

Effective Interventions for Enhancing Academic Achievement in Higher Education: Views of Entrepreneurship Students

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Abstract: Entrepreneurship is considered a vehicle for fighting unemployment in developing countries such as South Africa. As a result, research focusing on entrepreneurship education continues to gain traction. Graduates of tertiary institutions are expected to contribute meaningfully either through employment or job creation. This expectation puts the role of tertiary institutions in converting students into graduates in the spotlight. Tertiary institutions deal with many challenges, such as the heterogeneity of the student population, which calls for evidence-based interventions that are tailor-made to the needs of specific cohorts. Thus, various stakeholders should support tertiary institutions by helping them achieve the desired graduate attributes. This paper sought to suggest effective interventions that would enhance the academic success of entrepreneurship students and prepare them to become future job creators. Interventions should capitalize on students' strengths and improve on their weaknesses. The researchers argue that interventions to promote academic success should consider students' abilities and drive to complete qualifications, lecturers' teaching methods, and graduate attributes required by society. The study used a quantitative approach to address the research question and collected data from 204 undergraduate entrepreneurship students at a technology university in South Africa. The study suggests effective interventions from descriptive statistics. This study reveals the importance of understanding students' backgrounds, entrepreneurial attributes and teaching methods when designing academic

interventions. Implications to the academic administrators and lecturers as well as recommendations for future studies are flagged.

Keywords: academic interventions; entrepreneurship education; general systems theory; entrepreneurship students; evidence-based interventions; teaching methods.

Introduction and background

Higher education institutions (HEIs) produce knowledge that benefits society in various forms. The knowledge produced by HEIs is in the form of students who graduate with different skills and abilities, including the research produced by these institutions of higher learning. Expectedly, employers expect graduates of HEIs to possess the requisite skills for their various operations (Horn & Moesta, 2019). Owing to various reasons, organisations are unable to hire graduates of HEIs. Some of these reasons are linked to HEIs not producing the requisite skills that employers need and the financial inability of the employer to hire as many graduates as he needs (Omopariola et al., 2020; Shava, 2021). Closely linked to HEIs not producing the requisite skills is their inability to clearly define their graduate attributes (Green, Hammer & Star, 2009; Winberg et al., 2018) and as such HEIs fail to offer programmes that represent what the HEI stands for. Graduate attributes relate to the skills, personal attributes, and values which should be acquired for the world of work by graduates while studying, regardless of discipline or field of study (Smith & Bath, 2006; Bridgstock, 2009). Essentially, graduate attributes should reflect student outcomes in relation to the professional standards of employers and employability (Oraison, Konjarski & Howe, 2019). Graduate employability can also take place through the uptake of entrepreneurial activity by graduates. Bustamam, Mutalib and Yusof (2015) noted the value of entrepreneurship training in nurturing an entrepreneurship culture among students, often leading to setting up a venture after graduation. Entrepreneurship has been touted as a crucial pillar in socioeconomic development discourse owing to its capacity to address inequality, poverty, and unemployment. Therefore, understanding what constitutes success and how it can be achieved among entrepreneurship students is crucial to the sustainability of an emerging economy such as South Africa.

According to Horn and Moesta (2019), it is important to understand what students intend to achieve when they enrol in a higher education institution to avoid unwanted outcomes. Interestingly, a poor high school education system ill-prepares students for tertiary-level studies (Scholtz & Allen-Ile, 2007). Since high school performance

predicts university performance (McKenzie & Schweitzer, 2001), tertiary institutions have a challenging role in a country with a poor high school education system. While Du Toit and Kempen (2018) alluded to the potential contribution of the high school curriculum towards youth entrepreneurship education, they decried the explicit inclusion of entrepreneurship in learning content in South Africa in several exit-level high school curriculum subjects. For example, a survey of the learners' perceptions of the efficacy of entrepreneurship education (Nchu, Tengeh & Hassan, 2015) pointed out the inadequacy of high school entrepreneurship education to inspire students to choose an entrepreneurship career despite their eagerness to become entrepreneurs. Understanding the pre-enrolment factors of students can help institutions design academic interventions to promote student success (Young, 1989; Potgieter & Van Schoor, 2011).

While many scholars across the globe have attempted to understand the dynamics around student success, predicting academic performance remains complex (Mthimunye & Daniels, 2019; Pather, 2015). This view is upheld in a recent study (Sibanda & Iwu, 2021a), suggesting that academic administrators should regard students' academic journey as a dynamic system. Academic administrators at a university hold leadership positions in various academic departments or administrative units, responsible for supervising and managing the day-to-day operations of the academic programmes and services offered by the university, including academic advisors, registrars, deans, and admissions. Studies have also examined varying aspects of student success along the lines of input, process, and output. For example, some scholars focused on inputs and attempted to predict the pre-enrolment factors (Te Wierik, Beishuizen & Van Os, 2015). Others, such as (Perger & Takacs, 2016; Alshammari et al., 2017; Okoedion, Okolie & Udom, 2019) focused on the process by investigating the post-enrolment factors perceived as influential towards students' academic performance. Burger (2017) alludes to the importance of investigating pre- and post-enrolment factors rather than factors in isolation, thus focusing on both the input and process. Pre-enrolment factors influence academic achievement before a student enrolls in a university, such as socio-economic status. In contrast, post-enrolment factors are the factors that influence academic achievement after a student has enrolled in university, such as support services rendered by a

university. Therefore, this study proposes classifying the focus of various student interventions on whether they aim to improve the input, process, or output.

The paper progresses as follows: Next is the literature that explains the term success to boost an understanding of the focus of this paper. Following this will be a contextual definition of academic achievement, a description of entrepreneurial education in South Africa and the teaching methods in entrepreneurship. The method which was used in carrying out this study follows where after the results are discussed along with our concluding remarks.

Academic achievement

While some authors use the phrases “academic success” and “academic achievement” interchangeably (see Parker et al., 2004), York, Gibson and Rankin (2015) define academic achievement as an element of student success which is measured by grades (course or assignment) and Grade Point Average. In line with the above, academic achievement refers to the ability of students to pass their assignments, examinations and semester to progress to the next educational level.

Every institution’s goal is to achieve high throughput rates; hence South Africa's Department of Higher Education and Training (DHET) calls for all universities to offer evidence-based interventions to support students through the University Capacity Development Programme (UCDP) (DHET, 2020). Through the UCDP, institutions should analyze data and critical risk factors in their student populations, then design interventions to ensure better course choices and support for students entering their programs. Access to higher education should match a reasonable chance of success (DHET, 2020; Maree, 2015; Myburgh, 2018).

Student voices are crucial for effective institutional support (Blaich & Wise, 2021), thus making interventions relevant to the students’ needs. A United Kingdom-based study by Thomas, Hill, O’Mahonny, and Yorke (2017) prescribes a set of aspects that characterize effective interventions. They suggest that effective interventions should be evidence-based, relevant, customized to address identified issues, academic purpose, mainstream delivery, facilitate collaboration and ongoing collaboration, and be monitored.

Therefore, this study aims to address the question: Which strategies can maximize entrepreneurship students' academic achievement in HEIs?

An overview of entrepreneurship education in South Africa

Spinelli and Adams (2016:77) define entrepreneurship which revolved from Jeffrey A. Timmons, as “*a way of thinking, reasoning, and acting that is opportunity obsessed, holistic in approach, and leadership balanced for the purpose of value creation and capture*”. Entrepreneurship education refers to all the activities that aim to develop and improve the entrepreneurial inspiration, awareness, knowledge, and skills needed to successfully establish and run entrepreneurial ventures (Ozaralli & Rivenburgh, 2016), which holistically addresses the elements in the Timmons Model of Entrepreneurial Process (TMEP), mainly opportunity, resources and team (Spinelli & Adams, 2016). Shambare (2013) argues that entrepreneurship education should aim to develop students to consider an entrepreneurship career by building their critical thinking and problem-solving skills, taking advantage of new technologies, and building their management skills (Herrington, Kew & Mwanga, 2017). Therefore, the overall aim of entrepreneurship education is to impart entrepreneurial knowledge that would transform individuals to be entrepreneurial.

Teaching methods in entrepreneurship

There are mixed views on effective teaching methods in entrepreneurship education, which could be one of the reasons for entrepreneurship courses' ineffectiveness. In South Africa, Mamabolo (2017) decried the disparity between the skills taught in the classroom and industry expectations. Thus, the quality and relevance of entrepreneurial curricula should be in line with the industry's needs (Herrington & Kew, 2016). Interestingly, Sirelkhatim and Gangi (2015) found varying curricula content and teaching methods of entrepreneurship courses relate to what each course intends to achieve. Some courses promote entrepreneurial awareness, while some aim to produce graduates ready to establish a business, and others purposely develop entrepreneurial mindsets or competencies. Therefore,

entrepreneurship courses should be clear on what they intend to achieve.

Entrepreneurship education is used to influence the behavior of students by developing entrepreneurial attributes. Prior knowledge and experience of the students are important when seeking to develop their entrepreneurial attributes, as these can be sources of business ideas for some (Van Der Veen & Wakkee, 2004). Thus, having a pre-enrollment profile becomes an essential starting point for initiating relevant teaching strategies.

Some studies (for example, Farrington, Gray & Sharp, 2011; Ozaralli & Rivenburgh, 2016) suggest specific teaching methods without factoring in the importance of course objectives. Almost a decade ago, Farrington, Gray and Sharp (2011) alluded to the importance of exposing students to entrepreneurial experiences frequently: through entrepreneur mentors, job shadowing in an entrepreneurial setup, structured interviews with entrepreneurs, inviting role models as guest speakers, giving practical assignments to students, and structuring qualifications to include internships. Ozaralli and Rivenburgh (2016) support the above view and maintain that instead of restricting entrepreneurship education to the classroom, there is a need to follow an integrated approach that links classroom teaching with real-life experiences.

Similarly, Fatoki (2014a) recommends both traditional and non-traditional methods for teaching entrepreneurship. For example, a combination of practical business and incubation support based on the needs of students can develop students' entrepreneurial intentions (Adjei, Broni-Pinkrah & Denanyoh, 2014). One way to expose students to entrepreneurship is to focus on teaching methods that develop creative thinking, helping students be innovative, thus exploiting change as an opportunity for different services or businesses (Booyesen, 2014). Therefore, researchers should clearly state when to apply integrated teaching methods.

An Australian study by Jones and English (2004) suggests an action-oriented teaching style that supports experiential learning, focusing on problem-solving, project-based learning creativity, and peer evaluation towards entrepreneurship programs. In a South African context, Shambare (2013) argues that tertiary institutions in business and entrepreneurship training lack a practical component, an issue

evident in most South African institutions (Botha & Bignotti, 2016) and high schools (Nchu et al., 2015). The University of Pretoria implemented a practical teaching approach in an entrepreneurship module, resulting in a positive outcome (Strydom & Adams, 2009). Hence, the perceived value of including practical teaching approaches to promote entrepreneurial learning (Mamabolo, 2017; Musetsho & Lethoko, 2017).

Many studies then investigated the lack of practical components in entrepreneurial education, thus recommending a practical approach to entrepreneurship education (Herrington et al., 2017; Lekoko, Rankhumise & Ras, 2012; Ozaralli & Rivenburgh, 2016). Recent studies recommend the adoption of practical work-based learning for developing students' entrepreneurial competencies and bridging the gap between theory and practice (Lose, 2021; Matsoso & Benedict, 2020). The Global University Entrepreneurial Spirit Students' Survey (GUESSS) from 2018 highlights the essence of students working in start-ups to boost their entrepreneurial intentions and activities (Sieger, Fueglistaller, Zellweger & Braun, 2018). Thus, practical projects offered at HEIs would increase students' entrepreneurial intentions (Mamabolo, 2017). Working on projects would further strengthen identifying co-founders for any potential business ventures (Sieger et al., 2018). An example of the above is a study of 12 highly ranked universities and international business schools by Nieuwenhuizen, Groenewald, Davids, Rensburg and Schachtebeck (2016), revealing a preference for teaching practical assignments over traditional classroom approaches.

Despite the importance of including a practical component at South African institutions offering business and entrepreneurship training, there are some challenges. For example, Botha and Bignotti (2016) cited some difficulties associated with administering internships, such as administrative capacity issues, difficulty in scouting, managing, and controlling internship programs for students, issues with curriculum redesign, and lack of capacity of small business owners to mentor interns. Therefore, tertiary institutions should consider the above points to include a practical component in entrepreneurship offerings.

While students can learn a lot from entrepreneurs participating as lecturers, the authors argue that attracting entrepreneurs into full-

time lecturing positions is challenging. Drawing from the possibility of entrepreneurs sharing their experiences, Thrikawala (2011) suggests that entrepreneurs take up lecturing positions. Such experiences may encourage students to consider entrepreneurship a career (Boldureanu, Ionescu, Bercu, Bedrule-Grigoruța & Boldureanu, 2020). For example, Iwu et al. (2021) call for a relevant and adequate curriculum presented by a competent lecturing team. However, one of the attributes of entrepreneurs is being independent. Thus, a nine-to-five job may not be attractive to entrepreneurs. A potentially viable option would be for education administrators to invite young, successful entrepreneurs to participate in educational programs (Fatoki, 2014b; Herrington et al., 2017) as guest speakers or mentors.

Scholars have divergent views on effective teaching methods for entrepreneurship education from the literature reviewed. While some scholars advocate for theory-based methods, some encourage practice-based methods, and some advocate for both. Sirelkhatim and Gangi (2015) discuss three general themes of content and teaching methods for entrepreneurship education, and these are teaching “about” entrepreneurship, teaching “for” entrepreneurship and teaching “through” entrepreneurship. This paper recommends that universities continuously review and align their entrepreneurship offerings targeting specific areas of business requirements (Viviers, Solomon & Venter, 2013). While Van Der Veen and Wakkee (2004) opine that offering education and training increases the chances of individuals finding a promising idea, in this study, we add that, apart from the above, entrepreneurship education develops various elements of the entrepreneurial process refers to teaching “about” entrepreneurship. Thus, it equips entrepreneurs at every stage of the entrepreneurial process. While Van Der Veen and Wakkee’s 2004, is of the view that the entrepreneurial process is dynamic and iterative instead of being linear and sequential. However, entrepreneurship education should also further develop an entrepreneurial mindset (teaching “for” entrepreneurship) and be integrated into various curricula in different subjects (teaching “through” entrepreneurship) (Piperopoulos & Dimov, 2014). Entrepreneurship courses should be clear on whether they are teaching “about”, or “for”, or “through” entrepreneurship. Therefore, the researchers argue that teaching methods should be informed by the course objectives and applied with caution.

Proposed theoretical model

In this section, we propose a theoretical model for improving students' academic achievement that is used to structure our discussion. Education administrators should consider students' attitudes and capabilities before offering effective interventions. This study combines concepts from two theories: the Tripartite Model of Motivation for Achievement (TMMA) by Tuckman (1999) and the General Systems Theory (GST) by Von Bertalanffy (1968). This empirical study extends the study mentioned above by investigating the possibility of deriving interventions using a combination of GST and TMMA. Sibanda and Iwu (2021a) recently applied the General Systems Theory in a non-empirical study to understand students' journeys. They suggest that higher education academic administrators and lecturers consider using the GST to design academic interventions.

Building from McCombs and Marzano (1990), who assert that student academic achievement is the outcome of two principal factors: "skill" and "will", Tuckman (1999) based student achievement on three factors: (i) student attitude or belief to attain the academic outcome; (ii) the student's drive or desire to maintain the outcome; (iii) the strategy or technique employed by the student to attain the outcome. In proposing TMMA, Tuckman (1999) believes that the combination of attitude, drive, strategy and motivation for achievement are unidirectional; hence they can be used to understand and implement student motivation in an educational setting. The various elements in the TMEP are entrepreneurial characteristics which students come with when they enrol and can be developed with time. Figure 1 presents the conceptualized process of improving students' academic achievement.

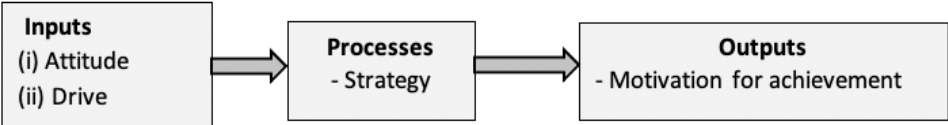


Figure 1. A proposed theoretical model for improving students' academic achievement adapted from Sibanda and Iwu (2021a)

According to Von Bertalanffy (1968), GST demonstrates how interrelated knowledge and the world are. GST suggests an ideal point of departure for bringing together varied scientific traditions. It essentially challenges the silo approach of viewing science and, to an extent, knowledge by suggesting an underpinning relationship between the different scientific thinking (Kast & Rosenzweig, 1972). Though initially proposed by the biologist Bertalanffy in the 1920s, GST is accepted and applied in several fields, and it is commonly used in business and organizational management (Kast & Rosenzweig, 1972). GST will enable the authors to synthesize and analyze ideas related to diverse fields, such as entrepreneurship, in this paper.

Methodology

This study employed an empirical approach to suggest interventions for improving the success of entrepreneurship students. This study gathered data from 204 Entrepreneurship students at a University of Technology (UoT) using a self-designed questionnaire developed from the literature review. The questionnaire consists of closed-ended questions gathering demographic information, students' pre-enrolment profile, pre-enrolment factors perceived to have influenced high school academic performance, including the entrepreneurial profile of the students, and institutional support and development. Questions 2.1 to 2.15 are pre-enrolment profile and pre-enrolment factors (Tinto, 1975), developed in light of what describes the students before they enrol at university, input under the GST and attitude under the TMMA. The entrepreneurial profile (Questions 2.16 to 2.25) is inspired by the various TMEP elements (Spinelli & Adams, 2016), which are entrepreneurial characteristics. The institutional support and development (Questions 3.1 to 3.9) are institutional student support through the curriculum. The questionnaire had 25 non-demographic-related statements identified from the literature review. The questions and responses were coded and changed into numbers to enable a computer to make sense of the data for further investigation (Babbie & Mouton, 2001).

The first nine statements focused on the pre-enrolment profiles and were dichotomous, requiring 'Yes' or 'No' responses. The remaining 34 used a four-point Likert scale (SD = Strongly Disagree, A = Agree, D =

Disagree, and SD = Strongly Disagree). These scales (SD, D, A, SA) were then assigned numbers from 1 to 4 to capture the responses to enable data analysis (Zikmund, Babin, Carr & Griffin, 2010). The study utilized Cronbach's Alpha test to measure the consistency of the variables. These 25 statements, which used Likert-scale questions, had a Cronbach's alpha of 0.756, above the widely accepted ratio of 0.7 (Foxcroft & Roodt, 2009). Furthermore, the study utilized descriptive analysis to determine and compare the frequencies of the study variables.

The Research Ethics Committee of the UoT in question granted permission and ethics clearance for the study. The Department of Entrepreneurship gave additional permission to access students in the department. Of the 300 questionnaires distributed, 204 (68%) were usable for the study. The researchers clarified that participation was not compulsory and that data would be treated confidentially, would only be used for research purposes, and participants would be anonymous. Data were captured and analyzed using the Statistical Package for Social Sciences (SPSS) Version 26, an established statistics package.

Results and findings

Participants were from the Extended Curriculum Program (ECP) first-year level to the mainstream third year. Of the 204 participants, 33% were first-year mainstream students, with second and third-year mainstream students with 26.5% and 20.6%, respectively. Figure 2 is a stacked bar chart presenting the results of the students' responses. Next, the results are described in three sections: the pre-enrolment profile, the entrepreneurial profile, and the uptake of academic support services.

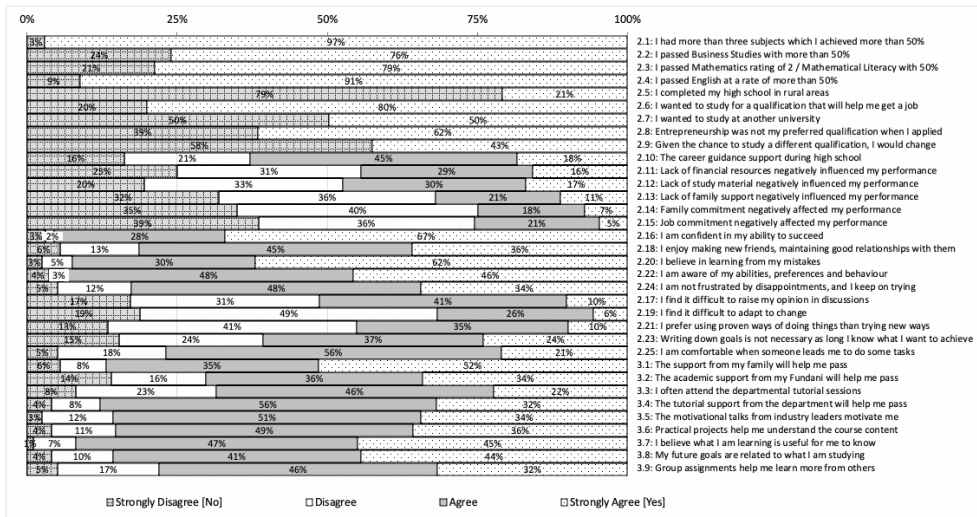


Figure 2. Frequency of questionnaire statements

Students' pre-enrolment profile

From Figure 2, the following is evident: most students met the entry requirements for a diploma in entrepreneurship (statements 2.1 to 2.4), completed high school in urban areas (statement 2.5 with 79%), and did not choose an entrepreneurship diploma as first choice (statements 2.6 and 2.8); half would consider switching to another qualification (statement 2.9); almost half had ambitions of studying at another institution (2.7).

Among the investigated factors, the frequencies show that more than half of the students agree that career guidance support influenced their high school performance (statement 2.10). However, most students do not attribute their high school academic performance to a lack of financial resources, study material, family support, job, and family commitments (see statements 2.11 to 2.15). This finding resonates with statement 2.5, in which 79% of students show that they completed their high school in urban areas.

Students' entrepreneurial profile

Statements 2.16 to 2.25 relate to the entrepreneurial traits of the students. Of the ten statements, students are of the view that they

exhibit eight entrepreneurial characteristics: confidence (statement 2.16), networking (statement 2.18), adaptability (statement 2.19), learning from mistakes (statement 2.20), creativity (statement 2.21), self-awareness (statement 2.22), writing down goals (statement 2.23), and persistence (statement 2.24). In two statements, students agree with their lack of ability to participate in discussions (statement 2.17) and leadership skills (statement 2.25).

The uptake of academic support services

Statements 3.1 to 3.9 relate to the students' views on the academic support's awareness, uptake and relevance. Over 66% of the students are aware of and utilize the institutional support (Fundani academic writing services and the tutorial system) (statement 3.2, statement 3.3, and statement 3.4), value the motivational talks from industry leaders (statement 3.5), practical projects (statement 3.6), the relevance of the curriculum (statement 3.7), towards their goals (statement 3.8). Students also value the importance of group assignments (statement 3.9) and family support (statement 3.1).

Discussion

The discussion focuses on the inputs and processes which eventually influence the output. Thus, this study addresses the research question: *What interventions can maximize entrepreneurship students' academic achievement in HEIs?*

Strategies for students' academic achievement improvement

As presented in Figure 2, the pre-enrolment profile of the students describes young individuals with high self-efficacy. The students perceive themselves as having met entry requirements for many higher education qualifications, wanted to study for a qualification leading to a job after graduation, and were studying towards a second or third preferred qualification. The researchers argue that these students need the motivation to complete the entrepreneurship qualification. Otherwise, they may drop out. Students' profiles should inform

interventions to help students achieve their qualifications. The suggested interventions target the input and process stages of the GST.

Interventions toward the input stage

(a) Promotion of career guidance at an early stage

As alluded to in earlier studies (Adam, Backhouse, Baloyi, & Barnes, 2010; Leshoro & Jacobs, 2019), this study reports the under-preparedness of the students for higher education. While students show high self-efficacy, their pre-entry results show that they did not enter preferred qualifications. Instead, these students were admitted into a qualification against their career aspirations. It is worth noting that most students who secure study places at a UoT would have matriculated with a diploma endorsement on their matric certificate.

Most students want to pursue a qualification that guarantees employment after graduation rather than an entrepreneurship qualification. Thus, two decades ago, a trend pointed out (Kroon, De Klerk & Dippenaar, 2003; Kroon & Meyer, 2001) is still evident among students. This trend calls for HEIs to participate in early career guidance (2.10) initiatives, such as high school. This initiative can positively impact students during their preparation for tertiary-level paths.

The lack of financial resources can contribute to the lack of career guidance. Students with financial challenges may barely visit career fair events (statement 2.10). It would be ideal for schools, government, companies, tertiary institutions, and parents to promote career guidance supporting earlier recommendations (Kroon et al., 2003; Te Wierik et al., 2015; Maila & Ross, 2018). Schools may host career fairs to invite guest speakers from both the private and public sectors to present various career paths that students can follow. For example, the private sector may sponsor high school students to attend university career fairs. As a result, students may become familiar with the possible options they can pursue at the tertiary level (Sibanda & Iwu, 2021b).

Additionally, private companies may be encouraged to participate in entrepreneurship development by sponsoring school

career fairs as part of their social responsibility initiatives or by financially supporting schools sending final year students to attend university career fairs. Various stakeholders' promotion of career guidance at a national level helps matriculants become career-ready and make informed decisions before commencing higher education studies (Dodd, Hanson & Hooley, 2021).

(b) Tightening student recruitment

Since the majority (80%) of students (statement 2.6) wanted to study a qualification leading to a job, which Viviers et al. (2013) describe as a common trend, this might suggest the need for the entrepreneurship department to review their student selection process to attract those who are keen to take up entrepreneurship education. The department can achieve this in three ways: (i) the application process can include a requirement by students to motivate their interest in studying entrepreneurship, (ii) conducting interviews before enrolment, or (iii) administering a test in the form of a questionnaire aimed at determining the willingness of prospective students to study entrepreneurship.

Suggested interventions toward the process stage

Apart from the interventions towards the inputs, next, this paper discusses suggestions for the process of a system.

(a) Measurement of students' entrepreneurial profile

This study found the need to understand the needs of every cohort and ensure that appropriate academic interventions are applied to relevant cohorts to manage the associated dynamics. This finding confirms a study by Matoti (2010) and is in line with the expectations of the DHET for universities to monitor interventions (DHET, 2020) carefully. Thus, the study suggests that the entrepreneurship department periodically measures students' perceptions of their entrepreneurial profiles. For example, even though entrepreneurship was either the second or third choice for most students, they eventually

became interested in the qualification. Such interesting insights may inform academic administrators about the students' adaptability.

(b) Measurement of the uptake of interventions

Student voices are essential to ensure effective interventions. From the results of statements 3.7 and 3.8, students affirmed the relevance of the curriculum to their goals. This finding confirms students' adaptability to a new discipline, an entrepreneurial characteristic they exhibit, which agrees with statement 2.19. Knowing that students can adapt to new situations, academic administrators may consider adjusting the curriculum to delve deeper into corporate entrepreneurship.

(c) Promote corporate entrepreneurship to students

This study suggests that the entrepreneurship department promotes corporate entrepreneurship as a career based on two findings. Firstly, the findings show that students were underprepared for higher education, as revealed in their career aspirations. Secondly, students have adapted and eventually found the entrepreneurship qualification helpful towards their future goals despite a career change experienced (see statements 3.7 and 3.8).

The findings from statement 2.10 (career guidance during high school) compared with three statements: 2.6 (desire to study a qualification leading to a job), 2.8 (entrepreneurship being not the preferred qualification of study), and 2.9 (desire to change qualification), present an exciting pattern: students intending to seek employment than creating employment. Lecturers should continually remind students of the possibility of getting work in companies that embrace corporate entrepreneurship. The entrepreneurship department can promote corporate entrepreneurship through the lecturers and the private sector, such as companies. Therefore, the entrepreneurship department should promote corporate entrepreneurship at all study levels.

Curriculum developers can infuse corporate entrepreneurship in group assignments, motivational talks from guest speakers, and practical projects. Jones and English (2004) suggest an action-oriented

teaching style supportive of experiential learning, focus on problem-solving and project-based learning, creativity, and peer evaluation for entrepreneurship courses. For example, a practical teaching approach was implemented in one of the entrepreneurship modules and yielded a positive outcome at the University of Pretoria (Strydom & Adams, 2009; Mamabolo, 2017). Furthermore, research by Herrington and Kew (2016) supports the restructuring of the formative assessments to include activities such as projects and competitions. Thus, lecturers can design formative assessments to develop knowledge and understand instilling corporate entrepreneurship.

Both government entrepreneurial agencies and social organizations promoting entrepreneurship should spearhead the promotion of corporate entrepreneurship. Companies should consider supporting corporate entrepreneurship by working with entrepreneurship departments to offer internships to gain experience in entrepreneurial organizations. This suggestion supports Kroon et al.'s (2003) finding that students could be employed during holidays to gain practical exposure. The entrepreneurship department should also engage with the private sector to ensure that the students build a career in corporate entrepreneurship.

The department may consider the promotion of corporate entrepreneurship through departmental offerings at the university under study, such as through group assignments (statement 3.9), motivational talks (statement 3.5), and practical projects (statement 3.6). Group projects may develop some graduate attributes such as increased entrepreneurship intentions, networking opportunities to identify potential co-founders, and the creation of entrepreneurship teams (Sieger et al., 2018). Furthermore, the department can use such projects to promote entrepreneurship systems to reduce potential administrative barriers for students to become entrepreneurs. Projects may also be used to boost students' creativity, considering the low mean shown in statement 2.21.

The practical projects should be challenging enough to allow students to tackle real-world challenges. An example would be participating in the annual Global Enterprise Experience (GEE). Students are grouped with students from different countries to write a business proposal for a suggested field idea. One of the researchers participated twice in the past. Furthermore, participating in such

challenges would also develop the ability of students to participate in group work, considering the low mean in statement 2.17.

Since the students' career aspirations in the present study lean mostly towards employment, they need assurance that studying entrepreneurship can also lead to work. This pattern is not surprising considering Nchu's (2015) study in the Cape Town Metropole area, which maintains that high school students are not prepared for careers in entrepreneurship but prefer employment. A proactive approach should be taken, considering the intentions of most students to take up work before becoming entrepreneurs. Further, students should be aware of the opportunity cost the longer they wait (Sieger et al., 2018). Thus, students should be encouraged to consider entrepreneurship as a promising and rewarding career path. During the orientation of the students when they join the department, more emphasis should be placed on encouraging students to consider entrepreneurship as a career through corporate entrepreneurship.

Apart from the above, the institution's entrepreneurship department should consider balancing the assignments and the guest speakers to infuse corporate entrepreneurship. One of the findings by GUESS in the 2018 survey was that less than 10% of students from 54 countries would consider entrepreneurship directly after the completion of their studies, while 35% would consider entrepreneurship after five years (Sieger et al., 2018). Thus, emphasizing corporate entrepreneurship would challenge students to take the entrepreneurship route soon after graduation.

Suggested interventions towards input, process, and output stages

Students need family support throughout their educational journey. For example, the role played by family support should also be emphasized during the high school level to prepare students for higher education. Statements 2.13 and 3.1 (refer to Figure 2) confirm the importance of family support throughout students' academic journeys. Support from parents and family positively contributes to completing qualifications (Gaffoor, 2018). Parents should be encouraged to engage with their children and the schools they attend to ensure appropriate

guidance is given to them (Chowdhury & Hossain, 2019). Therefore, families are encouraged to be consistently supportive.

Figure 3, titled “A model for improving entrepreneurship students' academic achievement”, summarises the suggested interventions aimed at increasing the students' academic achievement, increasing throughput rate, and promoting the desired graduate attributes and is presented in the form of a system. There are interventions aimed at inputs, and processes and output.

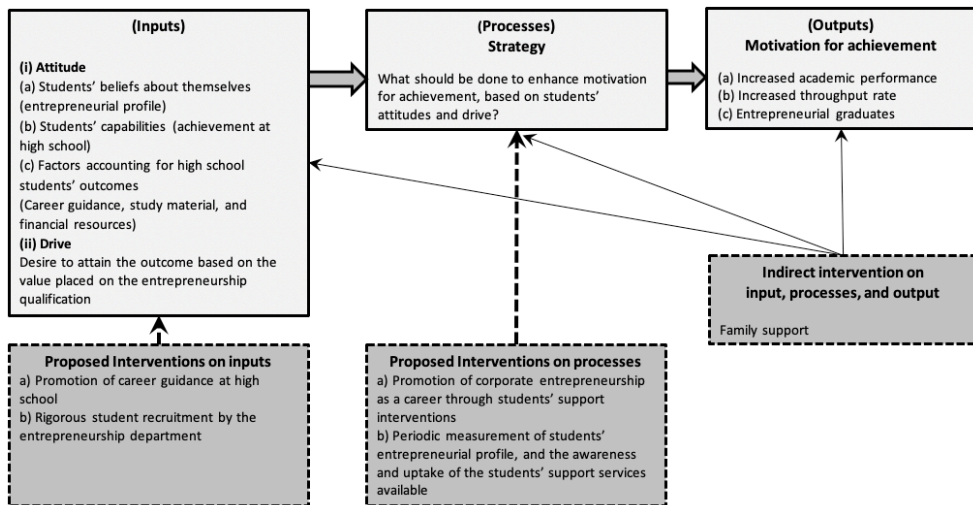


Figure 3. A model for improving entrepreneurship students' academic achievement

Conclusion and recommendations

The paper aimed to suggest evidence-based interventions to maximize entrepreneurship students' academic achievement in HEIs. South Africa needs to find ways to reduce the triple threat in developing countries, namely unemployment, poverty, and inequality. Thus, developing countries should continue to tout entrepreneurship education as the panacea to the triple threat (Bux & Van Vuuren, 2019; Muogbo & Uchekwuwu, 2019; Urban, 2016).

HEIs should seek to understand the needs of students towards students' academic achievement, thus engaging them without making assumptions (Blach & Wise, 2021). The results of this study show that students were underprepared for higher education. However, they have high self-efficacy and exhibit multiple entrepreneurial attributes,

including adaptability to new challenges. This study suggests that academic administrators and lecturers should promote career guidance early, tighten student recruitment processes, measure the students' entrepreneurial profile and their uptake of the institutional support services, and promote corporate entrepreneurship. Thus, the interventions suggested by researchers should be based on students' strengths and weaknesses, for example, (i) under-preparedness for tertiary education (weakness); (ii) high self-efficacy (strength); and (iii) adaptiveness (strength).

There are indications that HEIs offering entrepreneurship education should consider several teaching modes to further the entrepreneurship education discourse. Considering the mixed views on effective teaching methods in entrepreneurship education in the extant literature, the researchers argue that the course objectives should be informed and cautiously applied.

This study has some limitations. Firstly, participants were students from an entrepreneurship department at one UoT in one province of South Africa, thus, limiting the generalization of the research findings in the South African context. The study also focused on entrepreneurship qualifications; therefore, further studies can explore the student interventions in various qualifications under the Business, Economics, and Management Studies cluster. Another option for further research would be to compare students' interventions among qualifications under the Business, Economics, and Management Studies cluster. A variety of potential future research would be to increase the size of the study by focusing on and comparing various groupings such as Education or Engineering. Another limitation is that this study was conducted at a UoT. Therefore, there is room to conduct similar research at traditional or comprehensive universities. Moreover, collaborations can extend the research with other traditional or comprehensive universities.

Furthermore, some studies may compare contact and distance institutions, such as the University of South Africa (UNISA), which has recorded alarmingly low retention rates (DHET, 2020). Besides the above possible studies, qualitative or mixed approaches, such as in-depth interviews and focus groups, could be utilized. Such an option could draw detailed insights regarding the narratives of entrepreneurship students about throughput rates. Above all, this study

uses descriptive statistics, which leaves room for future studies that utilize inferential statistics for the cause and effects of the variables tested in this study. This study may benefit university students, academic administrators, and lecturers as it may reveal valuable information regarding student interventions and teaching methods, hopefully to the advantage of students.

References

- Adam, F., Backhouse, J., Baloyi, H., & Barnes, T. (2010). Access and throughput in South African higher education: Three case studies. Pretoria: Council on Higher Education. [http://www.che.ac.za/sites/default/files/publications/Higher Education Monitor 9.pdf](http://www.che.ac.za/sites/default/files/publications/Higher_Education_Monitor_9.pdf).
- Adjei, K., Broni-Pinkrah, S., & Denanyoh, R. (2014). Barriers to entrepreneurship business students in Sunyani Polytechnic of Ghana. *International Journal of Innovative Research & Development*, 3(4), 30-36.
- Alshammari, F., Saguban, R., Pasay-an, E., Altheban, A., & Al-Shammari, L. (2017). Factors affecting the academic performance of student nurses: A cross-sectional study. *Journal of Nursing Education and Practice*, 8(1), 60-68.
- Babbie, E.R., & Mouton, J. (2001). *The Practice of Social Research*. Cape Town: Oxford University Press Southern Africa.
- Blaich, C., & Wise, K. (2021). It's Time to Bring Students into the Conversation About Student Success. *Change: The Magazine of Higher Learning*, 53(6), 4-11. <https://www.tandfonline.com/doi/full/10.1080/00091383.2021.1987786>.
- Boldureanu, G., Ionescu, A. M., Bercu, A. M., Bedrule-Grigoruța, M. V., & Boldureanu, D. (2020). Entrepreneurship education through successful entrepreneurial models in higher education institutions. *Sustainability*, 12(3), 1267. <https://doi.org/10.3390/su12031267>.
- Booyesen, K. (2014). Entrepreneurship defined. In I, Van Aardt, & S, Bezuidenhout, (Eds.), *Entrepreneurship & new venture management*, (pp. 3-21). Cape Town: Oxford University Press.
- Botha, M., & Bignotti, A. (2016). Internships enhancing entrepreneurial intent and self-efficacy: Investigating tertiary-level entrepreneurship education programmes. *The Southern African Journal of Entrepreneurship and Small Business Management*, 8(1), 1-15.

- Bridgstock, R. (2009). The graduate attributes we've overlooked: Enhancing graduate employability through career management skills. *Higher Education Research & Development*, 28(1), 31-44.
- Burger, A. (2017). *Factors and experiences related to the academic success of students in the Faculty of the Humanities*, Unpublished PhD thesis, University of the Free State, Bloemfontein.
- Bustamam, U. S. A., Mutalib, M. A., & Yusof, S. N. M. (2015). Graduate employability through entrepreneurship: A case study at USIM. *Procedia-Social and Behavioral Sciences*, 211, 1117-1121.
- Bux, S., & Van Vuuren, J. (2019). The effect of entrepreneurship education programmes on the development of self-efficacy, entrepreneurial intention and predictions for entrepreneurial. *Acta Commercii*, 19(2), 1-13.
- Chowdhury, M. A. M., & Hossain, F. (2019). Factors influencing business students' perception regarding specialization selection: A study on selected private universities in Sylhet, Bangladesh. *International Journal for Advance Research and Development*, 4(9), 27-31.
- Department of Higher Education and Training (DHET). 2020. *2000 to 2020 First time entering undergraduate cohort studies for public higher education institutions*. DHET, Pretoria.
- Dodd, V., Hanson, J., & Hooley, T. (2021). Increasing students' career readiness through career guidance: measuring the impact with a validated measure. *British Journal of Guidance & Counselling*, 1-13. <https://doi.org/10.1080/03069885.2021.1937515>.
- Du Toit, A., & Kempen, E. L. (2018). The potential contribution of the intended high school curriculum at exit level to the entrepreneurship education of South African youth. *International Journal of Entrepreneurship*, 22(1), 1-16. <https://www.abacademies.org/articles/the-potential-contribution-of-the-intended-high-school-curriculum-at-exit-level-to-the-entrepreneurship-education-of-south-african-7026.html>.
- Farrington, S., Gray, B., & Sharp, G. (2011). Perceptions of an entrepreneurial career: Do small business owners and university students concur? *Management Dynamics: Journal of the Southern African Institute for Management Scientists*, 20(2), 1-17.

- Fatoki, O. (2014a). An examination of the teaching methods for entrepreneurship at a South African University. *Mediterranean Journal of Social Sciences*, 5(23), 512-518.
- Fatoki, O. (2014b). Parental and gender effects on the entrepreneurial intention of university students in South Africa. *Mediterranean Journal of Social Sciences*, 5(7), 157-162.
- Foxcroft, C., & Roodt, G. (2009). *Introduction to Psychological Assessment in the South African Context*, 3rd ed. Cape Town, South Africa: Oxford University Press.
- Gaffoor, A. (2018). *Factors influencing programme completion of National Certificate (Vocational) students at a college in the Western Cape, South Africa*. Unpublished Master's Thesis, Cape Peninsula University of Technology, Cape Town.
- Green, W., Hammer, S., & Star, C. (2009). Facing up to the challenge: why is it so hard to develop graduate attributes? *Higher Education Research & Development*, 28(1), 17-29. <https://doi.org/10.1080/07294360802444339>.
- Herrington, M., & Kew, P. (2016). *Global Entrepreneurship Monitor South Africa Report 2015/2016: Is South Africa heading for an Economic Meltdown?* University of Cape Town, Cape Town.
- Herrington, M., Kew, P., & Mwangi, A. (2017). *GEM South Africa report 2016/2017: Can small Businesses survive in South Africa?* University of Cape Town, Cape Town.
- Horn, M. B., & Moesta, B. (2019, October 15). Do colleges truly understand what students want from them? *Harvard Business Review*. <https://hbr.org/2019/10/do-colleges-truly-understand-what-students-want-from-them>.
- Iwu, C. G., Opute, P. A., Nchu, R., Eresia-Eke, C., Tengeh, R. K., Jaiyeoba, O., & Aliyu, O. A. (2021). Entrepreneurship education, curriculum and lecturer-competency as antecedents of student entrepreneurial intention. *The International Journal of Management Education*, 19(1), 100295.
- Jones, C., & English, J. (2004). A contemporary approach to entrepreneurship education. *Education + Training*, 46(8/9), 416-423.
- Kast, F. E., & Rosenzweig, J. E. (1972). General Systems Theory: Applications for Organisations and Management. *The Academy of Management Journal*, 15(4), 447-465.

- Kroon, J., & Meyer, S. (2001). The role of entrepreneurship education in career expectations of students. *South African Journal of Higher Education*, 15(1), 47-53.
- Kroon, J., De Klerk, S., & Dippenaar, A. (2003). Developing the next generation of potential entrepreneurs: co-operation between schools and business. *South African Journal of Education*, 23(4), 319-322.
- 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.
- Leshoro, T. M., & Jacobs, A. (2019). Challenges to admissions in the Extended Curriculum Programme of the Faculty of Business and Management Sciences. *South African Journal of Higher Education*, 33(1), 173-183.
- Lose, T. (2021). Perceptions on the role of practical and simulated learning in promoting successful entrepreneurship. *Management*, 5(1), 29-37. [https://doi.org/10.21511/kpm.05\(1\).2021.03](https://doi.org/10.21511/kpm.05(1).2021.03).
- Maila, P., & Ross, E. (2018). Perceptions of disadvantaged rural matriculants regarding factors facilitating and constraining their transition to tertiary education. *South African Journal of Education*, 38(1), 1-12.
- Mamabolo, M. A. (2017). *Human capital investments and skills outcomes specific to the different entrepreneurship phases*. Unpublished PhD Thesis, University of Pretoria, Pretoria.
- Maree, J. G. (2015). Barriers to access to and success in higher education: Intervention guidelines. *South African Journal of Higher Education*, 29(1), 390-411.
- Matoti, S. N. (2010). Assessing the level of preparedness, preferences, and fears of first-year science students at the Central University of Technology, Free State. *Journal for New Generation Sciences*, 8(1), 135-156.
- Matsoso, M. L., & Benedict, O. H. (2020). Work-integrated learning: a powerful connecting tool between classroom and industry. *International Journal of Education Economics and Development*, 11(1), 94-112.
- McCombs, B. L., & Marzano, R. J. (1990). Putting the self in self-regulated learning: The self as agent in integrating will and skill. *Educational Psychology*, 25, 51-69.

- McKenzie, K., & Schweitzer, R. (2001). Who succeeds at university? Factors predicting academic performance in first year Australian university students. *Higher Education Research & Development*, 20(1), 21-33.
- Mthimunye, K., & Daniels, F. M. (2019). Predictors of academic performance, success and retention amongst undergraduate nursing students: A systematic review. *South African Journal of Higher Education*, 33(1), 200-220. <https://www.journals.ac.za/index.php/sajhe/article/view/2631/2046>.
- Muogbo, U. S., & Uchechukwu, E. S. (2019). Entrepreneurship development as a panacea for depressed economy. *International Journal of Business and Applied Social Science*, 5(11), 29-37.
- Musetsho, T. R., & Lethoko, M. X. (2017). An evaluative study on the effect of entrepreneurial education curriculum on students at the University of Venda, South Africa. *The Independent Journal of Teaching and Learning*, 12(1), 74-89.
- Myburgh, Z. (2018). *University lecturers' agency in enabling student academic success*. Unpublished PhD dissertation, University of Pretoria, Pretoria.
- Nchu, R. M. (2015). *The effectiveness of entrepreneurship education in selected high schools in the Cape Town metropolitan*. Unpublished Masters Dissertation, Cape Peninsula University of Technology, Cape Town.
- Nchu, R. M., Tengeh, R. K., & Hassan, S. (2015). High school learners' perceptions of the efficacy of entrepreneurship education: The case of selected high schools in the Western Cape, South Africa. *The Scientific Journal of Theory and Practice of Socio-economic Development*, 4(8), 507-526.
- Nieuwenhuizen, C., Groenewald, D., Davids, J., Rensburg, L. J., & Schachtebeck, C. (2016). Best practice in entrepreneurship education. *Problems and Perspectives in Management*, 14(3), 528-536.
- Okoedion, E. G., Okolie, U. C. & Udom, I. D. (2019). Perceived factors affecting students' academic performance in Nigerian universities. *Educatia Plus*, 25(2), 26-37.
- Omopariola, E. D., Windapo, A., Edwards, D. J., & Thwala, W. D. (2020). Contractors' perceptions of the effects of cash flow on

- construction projects. *Journal of Engineering, Design and Technology*, 18(2), 308-325.
- Oraison, H., Konjarski, L., and Howe, S. (2019). Does university prepare students for employment? Alignment between graduate attributes, accreditation requirements and industry employability criteria. *Journal of Teaching and Learning for Graduate Employability*, 10(1), 173–194.
- Ozaralli, N., & Rivenburgh, N. K. (2016). Entrepreneurial intention: antecedents to entrepreneurial behaviour in the USA and Turkey. *Journal of Global Entrepreneurship Research*, 6(3), 1-32 <https://doi.org/10.1186/s40497-016-0047-x>.
- Parker, J. D., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. A. (2004). Emotional intelligence and academic success: Examining the transition from high school to university. *Personality and individual differences*, 36(1), 163-172.
- Pather, S. (2015). *Pre-entry academic and non-academic factors influencing teacher education students' first-year experience and academic performance*. Unpublished PhD thesis, Cape Peninsula University of Technology, Cape Town.
- Perger, M. & Takacs, I. (2016). Factors contributing to students' academic success based on the students' opinion at BME Faculty of Economic and Social Sciences. *Periodica Polytechnica Social and Management Sciences*, 24(2), 119-135.
- Piperopoulos, P., & Dimov, D. (2014). Burst bubbles or build steam? Entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intentions. *Journal of Small Business Management*, 52(2), 1-11. doi:10.1111/jsbm.12116
- Potgieter, D., & Van Schoor, W. A. (2011). How can we retain them? An investigation into the early cancellation of courses in a distance learning institution. *South African Journal of Higher Education*, 25(3), 598-611.
- Scholtz, D., & Allen-Ile, C. O. K. (2007). Is the SATAP test an indicator of Academic preparedness for first year students? *South African Journal of Higher Education*, 21(7), 919-922.
- Shambare, R. (2013). Barriers to student entrepreneurship in South Africa. *Journal of Economics and Behavioural Studies*, 5(7), 449-459.

- Shava, E. (2021). Financial sustainability of NGOs in rural development programmes. *Development in Practice*, 31(3), 393-403.
- Sibanda, L., & Iwu, C. G. (2021a). The academic journey of entrepreneurship students in Higher Education Institutions – the Systems Theory Approach. *Education: Modern Discourses*, (4), 135-145.
- Sibanda, L., & Iwu, C. G. (2021b). Pre-enrolment factors influencing the academic performance of entrepreneurship students in higher education. *Academia*, (25), 90-113. <https://doi.org/10.26220/aca.3813>.
- Sieger, P., Fueglistaller, U., Zellweger, T., & Braun, I. (2018). Global student entrepreneurship 2018: Insights from 54 countries. *Global GUESSS Report*, 1-32.
- Sirelkhatim, F., & Gangi, Y. (2015). Entrepreneurship education: A systematic literature review of curricula contents and teaching methods. *Cogent Business & Management*, 2(1), 1-11. <https://doi.org/10.1080/23311975.2015.1052034>.
- Smith, C., & Bath, D. (2006). The role of the learning community in the development of discipline knowledge and generic graduate outcomes. *Higher Education*, 51(2), 259-86.
- Spinelli, S., & Adams, R. J. (2016). *New Venture Creation: Entrepreneurship for the 21st Century* (10th Ed.). McGraw-Hill Education: New York.
- Strydom, R., & Adams, M. (2009). Evaluating the learning experience of undergraduate entrepreneurship students exposed to an unconventional teaching approach: a South African case study. *The Southern African Journal of Entrepreneurship and Small Business Management*, 2(1), 50-67.
- Te Wierik, M. L., Beishuizen, J., & Van Os, W. (2015). Career guidance and student success in Dutch higher vocational education. *Studies in Higher Education*, 40(10), 1947-1961. <https://doi.org/10.1080/03075079.2014.914905>.
- Thomas, L., Hill, M., O'Mahony, J., & Yorke, M. (2017). Supporting student success: strategies for institutional change. *What works? Student Retention and Success Final Report*. London, Leicester and York: Paul Hamlyn Foundation, Action on Access, Higher Education Academy. <https://www.phf.org.uk/wp-content/uploads/2017/04/Summary-report-final-no-crop-1.pdf>.

- Thrikawala, S. (2011). The determinants of entrepreneurial intention among academics in Sri Lanka: *Proceedings of International Conference on Economics and Finance Research*, 4(2011), 454-458.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of educational research*, 45(1): 89-125.
- Tuckman, B. W. (1999). *A tripartite model of motivation for achievement: attitude/drive/strategy*. Paper presented at the symposium, Motivational Factors Affecting Student Achievement – Current Perspectives, annual meeting of the American Psychological Association, Boston.
- Urban, B. (2016, January 26). *Solving unemployment in South Africa*. Wits University. <https://www.wits.ac.za/news/latest-news/research-news/2016/2016-01/solving-unemployment-in-south-africa.html>.
- Van Der Veen, M., & Wakkee, I. (2004). Understanding the entrepreneurial process. *Annual Review of Progress in Entrepreneurial Research*, 2, 2002-2003.
- Viviers, S., Solomon, G., & Venter, C. (2013). Entrepreneurial intentions and behaviours of South African University students. *The Southern African Journal of Entrepreneurship and Small Business Management*, 6(1), 1-20.
- Von Bertalanffy, L. V. (1972). The history and status of General Systems Theory. *The Academy of Management Journal*, 15(4), 407-426.
- Von Bertalanffy, L. (1968). *General System Theory: Foundations, Development, Applications*. New York: George Braziller.
- Winberg, C., Staak, A., Bester, M., Sabata, S., Scholtz, D., Sebolao, R., Monnapula-Mapesela, M., Ronald, N., Makua, M., Snyman, J., & Machika, P. (2018). In search of graduate attributes: A survey of six flagship programmes. *South African Journal of Higher Education*, 32(1), 233-251. <https://doi.org/10.20853/32-1-1642>
- York, T. T., Gibson, C. & Rankin, S. (2015). Defining and measuring academic success. *Practical assessment, research, and evaluation*, 20(1), 1-20.
- Young, A. S. (1989). Factors and academic performance of first-year science students at a Nigerian university: a multivariate analysis. *Higher Education*. 18(3), 321-339.

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffin, M. (2010). *Business Research Methods*, 8th Ed. Canada: South-Western, Cengage Learning.