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Entrepreneurship goal and implementation intentions formation: the role of higher education institutions and contexts

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Abstract

The concept of intentionality is widely recognised for its contribution to understanding pre-planned human behaviour, hence the need to fathom its underlying determinants as a precursor to any attempts to predict or influence future human activity. The purpose of this study was to assess the effect of supportive environments and higher education institutions on students' entrepreneurial goal and implementation intentions in Zimbabwe. Also, the study sought to evaluate the applicability of Ajzen's Theory of Planned Behaviour to the context. A cross-sectional quantitative survey of a convenience sample of students from selected higher education institutions in the country was conducted. The 284 responses obtained from the survey were analysed using the partial least squares structural equation modelling statistical technique. The computer software Smart PLS 3 was used for this purpose. The results indicate a direct influence of university support on entrepreneurial goal intention and perceived behavioural control. In addition, they confirm a direct influence of supportive environments on perceived behavioural control and subjective norms. Furthermore, the results demonstrate that perceived behavioural and subjective norms directly influenced entrepreneurial goal intention. Finally, the results show that entrepreneurial goal intention was a significant predictor of entrepreneurial implementation intention. All other tested relationships were not statistically significant. The study makes two significant contributions to the literature. Firstly, it theorises and empirically tests the influence of supportive educational institutions and external environments on separate classes of entrepreneurial intentions within a single study. Secondly, it tests the relevance of the Theory of Planned Behaviour to two distinct but related categories of entrepreneurial intentions.

Keywords: Planned behaviour, University support, Supportive environments, Goal intention, Implementation intention

Introduction

Entrepreneurship, through the innovations it triggers, is critical to achieving some of the United Nations' 17 Sustainable Development Goals. Dedicated support interventions by various stakeholders contribute significantly to fostering the growth of dynamic

entrepreneurship which creates jobs and reduces poverty and inequality (Coduras et al., 2008; Huggins et al., 2015; Wagner et al., 2021).

Higher education institutions are critical platforms in several African countries for developing interventions aimed at nurturing future entrepreneurs and innovators (Kabongo & Okpara, 2010; Kirby, 2013; Lekoko et al., 2012; Ndedi, 2013). Universities, technical colleges, and vocational training centres impart to learners the mindsets, expertise, and practical abilities necessary to launch and manage entrepreneurial ventures through enterprise education programmes and other institutional support mechanisms (Ndedi, 2013; Ndofirepi, 2020). The goal is to persuade more students to consider business careers as viable alternatives to paid work (Morris et al., 2013). However, the efficacy of such support mechanisms is uncertain, necessitating further research on the subject. Martin et al. (2013, p. 211), for example, acknowledge that “there is little evidence to suggest that entrepreneurship education and training helps the development of more or better entrepreneurs.”

Apart from the contribution of higher education institutions, the academic community is increasingly focusing on the role of creating supporting environments in entrepreneurial activity (Belitski & Heron, 2017; Malecki, 2018; Manimala et al., 2019; Spiegel, 2018). Scholars and business practitioners increasingly believe that contextual factors can aid or hinder the emergence and survival of productive enterprises (Manimala et al., 2019; Shirokova et al., 2015; Zhou, 2017). As a result, concepts such as industrial districts, clusters, innovation systems, and entrepreneurial ecosystems have emerged, emphasising the critical role of business environments in commercial enterprise (de Brito and Leitão, 2021; Suominen). While it is widely accepted that contextual variables influence business activity, the focus of academic discussion has shifted to authenticating the strength of that influence.

Even though various stakeholders' efforts to create an enabling environment for entrepreneurship to thrive at learning institutions are widely appreciated, scientific evidence that supports the efficacy of such interventions is only emerging (Gibb, 2013; Hassan, 2020; Markuerkiaga et al., 2016) and, in some cases, contested (Choi et al., 2018). Fayolle (2013) described current research on entrepreneurial support programmes at higher education institutions as fragmented, under-theorised, and lacking in a systematic approach, all of which contribute to the undervaluation of such work. Given the significant resources invested by policymakers and other stakeholders to promote entrepreneurship especially in educational institutions, it is critical to strengthen the evidence base by monitoring and assessing the impact of such programmes empirically.

Previous research has demonstrated the difficulty of evaluating the benefits of entrepreneurship assistance programmes (Fretschner & Weber, 2013; Nabi et al., 2017; Weber, 2012). To begin with, the outcomes of these interventions are frequently evaluated only after their administration. Second, because entrepreneurial behaviour is influenced by a complex combination of psychological and environmental factors, it is difficult to attribute entrepreneurial behaviour to a single factor. However, the literature offers a variety of performance indicators for assessing the efficacy of entrepreneurship support programmes. Human capital variables such as domain expertise, aptitudes, entrepreneurial mindsets, and a desire to start a business are among them (Fayolle et al., 2006; Nabi et al., 2017). Entrepreneurial intentions, however, continue to be the most

frequently used indicator. This is because behavioural intentions are the most reliable predictor of ambiguous, delayed, and riskier future behaviour (Kruger, 2009). Against this backdrop, this study examines how supportive higher education institutions and environments affect students' entrepreneurial intentions using Ajzen's (1991) theory of planned behaviour.

Although supportive higher education institutions and conducive business environments have previously been confirmed as correlates of entrepreneurship intentions (Bazan et al., 2020; Choi et al., 2018; Nabi et al., 2017), research studies have only recently started unravelling the processes by which these variables influence entrepreneurial intentions and other cognate outcome measures (Nowiński et al., 2020; Sitaridis & Kitsios, 2019; Shi et al., 2019). Assessing such processes will thus aid in clarifying the myriad ways in which supportive educational institutions and enabling environments influence desired outcomes. Regardless of previous research findings indicating positive correlations, what remains underexplored in the entrepreneurship literature is how the variables interact to frame the different forms of entrepreneurship intentions. Whereas most previous research has focused on general entrepreneurial intentions, this study focuses specifically on goal and implementation intentions separately. Understanding how the earlier mentioned external interventions influence an individual's transition from a desire to start a business to actually starting one necessitates distinguishing between these entrepreneurial intentions.

Thus, the following research question serves as a guide for the investigation:

Do entrepreneurship enabling environments and educational institutions' support for entrepreneurship lead to the formation of entrepreneurial goal and implementation intentions among college students?

The next section of the paper discusses a review of related literature for the study. It also sets forth the hypothesised model. This is followed by a description of the study's research design and methods. The study findings are then presented and critiqued. Finally, the main contributions of the study are highlighted, and the conclusions drawn are presented.

Literature review and hypothesis development

Entrepreneurial intentions

Despite a long history in social psychology, there is no universally accepted definition of intention. However, Bird (1988, p. 442) defines intentionality as "a state of mind directing a person's attention (and therefore experience and action) toward a specific object (goal) or path in order to achieve something (means)". The concept encompasses several components, including a goal, an action plan, a context, and a timeline (Ajzen & Fishbein, 1980). In entrepreneurship research, Thompson (2009) defines entrepreneurial intentions as a premeditated and well-thought-out judgement call that drives the actions needed to start a business. Due to its close relationship to actual entrepreneurship behaviour, entrepreneurial intention is perpetually a popular research construct (Donaldson, 2019). Krueger (2007) proclaims that entrepreneurial action foreshadowed by entrepreneurial intentions. Additionally, prior research has established that intention is a reliable predictor of risky venture decisions involving time lags that are "rare, difficult

to observe, or involve unpredictable time lags” (Krueger et al., 2000, p. 411). Generally, many businesses do not begin as a reflex action, but rather because of deliberate planning and response to changing environmental conditions (Krueger, 2017; Krueger et al., 2000). In line with Gollwitzer’s (1999) theory, this study examines goal and implementation separately to account for the heterogeneity of behavioural intentions. Individuals’ goal intentions reflect their motivation to engage in certain behaviours and the extent to which they are willing to commit to the pursuit (Ephrem et al., 2019). On the other hand, implementation intentions entail a willingness to act toward a behavioural goal if certain conditions are met (e.g., “I intend to engage in goal-directed behaviour y when confronted with situation z ”) (Hockerts, 2017). Stronger implementation intentions, in comparison to goal intentions, are more likely to facilitate action initiation (Kautonen et al., 2015). The researcher, in line with Orbell et al. (1997), tests the supposition that incorporating implementation intentions improves the predictive capacity of the theory of planned behaviour in the context of entrepreneurship. Thus, the following hypothesis is proposed:

H1: Entrepreneurship goal intention is positively related to entrepreneurship implementation intention.

Entrepreneurial intention models are based on cognitive psychology theory, which holds that behaviour is predictable and is the result of preceding intentions. The Theory of Entrepreneurial Event was first introduced by Shapero and Sokol (1982). This was superseded by Bird’s (1988) Theory of Entrepreneurial Ideas Implementation. Following that, Ajzen (1991) developed the Theory of Planned Behaviour by revising Ajzen and Fishbein’s Theory of Reasoned Action. Years later, Liñán and Chen (2009) tested the Structural Model of Entrepreneurship intentions, refining Ajzen’s (1991) Theory of Planned Behavior. In recent times, other less well-known models have also emerged. While the different models and theories place a premium on a variety of factors, one recurring theme is that intention predates behaviour. Ajzen’s theory is used as a lens in this study due to its validity in a variety of contexts, flexibility, parsimony, and superior predictive ability. According to the Theory of Planned Behavior, behavioural intentions are shaped by three variables: attitude toward behaviour, subjective norms, and perceived behavioural control, all of which are influenced by one’s belief system. According to previous entrepreneurship research, the three variables account for 30–45% of the variation in behavioural intentions (Kautonen et al., 2015).

Attitude towards behaviour (entrepreneurship) and entrepreneurship intentions

The term attitude toward behaviour refers to a person’s degree of positive or negative affinity for particular behaviours. It is influenced by a combination of two variables: one’s assumptions about the likely outcome (beneficial or detrimental) of engaging in a particular behaviour (i.e.) and the feasibility of engaging in such behaviour (Ajzen & Fishbein, 1975). Existing research from a variety of countries has established that an individual’s attitude toward behaviour is a significant predictor of entrepreneurial intention (Fayolle & Gailly, 2015; Fragoso et al., 2020; Fretschner & Weber, 2013; Jena, 2020). Malebana and Swanepoel (2014), (2015) discovered that, in comparison to the other two Theory of Planned Behaviour variables, attitude toward entrepreneurship had the

greatest effect on entrepreneurial intentions (45.8 percent) when compared to subjective norms and perceived behavioural control. These findings corroborate those of Law and Breznik (2017), who discovered a strong and statistically significant relationship between students' attitudes toward behaviour and their intention to pursue entrepreneurial endeavours in a study involving a sample of Portuguese high school students. Thus, the researcher hypothesises the following:

H2a: A positive attitude toward behaviour correlates positively with entrepreneurship goal intentions.

H2b: A positive attitude toward behaviour correlates positively with entrepreneurship implementation intentions.

Subjective norms and entrepreneurship intentions

Subjective norms refer to the extent to which members of one's social network, such as family, relatives, acquaintances, and co-workers, approve or disapprove of specific behaviours (Santos & Liguori, 2019). According to Ajzen (2001), it is societal pressure to participate in or abstain from a particular activity. Individuals are motivated to engage in a particular behaviour if they observe their peer groups engaging in it, and vice versa (Malebana and Swanepoel 2014). However, social pressure's influence is limited by an individual's willingness to live up to others' expectations (Wijayati et al., 2021). Numerous studies, both within and outside the entrepreneurship domain, support the notion that subjective norms have an effect (Gerba 2013; Bae et al., 2014; Krueger 2000). Nonetheless, other research indicates that subjective norms are the least predictive of the entrepreneurial intention's three antecedents (Fayolle & Gailly, 2015; Liñán & Chen, 2009; Malenbana, 2014; Sommer, 2011). Against this background, the following hypotheses are advanced:

H3a: Subjective norms are positively associated with entrepreneurship goal intentions.

H3b: Subjective norms are positively associated with entrepreneurship implementation intentions.

Perceived behavioural control and entrepreneurial intention

The term perceived behavioural control refers to an individual's perception of their ability to engage in entrepreneurial behaviours (2011b; Liñán et al., 2011a). It reflects an individual's assessment of the ease or difficulty with which a particular behaviour can be performed (Krueger et al., 2000; Santos & Liguori, 2019). Favourable behaviour intention is generated as a result of experiences with positive perceived behavioural control, and this intention may lead directly to a behaviour (Sultan et al., 2020). This concept is closely related to Bandura's (1994) concept of self-efficacy, which is defined as "people's belief in their ability to achieve specified levels of performance that have an effect on life events" (p. 71). Numerous prior entrepreneurship studies indicate that combining perceived behavioural control with the two original components of the theory of reasoned

action (i.e. subjective norms and attitude toward behaviour) to create the Theory of Planned Behaviour improved the prediction of entrepreneurial intentions (Farrukh et al., 2019; Kautonen et al., 2015; Krueger & Carsrud, 1993; Krueger et al., 2000). Shah and Soomro (2017), on the other hand, discovered no statistically significant relationship between perceived behavioural control and entrepreneurial intention among Pakistani public university students. Considering this, the following is hypothesised:

H4a: Perceived behavioural control is positively associated with entrepreneurship goal intentions.

H4b: Perceived behavioural control is positively associated with entrepreneurship implementation intentions.

University support for entrepreneurship and entrepreneurship-related outcomes

The modern world's greater emphasis on human development has increased expectations for universities to actively participate in national, regional, and local socio-economic development activities as a third mandate, in addition to their traditional teaching and research missions (Morawska-Jancelewicz, 2021). As a result, numerous universities, particularly in developed nations, have responded by promoting entrepreneurship in their communities and supporting faculty and student entrepreneurial activities, resulting in the birth of the entrepreneurial university paradigm (Pereira & Franco, 2022). Universities promote entrepreneurship by incubating and accelerating new ventures, commercialising knowledge, and ideas, collaborating with government and industry on knowledge transfer, and providing entrepreneurship education (Soetanto & van Geenhuizen, 2019). Most research on entrepreneurial universities has been conducted in developed economies at the expense of developing economies. Yet less developed communities require and stand to benefit more from the spin-off effects of such organisations' work than developed communities. Thus, in comparison to North America, Western Europe, and a few East Asian countries, the impact of university-based entrepreneurial support is less well understood in several African countries. This is despite the significant effort and financial investment made by higher education institutions and other stakeholders worldwide in such programmes (Duval-Couetil, 2013). Nonetheless, it is a fundamental concept of management science that any strategy be implemented concurrently with monitoring and evaluation criteria to determine its efficacy.

In the case of student entrepreneurship support, the available literature demonstrates a predominance of psychological impact metrics such as improved (1) entrepreneurial skills and knowledge (e.g., identifying and capturing business opportunities, innovativeness, new venture decision-making), (2) entrepreneurial attitudes and perceptions (e.g., need for achievement, attitudes, subjective norms) (Lorz et al., 2013). Because the purpose of this study was to elicit immediate feedback from students at the conclusion of a semester-long entrepreneurship education programme, selected psychological indicators referred to as "short-term" or "lower level" benchmarks were used to evaluate the impact of university support for potential entrepreneurs. Generally, prior research has established a positive correlation between university support for student entrepreneurship and participants' desire to start new businesses (Bae et al., 2014; Hattab, 2014; Nabi

et al., 2017; Piperopoulos & Dimov, 2014). Specifically, previous research unearthed a relationship between university support for entrepreneurship, on the one hand, and key constructs in Ajzen's theory of planned behaviour, on the other (i.e. attitude towards behaviour, subjective norms, and perceived behavioural control). Jena's (2020) study in India, for example, discovered that students' beliefs and understanding about entrepreneurship after being exposed to the phenomenon at school cultivated a favourable attitude toward entrepreneurship and entrepreneurial intentions over time. Likewise, Saeed et. al. (2015) observed that entrepreneurial education infrastructure and university support for entrepreneurship increased students' entrepreneurial self-efficacy and intentions. Anwar et. al.'s (2022) findings that entrepreneurship education had a positive influence on entrepreneurial intentions of university students in India, both directly and indirectly through self-efficacy conclusion (a proxy for perceived behavioural control), support this. Some research findings, on the other hand, have revealed inconsistencies and non-significant effects (Fayolle et al., 2006; Packham et al., 2010). For illustration, in a study of selected Ukrainian university students conducted by Solesvik in 2013, the students' exposure to enterprise education had no statistically significant effect on their subjective norms. Against this backdrop, the following hypotheses are thus proposed:

H5a: University support for entrepreneurship has a positive relationship with attitude towards entrepreneurship.

H5b: University support for entrepreneurship positively related to subjective norms.

H5c: University support for entrepreneurship is positively related to perceived behavioural control.

H5d: University support for entrepreneurship is positively related to entrepreneurship goal intention.

H5e: University support for entrepreneurship is positively related to the entrepreneurship implementation intention.

Supportive environments and entrepreneurship-related outcomes

Contexts, from a deterministic perspective, encompass a range of macro-level environmental variables that affect how a business entity operates and to which it must adapt (Gartner, 1985). The role of environmental factors became more prominent after it became clear that personal characteristics alone could not adequately account for entrepreneurship. In fact, Welter (2011, p. 165) posits that "economic behaviour can be better understood when placed in its historical, chronological, institutional, spatial, and social context". Bruno and Tyebjee's seminal study (1982) identified the following environmental factors as fostering entrepreneurship: the availability of venture capital; the presence of a critical mass of established entrepreneurs; adequate human capital; proximity to suppliers; the availability and access to markets; supportive government policies; and proximity to institutions of higher education. These criteria are consistent with the entrepreneurial ecosystem concept, which maintains that entrepreneurs develop and thrive favourable environments (Bazan et al., 2020; Igwe et al., 2020).

Numerous studies demonstrate a strong correlation between the state of a particular context and the emergence of entrepreneurial intentions (Bullough et al., 2014; Karimi

et al., 2015; Muffatto, 2015; Pfeifer et al., 2016; Shirokova et al., 2015). Local context (Walter & Dohse, 2012), formal and informal institutions (Urban & Kujinga, 2017), cultural context (Piperopoulos, 2012), and government support (Malebana, 2017), among others, have been shown to predict entrepreneurship. Several other studies based on the theory of planned behaviour have also found statistically significant effects of supportive environments on some of the theory's key constructs. For example, Seyoum et al.'s (2021) study in the United States discovered that social support had a positive effect on students' intentions to engage in social entrepreneurship, and that the relationship was bolstered by respondents' proximity to US Small Business Administration offices. Similarly, Misoskas's (2016) study of the drivers of entrepreneurial intentions among Macedonian business students found that favourable business climates improved respondents' positive attitudes toward entrepreneurship and perceived behavioural control. Nowiński et. al. (2020) also reported that perceived public support for entrepreneurship influenced university students' attitudes toward entrepreneurship, risk aversion, and entrepreneurship self-efficacy. However, as Fayolle and Liñán (2014) and Zahra and Wright (2011) assert, the topic of the influence of context and institutions is a novel avenue in the study of entrepreneurial intentions that merits additional scholarly attention. Given that most of the cited studies focused on both direct and indirect relationships between perceived supportive environments and entrepreneurial goal intentions, in this study the focus is also on the possible linkages to implementation intentions. As a result, the following are hypothesised:

H6a: A supportive environment has a positive effect on one's entrepreneurial attitudes of students.

H6b: A supportive environment is associated with subjective norms of students in a positive way.

H6c: A supportive environment is associated with a positive perceived of behavioural control.

H6d: A supportive environment is positively related to entrepreneurship goal intention.

H6e: A supportive environment is positively related to entrepreneurship implementation intention.

A conceptual model of the hypothesised relationships is depicted in Fig. 1.

Research methodology

To tackle the research problem and respond to the research question, the current study used a positivist research worldview and a quantitative cross-sectional survey design. The study targeted undergraduate students at two state-owned colleges in Zimbabwe's Midlands province. A convenience sampling method was used to select the sampling units, yielding a total of 284 respondents from the two institutions. The willingness to participate at the time of the study was the only criterion for the inclusion or exclusion of respondents.

To collect responses from the target population, convenience sampling was used, and individuals were chosen based on their willingness to participate in the study. Two research assistants assisted the researcher in administering the questionnaire to respondents between May and July 2019. After obtaining permission from the appropriate authorities

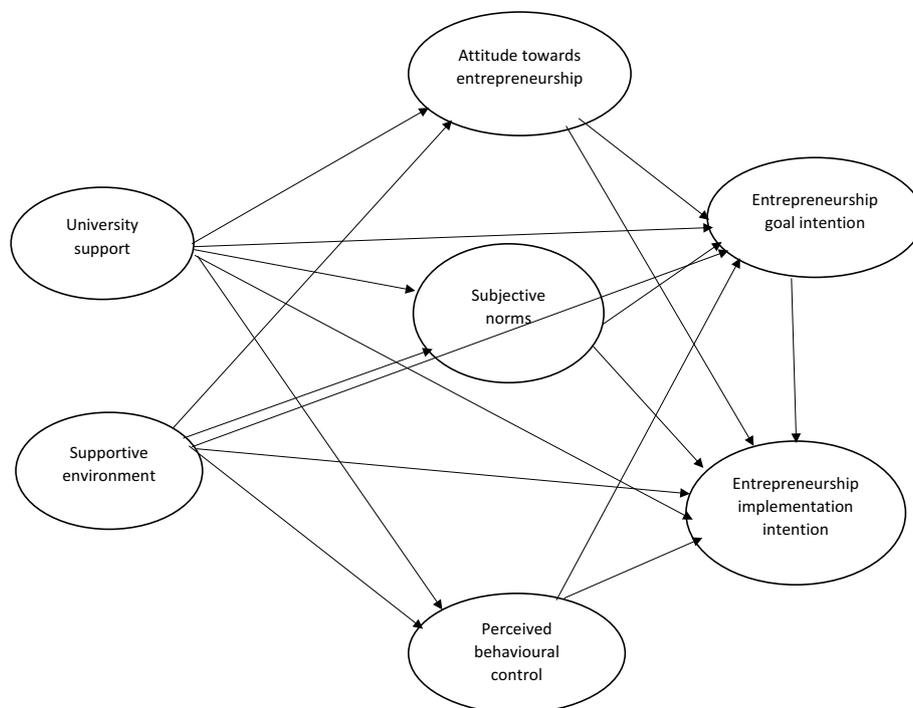


Fig. 1 [HYPERLINK "spsid:fig1||locator:gr1||mediaobject:0"](#) Conceptual model

to conduct the study, the researchers approached individual students and invited them to complete the research instrument (questionnaire). Respondents were assured that their responses would remain anonymous and private. The questionnaire, which was published in English, included questions about respondents’ entrepreneurial goal and implementation intention, attitude toward entrepreneurship, subjective norms, and personal characteristics (gender, marital status, age, entrepreneurial experience, course, and level of study).

Measurement of the theoretical constructs

All items on the questionnaire were close ended. Except for those relating to demographic items, all items on the questionnaire were based on five-point Likert scale. Further details are provided below.

Five items on a five-point Likert scale ranging from strongly disagree to strongly agree, participants answered to the items. adapted from Liñán et. al. (2011a, 2011b) were used to assess attitudes toward behaviour (entrepreneurship). However, the following items were dropped after they cross-loaded on the entrepreneurial goal intention construct: “Among various options, I’d rather be an entrepreneur” and “If I had the opportunity and resources, I’d like to start a firm”.

The university support construct was measured using questionnaire items on a five-point Likert scale with response categories ranging from strongly disagree to strongly agree. The items were adopted from Liñán and Fernández-Serrano (2018) and read as follows: (1) “The universities and higher education centres of my region prepare me to be an entrepreneur” and (2) “The universities and higher education centres of my region provide suitable and quality training for the creation of new ventures”.

A six-item scale adapted from Liñán and Chen (2009) was used to measure entrepreneurship goal intentions. Examples of the items include “It is very likely that I will start a venture 1 day” and “I am willing to make every effort to become an entrepreneur”.

Three items adapted from Liñán and Fernández-Serrano (2018) were used to measure entrepreneurship implementation intentions of respondents. Respondents indicated, on a five-point Likert-scale, their level of agreement to the following statements: “What specific steps I have to take to create my company”, “When I will take each of the steps to create my company”, and “Where I will carry out each of the steps to create my company”.

Liñán and Fernández-Serrano’s (2018) three-item measuring scales were used to measure the supportive environments construct. The items included the following: “In my regional environment, there are favourable conditions to start a company”, “In my regional environment, there are favourable conditions to manage a business”, and “In my regional environment, there are favourable conditions to own a business”.

Perceived behavioural control was measured using six items adapted from Liñán and Fernández-Serrano (2018). The items required the respondents to indicate the extent to they were able to effectively carry out specific entrepreneurship tasks. Some of the items included “To define my business idea and the strategy of a new company” and “To maintain the process of creating a new company under control”.

This construct was assessed using three items adopted from Liñán and Fernández-Serrano (2018). The item required respondents to indicate how one’s closest friends, family and colleagues would approve the decision to create one’s company. Respondents answered these questions on a five-point Likert scale ranging from strongly disapprove to strongly approve.

Data analysis plan

To address the primary research question, partial least squares structural equation modelling (PLS-SEM) was used. PLS is a non-parametric structural equation modelling technique for determining if a given conceptual model effectively explains a set of latent variables and their network of interconnections. No assumptions are made regarding the distribution of the data with this technique. Additionally, unlike SEM based on covariance, PLS does not include a goodness-of-fit requirement. As a result, a two-stage testing procedure like that described by Chin (1998) was employed to conduct the path analysis. The first stage involved evaluating the outer model’s credibility using reliability and validity procedures. The second stage examined the internal model (variance explanations for endogenous constructs, effect sizes, and predictive significance) (Henseler et al., 2009). The tests were conducted using the Smart PLS 3 computer software (Ringle et al., 2015).

Preliminary tests

Outer model assessment (reliability and validity)

Cronbach’s alpha and composite reliability metrics were employed to determine the latent variables’ internal consistency (reliability). Good reliability is demonstrated in both criteria when the indices are at least 0.7. Any value less than 0.7 indicates an

insufficiency of reliability. Table 1 summarises the outcomes of the current study’s tests. As illustrated in the table, all latent variables demonstrated an adequate level of reliability.

Two types of validity were investigated, convergent and discriminant. Firstly, convergent validity establishes if a collection of indicators accurately measures the same construct. In other words, the term is related to the concept of one-dimensionality. To determine convergent validity, average variance extracted (AVE) values are used. Satisfactory convergent validity, according to Fornell and Larcker (1981), exists when the AVE value is larger than 0.5. As shown in Table 1, all latent variables had AVE values more than 0.5, indicating that convergent validity was satisfactory. This suggests that on average, each latent variable accounted for more than 50% of the variance in its associated indicator variables. Secondly,

Discriminant validity, which quantifies the degree to which latent variables exhibit adequate dissimilarity, was determined using the Fornell and Larcker criterion. Sufficient discriminant validity, according to the Fornell and Larcker method, exists when “the square root of the AVE for each latent variable should be greater than the squared correlations with all other latent variables” (Henseler et al., 2009, p. 300). The square roots of AVEs are denoted by the bolded diagonal values in Table 2, while the inter-latent variable correlations are denoted by the values beneath them. The data in Table 2 reveal that all values in the diagonal squares are bigger than the correlations between the variables, hence confirming discriminant validity.

Common method bias

The term common method bias refers to a type of measurement distortion that occurs frequently in single instrument surveys, in which respondents tend to reply consistently to otherwise unrelated items. As a result, relationships between latent variables become exaggerated. Herman’s one-factor test was used to determine the level of common method bias on the 25 measures of latent variables. This was accomplished by entering the 25 measuring items for the seven latent variables into exploratory factor analysis as a single unrotated factor. When a single factor accounts for more than 50% of the covariance between the indicators, a common method bias is obvious (Podsakoff et al., 2003). The overall variation explained by the unrotated factor in this analysis was 33.5 percent, indicating a likely absence of common method bias.

Table 1 Reliability and validity

	Number of items	Cronbach’s Alpha	Composite reliability	Average variance extracted (AVE)
Attitude towards behaviour (entrepreneurship)	3	0.710	0.838	0.633
University support	2	0.818	0.916	0.845
Entrepreneurial goal intention	6	0.873	0.904	0.612
Entrepreneurial implementation intention	3	0.861	0.915	0.783
Supportive environment	3	0.861	0.915	0.783
Perceived behavioural control	6	0.830	0.881	0.598
Subjective norms	3	0.748	0.855	0.664

Source: Author’s compilation from primary data

Table 2 Fornell and Larcker criterion

	Attitude towards behaviour (entrepreneurship)	University support	Entrepreneurial goal intention	Entrepreneurial implementation intention	Supportive environment	Perceived behavioural control	Subjective norms
Attitude towards behaviour (entrepreneurship)	0.796						
University support	0.279	0.919					
Entrepreneurial goal intention	0.466	0.301	0.782				
Entrepreneurial implementation intention	0.321	0.234	0.346	0.885			
Supportive environment	0.264	0.477	0.269	0.240	0.885		
Perceived behavioural control	0.370	0.264	0.395	0.196	0.292	0.774	
Subjective norms	0.255	0.183	0.341	0.179	0.281	0.279	0.815

Source: Author’s compilation from primary data

Findings

Demographic details of respondents

As indicated in the methodology section, this study surveyed 284 undergraduate students from two state-owned higher education institutions in Zimbabwe’s Midlands Province. Most respondents (48.09 percent; $n = 126$) were engineering students, had entrepreneurial experience (53.82 percent; $n = 141$), were between the ages of 21 and 30 (71.76 percent; $n = 188$), were not married (82.44 percent; $n = 216$), were female (52.29 percent; $n = 137$), and were pursuing certificate stage qualifications (79.39 percent; $n = 208$). To a large extent, the result closely reflects the profile of students enrolled at Zimbabwe’s vocationally oriented institutions of higher learning where, at the time of the study, most students were relatively young, not married and studying an undergraduate technical field.

Hypotheses testing

The hypothesised model was analysed using the PLS-SEM criteria specified by (Henseler et al., 2009). This criterion includes the estimation of relationship coefficients, the R^2 (coefficient of determination) of endogenous latent variables, and the prediction relevance (Q^2). The set of tests were conducted using a bootstrapping approach with 5000 samples.

The study findings (see Table 3) provide no support for the following hypothesised direct relationships: attitude towards behaviour → entrepreneurship goal intention; attitude towards behaviour → entrepreneurship implementation intention;

perceived behavioural control → entrepreneurship implementation intention; subjective norms → entrepreneurship implementation intention; supportive environment → attitude towards behaviour; university support → attitude towards behaviour; and university support → subjective norms.

However, the hypothesis for all other direct relationships were supported. Specifically, the direct effects of university support on the following variables were positive and statistically significant: entrepreneurship goal intention ($\beta=0.143, t=2.052, p=0.041$), perceived behavioural control ($\beta=0.148, t=1.865, p=0.063$), and supportive environments ($\beta=0.1480, t=71,923, p=0.045$). Similarly, the direct effects of supportive environments on subjective norms and perceived behavioural control were positive and statistically significant ($\beta=0.253, t=3.129, p=0.002$ and $\beta=0.216, t=2.333, p=0.002$), respectively. Of the three determinants of behavioural intention in the theory of planned behaviour, subjective norms, and perceived behavioural control had positive and statistically significant direct effects on entrepreneurship goal intention (i.e. $\beta=0.224, t=3.564, p=0.000$ and $\beta=0.282, t=2.826, p=0.005$, respectively). Lastly, the direct

Table 3 Path coefficients for the hypothesised relationships

Relationship path	Hypothesis	Path coefficients (β)	t-statistics	p-values	Decision
Attitude towards behaviour → entrepreneurship goal intention	H2a	0.058	1.125	0.261	Rejected
Attitude towards behaviour → entrepreneurship implementation intention	H2b	-0.060	0.989	0.323	Rejected
Entrepreneurship goal intention → entrepreneurship implementation intention	H1	0.279	4.508	0.000	Accepted
Perceived behavioural control → entrepreneurship goal intention	H4a	0.282	2.826	0.005	Accepted
Perceived behavioural control → entrepreneurship implementation intention	H4b	0.029	0.377	0.706	Rejected
Subjective norms → entrepreneurship goal intention	H3a	0.224	3.564	0.000	Accepted
Subjective norms → entrepreneurship implementation intention	H3b	0.025	0.305	0.760	Rejected
Supportive environment → attitude towards behaviour	H6a	0.104	1.377	0.169	Rejected
Supportive environment → entrepreneurship goal intention	H6d	0.042	0.655	0.513	Rejected
Supportive environment → entrepreneurship implementation intention	H6e	0.108	1.303	0.193	Rejected
Supportive environment → perceived behavioural control	H6c	0.216	2.333	0.020	Accepted
Supportive environment → subjective norms	H6b	0.253	3.129	0.002	Accepted
University support → attitude towards behaviour	H5a	0.066	0.886	0.376	Rejected
University support → entrepreneurship goal intention	H5d	0.143	2.052	0.041	Accepted
University support → entrepreneurship implementation intention	H5e	0.095	1.262	0.207	Rejected
University support → perceived behavioural control	H5c	0.148	1.923	0.045	Accepted
University support → subjective norms	H5b	0.059	0.868	0.386	Rejected

Source: Author’s compilation from primary data

effects of entrepreneurship goal intention on entrepreneurship implementation intention were also significant ($\beta = 0.279, t = 4.508, p = 0.000$).

The R^2 value is another critical parameter to consider when evaluating a model’s predictive capacity. The percentage variance in an endogenous latent variable that is explained by a set of predictor variables is denoted by this value. Chin (1998) proposed the following recommendations for evaluating R^2 values: $0.19 \leq$ weak effect, $0.33 \leq$ moderate effect, and $0.67 \leq$ substantial effect. However, Garson (2016) argues that what constitutes a “substantial influence” varies by field of research; in some domains, a value of 0.25 signifies a substantial effect depending on the performance of antecedent models. As shown in Table 4, the R^2 values for entrepreneurial goal intention (0.242) and entrepreneurial implementation intention (0.147), the study’s primary outcome variables, indicated that the model had a moderate predictive effect for the former and a weak predictive effect for the latter. Additionally, R^2 values of 0.022 for attitude toward entrepreneurship, 0.099 for perceived behavioural control, and 0.082 for subjective norms indicated a marginal effect.

The predictive capability of the model was also validated using Stone- Q^2 Geisser’s criterion which is based on a blindfolding procedure. The criterion is relevant only to endogenous latent variables that have been reflectively modelled (in the present study, these are attitude towards entrepreneurship, entrepreneurial goal intention, entrepreneurial implementation intention, perceived behavioural control, supportive environment, and subjective norms). Q^2 values greater than zero indicate that the suggested model is predictive of the endogenous variables under examination; indeed, this was the case in the current study (see Table 5).

Discussion

The study used a modified form of the theory of planned behaviour to explain selected college students’ entrepreneurial goal and implementation intentions. It made two significant theoretical advancements. To begin, it added some exogenous variables to the original model (entrepreneurial support and supportive environments) to boost its explanatory power. Second, it examined the theory of planned behaviour’s ability to adequately explain both entrepreneurial goal and implementation intentions in a single study. Previously conducted studies examined only one of the outcome variables. The study’s findings indicated that the proposed model’s predictive effect sizes on the entrepreneurship implementation and goal intention variables were weak to moderate, respectively. This finding has significant inferences for policies and other interventions

Table 4 Coefficient of determination (R -squared)

Endogenous variables	R^2
Attitude towards behaviour	0.022
Entrepreneurship goal intention	0.242
Entrepreneurship implementation intention	0.147
Perceived behavioural control	0.099
Subjective norms	0.082
Supportive environment	0.231

Source: Author’s compilation from primary data

Table 5 Construct cross-validated redundancy

Construct	SSO	SSE	Q ² (= 1 – SSE/ SSO)
Attitude towards behaviour (entrepreneurship)	1310.000	1295.451	0.011
Entrepreneurship goal intention	1572.000	1349.278	0.142
Entrepreneurship implementation intention	786.000	700.530	0.109
Perceived behavioural control	1310.000	1238.417	0.055
Subjective norms	786.000	751.025	0.044
Supportive environment	786.000	646.333	0.178
University support	524.000	524.000	

SSO mean value prediction, SSE prediction error

Source: Author's compilation from primary data

aimed at developing potential entrepreneurs, particularly those who attend post-secondary institutions.

To begin, while not all hypotheses were statistically significant, the overall pattern of the results suggests a need for a more nuanced understanding of the factors that contribute to the emergence of entrepreneurial goals and implementation intentions. The most striking observation was that attitude toward behaviour (entrepreneurship) had statistically not significant relationships with both entrepreneurship goal and implementation intentions. This contradicted Ajzen's (1991) theory of planned behaviour and a slew of entrepreneurship studies (Fayolle & Gailly, 2015; Liñán & Fayolle, 2015; Malebana & Swanepoel, 2014) that asserted that attitude toward behaviour is the primary predictor of entrepreneurial intention. The reason for this result is unknown. However, the outcome could have been influenced by the sampled respondents' composition, which was dominated by first-year students who had not yet developed clear career preferences. Thus, it is possible that respondents were indifferent to either paid employment or entrepreneurial careers at the time of the study.

Secondly, consistent with the assumptions of the theory of planned behaviour, the results confirmed the significant positive predictive influence of subjective norms on entrepreneurship goal intention. Moreover, they also corroborated the findings from previous research (Liñán et al., 2011a, 2011b) suggesting that, while significant, the effects of subjective norms on entrepreneurial goal intentions usually tends to be weak. However, it was not surprising that the direct effects of subjective norms on entrepreneurship implementation intentions were statistically not significant. Some scholars of entrepreneurship have posited that contrary to the postulations of the theory of planned behaviour, the direct effects of subjective norms on entrepreneurial intentions range from weak at best to non-significant (Liñán & Chen, 2009; Sommer 2011). Thus, the direct relationship between subjective norms and entrepreneurial goal intentions is at best inconsistent. In fact, there is speculation that the effects of subjective norms on entrepreneurial goal intention are transmitted through attitude towards behaviour and perceived behavioural control.

Additionally, a statistically significant effect of perceived behavioural control on entrepreneurial goal intention was observed. This finding is consistent with the results of several other entrepreneurial studies (e.g., Farrukh et al., 2019; Kautonen et al., 2015), which

established the predictive power of perceived behavioural control as a determinant of entrepreneurial goal intentions. The implication is that when young people are weighing career options, their self-perception of their capabilities is critical.

Contrary to expectations, this study did not find any significant relationships between (1) attitude toward entrepreneurship, (2) subjective norms, and (3) perceived behavioural control as predictor variables and entrepreneurial implementation intention as the outcome variable. This was somewhat surprising, given that previous research in other fields, using the theory of planned behaviour as a guide, indicated a strong correlation between the three antecedents and behavioural intentions in general. This finding emphasises the possibility of distinct antecedents for the motivational (goal setting) and volitional (action) phases of the entrepreneurship process, as defined by Gollwitzer's action phase theory (Gollwitzer, 1999). In other words, entrepreneurial goal and implementation intentions are not determined by the same set of factors. This perspective is backed up by van Gelderen et al. (2018), Brickell et al. (2006), and Churchill and Jessop (2010), who assert that goal intentions are the primary predictor of implementation intention. Consistent with the preceding, this study discovered a positive predictive relationship between entrepreneurial goal and implementation intentions.

Perhaps the most compelling finding is that there is a direct linkage between university support and both entrepreneurship goal and implementation intentions. Contrary to the Theory of Planned Behaviour's assumption that the influence of all exogenous factors on entrepreneurial goal intentions is mediated by an individual's attitude toward behaviour (i.e. entrepreneurship), subjective norms, and perceived behavioural control, the findings revealed a significant direct relationship between university support and entrepreneurial goal intentions. This finding broadly supports recent research in this area that has established a direct link between university support and university students' intentions to pursue entrepreneurship (Ayed, 2020; Shi et al., 2019). Additionally, the direct relationship between university support and entrepreneurship implementation intention was statistically significant. This finding is unsurprising, given that different facets of university support for entrepreneurship, such as concept and business development, aid in the action phase of the entrepreneurship process, which transforms abstract aspirations into concrete steps toward achievement.

The university support variable only had a significant relationship with perceived behavioural control, out of the three antecedents of behavioural intentions in the Theory of Planned Behaviour. The effect on perceived behavioural control was anticipated, as it has been demonstrated in numerous previous studies, and because cognate entrepreneurship support should logically improve one's skill base and self-belief to perform entrepreneurial tasks. However, the statistically not significant results for the relationships between university support, on the one hand, and attitude toward behaviour (entrepreneurship) and subjective norms, on the other hand, are inconsistent with the findings of numerous previous entrepreneurship studies.

Lastly, contrary to results from recent studies, the supportive environment variable did not have significant relationships with both entrepreneurial goal and implementation intentions. However, there are other studies which have questioned the possibility of such direct relationships, instead suggesting the plausibility of an indirect influence of

macro-environment variables through theory of planned behaviour mediators (attitude towards behaviour, subjective norms, and perceived behavioural control). In line with the later perspectives, the results from the current study demonstrated that the supportive environments variable had significant predictive relationships with subjective norms and perceived behavioural.

Implications

Several implications flow from the findings of this research. To begin, when national policymakers design entrepreneurship support interventions aimed at encouraging young people to pursue entrepreneurial endeavours, it is critical to recognise the critical role of local contexts in the emergence of aspirations. Thus, local factors in a particular setting may be viewed by young people as either supportive or constraining of entrepreneurship, affecting their confidence and willingness to pursue entrepreneurship negatively or positively. Rather than pursuing a one-size-fits-all approach to entrepreneurship policy, one that takes regional idiosyncrasies into account is more likely to succeed.

Second, government and higher education policymakers must recognise the variety of intentions that characterise various stages of entrepreneurship and their different effects on the actual pursuit of entrepreneurship. For example, they must devise specific measures to assist potential entrepreneurs in overcoming the obstacles inherent in the transition from goal intention (a state of pure desire) to implementation intention (an action-oriented state of mind), and finally to concrete actions to initiate an entrepreneurial venture. This suggestion is based on the finding that the beneficial effect of environmental cues on entrepreneurial behaviour is transmitted indirectly via goal intentions and then implementation intentions. This suggestion is based on the finding that the beneficial effect of environmental cues on entrepreneurial behaviour is transmitted indirectly via goal intentions and then implementation intentions.

Thirdly, entrepreneurship support interventions aimed at young people both inside and outside of universities should focus on enhancing learners' perceived behavioural control, which is a critical predictor of personal motivation to pursue entrepreneurship. Typical practical interventions should include entrepreneurial education and training, local business incubators and accelerators, financial assistance for nascent entrepreneurs, and supportive formal and informal institutions. In line with previous research, this study established the receptivity of perceived behavioural control to external stimulation and its subsequent utility as a predictor of entrepreneurial goal intention. According to previous research based on the social cognitive theory, external environments conducive to entrepreneurial activity, such as opportunities for active mastery and vicarious experience, instil confidence in potential entrepreneurs' abilities to plan, start, and run entrepreneurial ventures.

Finally, given the positive influence that supportive environments have on social norms and, consequently, on entrepreneurial goal intentions, national and local governments should set the policy tone for establishing social environments that value and reward entrepreneurship.

Limitations and directions for future research

Notwithstanding its importance, this paper had some flaws. To begin, it drew conclusions from data collected from a convenience sample of respondents. Because the respondents' characteristics may not have been truly representative of the target population, generalisation of the findings is difficult. Future studies addressing the same subject should employ probability-based sampling to improve representativeness and generalisability of findings. Second, the study analysed data from a single geographic region in Zimbabwe. As a result, the findings do not represent the views of all Zimbabwean higher education students. Additional research should be conducted using diverse samples drawn from the country's various regional clusters. This type of research would shed light on regional variations in the relationships studied in this study. Finally, the study's cross-sectional survey design implies that causal relationships between variables cannot be inferred accurately from the findings. Future research can take a longitudinal approach, collecting data on phenomena in successive waves, to gain a more credible perspective on the hypothesised relationships between variables.

Conclusion

In entrepreneurship and innovations development research, an intriguing topic is how contextual variables interact with personal factors to shape college students' entrepreneurial aspirations and behaviour. This study sought to ascertain how potential entrepreneurs at different colleges in Zimbabwe perceived and responded to environmental cues as they decided on their career goals and took concrete steps to achieve them. Its specific goal was to determine the predictive influence of supportive environments and higher education institutions on the development of entrepreneurial goal and implementation intentions among college students, using an extended model of Ajzen's (1991) theory of planned behaviour as a theoretical lens. The findings, which were unexpected and inconsistent with previous research in some cases, reveal the complexity of the relationships between contextual factors and the two variants of entrepreneurial intentions examined in this study. The findings also indicate a possible situational limitation on the applicability of the theory of planned behaviour's assumptions to various categories of intentions. The study did, however, produce some findings that have theoretical and practical implications for the study of entrepreneurship development at higher education institutions. The findings, for instance, underscored some of the psychological factors which promoters of entrepreneurship and innovations development at learning institutions should target with their support interventions.

Abbreviations

AVE	Average variance explained
SSO	Mean value prediction
SSE	Prediction error
SEM	Structural equation modelling
PLS	Partial least squares

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Author contributions

The author conceptualised the study, collected and analysed the study-related data, and wrote the manuscript. The author read and approved the final manuscript.

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References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I., & Fishbein, M. (1975). *Belief, attitude, intention and behaviour: an introduction to theory and research*. Reading, MA: Addison, Wesley.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.
- Ajzen, I. (2001). Nature and operation of attitudes. *Annual Review of Psychology*, 52(1), 27–58. <https://doi.org/10.1146/annurev.psych.52.1.27>
- Anwar, I., Thoudam, P., & Saleem, I. (2022). Role of entrepreneurial education in shaping entrepreneurial intention among university students: Testing the hypotheses using mediation and moderation approach. *Journal of Education for Business*, 97(1), 8–20.
- Ayed, T. L. (2020). Extending the debate over entrepreneurial education effectiveness: the case of a Saudi university. *Education + Training*, 62(7/8), 805–823. <https://doi.org/10.1108/ET-12-2019-0273>
- Bae, T. J., Qian, S., Miao, C., & Fiet, J. O. (2014). The relationship between entrepreneurship education and entrepreneurial intentions: A meta-analytic review. *Entrepreneurship Theory & Practice*, 38(2), 217–254.
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachandran (Ed.), *Encyclopedia of human behavior (Reprinted in H. Friedman [Ed.], Encyclopedia of mental health. San Diego: Academic Press, 1998)* (Vol. 4, pp. 71–81). New York: Academic Press.
- Bazan, C., Gaultois, H., Shaikh, A., Gillespie, K., Frederick, S., Amjad, A., Yap, S., Finn, C., Rayner, J., & Belal, N. (2020). A systematic literature review of the influence of the university's environment and support system on the precursors of social entrepreneurial intention of students. *Journal of Innovation and Entrepreneurship*, 9(1), 1–28.
- Belitski, M., & Heron, K. (2017). Expanding entrepreneurship education ecosystems. *Journal of Management Development*. <https://doi.org/10.1108/JMD0620160121>
- Bird, B. (1988). Implementing entrepreneurial ideas: The case for intention. *Academy of Management Learning & Education*, 13(3), 442–453.
- Brickell, T. A., Chatzisarantis, N. L., & Pretty, G. M. (2006). Using past behaviour and spontaneous implementation intentions to enhance the utility of the theory of planned behaviour in predicting exercise. *British Journal of Health Psychology*, 11(2), 249–262.
- Bruno, A. V., & Tyebjee, T. T. (1982). The environment for entrepreneurship. In C. A. Kent, D. L. Sexton, & K. H. Vesper (Eds.), *Encyclopedia of entrepreneurship* (pp. 288–307). Prentice-Hall.
- Bullough, A., Renko, M., & Myatt, T. (2014). Danger zone entrepreneurs: The importance of resilience and self-efficacy for entrepreneurial intentions. *Entrepreneurship Theory & Practice*, 38(3), 473–499.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–358). Lawrence Erlbaum Associates.
- Choi, K., Park, J., Cho, D., & Chu, H.-Y. (2018). The impact of university support on the creation of student entrepreneurs: Evidence from South Korea. *Entrepreneurship Research Journal*, 8, 1–14.
- Churchill, S., & Jessop, D. (2010). Spontaneous implementation intentions and impulsivity: Can impulsivity moderate the effectiveness of planning strategies? *British Journal of Health Psychology*, 15(3), 529–541.
- Coduras, A., Urbano, D., Rojas, Á., Martínez, S., Coduras, A., Urbano, D., Rojas, Á., et al. (2008). The relationship between university support to entrepreneurship with entrepreneurial activity in Spain: A gem data based analysis of pages. *International Advances in Economic Research*, 14, 395–4061.
- De Brito, S., & Leitão, J. (2021). Mapping and defining entrepreneurial ecosystems: A systematic literature review. *Knowledge Management Research & Practice*, 19(1), 21–42.
- Donaldson, C. (2019). Intentions resurrected: A systematic review of entrepreneurial intention research from 2014 to 2018 and future research agenda. *International Entrepreneurship and Management Journal*, 15(3), 953–975.
- Duval-Couetil, N. (2013). Assessing the impact of entrepreneurship education programs: Challenges and approaches. *Journal of Small Business Management*, 51(3), 394–409.
- Ephrem, A. N., Namatovu, R., & Basalirwa, E. M. (2019). Perceived social norms, psychological capital and entrepreneurial intention among undergraduate students in Bukavu. *Education + Training*, 61(7), 963–983.

- Farrukh, M., Sajid, M., & Waheed, A. (2019). Entrepreneurial intentions perspective of theory of planned behaviour. *Education + Training*, 61(7/8), 984–1000.
- Fayolle, A. (2013). Personal views on the future of entrepreneurship education. *Entrepreneurship & Regional Development*, 25(7–8), 692–701. <https://doi.org/10.1080/08985626.2013.821318>
- Fayolle, A., & Gailly, B. (2015). The impact of entrepreneurship education on entrepreneurial attitudes and intention: hysteresis and persistence. *Journal of Small Business Management*, 53(1), 75–93. <https://doi.org/10.1111/jsbm.12065>
- Fayolle, A., Gailly, B., & Lassas-Clerc, N. (2006). Assessing the impact of entrepreneurship education programmes: A new methodology. *Journal of European Industrial Training*, 30(9), 701–720.
- Fayolle, A., & Liñán, F. (2014). The future of research on entrepreneurial intentions. *Journal of Business Research*, 67(5), 663–666.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.2307/3151312>
- Fragoso, R., Rocha-Junior, W., & Xavier, A. (2020). Determinant factors of entrepreneurial intention among university students in Brazil and Portugal. *Journal of Small Business & Entrepreneurship*, 32(1), 33–57.
- Fretschner, M., & Weber, S. (2013). Measuring and understanding the effects of entrepreneurial awareness education. *Journal of Small Business Management*, 51(3), 410–428.
- Garson, G. D. (2016). *Partial least squares: Regression and structural equation models*. Statistical Publishing Associates.
- Gartner, W. B. (1985). Describing framework for conceptual creation venture phenomenon of new. *The Academy of Management Review*, 10(4), 696–706.
- Gerba, D., & T. (2012). The context of entrepreneurship education in Ethiopian universities. *Management Research Review*, 35(3/4), 225–244. <https://doi.org/10.1108/01409171211210136>
- Gibb, A. (2013). The entrepreneurial university: From concept to action, the entrepreneurial university leaders program (EULP).
- Gollwitzer, P. M. (1999). Implementation intentions strong effects of simple plans. *The American Psychologist*, 54(7), 493–503.
- Hassan, N. A. (2020). University business incubators as a tool for accelerating entrepreneurship: Theoretical perspective. *Review of Economics and Political Science*. <https://doi.org/10.1108/reps-10-2019-0142>
- Hattab, H. W. (2014). Impact of entrepreneurship education on entrepreneurial intentions of university students in Egypt. *Journal of Entrepreneurship*, 23(1), 1–18.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20, 277–319.
- Hockerts, K. (2017). Determinants of social entrepreneurial intentions. *Entrepreneurship: Theory and Practice*, 41, 105–130.
- Huggins, R., Morgan, B., & Williams, N. (2015). Regional entrepreneurship and the evolution of public policy and governance evidence from three regions. *Journal of Small Business and Enterprise Development*, 22(3), 473–511.
- Igwe, P. A., Odunukan, K., Rahman, M., Rugara, D. G., & Ochinanwata, C. (2020). How entrepreneurship ecosystem influences the development of frugal innovation and informal entrepreneurship. *Thunderbird International Business Review*, 62(5), 475–488.
- Jena, R. K. (2020). Measuring the impact of business management Student's attitude towards entrepreneurship education on entrepreneurial intention: A case study. *Computers in Human Behavior*, 107, 106275.
- Kabongo, J. D., & Okpara, J. O. (2010). Entrepreneurship education in sub-Saharan African universities. *International Journal of Entrepreneurial Behaviour & Research*, 16(4), 296–308.
- Karimi, S., Biemans, H. J. A., Mahdei, K. N., Lans, T., Chizari, M., & Mulder, M. (2015). Testing the relationship between personality intentions in a developing country. *International Journal of Psychology*, 52, 1–15.
- Kautonen, T., van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship: Theory and Practice*, 39(3), 655–674.
- Kirby, D. A. (2013). Outcomes of an entrepreneurship education programme: An empirical study in Egypt. *International Journal of Management*, 30(3), 23–36.
- Krueger, N. F. (2000). The cognitive infrastructure of opportunity emergence. *Entrepreneurship Theory and Practice*, 24(3), 5–24. <https://doi.org/10.1177/104225870002400301>
- Krueger, N. (2007). What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship Theory and Practice*, 31(1), 123–138.
- Krueger, N. F., & Carsrud, A. L. (1993). Entrepreneurial intentions: Applying the theory of planned behaviour. *Entrepreneurship & Regional Development*, 5(4), 315–330. <https://doi.org/10.1080/08985629300000020>
- Kruger, N. (2009). Entrepreneurial intentions are dead: Long live entrepreneurial intentions. In Carsrud, A., Brannback, M. (eds) *Understanding the entrepreneurial mind*. *International studies in entrepreneurship*, Vol. 24. Springer, New York, NY.
- Krueger, N. F. (2017). Entrepreneurial intentions are dead: Long live entrepreneurial intentions. *Revisiting the entrepreneurial mind* (pp. 13–34). Cham: Springer.
- Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15, 411–432.
- Law, K. M., & Breznik, K. (2017). Impacts of innovativeness and attitude on entrepreneurial intention: Among engineering and non-engineering students. *International Journal of Technology and Design Education*, 27(4), 683–700.
- Lekoko, M., Rankhumise, E. M., & Ras, P. (2012). The effectiveness of entrepreneurship education: What matters most? *African Journal of Business Management*, 6(51), 12023–12032.
- 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.
- Liñán, F., & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions: Citation, thematic analyses, and research agenda. *The International Entrepreneurship and Management Journal*, 11, 907–933.
- Liñán, F., & Fernando-Serrano, J. (2018). Deliverable E3-ELITE questionnaire for nascent entrepreneurs. <https://doi.org/10.13140/RG.2.2.35644.4401>
- Liñán, F., Rodríguez-Cohard, J. C., & Rueda-Cantuche, J. M. (2011a). Factors affecting entrepreneurial intention levels: A role for education. *International Entrepreneurship and Management Journal*, 7(2), 195–218.
- Liñán, F., Urbano, D., & Guerrero, M. (2011b). Regional variations in entrepreneurial cognitions: Start-up intentions of university students in Spain. *Entrepreneurship and Regional Development*, 23(3–4), 187–215.

- Lorz, M., Mueller, S., & Volery, T. (2013). Entrepreneurship education: A systematic review of the methods in impact studies. *Journal of Enterprising Culture*, 21(2), 123–151.
- Malebana, M. J. (2017). Knowledge of entrepreneurial support and entrepreneurial intention in the rural provinces of South Africa. *Development Southern Africa*, 34(1), 74–89.
- Malebana, M. J., & Swanepoel, E. (2014). The relationship between exposure to entrepreneurship education and entrepreneurial self-efficacy. *Southern African Business Review*, 18(1), 1–26. <https://doi.org/10.25159/1998-8125/5630>
- Malebana, M. J., & Swanepoel, E. (2015). Graduate entrepreneurial intentions in the rural provinces of South Africa. *Southern African Business Review*, 19(1), 89–111. <https://doi.org/10.25159/1998-8125/5835>
- Malecki, E. J. (2018). Entrepreneurship and entrepreneurial ecosystems. *Geography Compass*. <https://doi.org/10.1111/gec3.12359>
- Manimala, M. J., Thomas, P., & Thomas, P. K. (2019). Perception of entrepreneurial ecosystem: Testing the actor-observer bias. *Journal of Entrepreneurship*, 28(2), 316–342.
- Markuerkiaga, L., Caiazza, R., Igartua, J. I., & Errasti, N. (2016). Factors fostering students' spin-off firm formation: An empirical comparative study of universities from North and South Europe. *Journal of Management Development*, 35(6), 814–846.
- Martin, B., & C., McNally, J.J., & Kay, M. J. (2013). Examining the formation of human capital in entrepreneurship: a meta-analysis of entrepreneurship education outcomes. *Journal of Business Venturing*, 28(2), 211–224. <https://doi.org/10.1016/j.jbusvent.2012.03.002>
- Misoska, A. T., Dimitrova, M., & Mrosik, J. (2016). Drivers of entrepreneurial intentions among business students in Macedonia. *Economic Research-Ekonomska Istraživanja*, 29(1), 1062–1074.
- Morawska-Jancelewicz, J. (2021). The role of universities in social innovation within quadruple/quintuple helix model: Practical implications from Polish experience. *Journal of the Knowledge Economy*, 13, 1–42.
- Morris, M. H., Webb, J. W., & Fu, J., & Singhal, S. (2013). A competency-based perspective on entrepreneurship education: conceptual and empirical insights. *Journal of Small Business Management*, 51(3), 352–369. <https://doi.org/10.1111/jsbm.12023>
- Muffatto, M. S. M. (2015). The present state of entrepreneurship ecosystems in selected countries in Africa. *African Journal of Economic and Management Studies*, 6(1), 17–54.
- Nabi, G., Liñan, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research Agenda. *Academy of Management Learning & Education*, 16(2), 277–299.
- Ndedi, A. A. (2013). Challenges and perspectives facing the development of entrepreneurship education and training in South Africa. *World Journal of Entrepreneurship, Management and Sustainable Development*, 9(2), 126–132.
- Ndofirepi, T. M. (2020). Relationship between entrepreneurship education and entrepreneurial goal intentions: psychological traits as mediators. *Journal of Innovation and Entrepreneurship*. <https://doi.org/10.1186/s13731-020-0115-x>
- Nowiński, W., Haddoud, M. Y., Wach, K., & Schaefer, R. (2020). Perceived public support and entrepreneurship attitudes: A little reciprocity can go a long way! *Journal of Vocational Behavior*, 121, 103474.
- Orbell, S., Hodgkins, S., & Sheeran, P. (1997). Implementation intentions and the theory of planned behavior. *Personality and Social Psychology Bulletin*, 23(9), 945–954. <https://doi.org/10.1177/0146167297239004>
- Packham, G., Jones, P., Miller, C., Pickernell, D., & Thomas, B. (2010). Attitudes towards entrepreneurship education: A comparative analysis. *Education + Training Journal of European Industrial Training Journal of Small Business and Enterprise Development*, 52(2), 568–586.
- Pereira, R., & Franco, M. (2022). University-firm cooperation and regional development: Proposal of a model of analysis. *Journal of the Knowledge Economy*. <https://doi.org/10.1007/s13132-022-00947-6>
- Pfeifer, S., Šarlija, N., & Zekić Sušac, M. (2016). Shaping the entrepreneurial mindset: Entrepreneurial intentions of business students in Croatia. *Journal of Small Business Management*, 54(1), 102–117.
- Piperopoulos, P. (2012). Could higher education programmes, culture and structure stifle the entrepreneurial intentions of students? *Journal of Small Business and Enterprise Development*, 19(3), 461–483.
- Piperopoulos, P., & Dimov, D. (2014). Burst bubbles or build steam? Entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intentions. *Journal of Small Business Management*, 53, 1–16.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903.
- Ringle, C. M., Wende, S., & Becker, J.-M. (2015). "SmartPLS 3." Boenningstedt: SmartPLS GmbH. <http://www.smartpls.com>
- Saeed, S., Yousafzai, S. Y., Yani-de-Soriano, M., & Muffatto, M. (2015). The role of perceived university support in the formation of students' entrepreneurial intention. *Journal of Small Business Management*, 53(4), 1127–1145.
- Santos, S. C., & Liguori, E. W. (2019). Entrepreneurial self-efficacy and intentions: Outcome expectations as mediator and subjective norms as moderator. *International Journal of Entrepreneurial Behavior & Research*, 26(3), 400–415.
- Seyoum, B., Chinta, R., & Mujtaba, B. G. (2021). Social support as a driver of social entrepreneurial intentions: The moderating roles of entrepreneurial education and proximity to the US small business administration. *Journal of Small Business and Enterprise Development*, 28(3), 337–359.
- Shah, N., & Soomro, A. S. (2017). Investigating entrepreneurial intention among public sector university students of Pakistan. *Education + Training*, 59(7/8), 841–855.
- Shaper, A., & Sokol, L. (1982). The social dimensions of entrepreneurship. In C. A. Kent, D. L. Sexton, & K. H. Vesper (Eds.), *Encyclopedia of Entrepreneurship* (pp. 72–90). Englewood Cliffs, NJ: Prentice-Hall.
- Shi, L., Yao, X., & Wu, W. (2019). Perceived university support, entrepreneurial self-efficacy, heterogeneous entrepreneurial intentions in entrepreneurship education: The moderating role of the Chinese sense of face. *Journal of Entrepreneurship in Emerging Economies*, 12(2), 205–230.
- Shirokova, G., Osiyevskyy, O., & Bogatyreva, K. (2015). Exploring the intention-behavior link in student entrepreneurship: Moderating effects of individual and environmental characteristics. *European Management Journal*. <https://doi.org/10.1016/j.emj.2015.12.007>
- Sitaridis, I., & Kitsios, F. (2019). Entrepreneurship as a career option for information technology students: Critical barriers and the role of motivation. *Journal of the Knowledge Economy*, 10(3), 1133–1167.
- Soetanto, D., & van Geenhuizen, M. (2019). Life after incubation: The impact of entrepreneurial universities on the long-term performance of their spin-offs. *Technological Forecasting and Social Change*, 141, 263–276.

- Solesvik, M. Z. (2013). Entrepreneurial motivations and intentions: Investigating the role of education major. *Education + Training*, 55(3), 253–271.
- Sommer, L. (2011). The theory of planned behaviour and the impact of past behaviour. *International Business & Economics Research*, 10(1), 91–110. <https://doi.org/10.19030/iber.v10i1.930>
- Spigel, B. (2018). Envisioning a new research agenda for entrepreneurial ecosystems: Top-down and bottom-up approaches. *Advances in Entrepreneurship, Firm Emergence and Growth*, 20, 127–147.
- Sultan, P., Tarafder, T., Pearson, D., & Henryks, J. (2020). Intention-behaviour gap and perceived behavioural control-behaviour gap in theory of planned behaviour: Moderating roles of communication, satisfaction and trust in organic food consumption. *Food Quality and Preference*, 81, 103838.
- Thompson, E. R. (2009). Entrepreneurial intent: And development reliable metric. *Entrepreneurship Theory and Practice*, 33, 669–694.
- Urban, B., & Kujinga, L. (2017). The institutional environment and social entrepreneurship intentions. *International Journal of Entrepreneurial Behaviour and Research*, 23(4), 638–655.
- van Gelderen, M., Kautonen, T., Wincet, J., & Biniari, M. (2018). Implementation intentions in the entrepreneurial process: concept empirical findings and research agenda. *Small Business Economics*, 51(4), 923–941. <https://doi.org/10.1007/s11187-017-9971-6>
- Wagner, M., Schaltegger, S., Hansen, E. G., & Fichter, K. (2021). University-linked programmes for sustainable entrepreneurship and regional development: How and with what impact? *Small Business Economics*, 56, 1141–1158.
- Walter, S. G., & Dohse, D. (2012). Why mode and regional context matter for entrepreneurship education. *Entrepreneurship & Regional Development: An International Journal*, 24(9–10), 37–41.
- Weber, R. (2012). *Evaluating entrepreneurship education*. Springer Science & Business Media. <https://doi.org/10.1007/978-3-8349-3654-7>
- Welter, F. (2011). Contextualizing entrepreneurship—Conceptual challenges and ways forward. *Entrepreneurship: Theory and Practice*, 35(1), 165–184.
- Wijayati, D. T., Fazlurrahman, H., Hadi, H. K., & Arifah, I. D. C. (2021). The effect of entrepreneurship education on entrepreneurial intention through planned behavioural control, subjective norm, and entrepreneurial attitude. *Journal of Global Entrepreneurship Research*. <https://doi.org/10.1007/s40497-021-00298-7>
- Zahra, S. A., & Wright, M. (2011). Entrepreneurship's next act. *Academy of Management Perspectives*, 25(4), 67–83.
- Zhou, W. (2017). Public-private hybrid forms, and entrepreneurial reinvestment in a transition economy. *Journal of Business Venturing*, 32(2), 197–214.

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