

Entrepreneurial Universities for Student Success: a Conceptual Conjecture

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Abstract

The need for Entrepreneurial Universities in South Africa is growing because the South African government is pressured to keep financial commitments to students and universities. A core aspect of any university is to manage and support student success. Consequently, complex university systems within the institution of Higher Education must be managed to create opportunities and optimise resources for student success. This conceptual paper explores how entrepreneurial universities may approach student success. The literature review offers a meta-theoretical view of a typical university system and the thinking that drives the system. The research paradigm is interpretivist as the researcher becomes an instrument and argues, explores and compiles a conceptual conjecture of an approach to student success within the context of Entrepreneurial Universities. The conjecture proposes that Entrepreneurial Universities require integrated thinking in their systems and that all people in the systems must be equipped to analyse, synthesise, evaluate and create. The sub-systems within the university system also need to be integrated, and data plays a vital role in iterative and more agile decision-making than in typical universities. The proposed approach to student success provides implications for university management teams.

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1. Introduction

1.1. Background

A study by Kwasi-Agyeman, Langa and Swanzy (2020) indicates that from 2010 to 2016, the national deficit in funding from the South African government had grown from R 19657789 to R 37964590. This trend is exacerbated by the repercussions of the South African “Fees Must Fall” movement in 2015 when students voiced their expectations about free education (Maringira & Gukurume, 2016). The National Student Fund Financial Aid Scheme (NSFAS) is not able to fund all student costs (Gredley & McMillan, 2024), especially considering the primary source of the finances comes from only 7.4 million taxpayers in the country (Stats South Africa, 2024), while an increasing number of students need financial aid that supports their progress in the university systems. It is, therefore, evident that state-funded universities in South Africa are experiencing strain in terms of financial resources. Nevertheless, student success is not guaranteed even with funding, as this is one dimension of a complex problem.

The unemployment rate in South Africa is at 32.9%, and more than 50% of the unemployed are youth (including graduates) (Statistics South Africa, 2023; 2024). In this regard, employability is one of the dimensions of student success (Alyahyan & Düşteğör, 2020). Most South African state-funded universities have started fundraising initiatives to become more sustainable and support as many students as possible in completing academic programmes (Gredley & McMillan, 2024). Therefore, it seems there is a greater need for South African universities to become entrepreneurial.

Entrepreneurial Universities are universities that promote entrepreneurial behaviour among students and staff (Guerrero, Urbano & Gajón, 2020). This entrepreneurial behaviour is believed to be driven by entrepreneurial thinking and is proposed to create opportunities, but it also involves creativity in complex problem-solving processes (Subramaniam & Shankar, 2020; Prince, Chapman & Cassey, 2021). To be entrepreneurial may also refer to the innovative ways resources are applied to leverage resources and promote new opportunities (Prince et al., 2021). This implies that Entrepreneurial Universities may develop systems and processes that maximise resources creatively and innovatively for notable impact. It is therefore argued that Entrepreneurial Universities could be less dependent on state funds and that a culture of entrepreneurial thinking is supported to create opportunities for graduates.

However, Gillin, Gagliardi, Hougaz, Knowles and Langhammer (2019) think that an entrepreneurial mindset and an entrepreneurial culture support any organisation that creates entrepreneurial systems.

Kuratko, Hornsby and McKelvie (2023) concur that the entrepreneurial mindset drives corporate entrepreneurship (in a university). In this paper, an entrepreneurial university is therefore seen as a university that is committed to promoting entrepreneurial behaviour, which in turn is underpinned by entrepreneurial thinking of staff and students who can maximise systems and resources to obtain disproportionate positive results/impact. This definition also implies that entrepreneurial universities may be more able to optimise student success than universities with typical state-funded systems.

1.2. Problem Statement

Student success is not a construct that only refers to completion or pass rates but is viewed as a broader construct in Higher Education, where the institutional goals and student progress intersect (Lane, Moore, Hooper, Menzies, Cooper, Shaw & Rueckert, 2019). The dimensions of student success as prescribed by the Higher Education institution are documented as 1) academic achievement, 2) student satisfaction, 3) student persistence (dropout rate, continuing students and graduation.), 4) attainment of learning outcomes, 5) acquisition of skills and competencies as well as 6) career success of alumni after graduation (including employability) (Alyahyan & Düşteğör, 2020). These dimensions are further explored in the paper as they relate to the specific discussions. Although these student success dimensions have been consistent over time (Smith, 2021), and they are internationally acknowledged within Higher Education institutions, the metrics on how they are measured have changed over time (Lane et al., 2019; Wong, DeWitt & Chiu, 2023). Moreover, the institutional logic may need some different approaches when it is applied in entrepreneurial universities.

The research question posed and debated in this paper is: How can **entrepreneurial** universities approach student success?

1.3. Research objectives

The research objectives of the study are:

- 1) To analyse a theoretical underpinning that will guide the conceptual paper in terms of the university as context (this is done in the literature review of this paper).
- 2) To synthesise a conceptual framework with the entrepreneurial context (this part is the “findings”).
- 3) To suggest an approach for management of entrepreneurial universities that aim to maximise student success (this part is the implications of the paper).

The first part of the paper offers an analysis of a perspective (meta-theory) and theory to view how universities typically promote/support student success and ends with a preliminary conceptual framework. The second part of the paper briefly describes the approaches and factors considered when offering a conceptual paper. The paper then continues with a synthesis of the aspects highlighted in the preliminary conceptual framework within the context of an entrepreneurial university. The paper follows with a revised conceptual framework and implications for managing student success within entrepreneurial universities. The conclusion summarises the final thoughts around the conceptual work.

2. Literature Review

As a starting point, an appropriate lens for the study is identified to contextualise this conceptual work's theoretical and practical aspects. According to Niederman and March (2019), a theoretical lens enables researchers to frame concepts within a specific theoretical domain. In this regard, the Systems Perspective is identified to apply to universities because they are often viewed as vehicles of transformation in terms of knowledge, skills and social impact (Pattman & Carolissen, 2018). The systems perspective may, therefore, provide a meta-theoretical lens through which to view the operation of South African universities and the abilities of these universities to optimise resources (input) and output.

2.1. A Systems perspective as a theoretical lens to view the operations of universities

Ludwig von Bertalanffy (1950) is the seminal author on the Systems perspective and posits that a system cannot be explained by one component but rather by various components that influence each other. The systems perspective has been applied as a theoretical lens that enables people to view and think about complex systems (of which organisations are also social systems) embedded within a broader environment or larger system (Javanmardi, Liu & Xie, 2021). A system contains components that interact with each other in a particular relationship in a process (Laszlo & Krippner, 1998). A system, therefore, has inputs that are transformed into outputs with various levels of complexity depending on the layers or sub-systems within systems as well as the internal and external factors that influence the system (Javanmardi et al., 2021).

This lens implies that a university may be viewed as a system within a larger environment of higher education. An entrepreneurial university, however, requires innovation in even in a larger context like a bureaucratic supra-system like the higher educational environment. In this study, even a university that is entrepreneurial is thus viewed as a system within the larger Higher Educational supra-system with a hierarchy of sub-systems within a single university system.

Various principles of the Systems perspective are offered in the literature and the principle of interdependence is prominent (Siegenfeld & Bar-Yam, 2020). Interdependence within a system perspective may be viewed as the interaction between various elements in a system or external to it (Crossley, 2022). In this regard, a university may have sub-systems, and there may be a hierarchy between sub-systems within a system (Siegenfeld & Bar-Yam, 2020), for example, layers of management or functions within the organisation that interact with each other and with elements outside the organisation (university).

In terms of thinking and solving problems, the thinking in the supra-system is thus dependent on the thinking in the sub-systems and vice versa. In other words, the thinking in Higher Education may influence the thinking in universities and ideally thinking in universities may also influence the thinking in the larger Higher Education supra-system.

Another important principle of the Systems perspective is the dynamic between systems and sub-systems, as there are feedback loops that are present within a system and sub-systems (Siegenfeld & Bar-Yam, 2020). In this regard, systems may be more complex or less complex depending on the levels within a system and the factors that influence the system (Crossley, 2022).

Finally, an important principle of the Systems perspective is the principle of change/transformation that is yielded by a system. According to seminal author Von Bertalanffy (1950), a system has inputs, a transformation/change phase and output that is influenced by the transformation phase. The implication of a university from a Systems perspective is that various inputs are transformed into outputs. For example, student success is an output of the various transformative processes (sub-systems) within the system. Nevertheless, these transformative systems of universities may contain bureaucracy and, therefore, may require approaches that are governed to ensure quality programmes which call for systematic output.

Since the Systems perspective is a theoretical lens, the application of what and how output is promoted depends on the theory applied to the perspective. Moreover, systems can be open to environmental influences, such as a state-funded university that may be vulnerable to any changes yielded by the Higher Education environment (institution).

2.2 Institutional theory to understand the pressures and norms at universities

An institution is a set of rules, norms or practices that shape or guide the behaviour of people or organisations (Siddiki, Heikkila, Weible, Pacheco-Vega, Carter, Curley, Deslatte & Bennett, 2022). An institution does not only contain rules but is also a **social construct**² that has an influence on

² Tenets of the institutional theory are in bold font

individual and collective actions (Siddiki et al., 2022). In this regard, an institution may well be a factor that influences an organisation's culture. An example of an institution includes an educational system (Naidoo, 2020). In this paper, the specific institution is the Higher Education system in South Africa.

Institutional theory suggests that an institution plays a crucial role in shaping individual or organisational behaviour (Zilber, 2024). Such individuals or organisations are **embedded in society** (McLoughlin & Meehan, 2021). The Institutional theory originated in the 1970's from organisational theory and change theory with an emphasis on symbolic actions (Meyer & Rowan, 1977). However, as the theory evolved, it became more focused on the behavioural aspects of an organisation and now leans itself to the application of organisational processes for change within the institution (Wezel & Saka-Helmhout, 2006). Institutional theory has therefore moved into examining the founding conditions for new organisations and the logic of the institution to move the organisation forward (Drori & Honig, 2021).

An important tenet in the institutional theory is **institutional logic** (Zilber, 2024). Institutional logics are broadly defined as the cognitive beliefs, values and assumptions that guide behaviour and decision-making of individuals in organisations within a **social system** (Sadiq, Tulder & Maas, 2022). Institutional logics comprise the guiding socially constructed, cultural, and cognitive beliefs, values, and assumptions that underpin the behaviour and decision-making of individuals and organisations within a specific social system (Zilber, 2024). Institutional logics, therefore, play a crucial role in shaping organisational practices, decision-making processes and strategies, which will have an influence on internal dynamics and the operations of an organisation. However, institutional logic can change within an institution (Mountford & Cai, 2023).

The institutional logic also influences relationships with external stakeholders and the broader institutional environment (Press, Robert & Maillefert, 2020). An organisation (for example a university) often aligns itself with a particular logic to gain **institutional legitimacy** and support key role players such as customers/clients, employees, regulators, and investors. In this regard, institutional logic is not static and may **change** due to Political, Economic, Social, Technological, or Legal (PESTL) influences, which, like in any context, may call for a review of the value proposition of the organisation within the institution (Leroi-Werelds, Verleye, Line & Bove, 2021). One must therefore also acknowledge that an institution is adapting to **coercive pressures, normative pressures** and **mimetic pressures** (Martínez-Ferrero & García-Sánchez, 2017), that promote change or adoption of certain practices to gain legitimacy and avoid penalties from external sources, for example, regulators or powerful organisations such as government (Mountford & Cai, 2023).

2.3. The typical system at universities that promotes or supports student success

This section of the literature review incorporates the institutional theory within the Systems perspective to illustrate how universities typically approach student success.

2.3.1 Inputs of a typical university system

Inputs in any system (including universities) refer to the resources, data or activities that are consumed by a system to produce the desired outcomes (VanDerHorn & Mahadevan, 2021). In terms of a university system, inputs can typically be the people (students and staff), financial resources, curricula and infrastructure (physical and in cyberspace). Baporikar (2021) highlights the importance of various factors in education systems that may promote change. Considering the inputs against the impact that the system intends to make, may therefore require criticality in selecting the inputs.

The dimensions of student success were provided earlier in this paper as: 1) academic achievement 2) student satisfaction, 3) student persistence, 3) attainment of learning outcomes, 4) acquisition of skills and competencies as well as, 5) career success, which entails impact of alumni after graduation can be supported (Alyahyan & Düştegör, 2020). In this regard, one might argue that particular inputs are required to be transformed for example: academic achievement may be attained with inputs such as curricula that promote the desired skills and competencies, the people (staff and students) who apply their talent in the system, the financial resources to allow the system to be sustainable, and infrastructure that is accessible.

2.3.2 Transformation of a typical university system

Transformation involves the processes or activities that convert inputs into outputs and may contain various actions or activities (Butt, 2020). In universities, the aspects of the transformation process that yield the positive change that any university strives for (Pee & Vululleh, 2020) are also determined by the various processes that support and promote student success. This implies that a factor such as academic performance, which is yielded by student and staff interaction as well as engagement of students, is supported by the processes in the university system. Another dimension that may be managed and measured through feedback loops is student satisfaction.

Student satisfaction is indicated by affective, social, cognitive and behavioural engagement and their relative and differential impact upon five specific student and institutional success outcomes, namely: institutional reputation, student well-being, transformative learning, self-efficacy and self-esteem (Bowden, Tickle & Naumann, 2021). In this regard, the argument is that engaged students who are satisfied, may perform optimally and supposedly be more successful in their academic endeavours (Mouton, Van Lill, Botha, Boshoff, Valentine, Cloete & Sheppard, 2015). Student satisfaction should

thus be promoted by the processes in the university system as it has various institutional success outcomes. This implies that the thinking that drives processes must be aligned with the desired outcomes.

- ***Critical thinking that drives transformation in a typical university system***

Franco, Marques Vieira, and Tenreiro-Vieira (2018) explain that universities play a significant role in supporting the development of critical thinking with various strategies that promote the skill. Du Toit, Marx and Smith (2024) highlight that critical thinking skills or competencies involve analysis, application (synthesising knowledge and skill) and evaluation. Critical thinking has been proven to drive transformative learning and, therefore, may link to transformative behaviour (Southworth, 2022; Mehmet, 2018). From the institutional theoretical point of view, critical thinking in a university system allows change as influences outside the system may impact the transformation process. From the above, it is deduced that the transformative processes may be linked to how the people in the university system and even the larger institution think and judge the value of the institutional logic against the desired outcomes.

Critical thinking may equip people (in systems) to understand complicated information and solve complex problems (Ramírez-Montoya, Castillo-Martínez, Sanabria & Miranda, 2022). In the context of this paper, critical thinking in the typical university system is supposed to be applied not only by students and attained through their learning but also by staff in various divisions such as support divisions, academic staff, and management teams. An argument is made that critical thinking needs to be part of the institutional logic to ensure that the entire system is efficient and effective in yielding the desired outputs. This output needs to be monitored and, in some instances, controlled.

2.3.3 Feedback and control loops in a system of the typical university system

In a university context feedback and control loops may be equated to the monitoring, management and production of information for future best practices (Ferreira, Fernandes, Veiga & Ratten, 2022). Student retention (those who do not drop out and continue their studies from one year to the next), graduation rates, time to completion, and employability allow for monitoring and feedback for the next student intake. Alyahyan and Düştegör (2020) mention the importance of identifying early risk cases to manage as a tried and tested method to enhance student success. This means that a control loop in the processes for student success is needed, and analysis, application (synthesis with practice) as well as evaluation of information on student performance are key for universities that manage

student success. Naturally, timeous information on student success dimensions is needed for control and to provide feedback in order to ensure effective and efficient output.

2.3.4 Outputs of a typical university systems

Outputs express the results that are generated by the system because of transformation within the system (Goldberg & Warburton, 2021). The output of a typical university system is aligned with the student success factors, as highlighted earlier. The output of a university is probably graduates who are employable and achieve success after graduation but who are also able to solve complex problems in society. Student success is also about students' satisfactory experience and includes references to graduates who can transform the spaces in which they will be involved. Moreover, the timeframe that the graduates use to complete their studies and their satisfaction during their residential time contribute to the graduate's perception of how legitimate the university is. Factors such as timeframe, satisfaction, employability, and skill set are measured by coercive standards, normative expectations, and mimetics that the institution (Higher Education) directs. The university should, therefore, judge its output accordingly and ideally manage these on an ongoing basis with feedback and control loops in the system.

2.4 Pre-liminary conceptual framework for this study

From the above discussions, the summary in this section is illustrated by the preliminary conceptual framework.

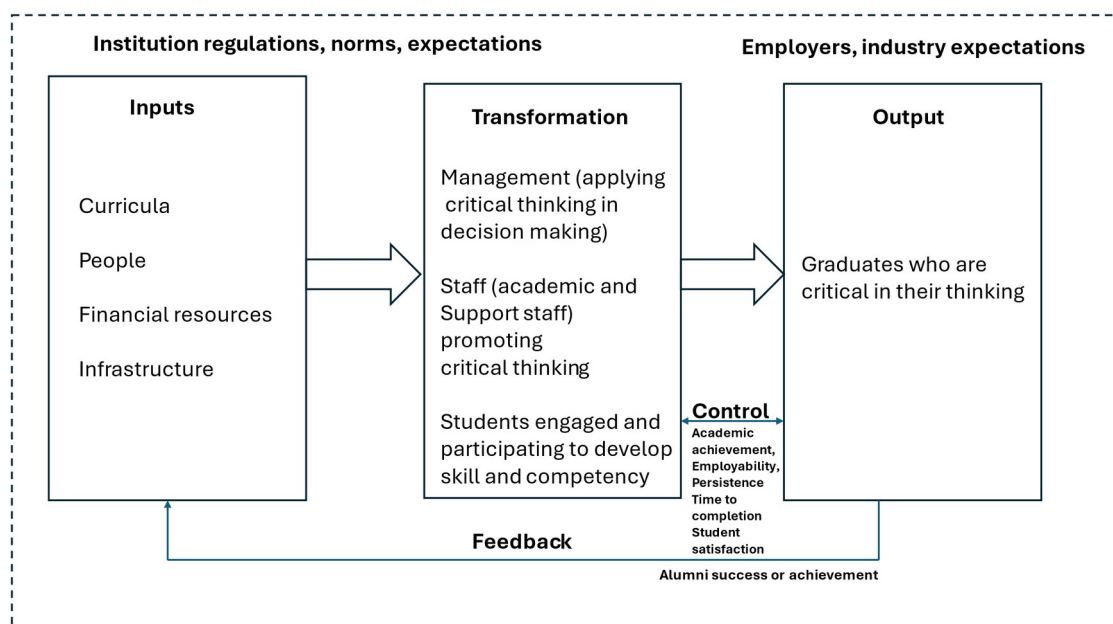


Figure 1: Preliminary Conceptual Framework

Source: own construction

Figure 1 illustrates that in a system that promotes student success in a typical university setting, the Higher Education institution determines the rules, regulations and that such universities need to abide by or the requirements these universities must meet to be viewed as legitimate by society as well as employers or the industry but is also vulnerable to the larger environment and PESTL. The typical institutional logic may be underpinned by critical thinking. Critical thinking is needed with analysis, synthesis and evaluation of the aspects that promote student success and this is an important way of thinking in a system. The framework is, however, for typical university systems and not necessarily for entrepreneurial universities.

The research question that emerges is how **entrepreneurial** universities can approach student success.

3. Research Methodology

This conceptual paper has a different research process compared to empirical work. The relevant aspects to explain the process are provided in this section.

3.1 Research paradigm and approach

An interpretive paradigm was applied to this paper as it offers a conceptual conjecture of student success as entrepreneurial universities may approach it. This interpretation is made within the parameters of a Systems perspective whilst the theory is debated with an entrepreneurial slant. An important aspect to consider during any interpretive approach is the role of the researcher as an instrument (Cleland & Dolmans, 2022). The role of the researcher in this paper was to interpret various credible theoretical frameworks and a theoretical lens and synthesise these in a new way to add something to the context of entrepreneurial universities and the application of the construct of student success within this context.

The main research question that this paper set out to answer is how entrepreneurial universities go about student success and three objectives flow from this question:

Three objectives were set to answer the research question of this conceptual paper:

- 1) To analyse a theoretical underpinning that will guide the conceptual paper in terms of the university as context (this is done in the literature review of this paper).
- 2) To synthesise a conceptual framework with the entrepreneurial context (this part follows this section).

- 3) To suggest an approach for the management of entrepreneurial universities that aims to maximise student success (this part is the implications of the paper).

The researcher's process (as opposed to a research design with empirical research) was a conceptual design. The conceptual design process is a critical thinking process that involves three stages, which correspond to the research objectives, namely: 1) Analysis, 2) Synthesis and 3) Evaluation (Marais & Bornman, 2023).

3.2 Credibility of the thinking in this paper

To enhance the credibility of any interpretive work, the researcher's credibility is important because the researcher is pivotal in interpreting with their background, experience, and reflexivity to assist the interpretation (Cypress, 2022). The researcher has 20 years of experience within higher education institutions, is involved with managing student success of various levels in the university and teaches both undergraduate and post-graduate students. Moreover, peer debriefing for validation was applied as proposed by Henry (2015) to ensure that the arguments "ring true" and a senior academic was asked to validate the preliminary framework (from literature) and another with more than 15 years of experience in management, was asked to validate the credibility of the second part of the paper (synthesis).

3.3 Ethics

This paper is conceptual, and therefore, no empirical data were obtained. No ethical clearance was required for conceptual work that does not use any public data platforms and only literature. The researcher declares the use of an Artificial Intelligence application to assist in pinpointing the seminal work of some sources. ChatGPT was employed to systematically identify the student success factors in the literature over time to supplement and compare them to the researcher's summary. ChatGPT was, therefore, used instead of ATLAS.ti. Comparing the output yielded by the Artificial Intelligence Application with the output already summarised by the researcher (manually) is declared in this section to be transparent about the tool applied during the conceptual process.

4. Results and Findings (Synthesis)

This part of the conceptual paper adds a different context to the discussion up to this point on student success within a university system. The next part adds a speculative slant on what the entrepreneurial university system for student success may entail.

4.1 Entrepreneurial universities for student success

Centobelli, Cerchione, Esposito and Shashi (2019) write about this paradigm shift of entrepreneurial universities and mention five dimensions: 1) being dynamic, 2) promoting innovation, 3) promoting entrepreneurship, 4) creating and sharing knowledge for economic impact, and 5) creating and sharing knowledge for social impact. An entrepreneurial university system, similar to typical university systems, engages with the external environment, which includes industry, government, international partners and society (Feola, Parente & Cucino, 2021). The concept of “entrepreneurial” in terms of universities may pose a challenge to state-funded universities that operate within the institution of Higher Education as it calls for a paradigm shift from merely creating knowledge to wider impact, especially as it relates to creativity or creating opportunity. In this regard, entrepreneurial universities may require more agility and flexibility within the institution as opportunities need to be created, which may present challenges that need to be considered.

Nevertheless, when considering entrepreneurial university systems that may require more agility, the institution (in this case, Higher Education) still determines the logic that, according to Sadiq (et al., 2022), underpins the social system’s (collective) decision-making and behaviour.

The system that contains entrepreneurial thinking and how it could differ from typical university systems within the institution is explored next. The typical university system was described in the literature review. This section, therefore, does not repeat the literature on typical university systems but rather assumes that an entrepreneurial university system does all that a typical university system does, with some extra aspects such as requirements or different approaches that allow for greater innovation. The additional or different aspects are highlighted in the following discussion.

4.1.1 Inputs in an entrepreneurial university system

In terms of student success, the entrepreneurial university does not have various inputs compared to the inputs of typical university systems. Financial resources, as mentioned in the literature review, allow the system to be sustainable. Yet, in an entrepreneurial university, the difference may be that fewer financial resources are needed from the government and more financial resources are generated by the entrepreneurial university systems. This means that the knowledge creation might not be the only creation needed and that approaches to earning third-stream income or new ways to raise funds need to be introduced. In this regard, staff in entrepreneurial universities also earn income from their research and intellectual property (IP) (Neves & Brito, 2020). The intellectual property of staff and students in the university may be a way to potentially yield income as a spin-off (Kulkov, Berggren, Eriksson, Hellström & Wikstrom, 2020). It seems that universities with a medical faculty have a good

chance to bring in income with intellectual property because even though faculties with patents, such as engineering and Information Technology faculties, contribute to patents, to uphold such faculties may also be high. To have something truly entrepreneurial would mean it is feasible and would bring disproportionate income (Morris & Tucker, 2023). This implies that financial resources also have to be optimised and feasibility carefully considered before IP is applied innovatively.

One may argue that entrepreneurial universities need curricula that provide a greater opportunity for multi, inter and transdisciplinary learning (Yemini & Bronshtein, 2022). Therefore, the curricula might require more flexibility in entrepreneurial contexts so that students can select some majors as they progress in the university. The flexible curricula may also enable students who did not have the expectations that others in the system who came from more privileged backgrounds might have had to shape their expectations experimentally. Flexibility in curricula may thus also promote more inclusivity.

Infrastructure is another input that may be slightly different in entrepreneurial universities and in line with the university's flexible programmes or curricula. In this regard, the infrastructure needs to support the curricula, the innovative endeavours and the growth that the entrepreneurial culture yields (Asemokha, Musona, Torkkeli & Saarenketo, 2023). Infrastructure need not be physical spaces only, and entrepreneurial leaders think about such inputs from various perspectives: networks or contractors, cyberspaces, and unconventional ways to avail infrastructure may support student success and link to the flexibility of offerings.

The people (all staff, students and management teams) in an entrepreneurial university need to have the potential to be entrepreneurially minded. Entrepreneurial mindset is always a growth mindset (Asemokha, et al., 2023). A growth mindset relates to people's perceptions when they view problems, for example, and see opportunities rather than obstacles (Burnette, Pollack, Forsyth, Hoyt, Babij, Thomas & Coy, 2022). The opportunity in the entrepreneurial mindset related to growth is to create something new, improve and exit the system, or find creative solutions (Jena, 2022). The entrepreneurial mindset is such a pivotal aspect of growth that the thinking is unpacked further in the transformation phase.

Finally, an input that is critical to any entrepreneurial system is information or data, as this enables strategic decision-making and may allow more creative thinking (Zach, Nicolau & Sharma, 2023). The availability of data in entrepreneurial universities is thus an input that allows informed decision-making in terms of strategic value add and student success. The idea is that such data are available to

all staff and that this availability enables agility in the transformation process when student success is managed in short feedback loops and perhaps even in flatter managerial systems (less hierarchy in management).

4.1.2 Transformation in an Entrepreneurial University System

To bridge the gap between industry, society, and academic projects, knowledge of economic and social impact needs to be relevant to the real-world problems of the times (Etzkowitz & Zhou, 2021). However, since such problems also influence the university's internal systems, innovation is not only a necessity as an outcome but also a critical component to promote students' success. One can, therefore, argue that how student success is managed in a university that strives to be more entrepreneurial requires creativity and innovation to overcome the dilemma around limited resources and opportunities for graduates. Within a large institution like Higher Education, universities must become entrepreneurial in the sense of doing more with less and hence leverage every system, process or resource to promote student success. This means that student success is also managed by applying entrepreneurial thinking in the transformation process.

- ***Integrated thinking that drives transformation through value creation and sustainability***

Integrated thinking can be viewed as high-order thinking. Yet, it contains the skills of analysis, synthesis, evaluation, and creativity (to create or solve problems in non-obvious ways) (Du Toit et al., 2004). This implies that beyond critical thinking, the creation skill is also present when applying integrated thinking.

Analytical skills and competency involve an ability to consider various aspects and perspectives simultaneously when making decisions (Ritter & Pedersen, 2020). Synthesis involves connecting different pieces of information, ideas or contexts to truly understand the problem (Kaplan & Haenlein, 2022). When synthesising, it is important to see interdependencies between elements and how they influence each other (Akhtar, Frynas, Mellahi & Ullah, 2023). Evaluation skills enable the decision-maker to judge, whereas creativity allows a person to solve problems in an unusual way, which may prove effective. It is effectiveness (combined with efficiency) that enables value creation. In addition, creativity and innovation also may allow the university to be competitive and different even when the Higher Education institution sets the norms and regulations.

The argument is made that entrepreneurial mindedness requires integrated thinking, which may enable students in the system to be co-creators of their success. One of the major aspects that entrepreneurial-minded people have is an internal locus of control (Newman, Obschonka, Schwarz & Cohen, 2023),

meaning that they are not dependent on others to create an experience but can contribute to their own student experience and manage their expectations whilst leveraging all the support in the system.

4.1.3 Output of Entrepreneurial University Systems

Graduates with an entrepreneurial mindset are empowered to think in an integrated way (Neck, Neck & Murray, 202). It is such an ability that, in turn, may empower graduates to create impact efficiently and effectively. The output of an entrepreneurial university in a higher education institution may still be the same as that of a typical university system. Instead, it is done more creatively, and integrated thinking can promote efficiency and effectiveness. Such graduates may have the pervasive skills mentioned as the most important skills for employability or entrepreneurship (Du Toit, et al., 2024). It is argued that such entrepreneurial-minded students are more likely to be successful after graduation and more employable should they want to start working in the industry or start a business.

4.2 Revised Conceptual Framework

The revised conceptual framework illustrates the differences that entrepreneurial universities may consider when approaching student success. Data's critical role as input is highlighted, and the integrated thinking may lead to profit, considering the funding is not only from the state in an entrepreneurially oriented university. Figure 2 illustrates the nuances within the institution.

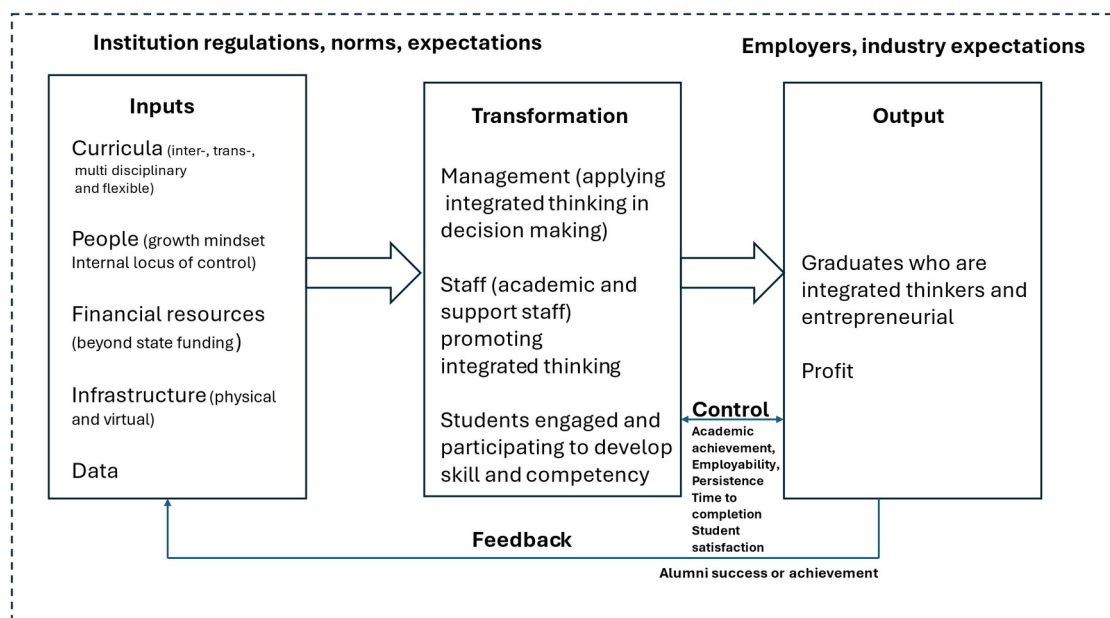


Figure 2: Revised Conceptual Framework

Source: own construction

5. Managerial Implications

From the paper's revised conceptual framework, the approach proposed for entrepreneurial universities to maximise student success is cultivating integrative thinking throughout the university system on all levels (staff and students). This implies that data and other systems (for example, the operational aspects that allow monitoring and quick feedback on dropout rates or at-risk students) should be integrated to inform decision-making. Systemic integration also implies that various pockets of good practice can be aligned; for example, a system that generates data on alumni performance in the industry allows faster feedback to make amendments to programmes to keep them relevant. Data platforms are accessible to all in real time and present a starting point, which implies that data on student success should be available to support staff, academic staff, and management in decision-making. Considering that an institutional logic of entrepreneurial thinking is promoted, all need to have an internal locus of control and feel empowered to create. A requirement for an entrepreneurial university system is thus the culture of creation. Training in the analysis, synthesis, and evaluation of data is very important so that innovative creations to solve problems can be supported and incentivised.

The implications for management are also to promote integrated thinking in performance management instead of only measuring compartmentalised tasks or output. Instead, the staff members' ability to create and implement **new initiatives (creations)** and new ways to monitor student success (innovation) (including the student's ability to think entrepreneurially) can be supported with performance management and target setting.

A test for efficiency and effectiveness in entrepreneurial universities will probably be the profit and opportunities that enable future student success. Again, management would need to investigate how funds are used and maximised in opportune ways as opposed to only how many are secured when staff performance is measured.

Finally, the management of universities should communicate and influence the institution (Higher Education) with good practices that can be shared among universities so that all publicly funded universities are less dependent on state funding and able to maximise finding and contribute to funds with other endeavours in the university.

6. Conclusions, Limitations and Future Research

This paper set out to answer the research question of how entrepreneurial universities may approach student success, which seems to be essential if universities want to be sustainable and make the impact in society that they aim for. The institution, which is the Higher Education institution, plays into the university system with certain norms, expectations and regulations. However, despite all the standards, regulations and expectations that universities in South Africa need to meet and adhere to, the financial support from the government is becoming less, and the need for universities to maximise their resources is more remarkable, as argued in the introduction of this paper. From the discussions and theoretical positioning posed in the paper, it is argued that universities need to apply an entrepreneurial mindset to supplement the institutional logic that is promoted and supported by the university systems so that people (staff and students) in the system are more entrepreneurial and have a growth mindset.

Furthermore, it is concluded that typical universities aim to promote critical thinking in their systems, which involves analysis, synthesis, and evaluation skills and competencies. Entrepreneurial thinking, however, calls for creativity and innovation beyond criticality. This means that everything in the university system needs to be approached through analysis, synthesis, evaluation, and creation (integrated thinking). Integrated thinking is proposed for university students and staff so the system becomes integrated.

Integrated thinking can enable new opportunities, new perspectives on the same issues, and new ways to promote student success, which are required for universities to change the institution (Higher Education). It is acknowledged that student success is a tall order, given all the issues students face within the university system. The way forward may take time, and no quick fixes are proposed. Still, it seems to be the way forward for the so-called state-funded universities in South Africa that need to become more independent from the government regarding funding and creating opportunities for the people in the system (including students).

New opportunities can be created in a system where the inputs are carefully selected to be integrated into the university system. Inputs such as a growth mindset (entrepreneurial), inter-trans and multi-disciplinary or flexible curricula, physical and virtual infrastructure, data that assist with systemic integration and strategic decision-making around student success, and finances that the university generates. Finally, integrated thinking is everybody in a university's system's responsibility, not only the responsibility of management. Only with integrated thinking throughout the system will the university be a legitimate entrepreneurial institution that eventually becomes financially independent.

The paper is conceptual, and the Systems perspective, institutional theory and entrepreneurial theories are applied in a conceptual conjecture. The limitation is that this is not a tested conjecture yet, which is the follow-up part of this study. The argued assumptions and theoretical propositions must be tested with empirical data from South African universities. Moreover, the entrepreneurial university is a complex open system that deals with various other factors that need to be managed above and beyond the student success and may influence the entire system as elements are always interconnected. Yet, the literature in this paper focused only on student success as a core responsibility in universities. The role of research, staff well-being, and student factors such as well-being and preparedness for university are other aspects that indirectly play into the university system for student success. The emphasis in this paper is mainly on the thinking in the transformation phase of systems. To end this paper, the final thought is that the thinking that drives universities may need re-thinking!

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