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Inclusive Teaching, Institutional Support, and Entrepreneurial Intentions: The Mediating Role of Persistence of Effort

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Abstract

Purpose: This study investigates how inclusive teaching practices and institutional support influence entrepreneurial intentions among disadvantaged students in technical vocational education and training (TVET), with persistence of effort as a mediating variable. Although persistence of effort is widely acknowledged as critical for both student success and entrepreneurial outcomes, its mediating role in the context of TVET remains underexplored—particularly among marginalized student populations.

Approach: Using a simple random sampling technique, data were collected from 393 disadvantaged TVET students who had exposure to inclusive pedagogical practices and institutional support systems. A two-stage structural equation modeling approach was employed using Mplus to test the proposed relationships. The study was conducted in Trinidad and Tobago, a twin-island nation with a long-standing tradition of TVET, established well before the development of more recent educational approaches.

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Results: The results show that inclusive teaching and institutional support—comprising financial aid, information and communication technology (ICT) access, campus accessibility, and business mentorship—significantly boost students' persistence of effort. This persistence, in turn, strongly predicts entrepreneurial intentions. Furthermore, persistence of effort was found to mediate the effects of both inclusive teaching and institutional support on entrepreneurial intentions.

Conclusion: This study advances theoretical understanding by integrating Tinto's student retention theory with Duckworth's grit framework, offering a dual-lens analysis of how educational environments foster entrepreneurial pathways. Persistence of effort emerges as the underlying psychological mechanism linking institutional and pedagogical supports to entrepreneurial intentions. Beyond content delivery in entrepreneurship education, the results highlight the enabling role of equity-driven practices in cultivating entrepreneurial intent, especially among disadvantaged students. These insights are particularly relevant for TVET institutions globally and for policymakers seeking inclusive strategies to address youth unemployment and inequality. Filling this gap strengthens the evidence base for designing TVET systems that not only enhance employability and resilience but also promote inclusive participation in entrepreneurship as a pathway to sustained economic participation.

Keywords: Entrepreneurial Intentions, Inclusive Teaching, Institutional Support, Vocational Education and Training, VET

1 Introduction

Technical and Vocational Education and Training (TVET) plays a pivotal role in human capital development, particularly in skill-based sectors. Historically, TVET institutions have focused on equipping individuals with technical skills for trades, but recently, more TVET students are attracted to entrepreneurship to combat economic hardship, especially in regions with limited job opportunities (Cedefop, 2023). Entrepreneurship is widely regarded as a key driver of economic growth (Bahaw et al., 2024), which makes it crucial to understand the factors that shape entrepreneurial intentions (EI). EI, defined as the inclination to start a business, has been extensively studied, with the Theory of Planned Behavior serving as a foundational framework (Liñán & Chen, 2009). However, recent studies suggest that these intentions are influenced by a more complex interplay of psychological, environmental, and educational factors (Abbes, 2024; Liu et al., 2022; Susantiningrum et al., 2023). While entrepreneurship education is known to have a positive influence on EI, it alone is often insufficient. Its effects can be more potent with a supportive educational ecosystem, including institutional resources like financial aid, mentorship, and access to technology (Gonzalez-Tamayo et al., 2024). This is critical for TVET institutions which often serve students

from disadvantaged backgrounds with significant barriers to educational success (Bahaw et al., 2024). These students may lack financial resources, technological access, or role models—critical supports for both academic and entrepreneurial achievement.

Inclusive education, when coupled with institutional support, has the potential to amplify the benefits of education in enhancing student career outcomes (Bahaw et al., 2025; Dakung et al., 2022). From the perspective of person-environment fit theory, students are more likely to succeed when their environment provides the necessary support (Liu et al., 2022). Research in educational psychology shows that inclusive teaching practices and supportive environments are essential for improving various student outcomes, including engagement, academic achievement, and retention (Gonzalez-Tamayo et al., 2024; Okolie et al., 2021; Samoila & Vrabie, 2023). Inclusive teaching refers to pedagogical approaches designed to accommodate diverse student needs, ensuring that no individual is marginalized (Scharnhorst & Kammermann, 2020; Wang et al., 2024). On the other hand, institutional support refers to the provision of various resources and aids that some students may lack which can hinder their academic success (Bahaw et al., 2025). These can take several forms, such as funding aid, access to information and communication technologies (ICT), campus accessibility, and business mentorship (Gonzalez-Tamayo et al., 2024).

Drawing on Tinto's theory of student retention, an inclusive educational environment plays a crucial role in a student's ability to persist (Tinto, 2017). Persistence of effort is a personal quality that can enhance student retention when high or contribute to dropout rates when low (Tinto, 2017). Interestingly, this same quality—persistence of effort—is also critical to entrepreneurial success (Boss et al., 2023). According to Duckworth's entrepreneurial grit theory, individuals with high persistence are more likely to be resilient, enabling them to overcome the uncertainties and instabilities that come with entrepreneurial careers (Duckworth et al., 2007). This personality attribute, therefore, holds significance in both the education sector and entrepreneurship research. Despite its relevance, to the best of our knowledge, persistence of effort continues to be studied separately within these disciplines. There has yet to be an attempt to investigate how inclusive educational interventions can support persistence of effort—not just in terms of preventing student dropouts, but also in fostering entrepreneurial intentions, an outcome that is particularly sought after among disadvantaged TVET students (Bahaw et al., 2024; Cedefop, 2023).

Accordingly, the purpose of this study is to examine how inclusive teaching practices and key support systems (such as financial aid, campus access, ICT support, and business mentorship) influence the entrepreneurial intentions of disadvantaged TVET students, with a focus on the mediating role of persistence of effort. Based on Tinto's theory of student retention and Duckworth's theory of entrepreneurial grit, this study aims to answer the following research questions:

RQ1: How do inclusive teaching and institutional support enhance persistence of effort among disadvantaged TVET students?

RQ2: How does students' persistence, fostered by inclusive teaching and institutional support, shape their entrepreneurial intentions?

By answering these research questions, this research contributes to the literature in several ways. First, it integrates two theoretical frameworks—Tinto's theory of student retention and the Duckworth's theory of grit—to offer new insights into how entrepreneurial intentions are shaped by inclusive education and persistence. Second, while most research on entrepreneurial intentions focuses on university students, this study addresses the unique needs of TVET students, answering recent calls for research on non-university populations (Bahaw et al., 2025). Third, by situating the study in a developing nation, this research offers valuable insights for educational administrators within an understudied context, emphasizing the importance of inclusive practices and targeted support for disadvantaged students. The results of this study have the potential to inform policy on resource allocation and pedagogical strategies in TVET institutions. Finally, this study highlights the need for a holistic approach in TVET education—one that not only imparts technical/entrepreneurship skills but also fosters the psychological and environmental conditions necessary for shaping career-related outcomes.

2 Literature Review

This chapter examines how inclusive teaching practices and institutional support influence entrepreneurial intentions among disadvantaged TVET students. It reviews key studies on educational and institutional support, highlighting their role in fostering persistence of effort. The discussion also introduces Tinto's Student Retention Theory and Duckworth's Grit Theory as guiding frameworks, leading to the development of hypotheses and the study's conceptual framework.

2.1 Educational Support and Entrepreneurship Intentions

Entrepreneurship is critical to many governments' policies because it has been seen as vital in promoting economic and social prosperity (Mack & Honig, 2024). This has resulted in many higher education institutions, including TVET schools (Bahaw et al., 2024), incorporating entrepreneurship education (EE) as part of their curricula (Decker-Lange et al., 2020) and strategic goals (Guerrero et al., 2017). However, while many institutions may have a plethora of EE within the curriculum, the enrollment for entrepreneurship in the student population still needs to improve (Liu et al., 2022). Institutions need to provide the appropriate support

for students to succeed, which can be a pivotal instrument in strengthening and promoting entrepreneurial intentions (Liu et al., 2022). Because EI is a first step and a crucial precursor to entrepreneurship behavior (Liñán & Chen, 2009). Person-Fit (PE) theory postulates that people like to be provided with an environment where they can thrive; they prefer consistency and control over their lives to reduce uncertainty, and this enabling environment is vital to their success (van Vianen, 2018). Scholars (Chhabara et al., 2022; Hsu et al., 2019) have argued that PE fit provides a positive outlook for entrepreneurs and is known to build entrepreneurial capacity as there is a positive correlation between their characteristics and their external environments. Thus, providing educational support for TVET students is crucial. TVET educators see it as imperative to adapt their pedagogical practices, which center on student-centred teaching approaches, to develop their students' critical thinking and independent problem-solving skills (Okolie et al., 2021), which are vital antecedents in the development of EI (Mack et al., 2024).

2.2 Institutional Support

As it relates to educational institutions, the term "institutional support" has been used to describe various pedagogical and non-pedagogical aspects of the educational experience which shape student learning outcomes (Tinto, 2010). Academic support includes orientation programs, access to institutional facilities such as library services and computer labs, the learning environment (inclusive of class size and teacher to student ratio), flexible curriculum design and learning options, and classroom-based support like supplemental instruction and corequisite remediation (Aina et al., 2022; Al Hassani & Wilkins, 2022; Tinto, 2017). Institutional support also covers financial aspects related to tuition fees and financial aid—namely stipends, scholarships and grants; likewise, it encompasses co-curricular offerings—for example, clubs, campus groups, and sporting activities—and social support services like counselling and mentorship offerings. Al Hassani and Wilkins (2022) also identify living accommodations, careers services, cafeteria/catering services, and others, as important areas in which educational institutions may offer support to their students.

Overall, the provision of institutional support is an essential factor in student persistence and retention (Carroll et al., 2009), as well as academic success (Bueno, 2023). Interestingly, institutional support has also been identified as a key predictor of EI (Shahzad et al., 2021). However, given the extensive nature of institutional support, it is not practical to evaluate the impact of all these factors within the scope of the present study. Thus, we center our attention on the financial and social aspects which are especially vital for persistence of effort among disadvantaged students (Al Hassani & Wilkins, 2022; Tinto, 2017). We also focus on ICT support and campus location (location support). Though seemingly less relevant, the final two forms of institutional support are also critical for persistence of effort among disadvantaged

youth. Disadvantaged individuals characteristically reside in low-income, marginalized communities with limited access to material and social resources (Antipova, 2021). In the absence of higher family incomes, access to ICT, which is shown to be a critical learning tool (Cross & Atinde, 2015), remains elusive. Additionally, disadvantaged individuals are more vulnerable to spatial segregation which results in social exclusion; this inextricably hinders their ability to forge meaningful relationships within the wider society (Méreiné-Berki et al., 2021), thus minimizing their access to role models and mentorship opportunities (Antipova, 2021). Given that many disadvantaged students reside in rural communities, where there is often less access to services and facilities—including those related to education—expensive transportation costs to educational institutions located in more urban areas place an added burden on underprivileged students with limited financial resources.

Financial constraints, coupled with the realities of digital and social exclusion, as well as social segregation, necessitate a holistic approach to counteract the inequities faced by disadvantaged youths. Thus, the provision of financial aid in the form of stipends, ICT support to enhance learning outcomes in the present digital era, mentorship opportunities, and proximate study locations are all critical for mitigating these challenges among vulnerable students. While past studies have explored the impact of these support mechanisms on student outcomes, including persistence, Tinto (2010) observed the tendency to examine them independently of each other. Almost two decades later, the authors of this paper make similar observations. Given the need for a more comprehensive approach for examining the impact of institutional support on student persistence, we subsume the following four variables under a single broader variable which we refer to as "*Institutional Support*": Financial support, location support, ICT support, and business mentorship support. Together, these four variables allude to the comprehensiveness of our approach, as they align with the concepts of material (financial and ICT support), spatial (location support) and personnel (mentorship support) resources which Schwab et al. (2020) identify as necessary for providing institutional support which is adequate and all-encompassing.

2.3 Theoretical Framework

This section presents the theoretical foundations that underpin the study, highlighting how established models explain the relationship between educational support, student persistence, and the development of entrepreneurial intentions.

Student Retention Theory

Interactionist theory, a model of student retention developed by Vincent Tinto in 1975, is widely adopted by educators and policymakers working to improve student success. The theory has helped shape understanding of student retention and dropout (Samoila & Vrabie, 2023). Tinto's theory posits that students' decisions to persist or drop out of education and in

turn their goal commitment depend on the cumulative impact of their academic and social integration (Tinto, 2017). Thus, if a student wanting to become an entrepreneur sees how institutional actions support their goals, they are more likely to persist, especially if they feel valued (Dakung et al., 2022). According to Tinto (2017), students who feel supported by their institution—both academically and socially—are more likely to remain engaged and persist through challenges. This is especially important for specific groups of students, such as those who are academically underprepared or underserved (Samoila & Vrabie, 2023; Tinto, 2017). In this regard, inclusive teaching practices shape students' persistence (Okolie et al., 2021; Samoila & Vrabie, 2023). Moreover, students who feel isolated or excluded are less connected to their peers and more likely to drop out (Tinto, 2017). Institutional support in the form of resources enhances academic integration, while providing students with social support, such as mentorship, fosters a sense of connection and belonging. Both inclusive teaching practices and the provision of educational resources play a vital role in academic and social integration of students (Tinto, 2017). Thus, institutional support is paramount in students' persistence, particularly for those with entrepreneurial ambitions (Dakung et al., 2022).

Grit Theory

Complementing Tinto's theory, we draw on Angela Duckworth's Grit Theory (2007), which highlights the critical role of perseverance of effort and consistency of interest in achieving long-term goals, such as starting a new venture (Butz et al., 2018). Entrepreneurial persistence, which is the ability to continue entrepreneurial activities despite adversity is a defining characteristic of successful founders, setting them apart from those who abandon their efforts too quickly (Locke & Baum, 2007). Persistent entrepreneurs often embody the mindset captured by phrases like "never give up" or "keep trying" (Boss et al., 2023). The environment plays a significant role in fostering entrepreneurial persistence and tenacity. Key factors include resource availability, favorable institutional environments, and supportive policies, all of which contribute to the resilience of entrepreneurial actors (Locke & Baum, 2007; Yan et al., 2023). Grit, defined as perseverance and passion for achieving long-term objectives, is integral to the entrepreneurial process and closely tied to personality traits associated with entrepreneurial intentions (Duckworth et al., 2007). Prior research highlights a significant positive relationship between grit and entrepreneurial career success, emphasizing its importance as a predictor of entrepreneurial outcomes (Boss et al., 2023; Espiritu-Olmos & Sastre-Castillo, 2015). Duckworth et al. (2007) also identified mediational relationships involving deliberate practice, grit, and performance, with other researchers, such as Ahsan et al. (2021), noting similar mediating effects of perceived institutional support on small venture performance. In the educational context, studies reveal that higher grit scores are associated with better academic outcomes, such as higher GPAs, further underscoring grit's significance in achieving long-term success (Butz et al., 2018; Duckworth et al., 2007). Educators, therefore,

play a pivotal role in fostering grit among students, instilling ambition and resilience to achieve entrepreneurial intentions despite adversity or setbacks (Butz et al., 2018).

From the above, the two theories offer us a dual lens to examine not only how students' perseverance is enhanced through inclusive and supportive education but also how this perseverance translates into entrepreneurial intentions.

2.4 Hypothesis Development

This section builds on the theoretical foundations to propose testable hypotheses that explain how inclusive teaching practices, institutional support, and persistence of effort interact to influence entrepreneurial intentions among disadvantaged TVET students.

Inclusive Teaching and Institutional Support Mechanisms Affecting Persistence of Effort

The provision of institutional support and inclusive teaching through appropriate channels enhances student learning and propels their persistence of effort (Tinto, 1997). Institutional action has been a critical factor in student retention, but students seek more than being retained; they want to persist (Tinto, 2017). Persistence is a form of motivation, as seen from the students' perspective (Bandura, 1989). Students' motivation emanates from their interaction with other students and peers, a sense of belonging, and a relevant inclusive curriculum, all of which contribute to persistence of effort (Tinto, 2017). Funding institutions are crucial in the growth of human capital development (Mack, 2024) as it combats some of the resource barriers many face (Schwab et al., 2020). Additionally, including financial support for students via a government stipend in TVET programs has been known to be an effective agent in assisting the economic and social well-being of many students, especially those from low socioeconomic backgrounds, and which was a contributor to the persistence of effort to remain in the programs that will enable them to learn a trade for their livelihood (Bahaw et al., 2024; Mack & White, 2019). Research has shown that an absence of ICT support, inadequate infrastructure and a lack of support services, which results from inadequate staff to manage the various services at campuses and colleges, impacts the institutions' ability to render quality service that can promote academic achievement and success among their student population (Badroodien & Garisch, 2024). A lack of carer guidance and academic and psycho-social support impedes students' persistence and progress through their academic journey (Khumalo & Makibinyane, 2021). Social capital has been known to be an effective agent of business mentorship for nascent and experienced entrepreneurs, laying an essential foundation for the persistence of their efforts that would lead to entrepreneurial success (Davidsson & Honig, 2003; Gedajlovic et al., 2013). On this basis, we put forward the following hypotheses:

*H*¹: Inclusive Teaching Practices is positively associated with persistence of effort.

*H*²: Institutional support—comprising financial aid, accessible locations, mentorship, and ICT resources—is positively associated with persistence of effort.

Persistence of Effort and Entrepreneurial Intentions

Entrepreneurship has been touted as a critical economic player and a driver for innovation and social progress (Caliendo et al., 2019). Nevertheless, for individuals to realize the economic or social prosperity that entrepreneurship brings, they must persist with their venture, which may be difficult in our modern competitive business environment (Patel & Thatcher, 2014). Persistence of effort has been a critical factor in success and has been seen as an instrumental factor in establishing entrepreneurial outcomes. Additionally, persistence of effort has been known to be strongly associated with entrepreneurial intentions (EI) (Butz et al., 2018). Entrepreneurs are visionaries, as their visualization and persistent efforts are crucial in sustaining their venture in its most early vulnerable years, which is an essential factor for EI (Bird, 1988). Persons who possess high entrepreneurial self-efficacy (ESE) (that is, the belief that one possesses the skill to be an entrepreneur (McGee et al., 2009) have been known to absorb their efforts and show more persistence even when faced with challenges and difficulties, and setbacks; moreover, students with high ESE possess stronger EI than students with lower ESE levels (Chen et al., 1998). Students with a high persistence of effort tend to have prominent or successful entrepreneurial careers, indicating a positive relationship between EI and persistence of effort (Urban & Pendame, 2016). According to Butz et al. (2018), persons who are grittier, thereby possessing high levels of persistence of effort, can survive in the present business environment, which carries fierce and demanding competition. We put forward the following hypothesis based on the above discussions.

*H*³: Persistence of effort is positively related to entrepreneurial intentions.

Persistence of Effort as a Mediator

Persistence of effort and other personality traits are antecedents of EI (Butz et al., 2018). The ability to persist or stay for the long haul can contribute to why students continue their education despite challenges (Schwab et al., 2020; Tinto, 2017). Similarly, entrepreneurs also display a unique ability to persevere, another manifestation of persistence that contributes to why some succeed over others (Butz et al., 2018). Boss et al. (2023) document a significant positive relationship between grit and entrepreneurial career success. Duckworth et al. (2007) identified mediational relationships involving deliberate practice, grit, and performance. The entrepreneurship literature has reported several contributing factors that predicate the EI of students, and several studies showed that educational support, personality traits, and family support affect the EI of students (Uddin et al., 2022). Offering postsecondary students' education by incorporating inclusive teaching practices helps create and develop EI (Reuel

Johnmark et al., 2016). When educators apply exemplary teaching strategies to students, it positively affects their student's EI and, eventually, entrepreneurial actions (Gielnik et al., 2015). It is imperative that institutions have the proper infrastructure and adequate funding to support the training of students because having the proper physical infrastructure is needed to create a supportive institutional system that helps students to thrive and persist through their studies, thus enabling them to contribute to the economy by becoming entrepreneurs (Mack, 2024). Providing students with adequate ICT support can provide them with the right skills to help their educational journey (Badroodien & Garisch, 2024), allowing them to gain skills for industry and venture creation (Mack et al., 2024). When students receive support from their families, this is crucial in their development as entrepreneurs because it aids in developing EI (Chlosta et al., 2012). Family provides a sense of optimism, which students would need as they attempt to pursue their entrepreneurial journey (Dempsey & Jennings, 2014) because this optimism works as persistence, which is a form of motivation (Bandura, 1989) which will lead to persistence of effort (Tinto, 2017). We therefore hypothesize that:

H⁴: Inclusive teaching practices significantly influence entrepreneurial intentions through the mediation of persistence of effort.

H⁵: Institutional support—comprising financial aid, accessible locations, mentorship, and ICT resources—significantly influences entrepreneurial intentions through the mediation of persistence of effort.

Given the theoretical constructs and proposed relationships, figure 1 depicts the conceptual framework that guides this study.

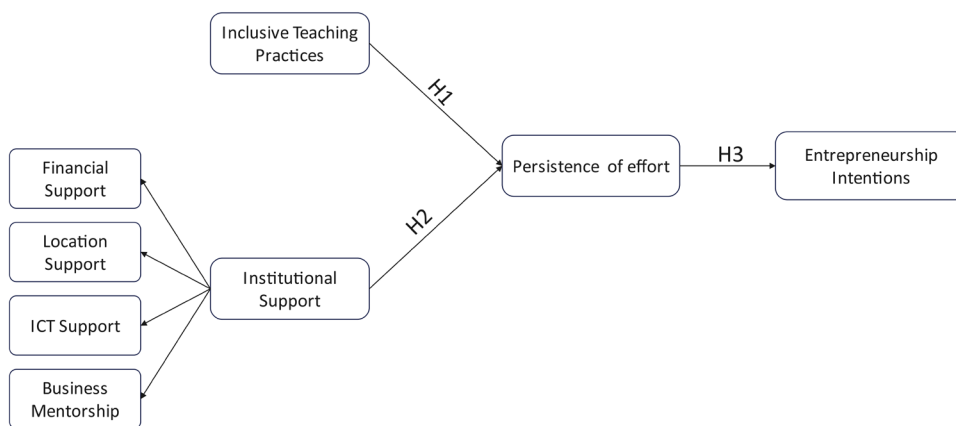


Figure 1: Conceptual Framework

3 Methods

This section outlines the methodological procedures undertaken to achieve the study's objectives and ensure the reliability of its findings.

A well-chosen research design is critical for ensuring the validity, reproducibility, and accuracy of findings (Kline, 2023). In line with the study's objectives, an exploratory quantitative research design with a cross-sectional survey approach was adopted. This design is particularly well-suited, as it provides a means of estimating potential associations (Kline, 2023) among inclusive teaching, institutional support, persistence of effort, and entrepreneurial intentions within a single point in time.

3.1 Setting, Participants and Sampling Procedure

Trinidad and Tobago (T&T) offers a compelling context for this investigation. As a developing nation in the Caribbean, this twin-island republic provides distinct entrepreneurial opportunities, with industrial innovation in Trinidad and tourism entrepreneurship in Tobago. Uniquely, T&T is the only Caribbean nation to offer government-funded tuition across all levels of education, from primary to tertiary and including TVET programs. This commitment to educational access underscores the government's broader efforts to foster entrepreneurship and enhance the impact of education on entrepreneurial intentions.

Our population of focus were disadvantaged TVET students who were exposed to inclusive education and institutional resources support. A priori, a sample size of 375 was determined using Krejcie and Morgan's (1970) guidelines. To account for potential non-response, the sample was increased to 475. After data cleaning, 393 usable responses were retained, exceeding the minimum sample size recommended for structural equation modeling by Kline (2023) and Hair et al. (2019).

3.2 Materials

Our instrument comprised of validated scales from the published academic sources. The dependent variable, Entrepreneurial Intentions (EI), was measured using Liñán and Chen (2009) EI scale consisting of six items (with sample item: "*I will make every effort to start and run my own firm*"). The mediating variable, Persistence of Effort, was measured using Duckworth et al.'s (2007) four-item scale (e.g., "*I finish whatever I begin*"). The independent variables were inclusive teaching practices and institutional support. Inclusive teaching practices was measured with Schwab et al.'s (2020) 16-item scale (with sample item: "*My teacher varies learning activities to promote different learning styles*"). Institutional support was adapted from Goldan and Schwab's (2018) Perception of Resources Scale using 12 items under the

constructs physical/material support, spatial resources support and personnel support (with sample items: "*The financial aid provided has eased financial burden, allowing me to focus on my learning*"; "*There are sufficient computers with internet available for student use*"). Responses were captured on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). For face validity, an expert was consulted to review the first draft of the instrument. We conducted a pilot study involving 128 students to assess question clarity and estimate completion time. Based on the results, minor revisions were made to the instrument prior to its final administration. From the pilot study, exploratory factor analysis of the institutional support scale confirmed a clear four-factor structure (financial support, ICT support, location support, and business mentorship), supporting its adoption for the study.

3.3 Recruitment and Data Collection Procedures

After obtaining ethical approval from the corresponding author's university, the following data collection procedures ensued. There are three official TVET institutions in T&T. First, prior to data collection, heads of each TVET institution were contacted via email and sent a formal invitation letter requesting participation (pending eligibility) and granting access to students. Once initial permission was granted, directors from these institutions were interviewed to assess the institutes' eligibility where they were asked about their student profiles and types of institutional support provided, including financial aid, accessible locations, computer and internet access, and business mentorship. This is to ensure that data was collected from appropriate TVET institutions that aligned to the purpose of the study. However, based on our inclusion criteria (i.e., students from disadvantaged socioeconomic backgrounds attending an institute offering resource support, and inclusive teaching), only one institution was eligible for data to be collected from, with a sample of 2,699 students. Written permission from the TVET institution was then provided to the research team with contact information for the administrators. Arrangements were then made with program administrators to schedule data collection sessions in the classroom.

To minimize bias, a simple random sampling technique was applied (Kline, 2023). Based on the registration list and with assistance from the administrators, student names were input into a random draw software, and names were selected accordingly. Administrators then contacted the selected students to obtain permission. If a student declined, another draw was conducted until the target sample size was achieved.

Data collection was scheduled during the last two weeks of the course to ensure that students had sufficient exposure to the program. Administering the survey earlier would have been premature, as students may not have had adequate experience with the teaching approaches or access to institutional support. The data collection period took

place over two weeks due to the multiple campus locations throughout the country. During each session, students who expressed interest were asked to remain in the classroom while others were dismissed to facilitate the data collection process.

Upon data collection, the researchers introduced themselves to the students, explained the purpose of the study, and distributed a printed copy of the survey for perusal. Students who agreed to participate were asked to sign the printed consent forms before completing the questionnaire. Afterward, the researchers exited the classroom, returning only after instructors had collected all completed surveys to ensure independent responses. Completing the questionnaire took approximately 15–20 minutes.

3.4 Ethical Considerations

As stated earlier, ethical approval was obtained from the corresponding author's university. After expert review for face validity and institutional consent, printed questionnaires were administered, with completed surveys and consent forms securely stored. Data were entered into password-protected files, and confidentiality was maintained, with results reported in aggregate.

3.5 Data Analysis

The present study employed a two-stage structural equation modeling (SEM) approach using Mplus 8.3 with maximum likelihood estimation to address the research questions. Prior to model testing, data were screened for potential violations of normality and other assumptions. In the first stage, a measurement model was estimated through confirmatory factor analysis (CFA) to establish construct validity and reliability. Model fit was evaluated using multiple indices (e.g., Comparative Fit Index (CFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR), while composite reliability (CR), average variance extracted (AVE), and the Fornell–Larcker criterion were applied to assess convergent and discriminant validity. In the second stage, the structural model was specified to test the hypothesized relationships among inclusive teaching, institutional support, persistence of effort, and entrepreneurial intentions, including the mediating role of persistence of effort.

4 Results

This section presents the results of the study in line with the two research questions: RQ1 examined how inclusive teaching and institutional support enhance persistence of effort among disadvantaged TVET students, while RQ2 explored how persistence, fostered by these factors, shapes students' entrepreneurial intentions.

4.1 Structural Equation Modeling (SEM)

Before conducting SEM, skewness and kurtosis were calculated to establish the univariate normality of the observed variables. The results indicated that all variables had skewness and kurtosis values in the acceptable range of $[-3, 3]$ and $[-8, 8]$, respectively (Kline, 2023); therefore, univariate normality is assumed.

After establishing univariate normality, two staged structural equation modeling approach suggested by Anderson and Gerbing (1988) using Mplus 8.3 with maximum likelihood (ML) estimation was used to assess the hypothesized model for goodness of fit, reliability, and validity, and path analysis.

Measurement Models

The first stage comprised confirmatory factor analysis to test the measurement properties of the observed variables against their respective latent constructs. Since the study has a second-order latent construct, i.e., institutional support, both zero-order and second-order measurement models were analyzed separately. The goodness of fit, reliability, and validity were tested against standard cut-off criteria given by Hu and Bentler (1999). According to Hu and Bentler (1999), a measurement model has an acceptable model fit if chi-square divided by degrees of freedom (χ^2/df) < 3 , CFI $> .90$, TLI $> .90$, RMSEA $< .08$, and SRMR $< .08$.

Table 1: Model Fit Indices of Zero-Order and Second-Order Measurement Models

| <i>Models</i> | <i>χ^2/df</i> | <i>CFI</i> | <i>TLI</i> | <i>RMSEA</i> | <i>SRMR</i> |
|---------------|-------------------------------|------------|------------|--------------|-------------|
| Zero-order | 2.524 | .922 | .914 | .062 | .041 |
| 2nd-order | 2.515 | .921 | .915 | .062 | .044 |

The results given in Table 1 indicate that both zero-order and second-order measurement models received acceptable model fit. The reliability of the constructs is assessed by factor loadings of observed variables against respective latent variables and composite reliability (CR). The recommended threshold for factor loadings is .5, and the CR value should be greater than .7 for high reliability (Hair et al., 2019; Sarstedt et al., 2021).

Table 2: Reliability, Convergent Validity, and Discriminant Validity of Zero-Order Constructs

| | CR | AVE | ITP | FS | ICTS | LS | BM | PS | EI |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| ITP | 0.957 | 0.616 | 0.785 | | | | | | |
| FS | 0.802 | 0.576 | 0.374 | 0.759 | | | | | |
| ICTS | 0.894 | 0.740 | 0.303 | 0.587 | 0.860 | | | | |
| LS | 0.872 | 0.696 | 0.282 | 0.495 | 0.585 | 0.834 | | | |
| BM | 0.833 | 0.625 | 0.400 | 0.686 | 0.619 | 0.724 | 0.791 | | |
| PS | 0.927 | 0.760 | 0.568 | 0.352 | 0.342 | 0.292 | 0.411 | 0.872 | |
| EI | 0.937 | 0.714 | 0.372 | 0.194 | 0.196 | 0.216 | 0.278 | 0.615 | 0.845 |

Note. ITP = Inclusive teaching practices, FS = Financial support, ICTS = ICT support, LS = Location support, BM = Business mentors, PS = Persistence of effort, EI = Entrepreneurship intentions.

The results indicated that factor loadings in both models exceeded the threshold value of .5. Moreover, the results in Table 2 and Table 3 indicate that all zero-order and second-order variables expressed high CR values (greater than .7), thus reflecting high reliability.

Table 3: Reliability, Convergent Validity, and Discriminant Validity of Second-Order Constructs

| | CR | AVE | ITP | PS | EI | IS |
|-----|-------|-------|-------|-------|-------|-------|
| ITP | 0.957 | 0.616 | 0.785 | | | |
| PS | 0.927 | 0.760 | 0.568 | 0.872 | | |
| EI | 0.937 | 0.714 | 0.372 | 0.615 | 0.845 | |
| IS | 0.868 | 0.624 | 0.430 | 0.443 | 0.287 | 0.790 |

Note. IS = Institutional support.

Lastly, the validity of the construct is formed by convergent validity and discriminant validity. Convergent validity is assessed by average variance extracted (AVE), and it should be greater than .5 for each latent construct to achieve convergent validity (Hu & Bentler, 1999). Discriminant validity is assessed by the Fornell-Larcker criterion, which states that each construct should have a square root of AVE value greater than the construct's highest correlation with other latent constructs (Fornell & Larcker, 1981). Tables 2 and 3 provide reliability, convergent validity, and discriminant validity results of zero-order and -second-order constructs. These results indicate that the constructs have no validity issues; hence, the structural analysis can be conducted.

4.2 Structural Model

After establishing the validity and reliability of the latent constructs, structural equation modeling was used to test the proposed hypothesis. The structural model, as shown in Figure 2, received an acceptable fit ($X^2/df < 2.507$, CFI $> .921$, TLI $> .915$, RMSEA $< .062$, and SRMR $< .044$).

Table 4: Results of Hypothesis Testing

| Hypothesis | Relationships | Path coefficients (β) | t-value | Results |
|------------|-----------------|-------------------------------|---------|-----------|
| H1 | ITP -> PS | .464*** | 10.124 | Supported |
| H2 | IS -> PS | .244*** | 4.686 | Supported |
| H3 | PS -> EI | .617*** | 17.706 | Supported |
| H4 | ITP -> PS -> EI | .286*** | 8.486 | Supported |
| H5 | IS -> PS -> EI | .151*** | 4.497 | Supported |

Note. *** = $p < .001$

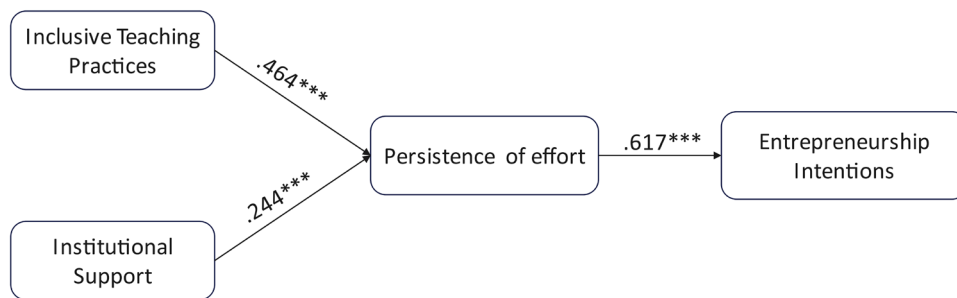


Figure 2: Structural Model

All proposed hypotheses were supported (Table 4). Inclusive teaching practices and institutional support have a positive and significant impact on the persistence of effort ($\beta = .464$, $p < .000$; $\beta = .244$, $p < .000$), while Persistence of effort has a positive and significant effect on entrepreneurship intentions ($\beta = .617$, $p < .000$). The mediation analysis showed that persistence of effort has a significant mediation role in the relationship between inclusive teaching practices, institutional support, and entrepreneurship intentions. The indirect effect of inclusive teaching practices on entrepreneurship intentions through persistence of effort is positive and significant ($\beta = .286$, $p < .000$). Moreover, the indirect impact of institutional support on entrepreneurship intentions through persistence of effort is also positive and significant ($\beta = .151$, $p < .000$).

5 Discussion

Having presented the results of the analysis, this section now turns to their interpretation and broader implications within the context of existing literature and theoretical frameworks.

Entrepreneurship is a key driver of creativity and economic growth (Bahaw et al., 2024); hence, it is essential to understand the factors that formulate entrepreneurship intentions among students. The present study undergirded in the framework of Tinto's theory of student retention (Tinto, 2017) and Duckworth's theory of grit (Duckworth, 2007) aimed to understand the impact of inclusive teaching practices and institutional support on students' persistence of effort of TVET students which in turn impact their entrepreneurial intentions. Our results show that both factors positively influence the persistence of effort, supporting our first two hypotheses.

The results of the present study show that inclusive teaching practices and institutional support positively and significantly impact students' persistence. These results corroborate Tinto's theory (2017), which postulates that students are more likely to be persistent in their efforts when they feel valued and included. When teachers use inclusive students-centered methods, such as encouraging problem-solving, grouping strategies, and considering personal motivations and interests, students become more engaged in learning (Okolie et al., 2021), and this active participation builds persistence needed for entrepreneurship (Mack et al., 2024). Moreover, research has shown that students are more likely to persist when they feel connected to their peers and supported by their learning environment (Samoila & Vrabie, 2023; Tinto, 2017). These practices are an essential part of inclusive teaching. Therefore, inclusive teaching practices have a crucial role in helping students persist in becoming entrepreneurs.

Additionally, the present study supports the idea that along with inclusive teaching, institutional support is also essential for the persistence of effort. Institutional support like financial aid, mentorship, and access to ICT resources can better equip students to continue their efforts and develop skills needed for entrepreneurship (Mack, 2024). These results resonate with the literature on institutional support and students' success. Financial support, especially for students from low-income backgrounds, reduces stress and helps them focus on their studies (Mack & White, 2019). Similarly, mentorship provides the guidance necessary for students to mitigate challenges and build confidence (Dakung et al., 2022). However, a lack of institutional support, such as poor ICT infrastructure, limited career guidance, and inadequate academic resources, can make it harder for students to persist (Badroodien & Garisch, 2024; (Khumalo & Makibinyane, 2021). Thus, as empirically validated by the study, institutional support is necessary to build persistence among students in engaging in entrepreneurial activities.

The study's results reveal a positive and significant impact of persistent effort on the entrepreneurship intentions of TVET students. These results align with Bird's (1988) idea that entrepreneurship requires individuals to remain committed and resilient despite the challenges, as success often depends on their ability to persist through these challenges. Prior studies also show that individuals with high entrepreneurial self-efficacy remain focused on their goals and pursue entrepreneurial careers (McGee et al., 2009). Moreover, individuals with high grit and determination thrive more in competitive business environments (Butz et al., 2018). Our results reinforce these by showing that students who are persistent in their efforts have high intentions to become entrepreneurs.

The present study also explored the mediating role of persistence of effort. The results indicated that persistence of effort has a significant and positive mediating role in the relationship between inclusive teaching practices and entrepreneurial intentions (Hypothesis 4). The mediating results of the present study are novel; however, prior studies explain that inclusive teaching practices harness students' persistence of effort (Samoila & Vrabie, 2023; Tinto, 2017), and persistence of efforts is an important antecedent of entrepreneurial intention (Butz et al., 2018). Therefore, providing inclusive teaching to TVET students enhances their persistence, which eventually boosts their intentions to become entrepreneurs. Additionally, the results are consistent with the idea that inclusive teaching helps students build confidence and develop essential entrepreneurial skills, ultimately strengthening their entrepreneurial intentions (Okolie et al., 2021).

Lastly, the study results revealed that persistence of effort mediates the relationship between institutional support and entrepreneurship intentions (Hypothesis 5). Contemporary literature highlights that students who receive financial and academic support persist more in their studies and develop the resilience necessary for entrepreneurship (Bahaw et al., 2024; Mack, 2024). Access to resources such as career guidance, business mentorship, and ICT tools can significantly enhance students' skills, making them more confident in pursuing entrepreneurial ventures (Badroodien & Garisch, 2024). In conclusion, these results underscore the importance of persistence in shaping entrepreneurial intentions.

5.1 Theoretical and Practical Implications

The present study has several theoretical and practical implications. Firstly, the study examines the role of persistence of effort as both a direct predictor and mediator between support mechanisms, i.e., institutional support and inclusive teaching practices, and TVET students' entrepreneurial intentions. The significant impact of institutional support and inclusive teaching practices on entrepreneurial intentions through persistence of effort extends the contemporary literature on entrepreneurial self-efficacy (McGee et al., 2009) and grit (Butz et al., 2018). The study confirms prior research suggesting persistence is a key determinant

of entrepreneurial success (Bird, 1988), and sustained effort is necessary for students to effectively manage the challenges of entrepreneurship. These results suggest the urgency of incorporating psychological traits such as persistence into the models of developing entrepreneurial intentions. Secondly, the study extends the concept of institutional support by taking it as a multifaceted construct comprising financial support, location support, ICT support, and business mentorship. This highlights different forms of institutional support that assist students in developing entrepreneurial intentions and skills.

This study advances both Tinto's theory of student retention and Duckworth's Grit Theory by demonstrating how institutional and pedagogical supports interact to strengthen persistence, which in turn drives entrepreneurial intentions. In line with Tinto, the results show that inclusive teaching practices contribute to academic integration by fostering engagement, belonging, and equitable participation in the classroom, while institutional resources such as financial aid, ICT support, and location access reduce barriers that often impede academic success. At the same time, mentorship and inclusive pedagogies enhance social integration, allowing students to feel valued, connected, and supported within their learning communities. Together, these forms of integration reinforce persistence of effort, validating Tinto's proposition that integration is central to students' commitment and goal pursuit. Extending this logic to entrepreneurship, the results also reinforce Duckworth's conceptualization of grit by showing that persistence operates as the key psychological underlying mechanism through which supportive environments translate into entrepreneurial intentions. By integrating these frameworks, the study highlights persistence as a cross-cutting construct that bridges educational retention and entrepreneurial outcomes, thus advancing both theories and underscoring the importance of examining environmental supports and psychological traits in tandem.

Additionally, the study has a few important practical implications to enhance the entrepreneurial intentions and skills of disadvantaged TVET students. Firstly, the study underscores that educational institutions, especially TVET institutes, need to create environments that can improve students' persistence and entrepreneurial intentions. By expanding institutional support such as financial aid, business mentorship programs, and ICT resources, institutes can equip students with the tools necessary for entrepreneurial efforts. The strong support mechanisms can help aspiring entrepreneurs develop the persistence needed in their business startups, ultimately contributing to economic growth. Secondly, instructors should integrate inclusive teaching practices during the instruction. Instructors can strengthen students' persistence and confidence in entrepreneurship by incorporating teaching practices that include entrepreneurship.

5.2 Limitations and Future Research

The present study has a few limitations that must be considered. Firstly, the concept of institutional support is multifaceted. While the present study considered several aspects of institutional support, such as financial, location, mentorship, and ICT support, other critical factors, such as economic conditions, internship opportunities, and industry-specific support, were not considered. Future research is recommended to adopt a more comprehensive support framework to test its impact on students' entrepreneurship intentions. Secondly, the study employed an exploratory cross-sectional design to explore the study's objectives, which limits the causality of the predictors. A longitudinal design can provide deeper insights into how different support mechanisms impact students' persistence of effort and entrepreneurship intentions over time.

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Ethics Statement

The authors have obtained ethics committee approval to ensure that participants' dignity, integrity, and welfare are protected, and that their safety is prioritized. This approval also guarantees that all participants are treated respectfully and fairly. Furthermore, the authors confirm that there are no known conflicts of interest related to this publication.

References

- Abbes, I. (2024). Shaping entrepreneurial intentions through education: An empirical study. *Sustainability*, 16(22), 1–19. <https://doi.org/10.3390/su162210070>
- Aina, C., Baici, E., Casalone, G., & Pastore, F. (2022). The determinants of university dropout: A review of the socio-economic literature. *Socio-Economic Planning Sciences*, 79(101102). <https://doi.org/10.1016/j.seps.2021.101102>
- Al Hassani, A. A., & Wilkins, S. (2022). Student retention in higher education: The influences of organizational identification and institution reputation on student satisfaction and behaviors. *International Journal of Educational Management*, 36(6), 1046–1064.

- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423. <http://doi.org/10.1037/0033-2909.103.3.411>
- Antipova, A. (2021). Analysis of the COVID-19 impacts on employment and unemployment across the multi-dimensional social disadvantaged areas. *Social Sciences & Humanities Open*, 4(1), 1–11. <https://doi.org/10.1016/j.ssaho.2021.100224>
- Ahsan, M., Adomako, S., & Mole, K. F. (2021). Perceived institutional support and small venture performance: The mediating role of entrepreneurial persistence. *International Small Business Journal: Researching Entrepreneurship*, 39(1), 18–39. <https://doi.org/10.1177/0266242620943194>
- Badroodien, A., & Garisch, C. (2024). *Why do students drop out of TVET colleges and what would contribute towards their retention? Report produced under the five-year research programme on technical and vocational education and training (TVET)*. Department of Higher Education and Training (DHET) and National Skills Fund (NSF). <https://www.dhet.gov.za/ResearchNew/TVET%20Research%20Programme/Why%20Do%20Students%20Drop%20Out%20of%20TVET%20Colleges%20and%20What%20Would%20Contributes%20Towards%20Their%20Retention.pdf>
- Bahaw, P., Baboolal, A., Mack, A. J., & Carter-Rogers, K. (2024). Exposure to entrepreneurship education interventions reveal improvements to vocational entrepreneurial intent: A two-wave longitudinal study. *Discover Education*, 3, 145. <https://doi.org/10.1007/s44217-024-00241-4>
- Bahaw, P., Mack, A., Sadiq, G., & Stephens, A. (2025). Resource-rich and inclusive vocational education: Driving entrepreneurial intentions in disadvantaged student populations. In E. Quintana-Murci, F. Salvà-Mut, B. E. Stalder, & C. Nägele (Eds.), *Towards inclusive and egalitarian vocational education and training: Key challenges and strategies from a holistic and multi-contextual approach. Proceedings of the 6th Crossing Boundaries Conference in Vocational Education and Training, Palma, Mallorca, Spain, 21 to 23 May 2025* (pp. 18–27). VETNET. <https://doi.org/10.5281/zenodo.15364022>
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44(9), 1175–1184. <https://doi.org/10.1037//0003-066x.44.9.1175>
- Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *The Academy of Management Review*, 13(3), 442–453. <https://doi.org/10.2307/258091>
- Boss, A. D., Yan, J., & Reger, R. K. (2023). Keep on keeping on: A psychological approach to entrepreneurial persistence. *Journal of Business Venturing Insights*, 19, e00393. <https://doi.org/10.1016/j.jbvi.2023.e00393>
- Bueno, D. C. (2023). Enhancing graduate school experience: A comprehensive evaluation of student satisfaction with services and facilities. *Institutional Multidisciplinary Research and Development Journal*, 4, 1–22. <https://files.eric.ed.gov/fulltext/ED630176.pdf>
- Butz, N. T., Hanson, S., Schultz, P. L., & Warzynski, M. M. (2018). Beyond the big five: Does grit influence the entrepreneurial intent of university students in the US? *Journal of Global Entrepreneurship Research*, 8, 18. <https://doi.org/10.1186/s40497-018-0100-z>
- Caliendo, M., Goethner, M., & Weißenberger, M. (2019). Entrepreneurial persistence beyond survival: Measurement and determinants. *Journal of Small Business Management*, 58(3), 617–647. <https://doi.org/10.1080/00472778.2019.1666532>
- Carroll, D., Ng, E., & Birch, D. (2009). Retention and progression of postgraduate business students: An Australian perspective. *Open Learning: The Journal of Open, Distance and e-Learning*, 24(3), 197–209. <https://doi.org/10.1080/02680510903201599>

- Cedefop. (2023). *Entrepreneurship competence in vocational education and training: Case study: France*. Publications Office of the European Union. <http://data.europa.eu/doi/10.2801/499891>
- Chen, C. C., Greene, P. G., & Crick, A. (2022). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13(4), 295–316. [https://doi.org/10.1016/s0883-9026\(97\)00029-3](https://doi.org/10.1016/s0883-9026(97)00029-3)
- Chhabra, M., Singh, L. B., & Mehdi, S. A. (2022). Women entrepreneurs' success factors of Northern Indian community: A person–environment fit theory perspective. *Journal of Enterprising Communities: People and Places in the Global Economy*, 17(6), 1293–1314. <https://doi.org/10.1108/jec-04-2022-0059>
- Chlosta, S., Patzelt, H., Klein, S. B., & Dormann, C. (2012). Parental role models and the decision to become self-employed: The moderating effect of personality. *Small Business Economics*, 38(1), 121–138. <https://doi.org/10.1007/s11187-010-9270-y>
- Cross, M., & Atinde, V. (2015). The pedagogy of the marginalized: Understanding how historically disadvantaged students negotiate their epistemic access in a diverse university environment. *Review of Education, Pedagogy, and Cultural Studies*, 37(4), 308–325. <http://doi.org/10.1080/10714413.2015.1065617>
- Dakung, R. J., Bell, R., Orobias, L.A., & Yatu, L. (2022). Entrepreneurship education and the moderating role of inclusion in the entrepreneurial action of disabled students. *The International Journal of Management Education*, 20(3), 100715. <https://doi.org/10.1016/j.ijme.2022.100715>
- Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301–331. [https://doi.org/10.1016/S0883-9026\(02\)00097-6](https://doi.org/10.1016/S0883-9026(02)00097-6)
- Decker-Lange, C., Lange, K., Dhaliwal, S. & Walmsley, A. (2020). Exploring entrepreneurship education effectiveness at British universities – an application of the World Café method. *Entrepreneurship Education and Pedagogy*, 5(1), 113–136 <https://doi.org/10.1177/2515127420935391>
- Dempsey, D., & Jennings, J. (2014). Gender and entrepreneurial self-efficacy: A learning perspective. *International Journal of Gender and Entrepreneurship*, 6(1), 28–49. <https://doi.org/10.1108/ijge-02-2013-0013>
- Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101. <https://doi.org/10.1037/0022-3514.92.6.1087>
- Espiritu-Olmos, R., & Sastre-Castillo, M. A. (2015). Personality traits versus work values: Comparing psychological theories on entrepreneurial intention. *Journal of Business Research*, 68(7), 1595–1598. <https://doi.org/10.1016/j.jbusres.2015.02.001>
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18(3), 382–388. <https://doi.org/10.1177/002224378101800313>
- Gedajlovic, E., Honig, B., Moore, C. B., Payne, G. T. & Wright, M. (2013). Social capital and entrepreneurship: A schema and research agenda. *Entrepreneurship Theory and Practice*, 37(3), 455–478. <https://doi.org/10.1111/etap.12042>
- Gielnik, M. M., Frese, M., Kahara-Kawuki, A., Wasswa Katono, I., Kyejjusa, S., Ngoma, M., Munene, J., Namatovu-Dawa, R., Nansubuga, F., Orobias, L., Oyugi, J., Sejjaaka, S., Sserwanga, A., Walter, T., Bischoff, K. M., & Dlugosch, T. J. (2015). Action and action-regulation in entrepreneurship: Evaluating a student training for promoting entrepreneurship. *Academy of Management Learning and Education*, 14(1), 69–94. <https://doi.org/10.5465/amle.2012.0107>

- Goldan, J., & Schwab, S. (2018). Measuring students' and teachers' perceptions of resources in inclusive education – validation of a newly developed instrument. *International Journal of Inclusive Education*, 24(12), 1–14. <https://doi.org/10.1080/13603116.2018.1515270>
- Gonzalez-Tamayo, L. A., Olarewaju, A. D., Bonomo-Odizzio, A., & Krauss-Delorme, C. (2024). University student entrepreneurial intentions: The effects of perceived institutional support, parental role models, and entrepreneurial self-efficacy. *Journal of Small Business and Enterprise Development*, 31(8), 205–227. <https://doi.org/10.1108/jsbed-09-2022-0408>
- Guerrero, M., Urbano, D., Cunningham, J.A., & Gajón, E. (2017). Determinants of graduates' start-ups creation across a multi-campus entrepreneurial university: The case of Monterrey Institute of Technology and Higher Education. *Journal of Small Business Management*, 56(1), 150–178. <https://doi.org/10.1111/jsbm.12366>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning EMEA.
- Hsu, D. K., Burmeister-Lamp, K., Simmons, S. A., Foo, M.-D., Hong, M. C., & Pipes, J. D. (2019). I know I can, but I don't fit: Perceived fit, self-efficacy, and entrepreneurial intention. *Journal of Business Venturing*, 34(2), 311–326. <https://doi.org/10.1016/j.jbusvent.2018.08.004>
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <http://doi.org/10.1080/10705519909540118>
- Khumalo, S. S., & Makibinyane, J. M. (2021). Exploring factors that impede student support services and throughput rate: The case of TVET colleges in South Africa. *International Journal of Education Economics and Development*, 12(4), 397–411. <https://doi.org/10.1504/ijeed.2021.10040643>
- Kline, R.B. (2023). *Principles and practice of structural equation modeling*, 5th ed., The Guilford Press.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610. <https://doi.org/10.1177/001316447003000308>
- Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593–617. <https://doi.org/10.1111/j.1540-6520.2009.00318.x>
- Liu, M., Gorgievski, M. J., Qi, J., & Paas, F. (2022). Perceived university support and entrepreneurial intentions: Do different students benefit differently? *Studies in Educational Evaluation*, 73, 101150. <https://doi.org/10.1016/j.stueduc.2022.101150>
- Locke E., & Baum, R. (2007). Entrepreneurial motivation. In J. R. Baum., M. Frese & R. A. Baron, R.A. (Eds.), *The psychology of entrepreneurship* (pp. 93–112). Lawrence Erlbaum Associates Publishers.
- Mack, A., Carter-Rogers, K., Bahaw, P., & Stephens, A. (2024). Entrepreneurial knowledge and skill exposure in vocational education: Development of a new assessment scale, *Discover Education*, 3, 237. <https://doi.org/10.1007/s44217-024-00331-3>
- Mack, A., & Honig, B. (2024). Comparing factors influencing entrepreneurial self-efficacy between vocational and academic post-secondary students. *Entrepreneurship Education and Pedagogy*, 7(4), 494–528. <https://doi.org/10.1177/25151274231211555>
- Mack, A. J. (2024). Funding and its impact on the administration and organisational efficiency of technical vocational education and training institutions. *Discover Education*, 3, 221. <https://doi.org/10.1007/s44217-024-00305-5>

- Mack, A. J., & White, D. (2019). Challenges affecting technical vocational education and training in Trinidad and Tobago: Stakeholders' perspective. *Journal of Technical Education and Training*, 11(3), 136–143. <https://doi.org/10.30880/jtet.2019.11.03.016>
- Méreiné-Berki, B., Málovics, G., & Crețan, R. (2021). "You become one with the place": Social mixing, social capital, and the lived experience of urban desegregation in the Roma community. *Cities*, 117(103302), 1–10. <https://doi.org/10.1016/j.cities.2021.103302>
- McGee, J. E., Peterson, M., Mueller, S. L., & Sequeira, J. M. (2009). Entrepreneurial self-efficacy: Refining the measure. *Entrepreneurship Theory and Practice*, 33(4), 965–988. <https://doi.org/10.1111/j.1540-6520.2009.00304.x>
- Okolie, U.C., Ogwu, E.N., Osuji, C.U., Ogba, F.N., Igwe, P.A., & Obih, S.O. (2021). A critical perspective on TVET teachers' pedagogical practices: Insights into the guiding pedagogical principles in practice. *Journal of Vocational Education and Training*, 75(3), 439–458 <https://doi.org/10.1080/13636820.2021.1894221>
- Patel, P. C., & Thatcher, S. M. B. (2014). Sticking It out: Individual attributes and persistence in self-employment. *Journal of Management*, 40(7), 1932–1979. <https://doi.org/10.1177/0149206312446643>
- Reuel Johnmark, D., Munene, J. C., & Balunywa, W. (2016). Robustness of personal initiative in moderating entrepreneurial intentions and actions of disabled students. *Cogent Business & Management*, 3, 1169575. <https://doi.org/10.1080/23311975.2016.1169575>
- Samoila, M. E., & Vrabie, T. (2023). First-year seminars through the lens of Vincent Tinto's theories of student departure. A systematic review. *Frontiers in Education*, 8, 1–11. <https://doi.org/10.3389/educ.2023.1205667>
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In C. Homburg, M. Klarmann & A. Vomberg, (Eds.), *Handbook of Market Research* (pp. 587–632). Springer. https://doi.org/10.1007/978-3-319-57413-4_15
- Scharnhorst, U., & Kammermann, M. (2020). Who is included in VET, who not? *Education + Training*, 62(6), 645–658. <https://doi.org/10.1108/et-11-2019-0248>
- Schwab, S., Alnahdi, G., Goldan, J., & Elhadi, A. (2020). Assessing perceptions of resources and inclusive teaching practices: A cross-country study between German and Saudi students in inclusive schools. *Studies in Educational Evaluation*, 65, 100849. <https://doi.org/10.1016/j.stueduc.2020.100849>
- Schwab, S., Sharma, U., & Hoffmann, L. (2022). How inclusive are the teaching practices of my German, Maths and English teachers?—Psychometric properties of a newly developed scale to assess personalisation and differentiation in teaching practices. *International Journal of Inclusive Education*, 26(1), 61–76. <https://doi.org/10.1080/13603116.2019.1629121>
- Shahzad, M. F., Khan, K. I., Saleem, S., & Rashid, T. (2021). What factors affect the entrepreneurial intention to start-ups? The role of entrepreneurial skills, propensity to take risks, and innovativeness in open business models. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(173), 1–23. <https://doi.org/10.3390/joitmc7030173>
- Susantiningrum, S., Siswandari, S., Joyoatmojo, S., & Mafruhah, I. (2023). Leveling entrepreneurial skills of vocational secondary school students in Indonesia: Impact of demographic characteristics. *International Journal for Research in Vocational Education and Training*, 10(1), 113–137. <https://doi.org/10.13152/IJRVET.10.1.6>

- Tinto, V. (1997). Classrooms as communities exploring the educational character of student persistence. *The Journal of Higher Education*, 68(6), 599–623. <https://doi.org/10.1080/00221546.1997.11779003>
- Tinto, V. (2010). From theory to action: Exploring the institutional conditions for student retention. In: J. Smart, (Ed.), *Higher education: Handbook of theory and research* (25, pp. 51–89). Springer. https://doi.org/10.1007/978-90-481-8598-6_2
- Tinto, V. (2017). Through the eyes of students. *Journal of College Student Retention: Research, Theory & Practice*, 19(3), 254–269. <https://doi.org/10.1177/1521025115621917>
- Uddin, M., Chowdhury, R. A., Hoque, N., Ahmad, A., Mamun, A., & Uddin, M. N. (2022). Developing entrepreneurial intentions among business graduates of higher educational institutions through entrepreneurship education and entrepreneurial passion: A moderated mediation model. *The International Journal of Management Education*, 20(2), 100647. <https://doi.org/10.1016/j.ijme.2022.100647>
- Urban, B., & Pendame, R. (2016). Perseverance among university students as an indicator of entrepreneurial intent. *South African Journal of Higher Education*, 29(5), 263–278 <https://doi.org/10.20853/29-5-528>
- van Vianen, A. E. M. (2018). Person–environment fit: A review of Its basic tenets. *Annual Review of Organizational Psychology and Organizational Behavior*, 5(1), 75–101. <https://doi.org/10.1146/annurev-orgpsych-032117-104702>
- Wang, C., Shi, Y., & Jiang, S. (2024). The early bird catches the flywheel: Pedagogical components of entrepreneurship education in American higher education institutions. *Education + Training*, 66(8), 1077–1095. <https://doi.org/10.1108/et-05-2023-0202>
- Yan, J., Boss, A. D., & Reger, R. K. (2023). The unrelenting entrepreneur: Taking stock of research on entrepreneurial persistence and related constructs. *Journal of Business Venturing Insights*, 20, e00420. <https://doi.org/10.1016/j.jbvi.2023.e00420>

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