Shapiro-Wilk tests (Mishra, Pandey, Singh, Gupta, Sahu & Keshri, 2019).

Table 4.62: Descriptive statistics

			Statistic	Std. Error
TC	Mean		4.89124	.057854
	95% Confidence Interval for Mean	Lower Bound	4.77756	
		Upper Bound	5.00493	

			Statistic	Std. Error
	5% Trimmed Mean		4.91705	
	Median		5.00000	
	Variance		1.556	
	Std. Deviation		1.247561	
	Minimum		1.857	
	Maximum		7.000	
	Range		5.143	
	Interquartile Range		2.000	
	Skewness		-.314	.113
	Kurtosis		-.706	.226
BP	Mean		5.71097	.061139
	95% Confidence Interval for Mean	Lower Bound	5.59082	
		Upper Bound	5.83111	
	5% Trimmed Mean		5.77742	
	Median		6.20000	
	Variance		1.738	
	Std. Deviation		1.318399	
	Minimum		1.000	
	Maximum		7.000	
	Range		6.000	
	Interquartile Range		3.000	
	Skewness		-.793	.113
	Kurtosis		.000	.226

The descriptive statistics for both TC and BP are presented in Table 4.62. The mean for TC is 4.89, with a standard deviation of 1.25. The skewness (-.314) and kurtosis (-.706) values suggest a slight leftward skew and a relatively flat distribution. Similarly, BP has a mean of 5.71 and a standard deviation of 1.32, with a more pronounced leftward skew (-.793) and a kurtosis value of .000, indicating heavier tails compared to a normal distribution. These statistics provide initial insights into potential deviations from normality (Grimes, Jenkins & Tranquilli, 2022; Mishra et al., 2019).

Table 4.63: Test of normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TC	.096	465	.000	.969	465	.000
BP	.200	465	.000	.821	465	.000

To further investigate normality, the Kolmogorov-Smirnov and Shapiro-Wilk tests were conducted (Table 4.63). Both tests returned significant results ($p < .01$) for TC and BP, indicating that the null hypothesis of normality is rejected. This suggests that neither variable follows a normal distribution, confirming the non-normal nature of the data (Mishra et al., 2019).

The results from the Kolmogorov-Smirnov and Shapiro-Wilk tests, combined with the descriptive statistics, reveal significant deviations from normality in both TC and BP. This indicates that the data do not satisfy the normality assumptions required for parametric testing. Consequently, non-parametric methods are recommended for subsequent analyses to address the non-normal distribution of the data.

4.4. Profile of the respondents

4.4.1. Distribution according to biological sex

The study sample comprises 465 individuals. Female respondents represent 43.4 percent of the sample size with 202 individuals. Male respondents represent 56.6 percent of the sample size with 263 individuals.

Table 4.64: Respondents' distribution according to biological sex

Biological Sex	Frequency	Percent
Female	202	43.4
Male	263	56.6
Total	**465**	**100.0**

4.4.2. Distribution according to age group

With regards to the age group, most respondents are between 35 and 54 years old. More precisely, 104 respondents (22.4 percent) belong to the 18-34 years old age category, 161 (34.6 percent) are between 35 and 44, 142 (30.5 percent) are between 45 and 54, and 58 respondents (12.5 percent) are 55 years old and above.

Table 4.65: Respondents' distribution according to age group

Age Group	Frequency	Percent
18 – 34 years old	104	22.4
35 – 44 years old	161	34.6
45 – 54 years old	142	30.5
55 years old and above	58	12.5
Total	**465**	**100.0**

4.4.3. Distribution according to education level

In terms of education level, 151 participants (32.5 percent) have no academic qualification, 214 participants (46 percent) dropped out after being awarded a high school qualification, while only 100 participants (21.5 percent) went on to complete a tertiary education certificate or a higher degree.

Table 4.66: Respondents' distribution according to education level

Education Level	Frequency	Percent
No qualification	151	32.5
High School qualification	214	46.0
Tertiary education certificate and higher	100	21.5
Total	**465**	**100.0**

4.4.4. Distribution according to work experience

About work experience, 435 out of 465 respondents (93.5 percent) have more than five years of experience. While a small minority of 6.5 percent (30 respondents) have been working for a maximum of five years.

Table 4.67: Respondents' distribution according to work experience

Work Experience	Frequency	Percent
More than 5 years	435	93.5
No more than 5 years	30	6.5
Total	**465**	**100.0**

4.4.5. Distribution according to entrepreneurial experience

Concerning entrepreneurial experience, most respondents, 431 out of 465 (92.7 percent) have been running their own business for more than five years. 34 out of 465 (only 7.3 percent) have an entrepreneurial experience, which is inferior or equal to five years.

Table 4.68: Respondents' distribution according to entrepreneurial experience

Entrepreneurship Experience	Frequency	Percent
More than 5 years	431	92.7
No more than 5 years	34	7.3
Total	**465**	**100.0**

4.4.6. Overview of the profile of the respondents

Based on the presented data, the profile of the respondents is summarised as follows (Table 4.69).

Table 4.69: Overview of the respondents' profile

Demographic categorisation	Groups	Frequency	Percentage
Biological sex	Female	202	43.4
	Male	263	56.6
Age group	18 – 34 years old	104	22.4
	35 – 44 years old	161	34.6
	45 – 54 years old	142	30.5
	55 years old and above	58	12.5
Education level	No qualification	151	32.5
	High School qualification	214	46.0
	Tertiary education certificate and higher	100	21.5
Work experience	More than 5 years	435	93.5
	No more than 5 years	30	6.5
Entrepreneurial experience	More than 5 years	431	92.7
	No more than 5 years	34	7.3

4.4.7. Descriptive statistics for all variables

Table 4.70: Descriptive overview of the variables

	N	Minimum	Maximum	Mean	Std. Deviation
EK	465	1.000	7.000	6.66918	.736748
PK	465	1.000	7.000	6.13333	1.087206
PBC	465	2.250	7.000	4.70995	1.155263
TC	465	1.857	7.000	4.89124	1.247561
BP	465	1.000	7.000	5.71097	1.318399

The dataset comprises 465 observations for each variable. Key variables, including experiential knowledge (EK), prior knowledge (PK), perceived behavioural control (PBC), transaction costs (TC), and business performance (BP), were assessed on a Likert scale ranging from 1 to 7. The means of these variables reveal that EK (mean = 6.67) and PK (mean = 6.13) are relatively high, indicating strong experiential and prior knowledge among the respondents. PBC (mean = 4.71) and TC (mean = 4.89) are moderate, reflecting mixed levels of perceived behavioral control and transaction costs. BP (mean = 5.71) is above average, suggesting a generally positive business performance.

4.4.8. Correlation matrix for all variables

Table 4.71: Spearman's correlation matrix

	EK	PK	PBC	TC	BP
EK	1.000	.639**	.393**	.402**	-.069
PK	.639**	1.000	.669**	.423**	-.156**
PBC	.393**	.669**	1.000	.618**	-.211**
TC	.402**	.423**	.618**	1.000	.029
BP	-.069	-.156**	-.211**	.029	1.000

**Significant correlation at p < 0.01 for relationships marked with ** (2-tailed)

Given the results from the normality tests, which demonstrated significant deviations from normality, Spearman's Rank-Order Correlation is applied for analysing the relationships between the variables. As a non-parametric test, Spearman's rho is ideal for data that are not normally distributed and is particularly suited to ordinal data, such as the Likert scale used in this study (Rovetta, 2020). The correlation matrix for experiential knowledge (EK), prior knowledge (PK), perceived behavioural control (PBC), transaction costs (TC), and business performance (BP) provides a comprehensive view of the associations between these key variables (Table 4.69).

Notably, experiential knowledge, prior knowledge, perceived behavioural control, and transaction costs are all strongly interrelated, while business performance shows weaker or even negative correlations with these variables. Specifically:

- Experiential knowledge (EK) and prior knowledge (PK) are strongly correlated ($r = .639$, $p < .01$), suggesting that these two forms of knowledge complement each other.

- The relationship between experiential knowledge (EK) and perceived behavioural control (PBC) shows a moderate positive correlation ($r = .393$, $p < .01$), indicating that as entrepreneurs accumulate experiential knowledge, they also develop greater confidence in their ability to achieve their goals and manage challenges effectively.

- Experiential knowledge (EK) and transaction costs (TC) also demonstrate a moderate positive correlation ($r = .402$, $p < .01$), revealing that as Malagasy entrepreneurs acquire knowledge through hands-on experience, they tend to be more adept at managing and potentially reducing transaction costs.

- The correlation between experiential knowledge (EK) and business performance (BP) is weak and not statistically significant, suggesting that experiential knowledge alone may not directly drive business performance in this context, and other factors might be more influential.

- Prior knowledge (PK) and perceived behavioural control (PBC) are strongly correlated ($r = .669$, $p < .01$), which indicates that the more knowledge Malagasy entrepreneurs accumulate over time, the more confident they feel in their ability to navigate and control critical business situations.

- Prior knowledge (PK) and transaction costs (TC) show a moderate positive correlation ($r = .423$, $p < .01$), suggesting that entrepreneurs with a wealth of formerly accumulated knowledge are more capable of identifying and managing transaction costs efficiently.

- The relationship between prior knowledge (PK) and business performance (BP) reveals a weak negative correlation ($r = -.156$, $p < .01$), implying that while prior knowledge is valuable, it does not always translate into improved business performance among Malagasy

entrepreneurs, and in some instances, it may even correspond to slightly lower performance.

- Perceived behavioural control (PBC) and transaction costs (TC) are strongly correlated ($r = .618$, $p < .01$), indicating that entrepreneurs who feel confident in their capabilities are also more adept at minimising transaction costs.

- The correlation between perceived behavioural control (PBC) and business performance (BP) is moderately negative ($r = -.211$, $p < .01$), suggesting that while confidence in one's abilities is important, it does not always result in better business outcomes and, in some cases, might be linked to lower performance.

- Finally, the correlation between transaction costs (TC) and business performance (BP) is weak and not statistically significant, indicating that among the study population, reducing transaction costs does not appear to have a direct or substantial effect on overall business performance.

4.5. Tests of hypotheses and discussions

4.5.1. Test of Hypothesis 1

Hypothesis 1: The relationship between some human capital dimensions (experiential knowledge, prior knowledge) and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

4.5.1.1. Test of Hypothesis 1a

H1a: The relationship between experiential knowledge and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

Table 4.72: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) with noticeable differences based on biological sex

Biological Sex		Coeff.	SE	t	p	95%CI		R^2 Chng
						Lower	Upper	
Female	Constant	-11.419	5.043	-2.264	.025	-21.364	-1.474	.016
	EK	1.967	.752	2.616	.001	.485	3.452	
	PBC	2.825	.921	3.069	.003	1.009	4.640	
	Int_1	-.320	.137	-2.334	.021	-.591	-.050	
Male	Constant	4.870	.062	78.957	<.001	4.748	4.992	
	EK	.185	.128	1.443	.150	-.068	.438	
	PBC	.651	.052	12.531	<.001	.549	.754	
	Int_1	-.174	.137	-1.268	.206	-.444	.096	
Overall	Constant	-7.936	3.577	-2.218	.027	-14.966	-.906	.008
	EK	1.451	.533	2.723	.007	.404	2.498	
	PBC	2.290	.653	3.506	<.001	1.006	3.573	
	Int_1	-.243	.097	-2.501	.013	-.434	-.052	

The test results demonstrate that:

- For the overall group, perceived behavioural control slightly moderates the relationship between experiential knowledge and transaction costs (Coeff=-.243, 95% CI [-.434, -.052], t= -2.501, p=.013), with an R^2 change value of .008. This indicates that, when perceived behavioural control serves as a moderator variable, experiential knowledge can account for only 0.8 percent of the variability of transaction costs.
- For the female group, perceived behavioural control slightly moderates the relationship between experiential knowledge and transaction costs

(Coeff=-.320, 95% CI [-.591, -.050], t=-2.334, p=.021), with an R^2 change value of .016. This indicates that, when perceived behavioural control serves as a moderator variable, experiential knowledge can account only for 1.6 percent of the variability of transaction costs.

- For the male group, there was no significant relationship found between experiential knowledge and transaction costs (Coeff=.185, 95% CI [-.068, .438], t=1.443, p=.150). Consequently, the moderation effect of perceived behavioural control is non-existent (Coeff=-.174, 95% CI [-.444, .096], t=-1.268, p=.206).

Table 4.73: Conditional effect of experiential knowledge (EK) on transaction costs (TC) at different values of perceived behavioural control (PBC) (overall group)

	PBC	Effect	SE	t	p	95%CI	
						Lower	Upper
Overall	3.250	.661	.222	2.974	.003	.224	1.098
	4.880	.266	.083	3.203	.002	.102	.430
	5.880	.023	.074	.313	.754	-.123	.170

The test results suggest that, for the overall group:

- When perceived behavioural control was low (3.250), there was a significantly positive relationship between experiential knowledge and transaction costs (Effect=.661, 95% CI [.224, 1.098], t=2.974, p=.003).
- When perceived behavioural control was at a medium level (4.880), a significantly positive relationship was observed between experiential knowledge and transaction costs (Effect=.266, 95% CI [.102, .430], t =3.203, p =.002).
- When perceived behavioural control was high (5.880), there was no significant relationship between experiential knowledge and transaction costs (Effect=.023, 95% CI [-.123, .170], t=.313, p=.754).

Table 4.74: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) (overall group)

		Experiential knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	3.028	3.250	3.472
	MEDIUM	4.797	4.880	4.963

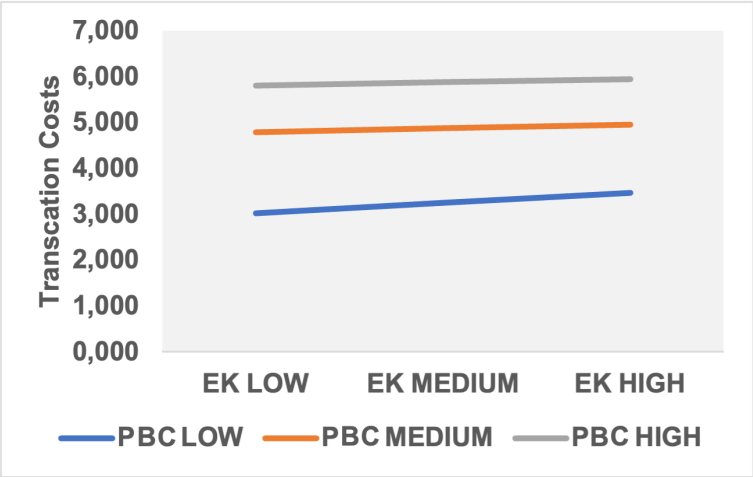

Figure 4.1. Moderating effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs (overall group)

Table 4.75: Conditional effect of experiential knowledge (EK) on transaction costs (TC) at different values of perceived behavioural control (PBC) (female group)

	PBC	Effect	SE	t	p	95%CI	
						Lower	Upper
Female	3.250	.928	.315	2.949	.004	.308	1.549
	4.880	.448	.133	3.378	.001	.187	.710
	5.880	.088	.110	.804	.423	-.128	.305

The test results convey that:

- When perceived behavioural control was low (3.250), there was a significantly positive relationship between experiential knowledge and transaction costs (Effect=.928, 95% CI [.308, 1.549], t=2.949, p=.004).

- When perceived behavioural control was at a medium level (4.880), a significantly positive relationship was observed between experiential knowledge and transaction costs (Effect=.448, 95% CI [.187, .710], t =3.378, p =.001).
- When perceived behavioural control was high (5.880), there was no significant relationship between experiential knowledge and transaction costs (Effect=.088, 95% CI [-.128, .305], t=.804, p=.423).

Table 4.76: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) (female group)

		Experiential knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	2.935	3.250	3.565
	MEDIUM	4.747	4.880	5.013

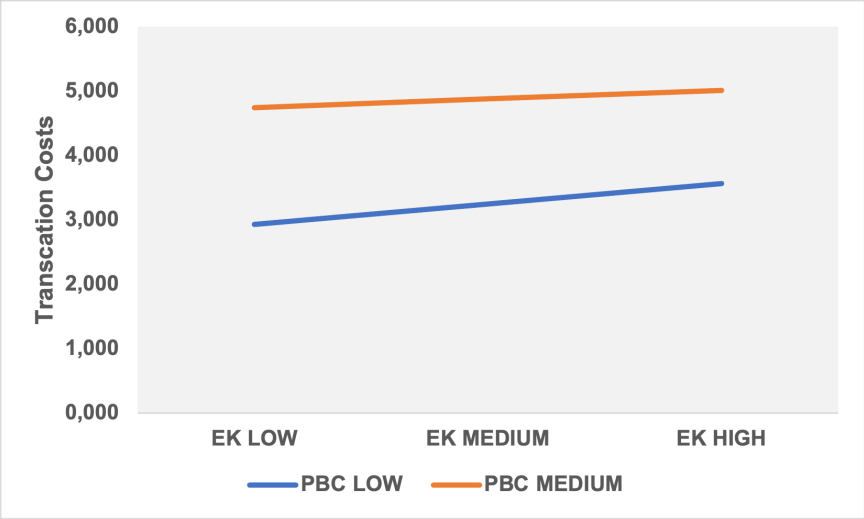

Figure 4.2. Moderating effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs (female group)

Table 4.77: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) with noticeable differences based on age

Age Group		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2 Chng
18 – 34 years old	Constant	5.118	.091	56.035	<.001	4.937	5.299	
	EK	.275	.151	1.815	.073	-.026	.575	
	PBC	.649	.080	8.090	<.001	.490	.808	
	Int_1	-.234	.195	-1.204	.231	-.620	.152	
35 – 44 years old	Constant	5.218	.073	71.530	<.001	5.074	5.362	
	EK	.253	.107	2.356	.020	.041	.464	
	PBC	.757	.069	10.907	<.001	.620	.894	
	Int_1	-.246	.151	-1.627	.106	-.545	.053	
45 – 54 years old	Constant	4.694	.082	57.370	<.001	4.532	4.855	
	EK	.450	.266	1.689	.094	-.077	.976	
	PBC	.674	.073	9.253	<.001	.530	.818	
	Int_1	-.316	.232	-1.363	.175	-.775	.143	
55 years old and above	Constant	4.015	.123	32.615	<.001	3.768	4.262	
	EK	.458	.423	1.081	.285	-.391	1.307	
	PBC	-.149	.145	-1.032	.307	-.440	.141	
	Int_1	-1.128	.314	-3.593	.001	-1.758	-.499	

The test results show that (Table 4.77):

- For the 18 to 34 years old group, there is no significant relationship between experiential knowledge and transaction costs (Coeff=.275, 95% CI [-.026, .575], t=1.815, p=.073). Therefore, the moderating effect of perceived behavioural control is non-existent (Coeff=-.234, 95% CI [-.620, .152], t=-1.204, p=.231).
- For the 35 to 44 years old group, perceived behavioural control does not moderate the relationship between experiential knowledge and transaction costs (Coeff=-.246, 95% CI [-.545, .053], t=1.815, p=.106). Nonetheless, a significantly positive relationship between the two variables exists (Coeff=-.253, 95% CI [.041, .464], t=2.356, p=.02).
- For the 45 to 54 years old group, there is no significant relationship between experiential knowledge and transaction costs (Coeff=.450, 95% CI [-.077, .976], t=1.689, p=.094). Therefore, the moderating effect

of perceived behavioural control is non-existent (Coeff=-.316, 95% CI [-.775, .143], t=-1.363, p=.175).

- For the 55 years old and above group, neither experiential knowledge (Coeff=-.458, 95% CI [-.391, 1.307], t=1.081, p=.285) nor perceived behavioural control (Coeff=-.149, 95% CI [-.440, .141], t=-1.032, p=.307) serves as a predictor variable for transaction costs. Consequently, the moderating effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs cannot be established.

Table 4.78: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) with noticeable differences based on level of education

Level of Education		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2 Chng
No qualification	Constant	-14.928	7.267	-2.054	.042	-29.290	-.567	.034
	EK	2.627	1.074	2.447	.016	.505	4.749	
	PBC	3.975	1.516	2.622	.010	.979	6.971	
	Int_1	-.533	.224	-2.381	.019	-.975	-.090	
High School qualification	Constant	5.111	.067	76.266	<.001	4.979	5.243	
	EK	.108	.113	.961	.338	-.114	.330	
	PBC	.698	.062	11.276	<.001	.576	.820	
	Int_1	-.059	.154	.382	.703	-.361	.244	
Tertiary Education Certificate & higher	Constant	5.497	.098	56.067	<.001	5.303	5.692	.065
	EK	.622	.214	2.910	.005	.198	1.047	
	PBC	.629	.133	4.743	<.001	.366	.893	
	Int_1	-1.052	.349	3.013	.003	-1.745	-.359	

The test results demonstrate that:

- For the no qualification group, perceived behavioural control slightly moderates the relationship between experiential knowledge and transaction costs (Coeff=-.533, 95% CI [-.975, -.090], t=-2.381, p=.019), with an R^2 change value of .034. This indicates that, when perceived behavioural control serves as a moderator variable, experiential

knowledge can account for only 3.4 percent of the variability of transaction costs.

- For the high school qualification group, there is no significant relationship between experiential knowledge and transaction costs (Coeff=.108, 95% CI [-.114, .330], t=.961, p=.338). Therefore, the moderating effect of perceived behavioural control is non-existent (Coeff=-.059, 95% CI [-.361, .244], t=-.382, p=.703).
- For the tertiary education certificate and higher qualification group, perceived behavioural control slightly moderates the relationship between experiential knowledge and transaction costs (Coeff=-1.052, 95% CI [-1.745, -.359], t=3.013, p=.003), with an R^2 change value of .065. This indicates that, when perceived behavioural control serves as a moderator variable, experiential knowledge can account for only 6.5 percent of the variability of transaction costs.

Table 4.79: Conditional effect of experiential knowledge (EK) on transaction costs (TC) at different values of perceived behavioural control (PBC) (no qualification group)

Level of Education	PBC		Effect	SE	t	p	95%CI	
							Lower	Upper
No qualification		3.125	.963	.390	2.471	.015	.193	1.733
		3.500	.763	.320	2.446	.016	.147	1.379
		4.625	.164	.136	1.209	.229	-.104	.432

The results display that:

- When perceived behavioural control was low (3.125), there was a significantly positive relationship between experiential knowledge and transaction costs (Effect=.963, 95% CI [.193, 1.733], t=2.471, p=.015).
- When perceived behavioural control was at a medium level (3.500), a significantly positive relationship was observed between experiential knowledge and transaction costs (Effect=.763, 95% CI [.147, 1.379], t =2.446, p =.016).

- When perceived behavioural control was high (4.625), there was no significant relationship between experiential knowledge and transaction costs (Effect=.164, 95% CI [-.104, .432], t=1.209, p=.229).

Table 4.80: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) (no qualification group)

		Experiential knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	2.735	3.125	3.515
	MEDIUM	3.180	3.500	3.820

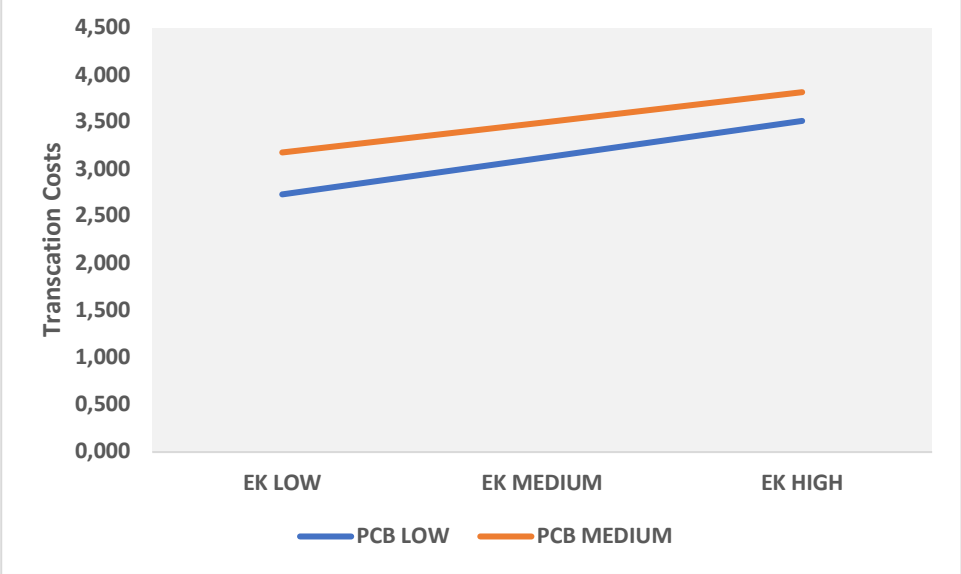

Figure 4.3: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) (no qualification)

Table 4.81: Conditional effect of experiential knowledge (EK) on transaction costs (TC) at different values of perceived behavioural control (PBC) (tertiary education certificate and higher qualification group)

Level of Education	PBC		Effect	SE	t	p	95%CI Lower	95%CI Upper
Tertiary Educ. Certificate & higher		-.764	1.426	.441	3.235	.002	.551	2.301
		.000	.622	.214	2.910	.005	.198	1.047
		.764	-.182	.199	-.914	.363	-.576	.213

The results reveal a significantly positive relationship between experiential knowledge and transaction costs, but only when perceived behavioural control was negative (-.764) (Effect=1.426, 95% CI [.551, 2.301], t =3.235, p =.002) or equal to zero (.000) (Effect=.622, 95% CI [.198, 1.047], t =2.910, p =.005). Furthermore, when perceived behavioural control was high (.764), there was no significant relationship between experiential knowledge and transaction costs (Effect=-.182, 95% CI [-.576, .213], t=-.914, p=.363). Therefore, the results observed in Table 4.78 cannot be substantiated. For the 'tertiary education certificate and higher qualification' group, perceived behavioural control does not moderate the relationship between experiential knowledge and transaction costs. This observation is supported by Table 4.82 and the moderating effect graph illustrated in Figure 4.4.

Table 4.82: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) (tertiary education certificate and higher qualification group)

		Experiential knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	-1.501	-1.060	-.619
	MEDIUM	-.214	.000	.214

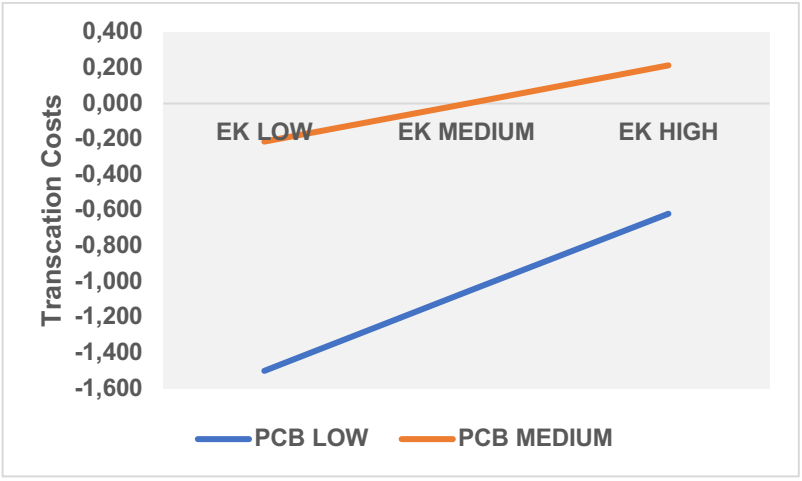

Figure 4.4: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) (tertiary education certificate and higher qualification)

Table 4.83: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) with noticeable differences based on work experience

Work Experience		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2 Chng
More than 5 years	Constant	-13.997	4.325	-3.236	.001	-22.499	-5.496	.015
	EK	2.355	.643	3.660	<.001	1.090	3.620	
	PBC	3.194	.767	4.166	<.001	1.687	4.701	
	Int_1	-.378	.114	-3.319	.001	-.602	-.154	
No more than 5 years	Constant	4.402	.284	15.482	<.001	3.818	4.987	
	EK	.030	.242	.124	.903	-.467	.527	
	PBC	.657	.275	2.388	.025	.091	1.222	
	Int_1	-.160	.253	-.633	.532	-.679	.359	

The test results demonstrate that:

- For the 'more than 5 years of work experience' group, perceived behavioural control slightly moderates the relationship between experiential knowledge and transaction costs (Coeff=-.378, 95% CI [-

.602, -.154], t=-3.319, p=.001), with an R^2 change value of .015. This indicates that, when perceived behavioural control serves as a moderator variable, experiential knowledge can account for only 1.5 percent of the variability of transaction costs.

- For the 'no more than 5 years of work experience' group, there is no significant relationship between experiential knowledge and transaction costs (Coeff=-.030, 95% CI [-.679, .359], t=.124, p=.903). Therefore, the moderating effect of perceived behavioural control is non-existent (Coeff=-.160, 95% CI [-.679, .359], t=-.633, p=.532).

Table 4.84: Conditional effect of experiential knowledge (EK) on transaction costs (TC) at different values of perceived behavioural control (PBC) ('more than 5 years of work experience' group)

Work Experience	PBC	Effect	SE	t	p	95%CI	
						Lower	Upper
More than 5 years	3.250	1.126	.280	4.017	<.001	.575	1.677
	4.875	.512	.117	4.375	<.001	.282	.741
	5.875	.133	.088	1.509	.132	-.040	.307

The results indicate that:

- When perceived behavioural control was low (3.250), there was a significantly positive relationship between experiential knowledge and transaction costs (Effect=1.126, 95% CI [.575, 1.677], t=4.017, p<.001).
- When perceived behavioural control was at a medium level (4.875), a significantly positive relationship was observed between experiential knowledge and transaction costs (Effect=.512, 95% CI [.282, .741], t =4.375, p <.001).
- When perceived behavioural control was high (5.875), there was no significant relationship between experiential knowledge and transaction costs (Effect=.133, 95% CI [-.040, .307], t=1.509, p=.132).

Table 4.85: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) ('more than 5 years of work experience' group)

		Experiential knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	2.970	3.250	3.530
	MEDIUM	4.758	4.875	4.992

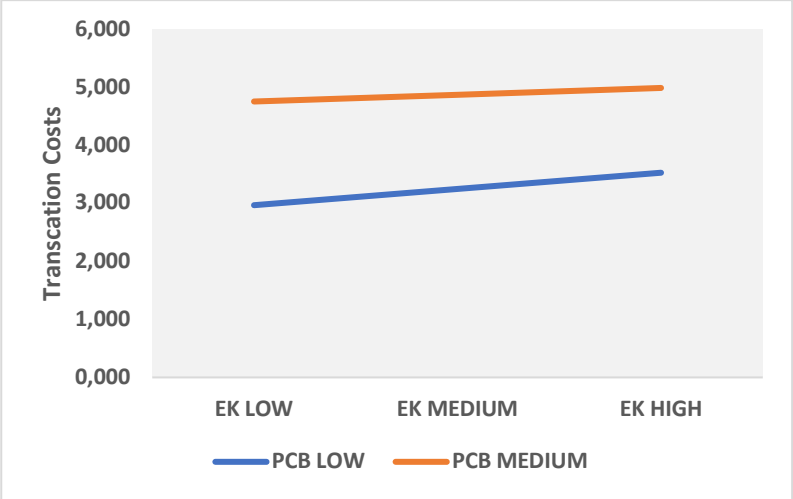

Figure 4.5: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) ('more than 5 years of work experience' group)

Table 4.86: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) with noticeable differences based on entrepreneurial experience

Entrepreneurial Experience		Coeff.	SE	t	p	95%CI		R^2 Chng
						Lower	Upper	
More than 5 years	Constant	-14.309	4.356	-3.285	.001	-22.871	-5.748	.016
	EK	2.399	.648	3.704	<.001	1.126	3.672	
	PBC	3.246	.772	4.205	<.001	1.729	4.763	
	Int_1	-.386	.115	-3.363	.001	-.611	-.160	
No more than 5 years	Constant	4.529	.250	18.112	<.001	4.019	5.040	
	EK	.066	.236	.280	.782	-.416	.548	
	PBC	.692	.244	2.840	.008	.194	1.189	
	Int_1	-.137	.245	-.558	.581	-.637	.363	

The test results reveal that:

- For the 'more than 5 years of entrepreneurial experience' group, perceived behavioural control slightly moderates the relationship between experiential knowledge and transaction costs (Coeff=-.386, 95% CI [-.611, -.160], t=--3.363, p=.001), with an R^2 change value of .016. This indicates that, when perceived behavioural control serves as a moderator variable, experiential knowledge can account for only 1.6 percent of the variability of transaction costs.
- For the 'no more than 5 years of entrepreneurial experience' group, there is no significant relationship between experiential knowledge and transaction costs (Coeff=.066, 95% CI [-.416, .548], t=-.280, p=.782). Therefore, the moderating effect of perceived behavioural control is non-existent (Coeff=-.137, 95% CI [-.637, .363], t=--.558, p=.581).

Table 4.87: Conditional effect of experiential knowledge (EK) on transaction costs (TC) at different values of perceived behavioural control (PBC) ('more than 5 years of entrepreneurial experience group)

Entrepreneurial Experience	PBC	Effect	SE	t	p	95%CI Lower	95%CI Upper
More than 5 years	3.250	1.146	.282	4.062	<.001	.592	1.701
	4.875	.520	.118	4.421	<.001	.289	.751
	5.875	.134	.089	1.518	.130	-.040	.308

The results indicate that:

- When perceived behavioural control was low (3.250), there was a significantly positive relationship between experiential knowledge and transaction costs (Effect=1.146, 95% CI [.592, 1.701], t=4.062, p<.001).
- When perceived behavioural control was at a medium level (4.875), a significantly positive relationship was observed between experiential knowledge and transaction costs (Effect=.520, 95% CI [.289, .751], t =4.421, p <.001).
- When perceived behavioural control was high (5.875), there was no significant relationship between experiential knowledge and transaction costs (Effect=.134, 95% CI [-.040, .308], t=1.518, p=.130).

Table 4.88: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) ('more than 5 years of entrepreneurial experience' group)

		Experiential knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	2,968	3,250	3,532
	MEDIUM	4,757	4,875	4,993

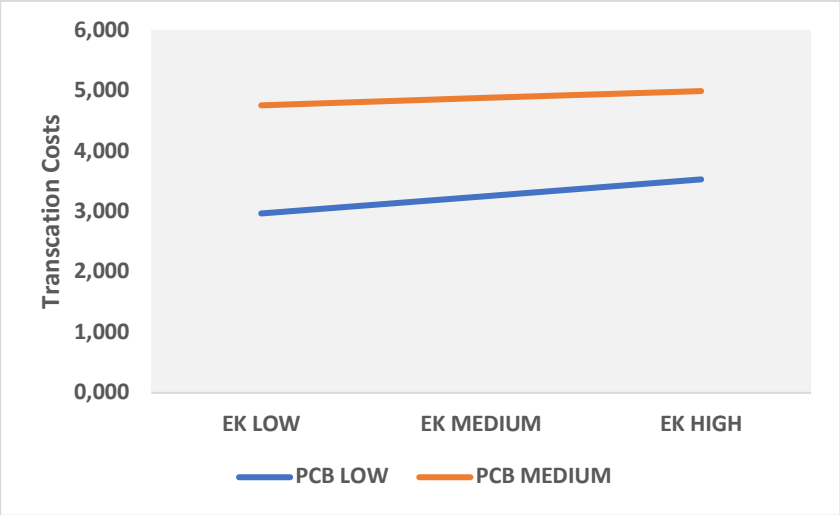

Figure 4.6: Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) ('more than 5 years of entrepreneurial experience' group)

4.5.1.2. Test of Hypothesis 1b

H1b: The relationship between prior knowledge and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

Table 4.89: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK)_and transaction costs (TC) with noticeable differences based on biological sex

Biological Sex		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2 Chng
Female	Constant	4.770	.079	60.670	<.001	4.616	4.926	
	PK	.014	.084	.171	.865	-.151	.180	
	PBC	.721	.074	9.714	<.001	.575	.868	
	Int_1	.250	.069	3.682	<.001	.116	.383	
Male	Constant	4.683	.065	71.811	<.001	4.556	4.811	
	PK	-.254	.058	-4.383	<.001	-.368	-.140	.061
	PBC	.866	.058	15.021	<.001	.752	.979	

	Int_1	.242	.044	5.541	<.001	.156	.328	
Overall	Constant	4.724	.050	93.689	<.001	4.625	4.823	.051
	PK	-.164	.048	-3.395	.001	-.258	-.069	
	PBC	.811	.046	17.683	<.001	.721	.901	
	Int_1	.240	.037	6.492	<.001	.168	.313	

The test results demonstrate that:

- For the female group, no significant relationship exists between prior knowledge and transaction costs (Coeff=-.014, 95% CI [-.151, .180], t=.171, p=.865). Therefore, the inferred moderating effect of perceived behavioural control (Coeff=.250, 95% CI [.116, .383], t=3.682, p<.001) can't be supported.
- For the male group, perceived behavioural control slightly moderates the relationship between prior knowledge and transaction costs (Coeff=.242, 95% CI [.156, .328], t=5.541, p<.001) with an R^2 change value of .061. This indicates that, when perceived behavioural control serves as a moderator variable, prior knowledge can account for only 6.1 percent of the variability of transaction costs.
- For the overall group, perceived behavioural control slightly moderates the relationship between prior knowledge and transaction costs (Coeff=.240, 95% CI [.168, .313], t=6.492, p<.001) with an R^2 change value of .051. This indicates that, when perceived behavioural control serves as a moderator variable, prior knowledge can account for only 5.1 percent of the variability of transaction costs.

Table 4.90: Conditional effect of prior knowledge (PK) on transaction costs (TC) at different values of perceived behavioural control (PBC) (male group)

Biological Sex	PBC	Effect	SE	t	p	95%CI Lower	95%CI Upper
Male	-1.189	-.541	.073	-7.374	<.001	-.685	-.397
	.000	-.254	.058	-4.383	<.001	-.368	-.140
	1.189	.034	.082	.411	.682	-.128	.195

The results reveal a significantly positive relationship between prior knowledge and transaction costs, but only when perceived behavioural control was negative (-1.189) (Effect=-.541, 95% CI [-.685, -.397], t =-7.374, p <.001) or equal to zero (.000) (Effect=-.254, 95% CI [-.368, -.140], t =-4.383, p<.001). Furthermore, when perceived behavioural control was high (1.189), there was no significant relationship between prior knowledge and transaction costs (Effect=-034, 95% CI [-.128, .195], t=.411, p=.682). Therefore, the results observed in Table 4.89 cannot be supported. For the male group, perceived behavioural control does not moderate the relationship between prior knowledge and transaction costs. This observation is supported by Table 4.91 and the moderating effect graph illustrated in Figure 4.7.

Table 4.91: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) (male group)

		Prior Knowledge		
		LOW	**MEDIUM**	**HIGH**
PBC	LOW	2.935	3.250	3.565
	MEDIUM	4.747	4.880	5.013

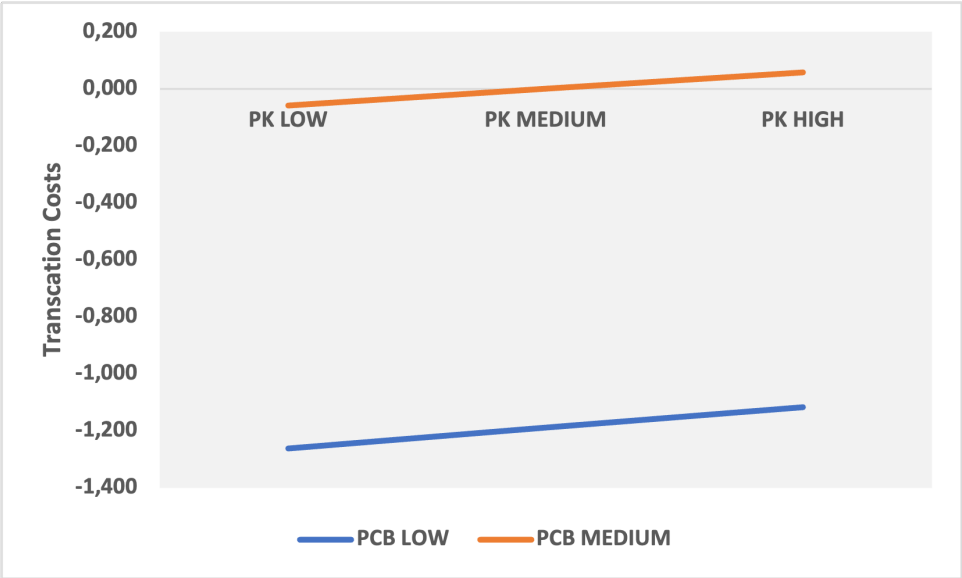

Figure 4.7: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) (Male group)

Table 4.92: Conditional effect of prior knowledge (PK) on transaction costs (TC) at different values of perceived behavioural control (PBC) (overall group)

Biological Sex	PBC	Effect	SE	t	p	95%CI	
						Lower	Upper
Overall	-1.155	-.441	.062	-7.171	<.001	-.562	-.320
	.000	-.164	.048	-3.395	.001	-.258	-.069
	1.155	.114	.067	1.699	.090	-.018	.246

The results reveal a significantly negative relationship between prior knowledge and transaction costs, but only when perceived behavioural control was negative (-1.155) (Effect=-.441, 95% CI [-.562, -.320], t =-7.171, p <.001) or equal to zero (.000) (Effect=-.164, 95% CI [-.258, -.069], t =-3.395, p=.001). Furthermore, when perceived behavioural control was high (1.155), there was no significant relationship between prior knowledge and transaction costs (Effect=.114, 95% CI [-.018, .246], t=1.699, p=.090). Therefore, the results observed in Table 4.89 cannot be validated. For the overall group, perceived behavioural control does not moderate the relationship between prior knowledge and transaction costs. This

observation is supported by Table 4.93 and the moderating effect graph illustrated in Figure 4.8.

Table 4.93: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) (Overall group)

		Pior Knowledge		
		LOW	**MEDIUM**	**HIGH**
PBC	LOW	-1.217	-1.155	-1.093
	MEDIUM	-.048	.000	.048

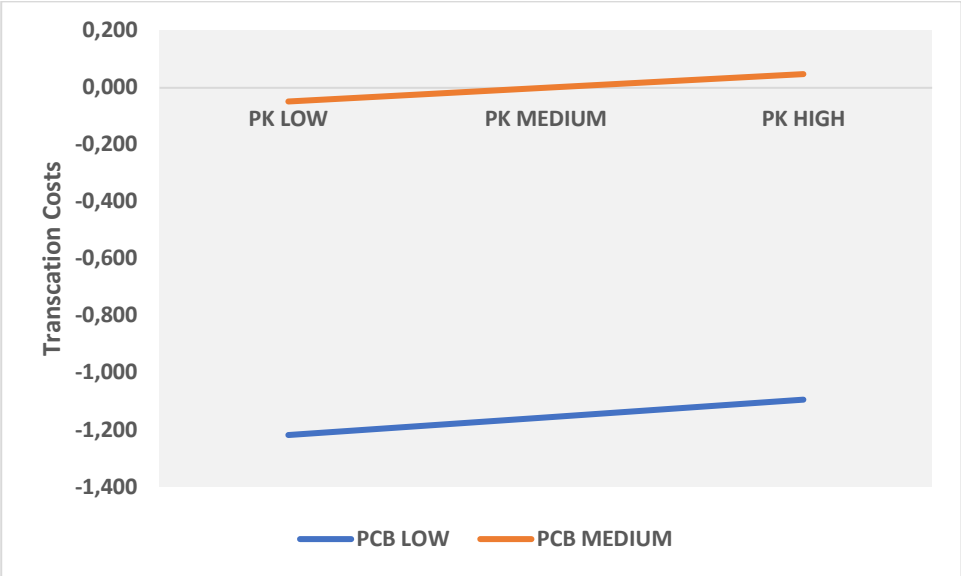

Figure 4.8: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) (Overall group)

Table 4.94: Moderating effect of perceived behavioural control on the relationship between prior knowledge (PK) and transaction costs (TC) with noticeable differences based on age

Age Group		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2 Chng
18 – 34 years old	Constant	4.957	.105	47.219	<.001	4.746	5.163	
	PK	-.147	.092	-1.601	.113	-.330	.035	
	PBC	.812	.103	7.859	<.001	.607	1.017	
	Int_1	.205	.074	2.786	.006	.059	.351	
35 – 44 years old	Constant	5.132	.082	62.662	<.001	4.970	5.293	
	PK	.019	.078	.241	.810	-.136	.172	
	PBC	.809	.083	9.702	<.001	.644	.973	
	Int_1	.167	.073	2.287	.024	.023	.312	
45 – 54 years old	Constant	4.549	.093	48.786	<.001	4.365	4.734	
	PK	-.177	.129	-1.371	.173	-.433	.079	
	PBC	.806	.086	9.372	<.001	.636	.976	
	Int_1	.246	.091	2.695	.008	.066	.426	
55 years old and above	Constant	3.970	.159	25.036	<.001	3.652	4.288	
	PK	-.534	.153	-3.489	.001	-.840	-.227	
	PBC	.188	.250	.756	.453	-.312	.688	
	Int_1	.220	.196	1.124	.266	-.172	.612	

The test results demonstrate that:

- For the '18-34 years old' group, no significant relationship exists between prior knowledge and transaction costs (Coeff=-.147, 95% CI [-.330, .035], t=-1.161, p=.113). Therefore, the inferred moderating effect of perceived behavioural control (Coeff=.205, 95% CI [.059, .351], t=2.786, p=.006) can't be substantiated.
- For the '35-44 years old' group, no significant relationship exists between prior knowledge and transaction costs (Coeff=.019, 95% CI [-.136, .172], t=.241, p=.810). Therefore, the inferred moderating effect of perceived behavioural control (Coeff=.167, 95% CI [.023, .312], t=2.287, p=.024) can't be substantiated.
- For the '45-54 years old' group, no significant relationship exists between prior knowledge and transaction costs ((Coeff=-.177, 95% CI [-.433, .079], t=-1.371, p=.173). Therefore, the inferred moderating effect of perceived behavioural control (Coeff=.246, 95% CI [.066, .426], t=2.695, p=.008) can't be substantiated.
- For the '55 years old and above' group, there is no significant relationship between prior knowledge and transaction costs (Coeff=.188, 95% CI [-.312, .688], t=-.756, p=.453). Therefore, the moderating effect of perceived behavioural control is non-existent (Coeff=.220, 95% CI [-.172, .612], t=1.124, p=.266).

Table 4.95: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) with noticeable differences based on education level

Level of Education		Coeff.	SE	t	p	95%CI		R^2 Chng
						Lower	Upper	
No qualification	Constant	4.146	.066	62.479	<.001	4.015	4.278	.083
	PK	-.595	.075	-7.925	<.001	-.743	-.447	
	PBC	.580	.084	6.897	<.001	.414	.747	
	Int_1	.270	.062	4.379	<.001	.148	.392	
High school qualification	Constant	5.021	.070	72.158	<.001	4.883	5.158	
	PK	-.090	.071	-1.266	.207	-.229	.050	
	PBC	.825	.068	12.081	<.001	.690	.959	

	Int_1	.200	.057	3.509	.001	.089	.313
Tertiary education certificate & higher	Constant	5.486	.111	49.243	<.001	5.265	5.770
	PK	.310	.337	.920	.360	-.359	.978
	PBC	.598	.159	3.772	<.001	.283	.913
	Int_1	-.105	.238	-.440	.661	-.577	.368

The test results display that:

- For the no qualification group, perceived behavioural control slightly moderates the relationship between prior knowledge and transaction costs (Coeff=.270, 95% CI [.148, .392], t=4.379, p<.001), with an R^2 change value of .083. This indicates that, when perceived behavioural control serves as a moderator variable, prior knowledge can account for only 8.3 percent of the variability of transaction costs.
- For the high school qualification group, there is no significant relationship between prior knowledge and transaction costs (Coeff=-.090, 95% CI [-.229, .050], t=-1.266, p=.207). Therefore, the inferred moderating effect of perceived behavioural control (Coeff=.200, 95% CI [.089, .313], t=3.509, p=.001) can't be substantiated.
- For the tertiary education certificate and higher qualification group, there is no significant relationship between prior knowledge and transaction costs (Coeff=.310, 95% CI [-.359, .978], t=.920, p=.360). Therefore, the moderating effect of perceived behavioural control is non-existent (Coeff=-.105, 95% CI [-.577, .368], t=-.440, p=.661).

Table 4.96: Conditional effect of prior knowledge (PK) on transaction costs (TC) at different values of perceived behavioural control (PBC) ('no qualification' group)

Level of Education	PBC	Effect	SE	t	p	95%CI Lower	95%CI Upper
No qualification	-.827	-.818	.106	-7.690	<.001	-1.028	-.608
	.000	-.595	.075	-7.925	<.001	-.743	-.447
	.827	-.371	.072	-5.176	<.001	-.513	-.230

The results indicate that:

- There was a significant relationship observed between prior knowledge and transaction costs when perceived behavioural control was at both low (Effect=-.818, 95% CI [-1.028, -.608], t=-7.690, p<.001) and medium (Effect=-.595, 95% CI [-.743, -.447], t=-7.925, p<.001) levels. However, it's essential to note that the values for perceived behavioural control at these levels were respectively negative (-.818) and equal to zero (.000). Consequently, the inferred relationship between prior knowledge and transaction costs cannot be substantiated when perceived behavioural control is at either the low or medium level.
- When perceived behavioural control was high (.827), there was a significantly negative relationship between prior knowledge and transaction costs (Effect=-.371, 95% CI [-.513, -.230], t=-5.176, p<.001). These findings are supported by Table 4.97 and Figure 4.9.

Table 4.97: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('no qualification' group)

		Prior Knowledge		
		LOW	**MEDIUM**	**HIGH**
PBC	LOW	-.933	-.827	-.721
	MEDIUM	-.075	.000	.075
	HIGH	.755	.827	.899

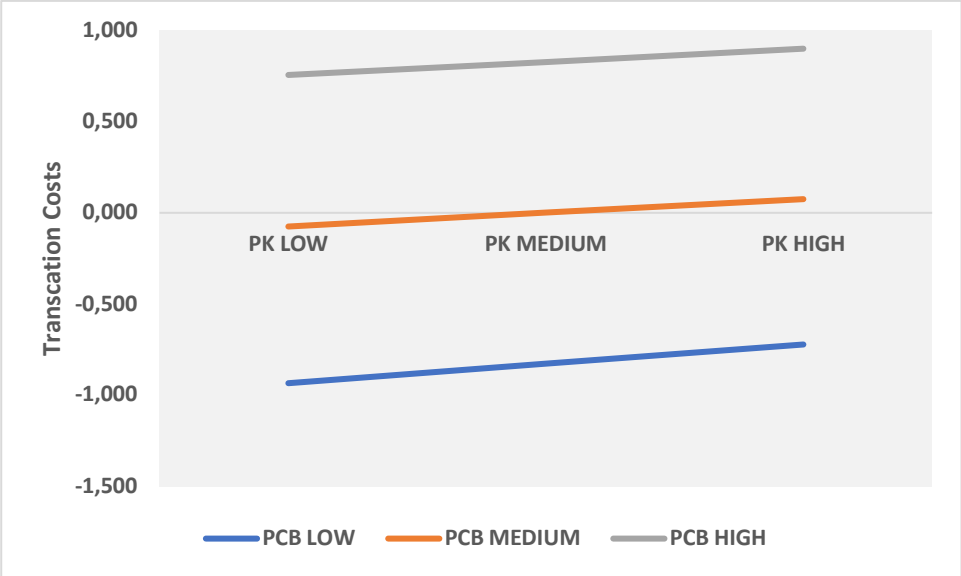

Figure 4.9. Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('no qualification' group)

Table 4.98: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) with noticeable differences based on work experience

Working Experience		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2 Chng
More than 5 years	Constant	4.744	.054	88.133	<.001	4.638	4.849	.043
	PK	-.149	.060	-2.490	.013	-.266	-.031	
	PBC	.818	.050	16.341	<.001	.719	.916	
	Int_1	.234	.041	5.756	<.001	.154	.314	
No more than 5 years	Constant	4.629	.189	24.503	<.001	4.241	5.018	.092
	PK	-.415	.158	-2.621	.015	-.740	-.089	
	PBC	.533	.176	3.035	.005	.172	.895	
	Int_1	.365	.177	2.058	.049	.000	.729	

The test results demonstrate that:

- For the 'more than 5 years of work experience' group, perceived behavioural control slightly moderates the relationship between prior knowledge and transaction costs (Coeff=.234, 95% CI [.154, .314], t=5.756, p<.001), with an R^2 change value of .043. This indicates that,

when perceived behavioural control serves as a moderator variable, prior knowledge can account for only 4.3 percent of the variability of transaction costs.

- For the 'no more than 5 years of work experience' group, perceived behavioural control slightly moderates the relationship between prior knowledge and transaction costs (Coeff=.365, 95% CI [.000, .729], t=2.058, p=.049), with an R^2 change value of .092. This indicates that, when perceived behavioural control serves as a moderator variable, prior knowledge can account for only 9.2 percent of the variability of transaction costs.

Table 4.99: Conditional effect of prior knowledge (PK) on transaction costs (TC) at different values of perceived behavioural control (PBC) ('more than 5 years of work experience' group)

Working Experience	PBC	Effect	SE	t	p	95%CI	
						Lower	Upper
More than 5 years	-1.159	-.420	.065	-6.471	<.001	-.547	-.292
	.000	-.149	.060	-2.490	.013	-.266	-.031
	1.159	.123	.086	1.430	.154	-.046	.291

The results reveal a significantly positive relationship between prior knowledge and transaction costs, but only when perceived behavioural control was negative (-1.159) (Effect=-.420, 95% CI [-.547, -.292], t =-6.471, p <.001) or equal to zero (.000) (Effect=-.149, 95% CI [-.266, -.031], t =-2.490, p=.013). Furthermore, when perceived behavioural control was high (1.159), there was no significant relationship between prior knowledge and transaction costs (Effect=.123, 95% CI [-.046, .291], t=1.430, p=.154). Therefore, the results observed in Table 4.98 cannot be validated. For the 'more than 5 years of work experience' group, perceived behavioural control does not moderate the relationship between prior knowledge and transaction costs. This observation is supported by Table 4.100 and the moderating effect graph illustrated in Figure 4.10.

Table 4.100: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('more than 5 years of work experience' group)

		Prior Knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	-1.224	-1.159	-1.094
	MEDIUM	-.060	.000	.060

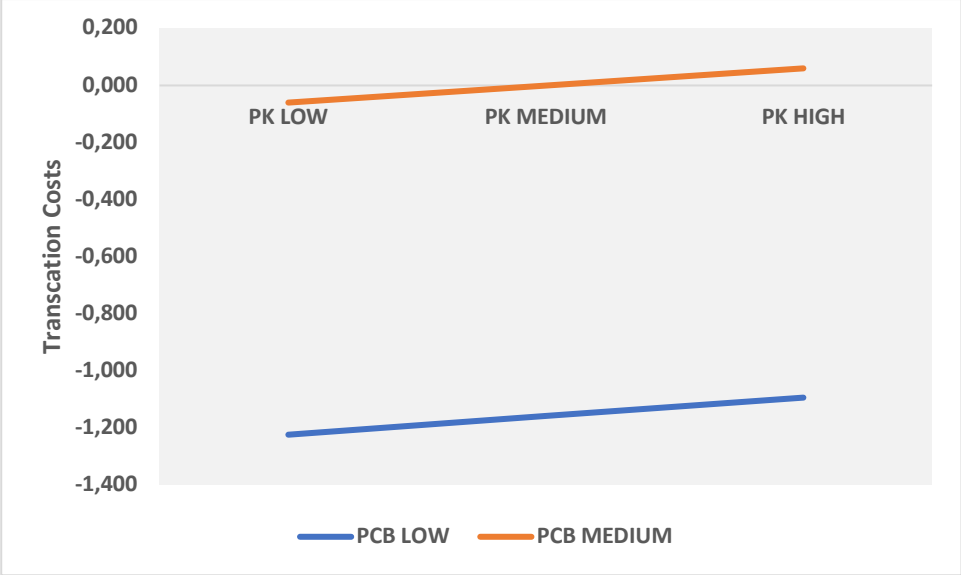

Figure 4.10: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('more than 5 years of work experience' group)

Table 4.101: Conditional effect of prior knowledge (PK) on transaction costs (TC) at different values of perceived behavioural control (PBC) ('no more than 5 years of work experience' group)

Working Experience	PBC	Effect	SE	t	p	95%CI Lower	95%CI Upper
No more than 5 years	-1.076	-.807	.314	-2.570	.016	-1.452	-.162
	.000	-.415	.158	-2.621	.015	-.740	-.089
	1.076	-.022	.156	-.143	.889	-.342	.297

The results reveal a significantly positive relationship between prior knowledge and transaction costs, but only when perceived behavioural

control was negative (-1.076) (Effect=-.807, 95% CI [-1.452, -.162], t =-2.570, p=.016) or equal to zero (.000) (Effect=-.415, 95% CI [-.740, -.089], t =-2.621, p=.015). Furthermore, when perceived behavioural control was high (1.076), there was no significant relationship between prior knowledge and transaction costs (Effect=-.022, 95% CI [-.342, .297], t=-.143, p=.889). Therefore, the results observed in Table 4.98 cannot be validated. For the 'no more than 5 years of work experience' group, perceived behavioural control does not moderate the relationship between prior knowledge and transaction costs. This observation is supported by Table 4.102 and the moderating effect graph illustrated in Figure 4.11.

Table 4.102: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('no more than 5 years of work experience' group)

		Prior Knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	-1.390	-1.076	-.762
	MEDIUM	-.158	.000	.158

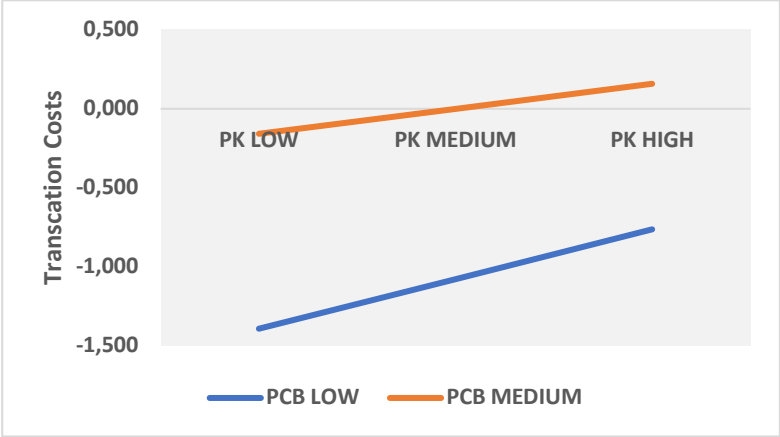

Figure 4.11: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('No more than 5 years of work experience' group)

Table 4.103: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) with noticeable differences based on entrepreneurial experience

Entrepreneurial Experience		Coeff.	SE	t	p	95%CI		R^2 Chng
						Lower	Upper	
More than 5 years	Constant	4.740	.054	87.726	<.001	4.633	4.846	.043
	PK	-.147	.060	-2.459	.014	-.265	-.030	
	PBC	.818	.050	16.300	<.001	.720	.917	
	Int_1	.235	.041	5.772	<.001	.155	.316	
No more than 5 years	Constant	4.678	.171	27.366	<.001	4.329	5.027	.105
	PK	-.390	.155	-2.513	.018	-.707	-.073	
	PBC	.595	.160	3.721	.001	.269	.922	
	Int_1	.396	.167	2.363	.025	.054	.737	

The test results demonstrate that:

- For the 'more than 5 years of entrepreneurial experience' group, perceived behavioural control slightly moderates the relationship between prior Knowledge and transaction costs (Coeff=.235, 95% CI [.155, .316], t=5.772, p<.001), with an R^2 change value of .043. This indicates that, when perceived behavioural control serves as a moderator variable, prior knowledge can account for only 4.3 percent of the variability of transaction costs.
- For the 'no more than 5 years of work experience' group, perceived behavioural control slightly moderates the relationship between prior knowledge and transaction costs (Coeff=.396, 95% CI [.054, .737], t=2.363, p=.025), with an R^2 change value of .105. This indicates that, when perceived behavioural control serves as a moderator variable, prior knowledge can account for only 10.5 percent of the variability of transaction costs.

Table 4.104: Conditional effect of prior knowledge (PK) on transaction costs (TC) at different values of perceived behavioural control (PBC) ('more than 5 years of entrepreneurial experience' group)

Entrepreneurial Experience	PBC	Effect	SE	t	p	95%CI Lower	95%CI Upper
More than 5 years	-1.159	-.419	.065	-6.461	<.001	-.547	-.292
	.000	-.147	.060	-2.459	.014	-.265	-.030
	1.159	.125	.086	1.457	.146	-.044	.294

The results reveal a significantly positive relationship between prior knowledge and transaction costs, but only when perceived behavioural control was negative (-1.159) (Effect=-.419, 95% CI [-.547, -.292], t =-6.461, p <.001) or equal to zero (.000) (Effect=-.147, 95% CI [-.265, -.030], t =-2.459, p=.014). Furthermore, when perceived behavioural control was high (1.159), there was no significant relationship between prior Knowledge and transaction costs (Effect=.125, 95% CI [-.044, .294], t=1.457, p=.146). Therefore, the results observed in Table 4.103 cannot be validated. For the 'more than 5 years of entrepreneurial experience' group, perceived behavioural control does not moderate the relationship between prior knowledge and transaction costs. This observation is supported by Table 4.105 and the moderating effect graph illustrated in Figure 4.12.

Table 4.105: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('more than 5 years of entrepreneurial experience' group)

		Prior Knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	-1.224	-1.159	-1.094
	MEDIUM	-.060	.000	.060

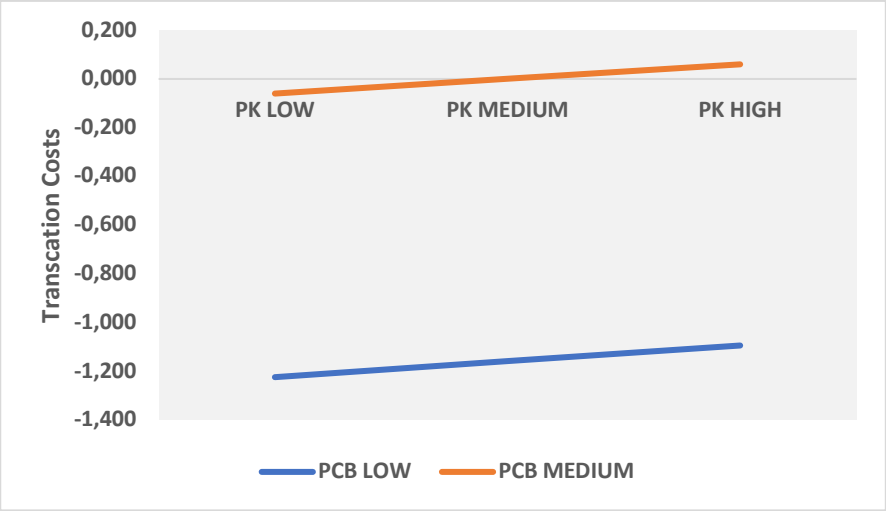

Figure 4.12: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge and transaction costs (TC) ('more than 5 years of entrepreneurial experience' group)

Table 4.106: Conditional effect of prior knowledge (PK) on transaction costs (TC) at different values of perceived behavioural control (PBC) ('no more than 5 years of entrepreneurial experience' group)

Entrepreneurial Experience	PBC	Effect	SE	t	p	95%CI Lower	95%CI Upper
No more than 5 years	-1.080	-.817	.306	-2.670	.012	-1.442	-.192
	.000	-.390	.155	-2.513	.018	-.707	-.073
	1.080	.037	.141	.264	.794	-.251	.325

The results reveal a significantly positive relationship between prior knowledge and transaction costs, but only when perceived behavioural control was negative (-1.080) (Effect=-.817, 95% CI [-1.442, -.192], t =-2.670, p =.012) or equal to zero (.000) (Effect=-.390, 95% CI [-.707, -.073], t =-2.513, p=.018). Furthermore, when perceived behavioural control was high (1.080), there was no significant relationship between prior knowledge and transaction costs (Effect=.037, 95% CI [-.251, .325], t=.264, p=.794). Therefore, the results observed in Table 4.103 cannot be validated. For the 'no more than 5 years of entrepreneurial experience' group, perceived behavioural control does not moderate the relationship between prior

knowledge and transaction costs. This observation is supported by Table 4.107 and the moderating effect graph illustrated in Figure 4.13.

Table 4.107: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('no more than 5 years of entrepreneurial experience' group)

		Prior Knowledge		
		LOW	MEDIUM	HIGH
PBC	LOW	-1.386	-1.080	-.774
	MEDIUM	-.155	.000	.155

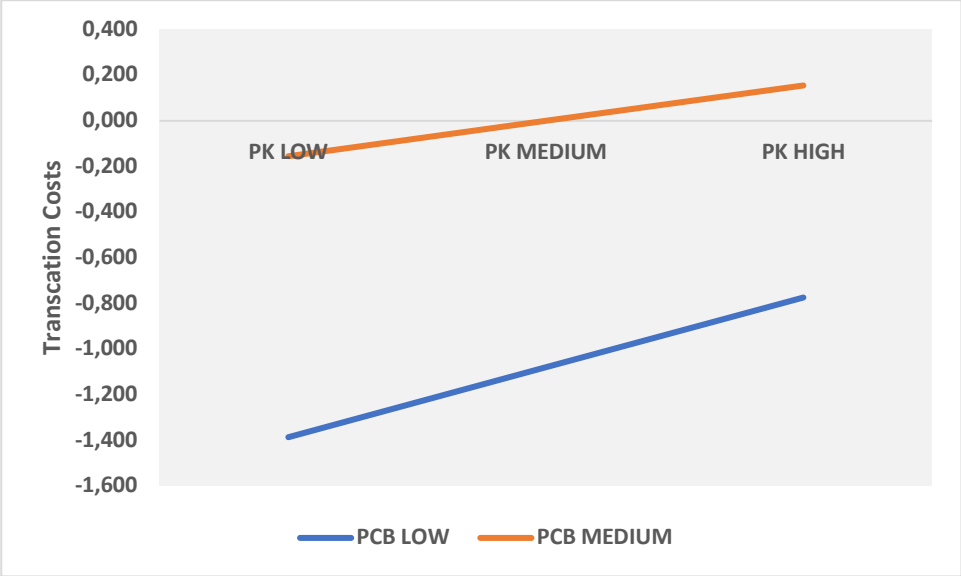

Figure 4.13: Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) ('no more than 5 years of entrepreneurial experience' group)

4.5.2. Test of Hypothesis 2

Hypothesis 2: The relationship between some human capital dimensions (experiential knowledge, prior knowledge) and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

4.5.2.1. Test of Hypothesis 2a

H2a: The relationship between experiential knowledge and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

Table 4.108: Mediating effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) with noticeable differences based on biological sex

Biological Sex		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2
Outcome variable: Transaction costs								
Female	Constant	3.630	.791	4.589	<.001	2.070	5.190	
	EK	.195	.119	1.644	.102	-.039	.429	
Male	Constant	4.314	.708	6.091	<.001	2.919	5.709	
	EK	.083	.105	.785	.433	-.124	.289	
Overall	Constant	4.037	.527	7.667	<.001	3.002	5.071	
	EK	.128	.079	1.633	.103	-.026	.282	
Outcome variable: Business Performance								
Female	Constant	6.080	.899	6.762	<.001	4.307	7.853	
	EK	-.041	.129	-.321	.749	-.296	.213	
	TC	-.018	.077	-.236	.814	-.169	.133	
Male	Constant	4.503	.788	5.715	<.001	2.952	6.056	
	EK	.215	.110	1.968	>.050	<.000	.431	
	TC	-.049	.064	-.766	.444	-.176	.078	

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Overall	Constant	5.187	592	8.767	<.001	4.025	6.350
	EK	.107	.083	1.281	.201	-.057	.270
	TC	-.038	.049	-.781	.435	-.135	.058

The test results indicate that:

- There is no significant relationship between experiential knowledge and transaction costs for the female group (Coeff=.195, 95% CI [-.039, .429], t=1.644, p=.102), male group (Coeff=.083, 95% CI [-.124, .289], t=.785, p=.433), and the overall group (Coeff=.128, 95% CI [-.026, .282], t=1.633, p=.103).
- There is no significant relationship between transaction costs and business performance for the female group (Coeff=-.018, 95% CI [-.169, .133], t=-.236, p=.814), male group (Coeff=-.049, 95% CI [-.176, .078], t=-.766, p=.444), and the overall group (Coeff=-.038, 95% CI [-.135, .058], t=-.781, p=.435).

Therefore, the transaction costs construct does not serve as a mediator in the relationship between experiential knowledge and business performance among biological sex.

Table 4.109: Indirect effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) where differences amid biological sex groups are noticeable

Biological Sex	Effect	BootSE	95%CI	
			BootLower	BootUpper
Female	-.004	.019	-.047	.033
Male	-.004	.011	-.034	.009
Overall	-.005	.008	-.026	.008

The results suggest that for the female group, (Effect=.004, 95% CI [-.047, .033], BootSE=.019), the male group (Effect=-.004, 95% CI [-.034, .009], BootSE=.011), and the overall group (Effect=-.005, 95% CI [-.026, .008], BootSE=.008), the bootstrap confidence level includes zero. Therefore,

there is no statistically significant indirect effect of transaction costs on the relationship between experiential knowledge and business performance, leading to no mediation amid biological sex or within the framework of the group.

Table 4.110: Mediating effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) with noticeable differences based on age

Age Group		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2
Outcome variable: Transaction Costs								
18 – 34 years old	Constant	3.661	1.087	3.370	.001	1.506	5.817	
	EK	.218	.163	1.341	.183	-.105	.540	
35 – 44 years old	Constant	4.360	.648	6.731	<.001	3.081	5.639	
	EK	.130	.097	1.337	.183	-.062	.322	
45 – 54 years old	Constant	3.165	1.489	2.125	.035	.221	6.109	
	EK	.225	.219	1.026	.307	-.208	.657	
55 years old and above	Constant	5.212	2.677	1.947	.057	-.150	10.574	
	EK	-.169	.403	-.418	.677	-.977	.639	
Outcome variable: Business Performance								
18 – 34 years old	Constant	5.700	1.341	4.251	<.001	3.040	8.360	
	EK	.073	.192	.380	.705	-.308	.454	
	TC	-.124	.116	-1.069	.288	-.354	.106	
35 – 44 years old	Constant	4.481	.824	5.438	<.001	2.853	6.109	
	EK	.162	.110	1.480	.141	-.054	.379	
	TC	.024	.089	.272	.786	-.152	.200	
45 – 54 years old	Constant	6.125	1.675	3.657	<.001	2.813	9.437	
	EK	.009	.243	.035	.972	-.473	.490	
	TC	-.092	.094	-.978	.330	-.277	.094	
55 years old and above	Constant	7.748	2.016	3.709	<.001	3.438	11.519	
	EK	-.465	.294	-1.579	.120	-1.055	.125	
	TC	.388	.097	3.985	<.001	.193	.583	

The test results indicate that:

- There is no significant relationship between experiential knowledge and transaction costs for the 18-34 years old group (Coeff=.218, 95% CI [-.105, .540], t=1.341, p=.183), 35-44 years old group (Coeff=.130, 95% CI [-.062, .322], t=1.337, p=.183), and the 45-54 years old group (Coeff=.225, 95% CI [-.208, .657], t=1.026, p=.307).

- There is no significant relationship between transaction costs and business performance for the 18-34 years old group (Coeff=-.124, 95% CI [-.354, .106], t=-1.069, p=.288), 35-44 years old group (Coeff=.024, 95% CI [-.152, .200], t=.272, p=.786), and the 45-54 years old group (Coeff=-.092, 95% CI [-.277, .094], t=-.978, p=.330).
- For the 55 years old and above group, a significant relationship exists between transaction costs and business performance (Coeff=.388, 95% CI [.193, .583], t=3.985, p<.001). However, no significant relationship is observed between experiential knowledge and transaction costs (Coeff=-.169, 95% CI [-.977, .639], t=-.418, p=.677) nor between experiential knowledge and business performance (Coeff=-.465, 95% CI [-1.055, .125], t=-1.579, p=.120).

Therefore, the transaction costs construct does not serve as a mediator in the relationship between experiential knowledge and business performance among age groups.

Table 4.111: Indirect effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) where differences amid age groups are noticeable

Age Group	Effect	BootSE	95%CI	
			BootLower	BootUpper
18 – 34 years old	-.027	.045	-.128	.031
35 – 44 years old	.003	.016	-.024	.039
45 – 54 years old	-.021	.049	-.152	.030
55 years old and above	-.066	.223	-.536	.357

The results show that for the 18-34 years old group, (Effect=-.027, 95% CI [-.128, .031], BootSE=.045), the 35-44 years old group (Effect=.003, 95% CI [-.024, .039], BootSE=.016), the 45-54 years old group (Effect=-.021, 95% CI [-.152, .030], BootSE=.049), and the overall group (Effect=.066, 95% CI [-.536, .357], BootSE=.223), the bootstrap confidence level includes zero. Therefore, there is no statistically significant indirect effect of

transaction costs on the relationship between experiential knowledge and business performance, indicating no mediation among age groups.

Table 4.112: Mediating effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) with noticeable differences based on level of education

Level of Education		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2
Outcome variable: Transaction Costs								
No qualification	Constant	4.361	.906	4.815	<.001	2.571	6.151	
	EK	-.025	.137	-.180	.858	-.296	.245	
High school qualification	Constant	4.694	.662	7.092	<.001	3.389	5.998	
	EK	.063	.099	.637	.525	-.132	.258	
Tertiary education certificate & higher	Constant	3.819	1.270	3.007	.003	1.299	6.339	
	EK	.242	.186	1.302	.196	-.127	.610	
Outcome variable: Business Performance								
No qualification	Constant	3.865	.801	4.824	<.001	2.282	5.449	
	EK	.379	.112	3.373	.001	.157	.602	
	TC	-.043	.067	-.633	.528	-.176	.091	
High school qualification	Constant	4.203	.853	4.930	<.001	2.523	5.884	
	EK	.117	.115	1.023	.308	-.109	.343	
	TC	.091	.080	1.144	.254	-.066	.248	
Tertiary education Certificate & higher	Constant	6.226	1.659	3.752	<.001	2.933	9.519	
	EK	-.256	.234	-1.095	.276	-.721	.208	
	TC	.196	.126	1.554	.124	-.054	.447	

The test results display that:

- There is no significant relationship between experiential knowledge and transaction costs for the no qualification group (Coeff=-.025, 95% CI [-.296, .245], t=-.180, p=.858), high school qualification group (Coeff=.063, 95% CI [-.132, .258], t=.637, p=.525), and the tertiary education certificate and higher qualification group (Coeff=.242, 95% CI [-.127, .610], t=1.302, p=.196).
- There is no significant relationship between transaction costs and business performance for the no qualification group (Coeff=-.043, 95% CI [-.176, .091], t=-.633, p=.528), high school qualification group

(Coeff=.091, 95% CI [-.066, .248], t=1.144, p=.254), and the tertiary education certificate and higher qualification group (Coeff=.196, 95% CI [-.054, .447], t=1.554, p=.124).

Therefore, the transaction costs construct does not serve as a mediator in the relationship between experiential knowledge and business performance among level of education groups.

Table 4.113: Indirect effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) where differences amid level of education are noticeable

Level of Education	Effect	BootSE	95%CI	
			BootLower	BootUpper
No qualification	.001	.032	-.091	.034
High school qualification	.006	.010	-.007	.032
Tertiary education certificate & higher	.047	.194	-.010	.698

The results reveal that for the no qualification group, (Effect=.001, 95% CI [-.091, .034], BootSE=.032), the high school qualification group (Effect=.006, 95% CI [-.007, .032], BootSE=.010), and the tertiary education certificate and higher qualification group (Effect=.047, 95% CI [-.010, .698], BootSE=.194), the bootstrap confidence level includes zero. Therefore, there is no statistically significant indirect effect of transaction costs on the relationship between experiential knowledge and business performance, indicating no mediation among level of education groups.

Table 4.114: Mediating effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) with noticeable differences based on work experience

Work Experience		Coeff.	SE	t	p	95%CI		R^2
						Lower	Upper	
Outcome variable: Transaction costs								
More than 5 years	Constant	2.858	.714	4.003	<.001	1.455	4.261	.019

	EK	.306	.106	2.893	.004	.098	.513
No more than 5 years	Constant	5.959	.779	7.647	<.001	4.363	7.556
	EK	-.252	.132	-1.914	.066	-.522	.018
Outcome variable: Business Performance							
	Constant	6.217	-786	7.915	<.001	4.674	7.761
More than 5 years	EK	-.060	.115	-.520	.604	-.286	.167
	TC	-.023	.052	-.446	.656	-.125	.079
No more than 5 years	Constant	2.341	.908	2.579	.016	.479	4.203
	EK	.511	.093	5.505	<.001	.321	.702
	TC	.138	.125	1.102	.280	-.119	.395

The test results demonstrate that:

- For the 'More than 5 years of work experience' group, a significant relationship exists between experiential knowledge and transaction costs (Coeff=.306, 95% CI [.098, .513], t=2.893, p=.004). However, no significant relationship is observed between experiential knowledge and business performance (Coeff=-.060, 95% CI [-.286, .167], t=-.520, p=.604) nor between transaction costs and business performance (Coeff=-.023, 95% CI [-.125, .079], t=-.446, p=.656).
- For the 'No more than 5 years of work experience' group, no significant relationship is detected between experiential knowledge and transaction costs (Coeff=-.252, 95% CI [-.522, .018], t=-1.914, p=.066) nor between transaction costs and business performance (Coeff=.138, 95% CI [-.119, .395], t=1.102, p=.280).

Therefore, the transaction costs construct does not serve as a mediator in the relationship between experiential knowledge and business performance among work experience groups.

Table 4.115: Indirect effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) where differences amid work experience are noticeable

Work Experience	Effect	BootSE	95%CI BootLower	BootUpper
More than 5 years	-.007	.018	-.051	.024
No more than 5 years	-.035	.037	-.125	.020

The results exhibit that for the 'More than 5 years of work experience' group, (Effect=-.007, 95% CI [-.051, .024], BootSE=.018), the 'No more than 5 years of work experience' group (Effect=-.035, 95% CI [-.125, .020], BootSE=.037), the bootstrap confidence level includes zero. Therefore, there is no statistically significant indirect effect of transaction costs on the relationship between experiential knowledge and business performance, indicating no mediation among work experience groups.

Table 4.116: Mediating effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) with noticeable differences based on entrepreneurial experience

Entrepreneurial Experience		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2
Outcome variable: Transaction Costs								
More than 5 years	Constant	5.063	.263	19.218	<.001	4.545	5.581	
	EK	-.026	.045	-.586	.558	-.115	.062	
No more than 5 years	Constant	4.923	1.234	3.990	<.001	2.410	7.437	
	EK	-.051	.205	-.248	.806	-.469	.367	
Outcome variable: Business Performance								
More than 5 years	Constant	6.495	.161	40.336	<.001	6.178	6.811	
	EK	-.010	.020	-.512	.609	-.050	.029	
	TC	.062	.022	2.853	.005	.019	.104	
No more than 5 years	Constant	.854	1.294	.660	.514	-1.785	3.493	
	EK	1.071	.176	6.087	<.001	.712	1.429	
	TC	-.305	.152	-2.015	.053	-.614	.004	

The test results reveal that:

- For the 'More than 5 years of entrepreneurial experience' group, a significant relationship exists between transaction costs and business performance (Coeff=.062, 95% CI [.019, .104], t=2.853, p=.005). However, no significant relationship is observed between experiential

knowledge and transaction costs (Coeff=-.026, 95% CI [-.115, .062], t=--.586, p=.558) nor between experiential knowledge and business performance (Coeff=-.010, 95% CI [-.050, .029], t=-.512, p=.609).

- For the 'No more than 5 years of entrepreneurial experience' group, no significant relationship is observed between experiential knowledge and transaction costs (Coeff=-.051, 95% CI [-.469, .367], t=-.248, p=.806) nor between transaction costs and business performance (Coeff=-.305, 95% CI [-.614, .004], t=-2.015, p=.053).

Therefore, the Transaction costs construct does not serve as a mediator in the relationship between experiential knowledge and business performance among entrepreneurial experience groups.

Table 4.117: Indirect effect of transaction costs (TC) on the relationship between experiential knowledge (EK) and business performance (BP) where differences amid entrepreneurial experience are noticeable

Entrepreneurial Experience	Effect	BootSE	95%CI	
			BootLower	BootUpper
More than 5 years	-.002	.003	-.007	.004
No more than 5 years	-.016	.056	-.131	.096

The results exhibit that for the 'More than 5 years of work experience' group, (Effect=-.002, 95% CI [-.007, .004], BootSE=.003), the 'No more than 5 years of work experience' group (Effect=-.016, 95% CI [-.131, .096], BootSE=.056), the bootstrap confidence level includes zero. Therefore, there is no statistically significant indirect effect of Transaction costs on the relationship between experiential knowledge and business performance, indicating no mediation among entrepreneurial experience groups.

4.5.2.2. Test of Hypothesis 2b

H2b: The relationship between prior knowledge and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

Table 4.118: Mediating effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) with noticeable differences based on biological sex

Biological Sex		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2
Outcome variable: Transaction Costs								
Female	Constant	2.238	.522	4.290	<.001	1.209	3.266	.120
	PK	.438	.084	5.211	<.001	.272	.604	
Male	Constant	3.878	.412	9.405	<.001	3.066	4.690	.022
	PK	.161	.066	2.441	.015	.031	.291	
Overall	Constant	3.316	.324	10.242	<.001	2.680	3.952	.050
	PK	.257	.052	4.942	<.001	.155	.359	
Outcome variable: Business Performance								
Female	Constant	6.933	.616	11.256	<.001	5.718	8.148	
	PK	-.233	.101	-2.299	.023	-.432	-.033	
	TC	.043	.080	.534	.594	-.115	.200	
Male	Constant	6.940	.499	13.923	<.001	5.959	7.922	
	PK	-.187	.070	-2.686	.008	-.325	-.050	
	TC	-.017	.065	-.267	.790	-.145	.110	
Overall	Constant	6.910	.384	17.998	<.001	6.156	7.665	
	PK	-.200	.057	-3.498	.005	-.312	-.088	
	TC	.005	.050	.107	.915	-.093	.103	

The test results indicate that:

- For the female group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.438, 95% CI [.272, .604], t=5.211, p<.001). However, no significant relationship is identified between transaction costs and business performance (Coeff=.043, 95% CI [-.115, .200], t=.534, p=.594).

- For the male group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.161, 95% CI [.031, .291], t=2.441, p=.015). However, no significant relationship is identified between transaction costs and business performance (Coeff=-.017, 95% CI [-.145, .110], t=-.267, p=.790).
- For the overall group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.257, 95% CI [.155, .359], t=4.942, p<.001). However, no significant relationship is identified between transaction costs and business performance (Coeff=.005, 95% CI [-.093, .103], t=.107, p=.915).

Therefore, the Transaction costs construct does not serve as a mediator in the relationship between prior knowledge and business performance among biological sex groups.

Table 4.119: Indirect effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) where differences amid biological sex groups are noticeable

Biological Sex	Effect	BootSE	95%CI	
			BootLower	BootUpper
Female	.019	.036	-.043	.098
Male	-.003	.012	-.024	.023
Overall	.001	.013	-.022	.030

The results reveal that for the female group, (Effect=-.019, 95% CI [-.043, .098], BootSE=.036), the male group (Effect=-.003, 95% CI [-.024, .023], BootSE=.012), and the overall group (Effect=.001, 95% CI [-.022, .030], BootSE=.013), the bootstrap confidence level includes zero. Therefore, there is no statistically significant indirect effect of transaction costs on the relationship between prior knowledge and business performance, indicating no mediation among biological sex groups.

Table 4.120: Mediating effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) with noticeable differences based on age

Age Group		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2
Outcome variable: Transaction Costs								
18 – 34 years old	Constant	3.430	.571	6.005	<.001	2.297	4.563	.081
	PK	.281	.094	2.999	.003	.095	.466	
35 – 44 years old	Constant	3.006	.556	5.407	<.001	1.908	4.104	.093
	PK	.351	.087	4.031	<.001	.179	.523	
45 – 54 years old	Constant	2.937	.760	3.867	<.001	1.436	4.439	037
	PK	.275	.118	2.326	.022	.041	.509	
55 years old and above	Constant	6.312	.617	10.231	<.001	5.076	7.548	.194
	PK	-.413	.113	-3.665	.001	-.638	-.187	
Outcome variable: Business Performance								
18 – 34 years old	Constant	7.293	.787	9.270	<.001	5.732	8.853	
	PK	-.252	.116	-2.183	.031	-.481	-.023	
	TC	-.045	.117	-.386	.700	-.278	.187	
35 – 44 years old	Constant	5.456	.714	7.644	<.001	4.046	6.866	
	PK	.005	.108	.042	.966	-.209	.218	
	TC	.037	.094	.394	.694	-.148	.222	
45 – 54 years old	Constant	8.067	.879	9.176	<.001	6.329	9.805	
	PK	-.329	.133	-2.481	.014	-.591	-.067	
	TC	-.047	.093	-.503	.616	-.231	.137	
55 years old and above	Constant	6.620	.793	8.350	<.001	5.032	8.209	
	PK	-.310	.095	-3.255	.002	-.500	-.119	
	TC	.252	.101	2.482	.016	.048	.455	

The test results exhibit that:

- For the 18-34-year-old group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.281, 95% CI [.095, .466], t=2.999, p=.003). However, no significant relationship is identified between transaction costs and business performance (Coeff=-.045, 95% CI [-.278, .187], t=-.386, p=.700).
- For the 35-44-year-old group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.351, 95% CI [.179, .523], t=4.031, p<.001). However, no significant relationship is identified

between transaction costs and business performance (Coeff=-.037, 95% CI [-.148, .222], t=.394, p=.694).

- For the 45-54-year-old group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.275, 95% CI [.041, .509], t=2.326, p=.022). However, no significant relationship is identified between transaction costs and business performance (Coeff=-.047, 95% CI [-.231, .137], t=-.503, p=.616).
- For the 55-year and older group, there is a significantly negative relationship between prior knowledge and transaction costs (Coeff=-.413, 95% CI [-.638, -.187], t=-3.665, p=.001), and a significantly positive relationship between transaction costs and business performance (Coeff=.252, 95% CI [.048, .455], t=2.482, p=.016).

Therefore, for the 18 to 34 years old, 35 to 44 years old, and 45 to 54 years old groups, the transaction costs construct does not act as a mediator in the relationship between prior knowledge and business performance. However, for the 55 years and older group, the bootstrap method will provide further insights into the potential mediation effect of transaction costs.

Table 4.121: Indirect effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) where differences amid age groups are noticeable

Age Group	Effect	BootSE	95%CI	
			BootLower	BootUpper
18 – 34 years old	-.013	.032	-.074	.053
35 – 44 years old	.013	.043	-.040	.132
45 – 54 years old	-.013	.024	-.063	.035
55 years old and above	-.104	.063	-.187	.087

The results manifest that for the 18 to 34 years old group, (Effect=-.013, 95% CI [-.074, .053], BootSE=.032), the 35 to 44 years old group (Effect=.013, 95% CI [-.040, .132], BootSE=.043), the 45 to 54 years old group (Effect=-.013, 95% CI [-.063, .035], BootSE=.024), and the 55 years old and above group (Effect=-.104, 95% CI [-.187, .087], BootSE=.063), the

bootstrap confidence level includes zero. Therefore, there is no statistically significant indirect effect of transaction costs on the relationship between prior knowledge and business performance, indicating no mediation among age groups.

Table 4.122: Mediating effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) with noticeable differences based on level of education

Level of Education		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2
Outcome variable: Transaction Costs								
No qualification	Constant	6.134	.421	14.571	<.001	5.302	6.966	.123
	PK	-.363	.078	-4.674	<.001	-.517	-.210	
High School qualification	Constant	4.011	.526	7.619	<.001	2.973	5.048	.021
	PK	.172	.081	2.118	.035	.012	.332	
Tertiary Educ. Certificate & higher	Constant	-.834	1.539	-.542	.589	-3.888	2.220	.147
	PK	.931	.227	4.104	<.001	.481	1.381	
Outcome variable: Business Performance								
No qualification	Constant	6.299	.599	10.509	<.001	5.114	7.483	
	PK	.013	.076	.164	.870	-.138	.163	
	TC	-.042	.075	-.555	.580	-.190	.106	
High School qualification	Constant	5.499	.695	7.913	<.001	4.129	6.869	
	PK	-.093	.096	-.964	.336	-.282	.097	
	TC	.106	.081	1.316	.190	-.053	.264	
Tertiary Educ. Certificate & higher	Constant	9.494	2.012	4.719	<.001	5.501	13.487	
	PK	-.832	.320	-2.596	.011	-1.468	-.196	
	TC	.309	.132	2.346	.021	.048	.571	

The test results show that:

- For the no qualification group, there is a significant relationship between prior knowledge and transaction costs (Coeff=-.363, 95% CI [-.517, -.210], t=-4.674, p<.001). However, no significant relationship is identified between transaction costs and business performance (Coeff=-.042, 95% CI [-.190, .106], t=-.555, p=.580).
- For the high school qualification group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.172, 95% CI [.012, .332], t=2.118, p=.035). However, no significant relationship is

identified between transaction costs and business performance (Coeff=.106, 95% CI [-.053, .264], t=1.316, p=.190).

- For the tertiary education certificate and higher qualification group, there is a significantly positive relationship between prior knowledge and transaction costs (Coeff=.931, 95% CI [.481, 1.381], t=4.104, p<.001), and between transaction costs and business performance (Coeff=.309, 95% CI [.048, .571], t=2.346, p=.021).

Therefore, for the no qualification and high school qualification groups, the transaction costs construct does not act as a mediator in the relationship between prior knowledge and business performance. However, for the tertiary education certificate and higher qualification group, the bootstrap method will provide further insights into the potential mediation effect of transaction costs.

Table 4.123: Indirect effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) where differences amid level of education groups are noticeable

Level of Education	Effect	BootSE	95%CI	
			BootLower	BootUpper
No qualification	.015	.043	-.058	.113
High School qualification	.018	.015	-.003	.055
Tertiary Educ. Certificate & higher	.288	.188	.048	.769

The results reveal that, for both the no qualification group (Effect=.015, 95% CI [-.058, .113], BootSE=.043) and the high school qualification group (Effect=.018, 95% CI [-.003, .055], BootSE=.015), the bootstrap confidence interval encompasses zero. Consequently, there is no statistically significant indirect effect of transaction costs on the relationship between prior knowledge and business performance, suggesting no mediation within these groups.

However, for the tertiary education certificate and higher qualification group (Effect=.288, 95% CI [.048, .769], BootSE=.188), zero is not included in the

bootstrap confidence interval. Therefore, a statistically significant indirect effect of transaction costs on the relationship between prior knowledge and business performance is established, clearly indicating mediation within this group.

Table 4.124: Mediating effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) with noticeable differences based on work experience

Work Experience		Coeff.	SE	t	p	95%CI Lower	95%CI Upper	R^2
Outcome variable: Transaction Costs								
More than 5 years	Constant	2.854	.359	7.947	<.001	2.148	3.559	.073
	PK	.332	.057	5.819	<.001	.220	.444	
No more than 5 years	Constant	5.953	.772	7.712	<.001	4.372	7.534	.117
	PK	-.284	.148	-1.925	.065	-.586	.018	
Outcome variable: Business Performance								
More than 5 years	Constant	7.435	.416	17.871	<.001	6.617	8.252	
	PK	-.312	.064	-4.863	<.001	-.438	-.186	
	TC	.041	.052	.793	.428	-.061	.143	
No more than 5 years	Constant	3.172	1.076	2.948	.007	.964	5.379	
	PK	.455	.124	3.678	.001	.201	.709	
	TC	.091	.149	.609	.547	-.215	.397	

The test results display that:

- For the more than 5 years of work experience group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.332, 95% CI [.220, .444], t=5.819, p<.001). However, no significant relationship is identified between transaction costs and business performance (Coeff=.041, 95% CI [-.061, .143], t=.793, p=.428).
- For the no more than 5 years of work experience group, there is no significant relationship between prior knowledge and transaction costs (Coeff=-.284, 95% CI [-.586, .018], t=-1.925, p=.065) nor between

transaction costs and business performance (Coeff=.091, 95% CI [-.215, .397], t=.609, p=.547).

Therefore, the transaction costs construct does not serve as a mediator in the relationship between prior knowledge and business performance among the work experience groups.

Table 4.125: Indirect effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) where differences amid work experience groups are noticeable

Work Experience	Effect	BootSE	95%CI	
			BootLower	BootUpper
More than 5 years	.014	.018	-.019	.052
No more than 5 years	-.026	.044	-.136	.036

The results reveal that for the more than 5 years of work experience group, (Effect=.014, 95% CI [-.019, .052], BootSE=.018) and the no more than 5 years of work experience group (Effect=-.026, 95% CI [-.136, .036], BootSE=.044), the bootstrap confidence level includes zero. Therefore, there is no statistically significant indirect effect of transaction costs on the relationship between prior knowledge and business performance, indicating no mediation among work experience groups.

Table 4.126: Mediating effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) with noticeable differences based on entrepreneurial experience

Entrepreneurial Experience		Coeff.	SE	t	p	95%CI		R^2
						Lower	Upper	
Outcome variable: Transaction Costs								
More than 5 years	Constant	2.867	.361	7.937	<.001	2.157	3.577	.071
	PK	.329	.057	5.739	<.001	.217	.442	
No more than 5 years	Constant	5.597	.778	7.192	<.001	4.012	7.182	
	PK	-.190	.146	-1.302	.202	-.488	.107	
Outcome variable: Business Performance								
More than 5 years	Constant	7.458	.419	17.805	<.001	6.635	8.282	
	PK	-.314	.065	-4.864	<.001	-.440	-.187	

	TC	.038	.052	.719	.473	-.065	.140
No more than 5 years	Constant	3.233	.901	3.587	.001	1.395	5.071
	PK	.452	.107	4.206	<.001	.232	.671
	TC	.082	.127	.645	.523	-.177	.340

The test results demonstrate that:

- For the more than 5 years of entrepreneurial experience group, there is a significant relationship between prior knowledge and transaction costs (Coeff=.329, 95% CI [.217, .442], t=5.739, p<.001). However, no significant relationship is identified between transaction costs and business performance (Coeff=.038, 95% CI [-.065, .140], t=.719, p=.473).
- For the no more than 5 years of work experience group, there is no significant relationship between prior knowledge and transaction costs (Coeff=-.190, 95% CI [-.488, .107], t=-1.302, p=.202) nor between transaction costs and business performance (Coeff=.082, 95% CI [-.177, .340], t=.645, p=.523).

Therefore, the transaction costs construct does not serve as a mediator in the relationship between prior knowledge and business performance among the entrepreneurial experience groups.

Table 4.127: Indirect effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) where differences amid entrepreneurial experience groups are noticeable

Entrepreneurial Experience	Effect	BootSE	95%CI	
			BootLower	BootUpper
More than 5 years	.012	.018	-.020	.051
No more than 5 years	-.016	.029	-.092	.021

The results indicate that for the more than 5 years of entrepreneurial experience group, (Effect=.012, 95% CI [-.020, .051], BootSE=.018) and the no more than 5 years of entrepreneurial experience group (Effect=-.016, 95% CI [-.092, .021], BootSE=.029), the bootstrap confidence level includes

zero. Therefore, there is no statistically significant indirect effect of transaction costs on the relationship between prior knowledge and business performance, indicating no mediation among entrepreneurial experience groups.

4.5.3. Overview of the results

To sum up, this section provides an overview of the findings from the examination of the hypotheses under study. It offers a concise summary of the demonstrated influence of perceived behavioural control and transaction costs on the relationship between the human capital and business performance of Malagasy entrepreneurs.

Table 4.128: Summary of the findings from the test of the hypotheses

Hypothesis	Context	Group	Test results	Comments
H1: The relationship between some human capital dimensions (experiential knowledge, prior knowledge) and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.				
H1a: The relationship between experiential knowledge and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.	Overall sample	Overall	**Supported, VE= 0.8 percent**	At a low and a medium level of perceived behavioural control, there was a significantly positive relationship between experiential knowledge and transaction costs. When perceived behavioural control was high, there was no significant relationship between experiential knowledge and transaction costs.
	Biological sex	Female	**Supported, VE= 1.6 percent**	At a low and a medium level of perceived behavioural control, there was a significantly positive relationship between experiential knowledge and transaction costs. When perceived behavioural control was high, there was no significant relationship between experiential knowledge and transaction costs.
		Male	Rejected	
	Age	18 to 34 years old	Rejected	
		35 to 44 years old	Rejected	
		45 to 54 years old	Rejected	
		55 years old and above	Rejected	
	Education level	No qualification	**Supported, VE= 3.4 percent**	At a low and a medium level of perceived behavioural control, there was a significantly positive relationship between experiential knowledge and transaction costs. When perceived behavioural control was high, there was no significant relationship between experiential knowledge and transaction costs.
		High School qualification	Rejected	
		Tertiary education certificate and higher	Rejected	
	Work experience	More than 5 years of work experience	**Supported, VE= 1.5 percent**	At a low and a medium level of perceived behavioural control, there was a significantly positive relationship between experiential knowledge and transaction costs. When perceived behavioural control was high, there was no

				significant relationship between experiential knowledge and transaction costs.
		No more than 5 years of work experience	Rejected	
	Entrepreneurial experience	More than 5 years of entrepreneurial experience	**Supported, VE= .6 percent**	At a low and a medium level of perceived behavioural control, there was a significantly positive relationship between experiential knowledge and transaction costs. When perceived behavioural control was high, there was no significant relationship between experiential knowledge and transaction costs.
		No more than 5 years of entrepreneurial experience	Rejected	
H1b: The relationship between prior knowledge and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.	Overall sample	Overall	Rejected	
	Biological sex	Female	Rejected	
		Male	Rejected	
	Age	18 to 34 years old	Rejected	
		35 to 44 years old	Rejected	
		45 to 54 years old	Rejected	
		55 years old and above	Rejected	
	Education level	No qualification	**Supported, VE= 8.3 percent**	When perceived behavioural control was high, there was a significantly negative relationship between prior knowledge and transaction costs.
		High School qualification	Rejected	
		Tertiary education certificate and higher	Rejected	
	Work experience	More than 5 years of work experience	Rejected	
		No more than 5 years of work experience	Rejected	

	Entrepreneurial experience	More than 5 years of entrepreneurial experience	Rejected
		No more than 5 years of entrepreneurial experience	Rejected
H2: The relationship between some human capital dimensions (experiential knowledge, prior knowledge) and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.			
H2a: The relationship between experiential knowledge and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.	Overall sample	Overall	Rejected
	Biological sex	Female	Rejected
		Male	Rejected
	Age	18 to 34 years old	Rejected
		35 to 44 years old	Rejected
		45 to 54 years old	Rejected
		55 years old and above	Rejected
	Education level	No qualification	Rejected
		High School qualification	Rejected
		Tertiary education certificate and higher	Rejected
	Work experience	More than 5 years of work experience	Rejected
		No more than 5 years of work experience	Rejected
	Entrepreneurial experience	More than 5 years of entrepreneurial experience	Rejected
		No more than 5 years of entrepreneurial experience	Rejected
H2b: The relationship between prior knowledge and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age,	Overall sample	Overall	Rejected
	Biological sex	Female	Rejected
		Male	Rejected
	Age	18 to 34 years old	Rejected

education level, work experience, and entrepreneurial experience.		35 to 44 years old	Rejected
		45 to 54 years old	Rejected
		55 years old and above	Rejected
	Education level	No qualification	Rejected
		High School qualification	Rejected
		Tertiary education certificate and higher	**Supported**
	Work experience	More than 5 years of work experience	Rejected
		No more than 5 years of work experience	Rejected
	Entrepreneurial experience	More than 5 years of entrepreneurial experience	Rejected
		No more than 5 years of entrepreneurial experience	Rejected

4.6. Discussions

This research assessed the moderating effect of perceived behavioural control and the mediating effect of transaction costs on the relationship between certain dimensions of human capital (experiential knowledge and prior knowledge) and business performance. The results of the hypothesis and sub-hypothesis tests inspire the following discussions.

4.6.1. Test of Hypothesis 1a

Hypothesis 1a asserts that the relationship between experiential knowledge and transaction costs among Malagasy entrepreneurs is moderated by perceived behavioural control. Based on the test results, it can be noted that H1 is partially supported. The moderating effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs is evident within the overall group, as well as among the female group, individuals with no qualification, those with over 5 years of work experience, and those with over 5 years of entrepreneurial experience. However, this moderating effect is not observed among the remaining groups.

4.6.1.1. Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) for the overall group

Considering Namazi and Namazi's (2016) definition of moderator variables, the observation within the overall group suggests that perceived behavioural control serves as a 'second independent variable' in the relationship between experiential knowledge and transaction costs. In essence, experiential knowledge acts as a predictor variable for the transaction costs incurred by Malagasy entrepreneurs. Despite lacking a direct correlation with experiential knowledge, perceived behavioural control assumes a role equivalent to that of experiential knowledge in this

relationship. As a result, perceived behavioural control influences the strength and the direction of the relationship between the independent or predictor variable (experiential knowledge) and the dependent or criterion variable (transaction costs of Malagasy entrepreneurs).

These findings complement Shree and Urban's (2012) discovery, which establishes a significant relationship between the extent of entrepreneurs' human capital and the level of transaction costs they encounter. It is evident that the greater an entrepreneur's human capital, the lower their level of transaction costs. Furthermore, the observation reinforces the notions put forth by Stevens and Gist (1997) as well as Szczerbowski (2018), which suggest that perceived behavioural control can predict transaction costs by exerting influence on negotiation skills.

The results reveal a significantly positive correlation between the experiential knowledge of Malagasy entrepreneurs, a dimension of human capital, and the extent to which their transaction costs are minimised. This observation complements a line of inquiry explored by Abdel-Galil, Ibrahim and Alborkan (2022), Maurseth and Svensson (2020), Zebal, Ferdous and Chambers (2019), and Lee, Lee and Kao (2023).

It is crucial to note that experiential knowledge derives from experiential learning (Fergusson, 2022). Therefore, the depth of knowledge acquired by entrepreneurs in their work and entrepreneurial experiences varies based on their effectiveness in engaging with the learning process. According to Kolb's experiential learning cycle (Morris, 2020), learners' effectiveness in engaging with the learning process relies on four key abilities: (i) concrete experience abilities (CE), reflective observation abilities (RO), abstract conceptualization abilities (AC), and active experimentation abilities (AE).

While concrete experience abilities (CE) pertain to learners' capacity to fully engage in new learning experiences without bias, their reflective

observation abilities (RO) involve their capability to reflect on and assess their experiences from various perspectives. Abstract conceptualisation abilities (AC) are related to their skill in elevating their observations to the level of logically sound theories. Active experimentation abilities refer to their proficiency in using these theories in their decision-making and problem-solving endeavours (Kolb, 2015 ; Morris, 2020).

In addition to these abilities, several factors influence individuals' extent of engagement in experiential learning throughout their careers. These factors include the work environment, mentorship and training, personal development initiatives, and networking efforts and opportunities. Exposure to a work environment that fosters creative problem-solving and the development of critical skills, as opposed to one that is rigidly structured; benefiting from the guidance of a mentor; participating in formal training programs; actively pursuing continuous learning and personal growth; and cultivating a robust network of individuals who challenge them with new ideas, perspectives, and opportunities, all contribute to the depth of experiential knowledge that entrepreneurs amass over the course of their professional journey (Wallo, Kock, Reineholm & Ellström, 2022 ; Clarke, Burgess, Diggele & Mellis, 2019, van Woerkom & Meyers, 2019 ; Zhao, Jiang & Peng, 2021).

The greater the experiential knowledge possessed by a business owner, the lower their expenditure on search and information costs when conducting transactions (Abdel-Galil et al., 2022). Experiential knowledge enhances entrepreneurs' familiarity with the market conditions, customer preferences, and supplier reliability, thereby reducing the need to allocate material, financial and other resources to gather information (Lei, Gui & Le, 2021). For instance, an entrepreneur might have accumulated a stock of experience-based knowledge about suppliers, which enables them to promptly initiate transactions because it allows them to reduce the need for

investing time and resources in researching and evaluating all potential suppliers in the market.

The costs associated with negotiating and documenting an agreement feature among the key dimensions of bargaining costs (Simester and Knez, 2002). Individuals possessing extensive experiential knowledge can effectively minimise these costs for several reasons.

Firstly, they excel at sharing experiential knowledge (Le & Le, 2023), thereby triggering the development of internal capabilities (Ganguly, Talukdar & Chatterjee, 2019). Consequently, they can leverage internal human capital and diminish reliance on external suppliers in the process. As highlighted by Simester and Knez (2002), heightened engagement of external suppliers in the bargaining process results in increased bargaining costs.

Secondly, individuals with extensive experiential knowledge demonstrate a heightened level of information literacy—advanced abilities to collect, interpret, utilise, and generate information (Cerny & Potancok, 2023). They have refined their capacity to navigate information distortions (Durodolu & Ibenne, 2020). In scenarios where information undergoes alterations during the bargaining process, the challenge arises in discerning what would be mutually beneficial and in establishing an agreement that fosters a win-win equilibrium among all parties involved (Simester & Knez, 2002). Their practical knowledge empowers entrepreneurs to systematically gather necessary information, rigorously process and assess it, and subsequently craft agreements that benefit all parties involved (Cerny & Potancok, 2023; Durodolu & Ibenne, 2020).

Thirdly, individuals with robust experiential knowledge possess the competencies needed to work efficiently within well-managed timeframes,

thereby preventing delays during the process and reducing associated delay costs (Hwang, 2022).

Fourthly, they are acutely aware of and adept at addressing differences in bargaining power between customers and suppliers. This awareness enables them to capitalise on such differences, ensuring a swift process and favourable outcomes for all parties involved (Maurseth & Svensson, 2020).

Additionally, they possess the ability to anticipate various issues that might arise during the course of a transaction (Steen, Timan & de Poel, 2021). These issues encompass the non-performance of suppliers in delivering goods (Selviaridis & van der Walk, 2019), payment delays from clients (Sanni-Anibire, Zin & Olatunji, 2022), and unforeseen changes in circumstances, such as a pandemic (Matthews, Schoonbaert & Burlon, 2022), to name a few. Entrepreneurs' experiential knowledge in anticipating these issues empowers them to adeptly negotiate for an efficient contract design, thereby reducing the reliance on costly legal and dispute resolution mechanisms (Liu, 2019).

Finally, an experienced entrepreneur may have developed a robust knowledge of negotiation strategies (Zebal, Ferdous & Chambers, 2019). They might have cultivated a profound understanding of various negotiation aspects, including building trust (Hudayana, Suharko & Widyanta, 2020), determining the Best Alternative to a Negotiated Agreement (BATNA) (McKibben, 2020), and managing a negotiation team (Huffmeier, Zerres, Freund, Backhaus, Trotshel & Hertel, 2019), amongst others. This experiential knowledge equips them to streamline negotiation periods and reduce bargaining costs (Maurseth & Svensson, 2020; Zebal, Ferdous & Chambers, 2019).

The enforcement of each transaction is associated with a different range of risks and uncertainties, encompassing operational uncertainties such as forced production disruptions, financial uncertainties like exchange rate fluctuations, and legal and regulatory uncertainties such as changes in domestic and international regulations, amongst others (Hasan, Bellenstedt and Islam, 2023 ; Sheikh, Asad, Ahmed & Mukhtar, 2020 ; Cross, Eising, Hermansson & Spohr, 2021). If an entrepreneur has amassed experience-based knowledge to address these risks, they will be more efficient than their unacquainted peers in devising a policy enforcement strategy to mitigate them, and as a result, they will incur lower costs in the process (Lee, Lee & Kao, 2023 ; Fatima, Kratkiewicz, Manwar, Zafar & Zhang, 2019).

Moreover, entrepreneurs with extensive experiential knowledge can leverage economies of scale by distributing policy enforcement costs across a larger volume of transactions, thus reducing their per-unit transaction costs (Kim, 2021). For instance, an artisanal soap maker with significant experience-based knowledge can more adeptly create an agreement contract template that fosters a win-win equilibrium with a diverse array of suppliers, whether they specialise in essential oils, molds, packaging materials, or other components. Consequently, the seasoned soap maker can effectively adapt the same template when documenting contract terms with new suppliers, eliminating the need for excessive investments in time, finances, and other resources for amendments (Asher and Popper, 2021).

The existence of a moderation effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs attests that perceived behavioural control regulates the strength and the direction of this correlation. More precisely, it was observed that:

(i) At a low and a medium level of perceived behavioural control, there was a significantly positive relationship between experiential

knowledge and the extent to which the transaction costs incurred are favourable to the Malagasy entrepreneurs.

(ii) When perceived behavioural control was high, there was no significant relationship between experiential knowledge and the transaction costs incurred by Malagasy entrepreneurs.

For the Overall group, when individuals have high self-efficacy, the predictor variable, which is the experiential knowledge of Malagasy entrepreneurs, does not influence the variability in the outcome variable, which is the transaction costs borne by Malagasy entrepreneurs. These results indicate that when the moderator variable, self-efficacy (i.e., perceived behavioural control), identified as a second independent variable by Namazi and Namazi (2016), is high, the impact of the first independent variable on the dependent variable seems to fade away. In simpler terms, when Malagasy entrepreneurs are confident in their ability to minimise transaction costs, the extent of their experiential knowledge becomes inconsequential. The scale of the first independent variable ceases to be significant. Instead, it is the magnitude of the second independent variable, self-efficacy, that diminishes the level of transaction costs. A Malagasy entrepreneur who firmly believes in their capability to reduce transaction costs will achieve this, regardless of the extent of their experiential knowledge.

This observation adds further dimension to Bandura's (1997) assertion that self-efficacy forms the foundation of entrepreneurs' endeavours. The success of an entrepreneur hinges on their perceived behavioural control, reflecting their confidence in effectively executing specific tasks (Memon et al., 2019). In the context of Malagasy entrepreneurs reducing the transaction costs they incur, the extent of their experiential knowledge aids them when their perceived behavioral control (PBC) is low or medium. However, when their PBC is high, the influence of their experiential knowledge dissipates. In situations of elevated PBC, Malagasy

entrepreneurs can minimise transaction costs irrespective of the depth of their experiential knowledge, whether extensive or limited.

4.6.1.2. Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) for the biological sex groups

Distinct observations emerged when comparing the male and female groups regarding the moderating effect of Perceived behavioural control (PBC) in the relationship between experiential knowledge (EK) and transaction costs (TC). For the male group, the following observations were noted:

(i) No significant relationship was found between EK and TC.

(ii) A significantly positive relationship was identified between PBC and TC.

(iii) Given the absence of a significant relationship between EK and TC, the moderation effect of PBC was deemed non-existent.

Observations specific to the female group include the following:

(i) A notably positive relationship exists between EK and TC.

(ii) A significantly positive relationship is observed between PBC and TC.

(iii) PBC exhibits a slight moderating effect on the relationship between EK and TC.

(iv) In instances where PBC was at a low or a medium level, a significantly positive relationship was observed between EK and TC.

(v) However, when PBC was high, there was no significant relationship between EK and TC.

These findings suggest a parallel between the observations made for the female group and those detected for the overall group, underscoring the significance of experiential knowledge among female Malagasy entrepreneurs in mitigating transaction costs, i.e., the search and information costs, bargaining costs, and policy enforcement costs they carry. As discussed in the previous section, this observation extends the findings of Abdel-Galil et al. (2022), Maurseth and Svensson (2020), Zebal et al. (2019), and Lee et al. (2023).

Furthermore, the noteworthy aspect that the significant relationship between experiential knowledge (EK) and transaction costs (TC) is evident only when perceived behavioural control (PBC) is at a low or medium level, and becomes negligible when PBC is high, underscores that female Malagasy entrepreneurs leverage their experiential knowledge to reduce transaction costs when their perceived behavioural control is low or medium. Conversely, when PBC is high, the impact of their experiential knowledge vanishes. In situations of elevated PBC, female Malagasy entrepreneurs can minimise transaction costs regardless of the depth of their experiential knowledge—be it extensive or limited. This observation adds a further dimension to Bandura's (1997) assertion that self-efficacy is the foundation of entrepreneurs' endeavours.

The findings related to the male group indicate that, in the case of male Malagasy entrepreneurs, the depth of their experiential knowledge (EK) does not have a significant impact on the transaction costs they incur. There

are potentially two reasons that could clarify the divergent outcomes observed between the male and female groups.

One plausible explanation is the impact of gender stereotypes on women's negotiation performance (Paradal, Alger & Latu, 2020). In professional settings, women often face explicit and/or implicit associations with traits like incompetence, low performance, and heightened emotionality. Consequently, individuals from such groups, experiencing negative stereotypes, must exert extra effort to overcome these biases (Tung, 2021). Therefore, women may rely on their human capital dimensions, such as experiential knowledge, to navigate these challenges. As a result, while the depth of experiential knowledge may not significantly influence negotiation performance and transaction cost minimisation for male Malagasy entrepreneurs, the opposite holds true for their female counterparts. Women may leverage their experiential knowledge to combat stereotypes, enhance negotiation performance, and minimise the transaction costs they incur.

The second potential explanation is rooted in the collective nature of Malagasy culture (Bambauer-Sachse & Rabeson, 2015), characterised by values like the *'Fihavanana Malagasy',* loosely translated as *'Malagasy solidarity'* (Kneitz, 2022). *Fihavanana* is challenging to precisely translate. It essentially signifies unconditional solidarity, expressed through mutual respect, support, social harmony, and communal love among community members, treating each other as if they were blood relations.

Shan, Keller and Joseph (2019) indicate that in collectivist cultures like Malagasy, women often adopt agentic behaviour, while men lean towards communal behaviour during negotiations (Hadar & Benish-Weisman, 2019). Agentic behaviours involve autonomous actions where individuals take control of their lives, whereas communal behaviours emphasize relationship-oriented and cooperative approaches (van Veelen & Derks,

2021). Female Malagasy entrepreneurs, guided by this cultural tendency, may employ an agentic approach, relying on their own resources, such as experiential knowledge, to minimise transaction costs. On the other hand, their male counterparts, likely adopting a communal behaviour, engage in negotiations as a cooperative effort among all involved parties.

In this context, transaction cost minimisation for female entrepreneurs is tied to their individual capabilities, while for male entrepreneurs, it hinges more on the collaborative dynamics and openness of all parties involved in fostering a win-win equilibrium. Thus, for the male group, the negotiation outcomes are less dependent on the magnitude of individual human capital, like the depth of experiential knowledge, and more on the collective cooperation during the negotiation process.

4.6.1.3. Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) for the age groups

Regarding age groups, although the moderating effect of perceived behavioral control on the relationship between experiential knowledge and transaction costs incurred by Malagasy entrepreneurs was uniformly rejected, the following discrepancies were observed:

(i) The positive relationship between experiential knowledge and transaction costs among Malagasy entrepreneurs was statistically significant for the 35 to 44 age group. However, it was rejected for the 18 to 34, 45 to 54, and 55 years and older age groups.

(ii) The significantly positive relationship between perceived behavioural control and transaction costs incurred by Malagasy entrepreneurs was confirmed for the 18 to 34, 35 to 44, and 45 to 54 age groups. However, it was rejected for the 55 years and older group.

The observed significantly positive relationship between experiential knowledge and transaction costs among the 35 to 44 years old group extends the assertion by Abubakar, Elrehail, Alatailat, and Elçi (2019) that a higher magnitude of knowledge contributes to improved organisational performance. Specifically, Abubakar et al.'s (2019) finding offers a valuable framework for interpreting the observed positive correlation between experiential knowledge and the transaction costs carried by Malagasy entrepreneurs, considering the notion that cost minimisation is a key component of organisational performance (Barauskaite & Streimikiene, 2021).

The results also complement Skirbekk's (2008) claim that organisational performance follows a U-shaped curve, with individuals reaching their peak productivity potential between the ages of 35 to 44. A minimum of 10 years of work experience, typically acquired by those aged 35 and older, is deemed necessary for performance maximisation. In other words, individuals in the 18 to 34 age group fall below their peak productivity potential, with their limited experience potentially hindering adequate experiential learning (Kolb, 2015; Morris, 2020). Consequently, the magnitude of experiential knowledge they acquire may not be significant enough to influence their performance, i.e., the level of transaction costs incurred.

For the 45 to 54 and the 55 years and older groups, the absence of a positive correlation between experiential knowledge and transaction costs may be interpreted through the lens of Skirbekk's (2008) finding, suggesting that after a certain age, individuals' productivity gains from extensive experience and their productivity-reducing lower abilities are conflicting. In the case of Malagasy entrepreneurs aged 45 years and older, the impact of their productivity-reducing lower abilities could potentially cancel out the influence of their experiential knowledge on the transaction costs they bear.

Furthermore, Hitka and Balazova (2015) and Mousa et al. (2019) argue that a higher level of experience does not necessarily translate to higher performance. Hitka and Balazova (2015) suggest that an extended level of experience might lead to a lack of motivation. Meanwhile, according to Mousa and colleagues (2019), extensive work experience may create resistance to change due to uncertainty, concerns about losing power, internal conflicts, and work stress. These findings offer an additional potential explanation for the absence of a positive relationship between experiential knowledge and the transaction costs incurred by the 45 to 54 and the 55 years and older groups.

The examined positive relationship between perceived behavioural control and transaction costs, spanning the age groups of 18 to 34, 35 to 44, and 45 to 54 years old, adds a further dimension to Memon et al.'s (2019) assertion that individuals, when self-confident in their perceived capabilities, can influence critical circumstances for their success. Within the framework of the research, it is noted that for Malagasy entrepreneurs aged 18 to 54, heightened assurance in their personal capabilities contributes to enhanced performance in minimising transaction costs.

The absence of a relationship between perceived behavioural control and transaction costs observed among the 55 years and older group may extend Mousa et al.'s (2019) affirmation that extensive experience could lead individuals to resist change. As individuals resist change, they may struggle to adapt to the evolving skill demands imposed by a rapidly changing world (International Labour Organization & OECD, 2018). Consequently, their abilities might become obsolete. Therefore, whether they possess strong or low self-confidence in their abilities, the irrelevance of their skills hampers any improvement in their performance at generating success, including minimising the level of transaction costs that they bear.

4.6.1.4. Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) for the education level groups

The results observed among the education level groups display that the moderating effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs was supported for the no qualification group. While it was rejected for the high school qualification and the tertiary education certificate and higher groups.

More precisely, the results display that for the no qualification group, at a low and a medium level of perceived behavioural control, there was a significantly positive relationship between experiential knowledge and transaction costs. However, when the perceived behavioural control was high, the correlation between experiential knowledge and transaction costs did not exist. For the high school qualification group, there was no significant relationship between experiential knowledge and transaction costs. For the tertiary education certificate and higher group, the correlation between experiential knowledge and transaction costs was only supported when the level of perceived behavioural control was negative or equal to zero.

For the high school qualification group, the relationship between experiential knowledge and transaction costs was not supported. This could be explained by the fact that individuals who did not complete a tertiary education degree are often discriminated against and stigmatised (Meisel, Haikalis, Colby & Barnett, 2022). This may affect not only their mental health but also the way they perceive themselves. Vazquez (2022) asserted that individuals' perception of their identities rests upon their interaction with others. Therefore, the discrimination and stigmatisation endured by high school graduates may create a feeling of inferiority among them. As such, in a professional setting, they may fail to embody their actual competences. They may struggle with impostor syndrome, which Bravata, Watts, Keefer,

Madhusudan, Taylor, and Clark (2019) define as a condition affecting individuals who fail to internalise their achievements and harbor a constant fear of being exposed as a fraud. The negative effect of the impostor phenomenon on organisational performance, including transaction cost minimisation (Hudson & Gomez, 2021; Barauskaite & Streimikiene, 2021), may counteract the expected positive correlation between experiential knowledge and transaction cost minimisation, explaining the absence of a relationship between the two variables.

For the tertiary education certificate and higher group, a notable positive link was found between their experiential knowledge and transaction costs. This correlation was significant only when their perceived behavioural control was either negative or non-existent. This phenomenon complements Heckel and Ringeisen's (2019) discovery that self-efficacy is closely tied to a sense of pride. Emphasising the importance of pride, Hacker (2017) argues that it is essential for everyone to have pride. When balanced, pride contributes to a person's sense of worth and dignity. However, Hacker (2017) cautions that pride, if not moderated, can turn into arrogance.

This idea is further explored by Waylen, Horswill, Alexander, and McKenna (2004), who found that individuals with additional training often consider themselves superior to others. In Madagascar, where the high school completion rate is below 30 percent (UNICEF, 2022), those who have pursued education beyond high school, such as tertiary education, have more training compared to the general population. This additional training may lead to a sense of intellectual arrogance, defined by Tanesini (2023) as the belief in one’s intellectual superiority coupled with a sense of entitlement. This form of arrogance can be detrimental, as Wong and Wong (2021) suggest it may impede performance.

Given this context, for Malagasy entrepreneurs with higher education qualifications, a high level of perceived behavioural control might not only

foster a healthy sense of worth but also risk leading to intellectual arrogance (Waylen et al., 2004 ; Tanesini, 2023). This arrogance could hinder their performance (Wong & Wong, 2021), especially in terms of effectively reducing transaction costs. Therefore, the contrasting dynamics of experiential knowledge - which helps in reducing transaction costs (Abdel-Galil et al., 2022 ; Maurseth and Svensson, 2020 ; Zebal et al., 2019 ; Lee et al., 2023) and intellectual arrogance – stemming from a misguided sense of self-efficacy and limiting transaction cost reduction (Heckel and Ringeisen, 2019; Hacker, 2017; Waylen et al., 2004; Tanesini, 2023; Wong & Wong, 2021) - could explain why the significant relationship between experiential knowledge and transaction costs in the tertiary education certificate and higher qualification demographic was only evident when perceived behavioural control was negative or negligible.

4.6.1.5. Moderating effect of perceived behavioural control (PBC) on the relationship between experiential knowledge (EK) and transaction costs (TC) for the work experience and entrepreneurial experience groups

The observations among the work experience and entrepreneurial experience groups were similar. For the group with more than 5 years of work experience and that with more than 5 years of entrepreneurial experience, the findings mirrored those observed in the overall, female, and no qualification groups. Specifically, the moderating effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs was supported. Furthermore, at low and medium levels of perceived behavioural control, a significantly positive relationship between experiential knowledge and transaction costs was evident. However, this relationship was not statistically significant when perceived behavioural control was high.

As discussed in earlier sections, the significantly positive relationship between experiential knowledge and transaction costs extends the findings

of Abdel-Galil et al. (2022), Maurseth and Svensson (2020), Zebal et al. (2019), and Lee et al. (2023). The disappearance of this relationship at high levels of perceived behavioural control adds a further dimension to Bandura's (1997) assertion that self-efficacy is crucial to entrepreneurial performance. It appears that Malagasy entrepreneurs with over 5 years of work experience and those with over 5 years of entrepreneurial experience can reduce their transaction costs, regardless of the extent of their experiential knowledge, whether extensive or limited, when their perceived behavioural control (PBC) is high.

For the group with no more than 5 years of work experience and that with no more than 5 years of entrepreneurial experience, there was no statistically significant moderating effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs. In fact, the findings indicate that for Malagasy entrepreneurs with up to 5 years of work experience and those with up to 5 years of entrepreneurial experience, there was no statistically notable relationship between experiential knowledge and transaction costs. This could be because experiential knowledge is gained through experiential learning, where the amount of professional experience is key (Kolb, 2015; Morris, 2020). Therefore, the relatively limited experience of those with only up to 5 years of work or entrepreneurial experience may not provide enough experiential knowledge to significantly affect the transaction costs they encounter.

4.6.2. Test of Hypothesis 1b

The hypothesised moderating effect of perceived behavioural control on the relationship between prior knowledge and transaction costs, i.e., Hypothesis 1b within the framework of the research, is partially rejected. More precisely, the results displayed that Hypothesis 1b is only supported for the no qualification group. In other words, for 13 out of the 14 groups studied, i.e., the overall, female, male, 18 to 34 years old, 35 to 44 years

old, 45 to 54 years old, and 55 years and above, high school qualification, tertiary education certificate and higher qualification, more than 5 years of work experience, no more than 5 years of work experience, more than 5 years of entrepreneurial experience, and no more than 5 years of entrepreneurial experience groups, the hypothesis was rejected.

Despite the absence of the moderating effect of perceived behavioural control on the relationship between prior knowledge and transaction costs recorded in all of these 13 groups, the observations were not uniform.

4.6.2.1. Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) for the overall, male, 55 years old and above, no qualification, more than 5 years of work experience, no more than 5 years of work experience, more than 5 years of entrepreneurial experience, and no more than 5 years of entrepreneurial experience groups

For the overall group, there was a significantly negative relationship between prior knowledge and transaction costs when perceived behavioural control was negative or equal to zero. These observations align with the findings that prior knowledge was recorded to be negatively correlated to transaction costs while perceived behavioural control was positively correlated to the dependent variable. There was, accordingly, a contradicting dynamic between the effect of prior knowledge and that of perceived behavioural control on transaction costs, explaining the absence of relationship between prior knowledge and transaction costs when the entrepreneur had a positive magnitude of self-efficacy.

As demonstrated in the previous sections, the positive relationship between perceived behavioural control and transaction costs complements Bandura's (1997) findings. The success of entrepreneurs, in this context, within the framework of transaction cost reduction, hinges on their perceived

behavioural control. However, as prior knowledge is a human capital dimension (Urban, 2015), the significantly negative relationship between prior knowledge and transaction costs departs from Shree and Urban's (2012) discovery suggesting that the level of entrepreneurs' human capital is positively related to their ability to reduce the amount of transaction costs they incur. This observation, interestingly, was made for all the groups among whom a significant relationship between prior knowledge and transaction costs was recorded, including the overall, male, 55 years old and above, no qualification, more than 5 years of work experience, no more than 5 years of work experience, more than 5 years of entrepreneurial experience, and no more than 5 years of entrepreneurial experience groups.

For all the groups among whom a statistically significant relationship between prior knowledge and transaction costs was observed, that relationship was significantly negative. In other words, when a relationship was proven to exist between the two variables, it was observed that the more the prior knowledge of Malagasy entrepreneur is, the less their performance at reducing transaction costs.

Simonsmeier, Flaig, Deiglmayr, Schalk and Schneider (2022) define prior knowledge as knowledge recorded in individuals' long-term memory at the time of a learning experience. Paiola et al. (2021) define it as the depth of knowledge that entrepreneurs have amassed over time. The results suggest that the relationship between the magnitude of knowledge stored in Malagasy entrepreneurs' long-term memory and their ability to minimise transaction costs is either non-existent or negative. For the overall, male, 55 years old and above, no qualification, more than 5 years of work experience, no more than 5 years of work experience, more than 5 years of entrepreneurial experience, and no more than 5 years of entrepreneurial experience groups, the more knowledge is recorded in the entrepreneurs' long-term memory, the less they are capable of minimising the transaction

costs that they encounter. Two possible justifications could explain these findings.

Firstly, it is important to recognise that while an effective use of knowledge enhances organisational performance (Bag, Dhamija, Singh, Rahmanm and Sreedharan, 2023), when in excess, knowledge may produce a negative impact. Klichowicz, Lippoldt, Rosner and Krems (2021) suggest that prior knowledge is a set of information active in an individual's long-term memory. Roetzel (2019), however, asserts that information overload decreases decision-making performance, which, in turn, according to Al-Surmi, Bashiri and Koliousis (2022) impedes organisational performance, such as transaction cost reduction performance. Therefore, an excessive depth of prior knowledge may explain the significantly negative relationship observed between prior knowledge and the individuals' performance at minimising transaction costs. This justification suggests that Malagasy entrepreneurs may be, in some ways, limited by the information overload phenomenon, a key characteristic of today's information age, exacerbated by the growing use of information and communication technologies (Arnold, Goldschmitt & Rigotti, 2023). A disproportionate level of prior knowledge acquired from an information overload vulnerable environment could negatively affect their entrepreneurial performance by impeding their ability to reduce transaction costs (Cuypers, Hennart, Silverman & Ertug, 2021).

A second possible explanation of the negative relationship between prior knowledge and transaction costs is the fact that prior knowledge needs to be relevant to have a beneficial effect (Brod, 2021). The dynamic of the market environment in the fast-moving, VUCA-BANI world, however, could render prior knowledge obsolete (Gussek, Shned & Wesche, 2021). The constantly increasing rate of change in today's world compels entrepreneurs to embrace agility and flexibility to be and stay relevant and make a real difference (Roblek, Dimovski, Mesko & Peterlin, 2022). The evolving market environment faces dynamic challenges (Hutter, Brendgens,

Gauster & Matzler, 2023), in the research context, transaction cost management related challenges, requiring a new approach, driven by an evolving knowledge to be resolved (Guercini & Milanesi, 2022). In this regard, rather than being satisfied with the mere application of prior knowledge, entrepreneurs are encouraged to consistently adopt a beginner's mindset to sustain knowledge creation by learning (relevant new knowledge), unlearning (irrelevant prior knowledge) and relearning (relevant prior knowledge) (Rupcic, 2019). If individuals lack learning agility (i.e., the ability to learn, unlearn, and relearn), they will depend on non-growing, potentially obsolete prior knowledge, which hampers their ability to minimise transaction costs.

The results observed among the no qualification group were different as they supported a moderating effect of perceived behavioural control on the relationship between prior knowledge and transaction costs. When the perceived behavioural control value was positive, it was observed to affect the strength of the relationship between prior knowledge and transaction costs. It was the only variable for which a moderation effect of perceived behavioural control was supported.

For all the studied groups, the moderation effect of perceived behavioural control on the relationship between prior knowledge and transaction costs was not supported, except for the no qualification group. This could be explained by the fact that it is generally believed that prior knowledge would help to enhance organisational performance, such as transaction costs minimisation (De Meulenaere, Boone & Buyl, 2016 ; Nygaard, 2022). The no qualification group potentially could perceive that their level of prior knowledge is inadequate due to their lack of academic achievements (Korn, Böttcher, Busse, Kernebeck & Breucha, 2022). As such, to compensate for restrictions in prior knowledge within the framework of transaction costs management, they could rely on perceived behavioural control to enhance the believed positive effect of prior knowledge on transaction cost

minimisation (Julito, Hambali & Hapsoro, 2021). That could be the reason why, for the no qualification group, perceived behavioural control moderates the relationship between prior knowledge and transaction costs.

4.6.2.2. Moderating effect of perceived behavioural control (PBC) on the relationship between prior knowledge (PK) and transaction costs (TC) for the female, 18-34 years old, 35-44 years old, 45-54 years old, high school qualification, and tertiary education and higher qualification groups

For the female, 18-34 years old, 35-44 years old, 45-54 years old, high school qualification, and tertiary education and higher qualification groups, it was observed that there was no relationship between prior knowledge and transaction costs. As such, no moderating effect of perceived behavioural control on the relationship can be supported. The level of knowledge stored in Malagasy entrepreneurs' long-term memory (Simonsmeier et al., 2022) did not have any correlation with the amount of transaction costs that they incur.

These results seem to extend Burkhardt, Parekh, Gallahue, London and Edens' (2020) findings that academic knowledge is not correlated with performance, i.e., transaction cost minimisation performance in the context of the research. On this account, provided that prior knowledge is dependent on the knowledge individuals acquired from formal education, it seems coherent that the results do not support any statistically significant relationship between prior knowledge and transaction costs (Burkhardt et al., 2020). Researchers (Martínez-Pérez, Lezcano-Barbero, Martínez-Pérez, Lezcano-Barbero, Casado-Muñoz & Zabaleta-González, 2024 ; Liu, 2023 ; Lewis, Rosen, Goussestreuer, Ullman & Dubosh, 2019 ; Horishna, Slozanska & Soroka, 2019 ; Valverde-Berrocoso, Rivas-Flores, Anguita-Martínez & Montes-Rodríguez, 2023) deliver further framework for interpreting this observation by positing that academic knowledge might not provide sufficient practical experience, innovative thinking, risk

management experience, leadership and management skills, and adaptability and flexibility, which are essential to enhance entrepreneurial performance, including the ability to reduce transaction costs (Tufa & Belete, 2021 ; Soares & Perin, 2020 ; Zhu, Qu, Jin & Li, 2022 ; Buwah, Ibrahima, Ernest & Bie, 2024 ; Camps, Oltra, Aldas-Manzano, Buenaventura-Vera & Torres-Carballo, 2016).

4.6.3. Test of Hypothesis 2a

Hypothesis 2a suggests that the transaction costs dimension mediates the relationship between experiential knowledge and the business performance of Malagasy entrepreneurs. This hypothesis was rejected for all the studied groups.

The absence of the mediating effect was expressed in three different ways:

(i) Lack of relationship between experiential knowledge and business performance

(ii) Lack of relationship between experiential knowledge and transaction costs

(iii) Lack of relationship between transaction costs and business performance

4.6.3.1. Lack of relationship between experiential knowledge (EK) and business performance (BP)

The lack of relationship between experiential knowledge and business performance observed among the study subsets, such as the male, 18-34 years old, high school qualification, more than 5 years of work experience, and more than 5 years of entrepreneurial experience groups may be

explained by the fact that each business in each industry has performance goals that are unique to them (Alegre, Baptista, Cabrera, Cubillo & Duarte, 2006). Job mismatch, however, is common among the active population in Madagascar (International Trade Organization, 2022). The same tendency might be confirmed among Malagasy entrepreneurs. This misalignment between individuals' knowledge and competencies and their occupation could create a decreased ability to meet their business performance goals. This may be the reason why no relationship was observed between the entrepreneurs' depth of experiential knowledge and their level of business performance (Yokoyama, Obara, Edamura, Kyiomote & Inui, 2021).

4.6.3.2. Lack of relationship between experiential knowledge (EK) and transaction costs (TC)

The absence of a relationship between experiential knowledge and transaction costs observed in study subsets including the male, 18 to 34, high school qualification, and no more than 5 years of entrepreneurial experience groups may be attributed to the fact that the majority of Malagasy entrepreneurs are necessity-based (African Development Group, 2020). They embarked on their entrepreneurial journeys primarily for survival, aiming to overcome unemployment instead of seeking business opportunities. This situation leads to a substantial disparity between the entrepreneurs' tacit knowledge and the tacit knowledge needed for their ventures (Diaz-Serrano & Teruel-Carrizosa, 2022). This could explain why the depth of Malagasy entrepreneurs' experiential knowledge did not predict the level of transaction costs they incurred.

4.6.3.3. Lack of relationship between transaction costs (TC) and business performance (BP)

The absence of a relationship between transaction costs and business performance among study groups comprising the male, 18 to 34, no

qualification, no more than 5 years of work experience, and no more than 5 years of entrepreneurial experience may also be related to the necessity-based nature of entrepreneurship in Madagascar (African Development Group, 2020). As a matter of fact, in a necessity-based context, the entrepreneurs' assessment of their performance does not relate to standard measures such as efficiency and growth, which are impacted by transaction costs (Yousuf, 2017). As they aim to escape unemployment and avoid poor economic conditions, necessity-based entrepreneurs' performance assessment corresponds more to personal income stability, on which transaction costs have a negligible impact (Nunez & Morales-Alonso, 2024). This could be the reason why the magnitude of the transaction costs they incur does not have any predictive effect on their business performance.

4.6.4. Test of Hypothesis 2b

Hypothesis 2b posits that the transaction cost dimension mediates the relationship between prior knowledge and the business performance of Malagasy entrepreneurs. This hypothesis was rejected for 13 out of the 14 groups studied. It found support solely within the group holding a tertiary education certificate or higher qualifications.

The absence of the mediating effect was expressed in three different ways:

(i) Lack of relationship between prior knowledge and business performance

(ii) Lack of relationship between prior knowledge and transaction costs

(iii) Lack of relationship between transaction costs and business performance

4.6.4.1. Lack of relationship between prior knowledge (PK) and business performance (BP)

No relationship was found between prior knowledge and business performance for individuals aged 35 to 44, those with no qualification, and those with a high school qualification. This lack of relationship could be explained as follows.

All age groups represented in the study displayed a significantly negative correlation between prior knowledge and business performance, except the 35 to 44 years old group. This observation could attest that entrepreneurs' prior knowledge might be obsolete and fail to respond to the prevailing issues in the market environment (Gussek et al., 2021). In the VUCA-BANI world, as the rate of change is increasing, entrepreneurs are compelled to adopt learning agility, i.e., to learn relevant new knowledge, unlearn irrelevant prior knowledge and relearn relevant prior knowledge, to be and stay relevant, and make a real difference (Rupcic, 2019) . The lack of learning agility (i.e., the ability to learn, unlearn, and relearn) would constrain individuals to rely on static, potentially obsolete prior knowledge, impairing their ability to effectively manage their venture and enhance business performance.

An exceptional pattern was recorded for the 35 to 44 years old group as no relationship was measured between prior knowledge and business performance. This variation could be related to the fact that being middle-aged, 35 to 44 years old entrepreneurs would have more experience than younger ones, enabling them to engage in more robust discovery learning processes. This experience could teach them, through trial and error, not to depend on possibly outdated prior knowledge for improving business performance (Aldalur & Perez, 2003). Moreover, they may still be young enough, compared to older entrepreneurs, to remain flexible and less resistant to change, allowing them to utilise diverse knowledge sources for

decision-making (Mousa et al., 2019). This flexibility could help them mitigate the impact of possibly obsolete prior knowledge on business performance.

The observation made for the no qualification and the high school qualification groups was also different from that recorded for the tertiary education certificate and higher qualification group. For the tertiary education certificate and higher qualification group, a significantly negative correlation between prior knowledge and business performance, was documented. While, for the no qualification and high school qualification groups, there was no relationship between prior knowledge and business performance.

The finding from the tertiary education certificate and higher qualification group could confirm the possibility that the entrepreneurs' prior knowledge would be obsolete and entrepreneurs need to embrace learning agility to be and stay relevant and make a real difference (Gussek et al., 2021 ; Rupcic, 2019). Concerning the lack of relationship between prior knowledge and business performance, recorded for the no qualification and the high school qualification groups, it could attest that the respondents from these groups might view their prior knowledge as insufficient due to their limited academic background (Korn et al., 2022). This perception of inadequate prior knowledge could deter them from utilising it to enhance business performance (Greco, Annovazzi, Palena, Camussi, Rossi & Steca, 2022).

4.6.4.2. Lack of relationship between prior knowledge (PK) and transaction costs (TC)

The lack of correlation between prior knowledge and transaction costs documented for study groups such as the no more than 5 years of entrepreneurial experience could be attributable to Nunez and Morales-Alonso's (2024) observation that within a necessity-based entrepreneurship

context, entrepreneurs typically assess business performance in terms of income stability. Therefore, entrepreneurs might consider business performance to be a less technical pursuit, relying more on intuition than on technical knowledge for achievement (Elbanna & Fadol, 2016). In contrast, as managing transaction costs is seen as necessitating financial literacy, necessity entrepreneurs could be led to view it as a skill-based task that demands specific technical knowledge (Gustina, Yenida & Novadilastri, 2022). Given this perspective, individuals with no more than 5 years of work or entrepreneurial experience, being new practitioners in their fields, may experience impostor syndrome, causing them to doubt their prior knowledge's sufficiency for reducing transaction costs (Bell, Vest & White, 2022). Consequently, they might opt not to depend on their prior knowledge to minimise the transaction costs they incur (Greco et al., 2022). This could explain the absence of a relationship between the extent of Malagasy entrepreneurs' prior knowledge and their capacity to minimise transaction costs.

4.6.4.3. Mediating effect of transaction costs (TC) on the relationship between prior knowledge (PK) and business performance (BP) for the tertiary education certificate and higher qualification group

The tertiary education certificate and higher qualification group is the only research subset for which the mediating effect of transaction costs on the relationship between prior knowledge and business performance, as predicted by Hypothesis 2b, is confirmed. These observations could be justified as follows.

Given that a substantial portion of entrepreneurs' prior knowledge is derived from formal education (Owuor, 2007), individuals with tertiary education certificates and higher qualifications are uniquely identified as possessing sufficient prior knowledge to predict business performance through the mediating effect of transaction costs (Alobaidy, 2023). This group singularly exhibits a transaction cost impact significant enough to substantially influence business performance. The advanced level of prior knowledge held by individuals with higher education qualifications likely plays a critical role in minimising transaction costs to an extent that adequately enhances business outcomes (Alobaidy, 2023).

Chapter 5: Conclusion

"Knowledge without wisdom
is like water in the sand."

Guinean proverb

5.1. Exploring the influence of perceived behavioural control and transaction costs on the relationship between human capital and business performance

Addressing unresolved issues in prior research related to human capital, particularly within the context of an under-researched low-income country, the thesis contributes to paving the way toward an emerging research theme. The human capital construct is perceived as a composite of five key dimensions, including experiential knowledge, prior knowledge, education level, work experience, and entrepreneurial experience. The thesis begins by laying out foundational theories supporting the related research and contextualising the framework. The model's groundwork is established on four core theories. The research primarily explores Ronald Coase's (1937) definition of transaction costs by assessing the nature of its correlation with human capital. Furthermore, it expands on Stevens and Gist's (1997) and Szczerbowski's (2018) potential relationship between perceived behavioural control and transaction costs. Additionally, it builds from Tran and Vo's (2020) establishment of a correlation between human capital and business performance. Moreover, the research elaborates from Nikolaeva and Pletnev's (2016) discovery of a correlation between transaction cost levels and business performance.

Building upon these four foundational theories, within the context of Madagascar, the research sought to demonstrate that:

- Perceived behavioural control moderates the relationship between some human capital dimensions, such as experiential knowledge and prior knowledge, and entrepreneurs' transaction costs, including search and information costs, bargaining costs, and policy enforcement costs.

- Transaction cost dimensions mediate the relationship between some human capital dimensions, comprising experiential knowledge and prior knowledge, and business performance.

5.2. Theoretical contributions

Building on the work of Coase (1937), Stevens and Gist (1997), Szczerbowski (2018), Tran and Vo (2020), and Nikolaeva and Pletnev (2016), this study presents four key theoretical contributions regarding the relationship between human capital and business performance among entrepreneurs operating within the context of a low-income economy, such as Madagascar.

(1) The moderating effect of perceived behavioural control on the relationship between experiential knowledge and transaction costs, among Malagasy entrepreneurs, was partially supported. The influence of perceived behavioural control on this correlation was confirmed for the overall sample, as well as for specific subgroups, including females, individuals with no formal qualifications, those with more than five years of work experience, and those with more than five years of entrepreneurial experience. However, the moderating effect was not supported for the male subgroup, any of the age groups, individuals with high school qualifications or tertiary education certificates and higher, or for those with no more than five years of work experience or entrepreneurial experience.

(2) The moderating effect of perceived behavioural control on the relationship between prior knowledge and transaction costs was only supported for the no qualification group. Notably, the findings within this group indicate that when perceived behavioural control is high, there is a significantly negative relationship between prior knowledge

and transaction costs. For the overall sample, all biological sex groups, all age groups, the high school qualification, and the tertiary education certificate and higher qualification groups, and all work experience, as well as all entrepreneurial experience groups, perceived behavioural control was not proven to moderate the relationship between prior knowledge and transaction costs.

(3) The mediating effect of transaction costs on the relationship between experiential knowledge and business performance was rejected.

(4) The mediating effect of transaction costs on the relationship between prior knowledge and business performance was only supported for the tertiary education certificate and higher qualification group. For the overall group, all biological sex groups, all age groups, the no qualification and the high school qualification groups, as well as all work experience and entrepreneurial experience groups, transaction costs did not mediate the correlation between prior knowledge and business performance.

5.3. Practical contributions and implications

The research unveiled key outcomes which can be practically leveraged by policy makers and practitioners to advance entrepreneurial undertakings in Madagascar. The study's insights can be capitalised on for crafting research-based policies, specifically tailored to the unique socio-economic landscape of Madagascar, steering clear of the ineffective "copy-paste" policy adoption from disparate contexts.

5.3.1. Reinforcing experiential learning

As the study underscores the importance of experiential knowledge in mitigating transaction costs, through the moderation effect of perceived

behavioural control within the Malagasy context, a strategic shift towards policies that foster experiential learning among entrepreneurs could be suggested. Such policies could include the development of mentorship programmes, and practical workshops that directly address the challenges unique to Madagascar's entrepreneurial landscape (Byrne, Jardine, Williams & Donlan, 2022).

Monllor, Michels, and Adderley (2024) reinforce this observation by advocating for the implementation of Kolb’s (1984) experiential learning cycle, which encompasses four stages:

- Concrete experience, where learners engage directly with real-world challenges;
- Reflective observation, during which learners contemplate their experiences;
- Abstract conceptualization, where learners develop theoretical ideas based on reflection; and
- Active experimentation, where learners test these ideas in practice.

In alignment with this framework, Monllor et al. (2024) developed an immersive entrepreneurship experiential learning module that enables students to tackle real-world entrepreneurial challenges presented by local community organisations. This module could be contextualised for Madagascar, particularly for female entrepreneurs and individuals without formal educational qualifications, as these groups have been shown to benefit most from increased experiential knowledge and perceived behavioural control in minimising transaction costs, according to the study's findings. Beyond facilitating collaboration through team-based problem-solving, Monllor et al.'s (2024) module also fosters the development of key entrepreneurial skills that are essential for long-term success.

A key outcome of the module is the development of self-efficacy and confidence. By engaging with real-world business projects, students are encouraged to apply theoretical knowledge in practical settings, thereby enhancing their problem-solving and decision-making capabilities. These skills are critical in managing the uncertainties inherent in entrepreneurship. Moreover, the absence of predetermined solutions fosters creative thinking, compelling students to devise innovative strategies for addressing unfamiliar problems within a unique socio-economic context. The local challenges, combined with minimal guidance, encourage students to harness their creativity and develop practical, impactful solutions. These competencies are particularly relevant for Malagasy entrepreneurs, as this study unveiled that, in the context of business owners in Madagascar, enhanced self-efficacy significantly strengthens the predictive role of experiential knowledge on reducing transaction costs.

Monllor et al's (2024) module further promotes proactiveness and independence. Students must independently navigate complex issues and engage with community stakeholders. With limited direction, they are required to take full ownership of their learning, make critical decisions, and demonstrate initiative to achieve successful project outcomes. This mirrors the entrepreneurial reality, where individuals must proactively tackle challenges and resourcefully adapt to ambiguity in the absence of a clear roadmap.

Adaptability is another critical skill honed through the module. The experiential learning environment introduces unpredictability, as students encounter real-world difficulties faced by local organisations. This exposure fosters resilience and flexibility, which are indispensable in entrepreneurship, where conditions and outcomes frequently shift.

Finally, the module adopts a holistic approach to learning by fostering cognitive, behavioural, and affective development. The immersive, context-

rich environment engages students not only intellectually, but also emotionally and behaviourally, as they form meaningful connections with local communities and address challenges with real social and economic significance. This comprehensive learning experience equips students with the mindset and motivation necessary to pursue entrepreneurship beyond the classroom, reinforcing their personal values and aspirations for future entrepreneurial endeavours.

5.3.2. Nurturing entrepreneurial self-efficacy

The established role of perceived behavioural control in moderating the positive relationship between experiential knowledge and transaction costs across various groups—including the overall sample, female entrepreneurs, those with no formal qualifications, individuals with more than five years of work experience, and those with over five years of entrepreneurial experience—underscores its importance in transaction cost management. Additionally, its statistically significant moderating effect on the positive relationship between prior knowledge and transaction costs, particularly within the group lacking formal qualifications, emphasizes the critical role of self-efficacy in enhancing effective management of transaction costs.

Practical steps to enhance entrepreneurial self-efficacy could involve promoting entrepreneurial education, fostering an entrepreneurial mindset, and nurturing creativity (Jiatong, Murad, Bajun, Tufail, Mirza, & Rafiq, 2021). Additionally, promoting the development of entrepreneurial networks and communities could offer valuable peer support, enabling entrepreneurs to share good practices and bolster their confidence in navigating business challenges (Fernandez-Perez, Alonso-Galicia, Fuentes-Fuentes, & Rodriguez-Ariza, 2014).

Practically, Nyamunda and Van der Westhuizen (2020) recommend the SHAPE (Shifting Hope, Activating Potential Entrepreneurship) programme,

a transformative social-technology initiative developed in South Africa aimed at enhancing entrepreneurial self-efficacy, i.e., perceived behavioural control (PBC), through a unique combination of experiential learning and real-world entrepreneurial exposure. The SHAPE programme emphasises participatory innovation and reflective learning, guiding participants to shift their mindsets toward entrepreneurial action. In contrast to traditional entrepreneurial education, which tends to be theoretical, SHAPE fosters hands-on learning and engagement with practicing entrepreneurs, thereby enhancing participants' practical entrepreneurial capabilities.

The 13-week programme comprises a series of structured activities, including group discussions, the completion of a business model canvas, and the prototyping of entrepreneurial ideas. Additionally, participants are required to interact with experienced entrepreneurs who share insights from both their successes and failures. These activities facilitate critical reflection and enable participants to apply the theoretical concepts they have learned, translating entrepreneurial intention into actionable steps. The SHAPE programme encourages active learning through experimentation and social learning, both key elements of transformative learning theory, which is central to its approach.

The effectiveness of the SHAPE programme in improving PBC was confirmed through a longitudinal research design incorporating pre- and post-programme evaluations. The study recorded a statistically significant improvement in participants' PBC scores across several dimensions, including opportunity recognition, business management, and coping with entrepreneurial stress. A Wilks' Lambda test indicated a significant increase in participants' attitudes toward entrepreneurial action. This improvement highlights the programme’s role in facilitating developmental transformation, enhancing participants’ self-efficacy, and empowering them to take concrete entrepreneurial steps.

The programme, which could be adapted to suit the realities of Malagasy entrepreneurs in line with the findings of this study, has demonstrated its capacity to provide a practical, transformative learning experience that exceeds conventional entrepreneurship education. The emphasis on action-oriented learning, along with equipping participants with both the confidence and skills necessary to navigate real-world business challenges, ensures that it promotes a sustained and meaningful increase in entrepreneurial self-efficacy.

5.3.3. Empowering women and individuals without a formal education qualification

The research findings demonstrate that the moderating effect of perceived behavioral control on the relationship between experiential knowledge and transaction costs is supported among female entrepreneurs. This effect is also observed among business owners lacking formal educational qualifications.

In light of these results, it is recommended that women's empowerment policies in Madagascar support the development of experiential knowledge and the enhancement of perceived behavioural control. Monllor et al.'s (2024) immersive entrepreneurship experiential learning module could be contextualised to the realities of the country's entrepreneurs to promote experiential knowledge development. Additionally, the SHAPE programme, advocated by Nyamunda and Van der Westhuizen (2020), could be adapted to enhance perceived behavioural control.

Boston Consulting Group's (BCG) Shalini Unnikrishnan and Cherie Blair (2019) highlighted the success of the Road to Women's Business Growth programme, implemented by the Cherie Blair Foundation for Women with support from the ExxonMobil Foundation, in nurturing practical business knowledge among women in Nigeria. The authors asserted that the

programme's greatest benefits arose from encouraging peer-to-peer and professional networks, based on the principles of Intent, Inclusion, and Interaction, which include:

- Intent: Defining the network's purpose, clarifying what women entrepreneurs will gain by joining, and how it helps them achieve tangible goals.
- Inclusion: Carefully selecting network participants, ensuring a dedicated founder, active membership, and a balanced mix of new and experienced entrepreneurs from different sociocultural contexts.
- Interaction: Balancing formal and informal exchanges among members, where formal experiential learning-based trainings build hands-on business knowledge, while informal interactions foster trust and enhance the network's long-term relevance.

Simarasl, Tabesh, Munyon, and Marzban (2024) revealed the importance of entrepreneurial action in fostering female entrepreneurs' perceived behavioural control. According to the self-regulation theory (Bandura, 1991; Bandura & Cervone, 1983), entrepreneurial action cultivates enactive mastery, a key mechanism in developing self-efficacy. Through active participation in entrepreneurial activities, women engage in self-reflection and evaluation, allowing them to assess successes and challenges, ultimately shaping self-efficacy by fostering a deeper understanding of their strengths and weaknesses.

Institutional support plays a crucial role in reinforcing this process. While entrepreneurial action is indispensable, Simarasl et al. (2024) emphasised that institutional support is vital for female entrepreneurs to translate their actions into increased self-efficacy. Thus, decision-makers and policymakers are encouraged to establish continuous institutional support systems that provide social persuasion—encouragement from others that builds confidence in their skills—and social learning opportunities, such as

role model-led coaching and mentorship programmes. These initiatives are essential for enhancing perceived behavioural control, which, according to the research outcomes, improves female entrepreneurs' ability to manage transaction costs by amplifying the predictive role of experiential knowledge.

Targeted business skills training is crucial for enhancing the entrepreneurial success of individuals lacking formal education. Nana, Van Staden, and Coetzee (2021) highlighted this by investigating the uses and challenges of business skills among fashion entrepreneurs without formal, fashion-related education or training in the Sedibeng District Municipality (SDM) in Gauteng, South Africa. The study aimed to identify specific training needs. The researchers employed a quantitative methodology, utilising non-probability, purposive, and snowball sampling to collect data from 105 respondents through interviewer-administered questionnaires. The findings revealed significant training needs in business plan development, basic bookkeeping, accurate product pricing, drafting quotations and invoices, budgeting, conducting market research, and advertising.

A similar study could be adapted to the context of Madagascar to determine the training needs of entrepreneurs with limited education and qualifications. This would help develop capacity-building programmes that effectively nurture experiential knowledge and perceived behavioural control. Strategyzer (2017) reported that 72 percent of services offered to beneficiaries fail. To prevent the failure of programmes designed for Malagasy entrepreneurs, it is crucial to adopt a beneficiary-centric design approach, starting with engaging the entrepreneurs and rigorously assessing their capacity-building needs (Nana et al., 2021). Once these needs are thoroughly identified, training programmes can be co-created with the entrepreneurs, enhancing their involvement in addressing their own needs and fostering a sense of ownership and affiliation, which encourages proactive participation (Yang & Leposky, 2022**;** Fobbe & Hilletofth, 2021). Co-developing relevant training programmes with Malagasy entrepreneurs

to address their capacity-building needs, alongside fostering proactive participation throughout the process, will enhance their human capital—such as experiential and prior knowledge—as well as perceived behavioural control, ultimately improving transaction cost management, as indicated by the study findings.

5.3.4. Promoting tertiary education access

The mediating effect of transaction costs was only evident in the relationship between prior knowledge and business performance among individuals with tertiary education and higher qualifications. It underscores the critical role of advanced education in enhancing the acquisition of relevant prior knowledge. This knowledge, in turn, facilitates the mitigation of transaction costs, thereby improving business performance. Consequently, expanding and promoting access to tertiary education is essential for enhancing business performance and fostering entrepreneurial success in Madagascar (Lehmann, Meoli, Paleari & Stockinger, 2020).

Taking these results into account, policymakers are encouraged to tailor UNESCO's (2017) *Six Ways to Ensure Higher Education Leaves No One Behind* to the context of Madagascar. The first recommendation, **knowing your target for equity policies**, involves ensuring through periodic reviews that the groups most in need of assistance are receiving it. Monitoring tools, including household surveys, can be employed to track different groups effectively. The second recommendation emphasises **putting it in the law**, leveraging regulatory frameworks to guarantee equitable and affordable access to higher education. The third recommendation focuses on **setting up steering and monitoring agencies**, establishing national bodies to develop and oversee policies on equal opportunities, equity, and affordability in higher education. The fourth recommendation addresses **levelling the playing field**, suggesting that Madagascar adopt a combination of admissions criteria to ensure that all students, regardless of

their backgrounds, have fair access to top universities. This includes the development of effective affirmative action policies that place equity at the core of the admissions process. The fifth recommendation, **combining tuition fees with means-tested grants and loans**, aims to focus public financial aid on disadvantaged student groups by establishing an agency to coordinate the disbursement of student financial aid and ensure effective collection mechanisms. Finally, the sixth recommendation, **limiting student repayments**, can be achieved by combining low tuition fees with income-based loans, capping student repayment burdens at less than 15% of their monthly income.

5.4. Limitations and future research

Firstly, the non-experimental cross-sectional study design presents limitations stemming from its inability to track changes over time. Once participants complete the survey, there is no subsequent follow-up, which restricts the researcher's ability to observe trends or shifts in the participants' circumstances (Savitz & Wellenius, 2023). This is particularly a concern in entrepreneurship, where dynamic change is more the norm than the exception (Abu-Rumman, Al Shraah, Al-Madi & Alfalah, 2021). Moreover, cross-sectional studies are susceptible to non-response bias, which occurs when the characteristics of those who choose to participate in the survey differ fundamentally from those who do not. Such discrepancies can lead to a sample that fails to accurately represent the broader population.

Secondly, the theoretical foundation employed during the research may also present a constraint. The study primarily explores the dimensions of human capital in terms of experiential knowledge and prior knowledge. However, according to current literature in the field (Aman-Ullah et al., 2022), in addition to knowledge, the human capital construct also

encompasses other dimensions such as skills and capacity. By focusing solely on experiential knowledge and prior knowledge, the research overlooks other components of human capital that could play pivotal roles in interacting with venture creation dynamics, such as perceived behavioural control and transaction costs, to influence business performance.

The study does, however, provide a valuable starting point for exploring these intricate relationships, while highlighting the need for a broader theoretical approach that incorporates a more diverse range of human capital dimensions. Future research could thus be directed towards integrating these overlooked aspects, among other priorities discovered within the framework of the study. For instance, subsequent studies might investigate:

- Capacity building needs for enhancing the business performance of Malagasy entrepreneurs.
- How dimensions of human capital such as skills and capacity interact with perceived behavioural control and transaction cost dimensions to impact business outcomes in different industry contexts.
- The mediating effect of gender stereotypes on the relationship between experiential knowledge and transaction cost levels.
- The moderating effect of agency-communion behaviours on the relationship between experiential knowledge and transaction costs among Malagasy entrepreneurs, particularly observing differences among biological genders.
- The nature of the relationship between Malagasy entrepreneurs' experience level and abilities as they age, and its impact on transaction costs.
- The mediating effect of impostor syndrome on the relationship between education, work experience, and entrepreneurial experience levels and the business performance of Malagasy entrepreneurs.

- The detrimental influence of intellectual arrogance on the relationship between education level and transaction costs among Malagasy entrepreneurs.
- The detrimental effect of information overload on Malagasy entrepreneurs' ability to minimise transaction costs.
- The moderating effect of learning agility on the relationship between Malagasy entrepreneurs' prior knowledge and business performance.
- The nature of the relationship between Malagasy entrepreneurs' level of education and their strategic exploitation of perceived behavioural control to drive performance.
- The moderating effect of job mismatch on the relationship between experiential knowledge and business performance among Malagasy entrepreneurs.
- The moderating effect of necessity-driven versus opportunity-driven entrepreneurship on the nature of the relationship between transaction costs and business performance among Malagasy entrepreneurs.

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Appendices

Appendix 1: Overview of research purpose, research questions and hypotheses

Research purpose. Contribute to expanding explicit knowledge on the concept of human capital and further the understanding of how business performance is enhanced among Malagasy entrepreneurs.		
Research questions	**Hypotheses**	**Sub-hypotheses**
Research question 1: To what extent does perceived behavioural control moderate the relationship between human capital and transaction costs and what are the roles played by demographics (biological sex, age, and education level) and personal experiences (work experience and entrepreneurial experience) in this relationship?	**Hypothesis 1:** The relationship between some human capital dimensions (experiential knowledge, prior knowledge) and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.	**H1a:** The relationship between experiential knowledge and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience. **H1b:** The relationship between prior knowledge and transaction costs is moderated by perceived behavioural control among Malagasy entrepreneurs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.
Research question 2: To what extent do transaction costs mediate the relationship between human capital and business performance, and what are the roles played by demographics (biological sex, age, and education level) and personal experiences (work experience and entrepreneurial experience) in this relationship?	**Hypothesis 2:** The relationship between some human capital dimensions (experiential knowledge, prior knowledge) and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.	**H2a:** The relationship between experiential knowledge and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience. **H2b:** The relationship between prior knowledge and business performance, among Malagasy entrepreneurs, is mediated by transaction costs, with noticeable differences based on biological sex, age, education level, work experience, and entrepreneurial experience.

Appendix 2: Participant information sheet

Research study title: Human Capital and Business Performance of Malagasy Entrepreneurs: The Influence of Perceived Behavioural Control and Transaction Costs

Dear Sir / Madam,

My name is Radomalala Ratsimanetrimanana. I am a PhD student in Entrepreneurship and New Venture Creation at the University of the Witwatersrand, Johannesburg (South Africa).

As part of my studies, I am undertaking a research project on the relationship between human capital and the business performance of Malagasy entrepreneurs, under the supervision of Prof. Boris Urban. The aim of this research project is to find out if perceived behavioural control (i.e., self-efficacy) and transaction costs carry out an influence over the correlation between the human capital and the business performance of native entrepreneurs operating in Analamanga (the central region of Madagascar).

As part of this project, I would like to invite you to take part in filling out a questionnaire. It will take around 30 minutes. There will be no personal costs to you if you participate in this project. You will not receive any direct benefits from participation but there are no disadvantages or penalties if you do not choose to participate or if you withdraw from the study. You may withdraw at any time or not answer any question if you do not want to. Your answers to the questionnaire will be completely confidential and anonymous as you will not be asked for your name or to present any identifying information. Any information you provide will be held securely and not disclosed to anyone else. I will be using a pseudonym (false name) to represent your participation in my final research report.

This study will be written up as a research report which will be available online through the university library website. If you wish to receive a summary of this report, I will be happy to send it to you (optional). The data collected from this research project will be electronically stored in my computer and will be kept within a year after successful completion of this endeavour. With your permission, the data collected may be used by other researchers in an anonymized format. If you have any concerns or complaints regarding the ethical procedures of this study, you are welcome to contact the University Human Research Ethics Committee (Non-Medical), telephone +27(0) 11 717 1408, email hrecnon-medical@wits.ac.za.

Yours sincerely,
Radomalala Ratsimanetrimanana

Researcher:	**Supervisor:**
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Appendix 3: Research instrument

1. DEMOGRAPHIC INFORMATION (Bosma & Kelly, 2018)

1.1. Biological sex	Male ☐ ☐ Female
1.2. Age	18 – 24 years old ☐ 25 – 34 years old ☐ 35 – 44 years old ☐ 45 – 54 years old ☐ 55 – 64 years old ☐ 65 years old and above ☐

2. HUMAN CAPITAL (Bao, Miao, Liu, & Garst, 2016)

2.1. Education level	No qualification ☐ High School qualification ☐ Tertiary education Certificate ☐ Bachelor's degree ☐ Master's degree and higher ☐
2.2. Work experience	No more than 5 years ☐ More than 5 years ☐
2.3. Entrepreneurial experience	No more than 5 years ☐ More than 5 years ☐

Rate the following statement based on the scale provided below.

Never true = 1 Rarely true = 2 Sometimes but infrequently true = 3 Neutral = 4 Sometimes true = 5 Usually true = 6 Always true = 7

2.1. Experiential knowledge (Leal-Rodriguez & Albort-Morant, 2018)

1 My past experience has been highly beneficial for the attainment of key insights that can only be learned through experience and direct observation.	1 2 3 4 5 6 7
2 My past experience made me aware of connections between theoretical concepts and real entrepreneurial problems.	1 2 3 4 5 6 7
3 My past experience enabled me to apply theoretical skills and knowledge and contextualize them in real situations.	1 2 3 4 5 6 7
4 My past experience was a great opportunity to learn about how we may react to real life situations and business problems.	1 2 3 4 5 6 7
5 My past experience was a great way to interact with market stakeholders and learn entrepreneurial skills by mutual knowledge exchange and by observing others.	1 2 3 4 5 6 7
6 My past experience really helped me to learn from observation and to assimilate concepts and theories in a practical manner.	1 2 3 4 5 6 7

2.2. Prior knowledge (Sukavejworakit, 2018)

7 I am in touch with an entrepreneur who helped me to refine my understanding of entrepreneurship before I launched my own venture.	1 2 3 4 5 6 7
8 I am part of a business association that helped me to refine my understanding of entrepreneurship before I launched my own venture.	1 2 3 4 5 6 7
9 I am affiliated to business promotion bodies that helped me to refine my understanding of entrepreneurship before I launched my own venture.	1 2 3 4 5 6 7
10 My prior knowledge has been highly beneficial for the attainment of key insights that can only be learned through academic training.	1 2 3 4 5 6 7
11 My prior knowledge made me aware of connections between theoretical concepts and real entrepreneurial problems.	1 2 3 4 5 6 7
12 My prior knowledge enabled me to study theoretical knowledge and contextualize them in real situations.	1 2 3 4 5 6 7
13 My prior knowledge was a great opportunity to learn about how we may react to real life situations and business problems.	1 2 3 4 5 6 7
14 My prior knowledge helped determine how to interact with market stakeholders	1 2 3 4 5 6 7

and explore entrepreneurial theories and skills.	
15 My past experience really helped me to develop reliable insights and master entrepreneurial theories.	1 2 3 4 5 6 7

3. PERECEIVED BEHAVIOURAL CONTROL (Glackin & Hohenstein, 2018)

16 When a business does better than competitors, it is often because the entrepreneur exerted a little extra effort.	1 2 3 4 5 6 7
17 I am continually finding better ways to run my business.	1 2 3 4 5 6 7
18 When the profitability of a business improves, it is most often because of the entrepreneur having found a more effective entrepreneurship approach.	1 2 3 4 5 6 7
19 I know the steps necessary to run a business effectively.	1 2 3 4 5 6 7
20 I am not very effective in running my own business.	1 2 3 4 5 6 7
21 If a business is under achieving, it is most likely due to ineffective management and entrepreneurship.	1 2 3 4 5 6 7
22 I generally run my business ineffectively	1 2 3 4 5 6 7
23 Inadequacies from a business' past failure can be overcome by good entrepreneurship.	1 2 3 4 5 6 7

24 The low achievement of some businesses cannot generally be blamed on their leaders.	1 2 3 4 5 6 7
25 When a low achieving business grows, it is due to an extra commitment of the entrepreneur.	1 2 3 4 5 6 7
26 I understand entrepreneurship concepts well enough to be effective in leading initiatives outside my business.	1 2 3 4 5 6 7
27 Increased commitments in running a business produce little change in a company's achievement.	1 2 3 4 5 6 7
28 The entrepreneur is generally responsible for the achievement of his business.	1 2 3 4 5 6 7
29 A company's achievement is directly related to the entrepreneur's effectiveness (aptitude of doing the right things)..	1 2 3 4 5 6 7
30 I find it difficult to explain to employees why an entrepreneur succeeds.	1 2 3 4 5 6 7
31 I am typically able to answer employees' entrepreneurial success questions.	1 2 3 4 5 6 7
32 I wonder if I have the necessary skills to run initiatives outside my business.	1 2 3 4 5 6 7
33 Effectiveness in business running has little influence on the achievement of an organisation with low motivation.	1 2 3 4 5 6 7

34 Given a choice, I would not invite shareholders to evaluate my entrepreneurial performance.	1 2 3 4 5 6 7
35 When my business has difficulty, I am usually at a loss as to how to help the business get back on the right track.	1 2 3 4 5 6 7
36 Even business leaders with good entrepreneurship skills cannot help some businesses to succeed.	1 2 3 4 5 6 7

4. TRANSACTION COSTS DIMENSION

4.1. Search and information costs (Lijia & Xuexi, 2014)

37 I can quickly obtain market price information prior to sale.	1 2 3 4 5 6 7
38 I can quickly find buyers when selling products.	1 2 3 4 5 6 7
39 It does not cost me much to go to the marketplace in order to sell my products.	1 2 3 4 5 6 7
40 I have never made a loss due to the resources required for search and information.	1 2 3 4 5 6 7
41 I have never made a loss due to the lack of accessibility and availability of essential information.	1 2 3 4 5 6 7

4.2. Bargaining costs (Lijia & Xuexi, 2014)

42 It doesn't take me much time to negotiate with available buyers and fix trading price and transacting place.	1 2 3 4 5 6 7

43 It doesn't cost me much resource to negotiate with available buyers and fix trading price and transacting place.	1 2 3 4 5 6 7
44 It doesn't take me much time to get my products ready and up to standards prior to selling.	1 2 3 4 5 6 7
45 It doesn't cost me much resource to get my products ready and up to standards prior to selling.	1 2 3 4 5 6 7
46 It does not cost me much resource to treat available buyers with small gifts and extras.	1 2 3 4 5 6 7

4.2. Policy and enforcement costs (Lijia & Xuexi, 2014)

47 Buyers pay me in full quickly.	1 2 3 4 5 6 7
48 Buyers are never delayed in paying me.	1 2 3 4 5 6 7
49 I have never made a loss due to buyers' breaking the arrangement.	1 2 3 4 5 6 7
50 It doesn't cost me much resource to get buyers to follow the agreement.	1 2 3 4 5 6 7
51 It doesn't take me much time to get buyers to follow the agreement.	1 2 3 4 5 6 7

5. BUSINESS PERFORMANCE (Namagembe, Ryan, & Sridham, 2017)

52 Employees are viewed as the most valuable asset of the business.	1 2 3 4 5 6 7
53 Employees are highly committed to the business.	1 2 3 4 5 6 7

54 The moral (job satisfaction) of employees has improved over the past few years.	1	2	3	4	5	6	7
55 The image (stature) of the business, relative to competitors, has grown over the past few years.	1	2	3	4	5	6	7
56 The effectiveness (doing the right things) of the business has improved over the past few years.	1	2	3	4	5	6	7
57 During difficult economic periods, investments in research and development/innovative projects continue with no significant financial cuts.	1	2	3	4	5	6	7
58 The efficiency (doing things right) of the business has improved over the past few years.	1	2	3	4	5	6	7
59 The business has experienced growth in profits over the past few years.	1	2	3	4	5	6	7
60 The business has experienced growth in turnover over the past few years.	1	2	3	4	5	6	7
61 The business has experienced growth in market share over the past few years.	1	2	3	4	5	6	7
62 The competitive position of the business has improved over the past few years.	1	2	3	4	5	6	7