Student Success

at the University of Pretoria, 2009-2019:

A Systemic, Intentional and Data-Informed Strategy

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Make today matter

Student Success
at the University of Pretoria, 2009-2019:
A Systemic, Intentional and Data-Informed Strategy

Wendy R Kilfoil

Editor

University of Pretoria

Pretoria

December 2021

Table of contents

Preface

1 THE STUDENT SUCCESS CHALLENGE EXPLORED THROUGH A CASE STUDY LENS

In essence, the publication provides an exposé of the evolution of an increasingly complex and comprehensive student success strategy developed by a South African university (viz the University of Pretoria). The problem facing the University in 2009 was common across the higher education sector in South Africa: the phenomenon of student success. This publication is a case study or series of case studies of how the University of Pretoria intentionally integrated its student support and development programmes between 2009 and 2019, and how it innovated and improved the holistic programme over the decade. The outcome was a gradual increase in the student success rate as measured by both module pass percentage (defined as the number of students who passed v the number who enrolled for the module) and minimum time to completion of individual cohorts ('cohort' defined as a group of first-time entering students followed through to graduation).

The chapter reflects on contextualised approaches to student success initiatives that are similar to those found at other institutions, nationally and internationally. Using case studies shows how initiatives develop over time within a unique context, as well as challenges and successes. This publication has both a descriptive and exploratory approach in its case studies.

Existing but siloed initiatives within the University were uncovered, interrogated, improved and integrated into a broader programme between 2009 and 2019. The cases might provide some insights into the phenomenon of student success that other South African institutions could contextualise.

2 A STRATEGY OF PILOTING, REFINING AND SCALING

The University used an approach embracing research, design and development, piloting, monitoring and evaluation, improvement and scaling where possible. The strategy thus relies on data-informed decision-making and follows a "piloting-refining-scaling" logic. This means that when the data indicate any significant systemic obstacle to student success, an appropriate intervention to deal with this problem is developed. The intervention is subsequently piloted and, if proven sufficiently impactful, scaled up for institution-wide implementation. Interventions developed before the strategy came into effect are also implemented institution-wide. The strategy relies on multi-stakeholder structures that aim at driving student success initiatives in an integrated manner and across historical (largely counter-productive) siloes. Furthermore, the strategy places students at the centre of student success initiatives.

While keenly sensitive to the South African context and the needs and aspirations of students at South African universities, the strategy is informed by the insights and experiences of collaborating partners, both in South Africa and internationally. These include other South African universities and organisations such as the South African Institute for Distance Education (SAIDE), as well as international organisations such as the Kresge Foundation, the Achieving the Dream network of community colleges in the USA, and various donor organisations that support bursary and wraparound support programmes for students from disadvantaged backgrounds.

Based on recent data, the strategy is making an impact on student success rates at the University of Pretoria. In South Africa, it is important to share ideas about enhancing student success, for the benefit of students as well as society more broadly.

Low student success and throughput rates have dogged the higher education system in South Africa for many years. There has been a slight but steady decrease in dropout and failure rates over the past two decades but the statistics continue to show alarming wastage of some of the best minds emerging from the schooling system. Some universities, including the University of Pretoria, outperform the mean. The knowledge of student success and workable interventions developed at the University in the past decade can be shared and replicated by other institutions after some contextualisation. Resources are constrained across the system, so knowing what works allows for more efficient resource allocation.

3 PURPOSE OF THE PUBLICATION

The purpose of the publication is not only to describe how the student success ecosystem evolved at the University of Pretoria in a contextualised way, but also to provide more generic insights into how it might evolve at any higher education institution. The various contributions argue for an intentional and integrated student success ecosystem, captured in University strategy and performance evaluation, led from the highest level and supported by the whole institution, everything underpinned by learning and learner analytics.

The publication gives the theoretical underpinnings of much of the work and then focuses on a number of prominent activities that are dealt with separately but that must be integrated if the whole system is to be maximally effective. One theme is thus the role of executive leadership in achieving a coherent and intentional student success programme and the engagement of academic and professional leaders across the institution to encourage an integrated, multi-stakeholder approach to student success. Another theme relates to engaging students in activities designed to ensure minimum time to completion with due consideration for holistic approaches that include academic success, appropriate graduate attributes and wellbeing. Wellbeing is also a theme in itself, based on research conducted among students and subsequent actioning of the data. Advising has come to the fore in South Africa in the past decade only, and the system of Faculty Student Advisors is discussed from its pilot phase in 2011/12 to a point at which it had become a more sophisticated system by 2019, with advising the crux for all other initiatives. The focus on students is matched by one on staff development to support student success initiatives, beyond the basic academic activities of facilitating and assessing learning in various modes. The notion of student success was widened from the usual understanding of academic success to success beyond the University in obtaining and retaining meaningful employment or in starting one's own enterprises or moving on to postgraduate studies. The publication concludes with a focus on data analytics and tools that support and enable successful interventions as part of a student engagement and success improvement cycle.

4 REFLECTION ON THEORY AND PRACTICE

What is presented is based partly on original research, such as the wellbeing project and many of the research initiatives discussed in the data analytics chapter. For the rest, the understandings that emerged built on the work of others in the field, as well as University practices. The University piloted, improved and scaled initiatives over a decade until it arrived at a contextual and mature system of student success. It has not reached a plateau as it continues to research and improve initiatives. New research is followed, networks have been formed nationally and internationally, and structures at the University have been initiated to sustain the momentum, such as a student success committee and a data analytics committee. All activities are now intentional and coordinated. Students are kept up to date through open days and through interactions with the SRC and class representatives.

It is through reflection on practice that the publication contributes to the literature on student success in South Africa. The University used knowledge from various sources (international research and practices, student surveys and other research, reviews, evaluation of initiatives, scholarship of teaching and learning) to institute and then analyse practices that emerged and to scale and integrate them to create a student success ecosystem involving all role-players at the institution, including students, academics and professional and administrative services.

Evidence of the impact of student success activities is seen at a strategic level. The University's Strategic Plan 2025 had five goals, the fifth of which for the first five-year cycle was "access, throughput and diversity". The University then started working intensively on student success so that in the 2016–2020 cycle, Goal 1 became "to enhance access and successful student learning". In addition, the rate of minimum time to completion has improved, as has the overall year-on-year student success rate.

Professor Norman T Duncan,
Vice-Principal: Academic, University of Pretoria

Professor Wendy R Kilfoil,
Consultant: Teaching and Learning,
University of Pretoria

Chapter 1

A Systemic Approach to Student Success

WR Kilfoil

Abstract

This chapter focuses on systemic change management for integrated student success at the University of Pretoria between 2009 and 2019. The University developed a stakeholder-led model informed by research and practice that underpins its student engagement and success interventions. The initial impetus was the first-year student results following the first intake of students who wrote the outcomes-based education National Senior Certificate. A mixed-methods, case study methodology was employed for the initiative, and this chapter used a literature review of research publications of various types as well as the data from original studies conducted at the University. The paradigm within which the project was situated was a systems thinking approach, with extensive analysis of a variety of data sources and wide stakeholder engagement. The initiative led to a wider definition of student success and some conclusions about enablers that support improved student success.

1 THE STUDENT SUCCESS CHALLENGE

The problem facing the University of Pretoria (UP) in 2009 was common across the higher education sector in South Africa: the phenomenon of student success. As explored in this chapter, a great deal was known, or postulated, about effective student success efforts at the University, in South Africa and internationally before 2009.

Various sources of data can be mined, compared, or triangulated. Research at the University (Lemmens 2012) shows that the National Senior Certificate (NSC) results remained the first predictor of student success at the University, particularly in certain subjects (eg, English, in most faculties, or Mathematics or Physics in others). Annual analysis of the results shows that UP receives many of the top performers in the country. In some faculties, the National

Benchmark Tests (NBTs) are used in combination with the school results to make decisions about acceptance, often alongside other criteria. The University has also participated in the South African Survey of Student Experience (SASSE). However, using the data for institutional or faculty-based initiatives has proven to be problematic because of the low response rates. Other sources of information on student success include literature reviews, Achieving the Dream (a community college student success initiative), the First-Year Experience conference as well as other conferences, the Gardner Institute, networks and capacity building opportunities.

Existing but siloed initiatives within the University were uncovered, interrogated, improved and integrated into a broader programme between 2009 and 2019 (see Chapter 4 for a discussion of tutoring, for instance, an existing practice in 2009 that developed significantly in the next decade). The cases might provide some insights into the phenomenon of student success that other South African institutions could contextualise.

1.1 Why student success is important

The negative impacts of dropout and failure on the individual, his or her family, society and the economy are severe. For the individual, it is not only about a lost opportunity to enhance his or her standing, self-image and prosperity, but also often about lost opportunities to assist the family.

International and South African research also shows that university graduates have a much higher employment rate and better remuneration (Kigotho 2015; Krstić, Filipe and Chavaglia 2020; Kuh et al 2006; OECD 2013; Statistics South Africa 2019; Van der Berg et al 2011; Scott 2019). It also seems that technical education has a positive impact on both:

> Countries with relatively high numbers of 25–34 year-old graduates from vocationally oriented programmes succeeded in reducing the risk of unemployment among young people with upper secondary education as their highest level of attainment (OECD 2013:16).

Student attrition is thus worrying because research shows that people without at least a school-leaving certificate are less likely to find employment, let alone work that allows a

standard of living commensurate with their needs. Sparreboom and Staneva (2014) conducted a study for the International Labour Organization and MasterCard Foundation. The research used the "school-to-work transition survey" and involved 28 countries, including the following African countries: Benin, Liberia, Madagascar, Malawi, the United Republic of Tanzania, Togo, Uganda and Zambia. The African countries are mostly classified as low-income economies by the study (in other words, close to the situation in South Africa). In such countries, the report finds that

> the "undereducation" of young workers remains the principal concern, and an important hindrance to transformative growth. The lack of quality education in many areas of low-income countries perpetuates the cycle, whereby poverty results in low levels of education which results in vulnerable employment, undereducation and low wages of young workers and a subsequent lack of financial means to fund the education of the next generation of youth. In this regards, the report will confirm the role of education in shaping labour market outcomes for young people and the need for renewed concentration of efforts towards investment in quality education, from pre-primary through tertiary levels, in the development agenda (Sparreboom and Staneva 2014:13).

1.2 Research methodologies

1.2.1 Mixed method case study approach

This publication comprises a number of case studies, and research methods vary per case study area, so one might say that mixed methods are used within some case studies and across the studies. The evidence used is both quantitative and qualitative.

The University relied on internally and externally generated data and research – literature review, some conference attendance, some networking. It also piloted, monitored, evaluated and improved initiatives that were subsequently scaled across the University (eg, various surveys such as the Student Academic Readiness Survey, advising, online first-year orientation, predictive analytics), indicating a type of design-based research.

Many influential and intersecting change theories, including systems thinking, improvement science and invitational education, emphasise the importance of creating a shared understanding of the problem being addressed and related concepts as a basis for moving forward successfully. These change management theories will be discussed briefly below prior to a discussion of the concept of student success.

1.2.2 Change management theory as it relates to systems thinking for success

Systems thinking is stated as a fundamental element in many change theories, including improvement science and invitational education. On reflection, its principles informed the process of integrating student success initiatives at the University. A common metaphor/model in systems thinking literature (eg Allen and Kilvington 2018; Betts 1992; Kim 2000; Sweeney 2001) is the image of an iceberg, with the visible portion representing an event and the deeper levels representing patterns and trends (data), systems structures and drivers, and cultural or mental models hidden below the surface. The University's "event" was the poor first-year success rate of the first intake of NSC students who had emerged from an outcomes-based education approach. Fortunately, from the start at UP, data played an important role in decision-making; structures were created or expanded by adding relevant stakeholders; and gaps in current thinking about student success were uncovered.

Betts (1992) defines a system as "a set of elements that function as a whole to achieve a common purpose". He also explains that a system can have subsystems: synergy is a characteristic within a system, and interdependency and interaction are key.

Kim (2000:8) identifies the need to move "from fire fighting to fire prevention" – ie, we might have an immediate response to an event, such as a drop in student success rates, but we need to prevent it in future by addressing the system that caused it. We need to look at the patterns (data) in terms of which students, faculties and modules are affected, as well as the structures (including policies) and the mental models – eg, priority given to funding student success interventions. We should also consider the wider system: how communities see higher education, how schooling sees higher education, how higher education is funded, etc. Kim (2000:9) argues that we need to "create a different future". The process is not linear – we need to consider everything simultaneously and move from being present-oriented (event) to being future-oriented.

Systems thinking critiques trying to solve problems by reacting to events rather than to the whole system, to the underlying data, structures, stakeholders and culture. "Wicked problems", as they are termed (eg, by Allen and Kilvington 2018), cannot be solved in this way as they are characterised by lack of agreement, no obvious solution, involvement of multiple role-players, long time scales, contextual embeddedness, and a dynamic environment.

The University's wicked problem was student degree completion in minimum time across race and gender. In many ways, what UP did in 2009 was react to an event. However, with the Finish Line is Yours (FLY@UP) campaign (see Chapter 7), the University:

- deliberately involved all stakeholders, many of whom might never have thought they were responsible for student success, from the Department of Finance to Security Services;
- integrated the institution's data capacity building and data committee with student success initiatives; and
- identified and tried to address structural barriers to student success.

To achieve these ends, the University worked through a dedicated manager and multi-stakeholder committees to create a joint understanding of the problem from multiple perspectives.

Improvement science focuses on consistent improvement (Brookings Institution 2018; Carnegie Foundation for the Advancement of Teaching nd; Lemire, Christie and Inkelas 2017; Lewis 2015; Regional Educational Laboratory Program 2017), and its proponents explicitly refer to the importance of systems thinking to their approaches. The Regional Educational Laboratory Program (2017) defines the science as follows: "Improvement science is a problem-solving approach centred on continuous inquiry and learning. Change ideas are tested in rapid cycles, resulting in efficient and useful feedback to inform system improvements". Lemire, Christie and Inkelas (2017:25) adopt a slightly different perspective, describing it as "a data-driven change process that aims to systematically design, test, implement, and scale change toward systemic improvement, as informed and defined by the experience and knowledge of subject matter experts".

In many ways, the FLY@UP initiative operates through "networked improvement communities" (Carnegie Foundation for the Advancement of Teaching nd). Three such communities were

the FLY@UP Student Success Committee, the Tshebi[1] data committee, and the community of practice for the Faculty Student Advisors (FSAs) (see Chapter 5).

Most recently, invitational education has had a growing impact. Purkey, one of the initiators of the approach in the 1970s, writes about its holistic, institution-wide approach to student success that intentionally invites people "to realise their relatively boundless potential" (Purkey 1991:2). The orientation is very human-centric, intentionally involving everyone in the educational environment.

The theory of change for invitational education seems to be that we can influence student engagement, attendance, achievement and graduation if we consider the personal and professional wellbeing of all stakeholders in the environment. The work of the University's FLY@UP campaign can be seen as inviting students to take responsibility for their own success but also inviting all stakeholders to realise the role they play in student success. FLY@UP attempts to be human-centric. Using the faculty student advisors and the growth mindset (Dweck 2007), FLY@UP recognises "human potential, not always evident, is always there, waiting to be discovered and invited forth" (Purkey 1991:1). Or, as Haigh (2011:299) puts it:

> In higher educational practice, all many learners need is an opportunity; they are self-motivated, driven by internal fire and self-belief in their personal goals. Others need help. They must feel persuaded that the time is right, the place is right, the people are supportive and that learning is good. If not, they may remain inactive, frozen and embarrassed until the mental obstacles that inhibit them are removed. Removing obstacles to engagement with education, this is the purpose of a learning invitation.

These change theories could be seen as lenses, each adding to the model of student support and success created by the University.

At the University, we started with the following "wicked" or highly complex problem: student completion in minimum time across race and gender. Based on the change theories discussed, the University's approach to change could be stated as follows:

- If we coordinate, scale, monitor and foreground student success interventions, more

1 Northern Sotho/ Sepedi for someone who learns things and alerts others.

students will graduate in minimum time.

- If we involve all stakeholders in a holistic way, the chances of the initiative's success are greater.
- If we use existing data, generate new, actionable data, and create structures and systems for analysis, changes will be more effective.

1.3 Limitations of the study

The study is limited predominantly to undergraduate students with a specific emphasis on the first-year experience. Postgraduate students are not excluded from using FSAs or doing ready-for-work (see Chapter 10) tutorials, for instance, but the primary focus is undergraduate students.

Not all interventions monitored and evaluated their activities or collected data systematically in 2009. Unfortunately, by 2019, gaps in these processes still existed.

Almost every activity is voluntary, so students might choose to remain uninvolved or be too busy to participate in activities or access support. The University does not have the resources to make all student-support activities compulsory. Doing so would have the advantage that all students would receive the services, ensuring that those who needed them could use the services without fear of being stigmatised as "at-risk".

Student voices were originally limited to members of the Student Representative Council (SRC) on committees such as the Student Access and Success Committee. FLY@UP (2015) expanded opportunities to hear the general student voice. Later, the class representatives were involved in direct meetings twice a year arranged by the Vice-Principal: Academic. Surveys of students also produced data, adding to their voice (eg, the Student Academic Readiness Survey – STARS – written during the first-year orientation, student feedback on teaching within each module, and a longitudinal study of first-year dropouts, which uses telephonic interviews).

DEVELOPING A SHARED UNDERSTANDING OF THE CONCEPT OF STUDENT SUCCESS

1.4 Success perceived as academic achievement only

It is easier to use academic achievement as a measure of student success because it is quantifiable. South Africa experiences a vast waste of human potential, resources and opportunities for national and individual advancement at all levels, in every occupation, as is evident from the academic results of basic, further and higher education. The National Planning Commission (2012) addresses "Improving Education, Training and Innovation" in Chapter 9 of its *National Development Plan 2030*. It confirms that an education system from early childhood development to higher education is central to "addressing poverty and inequality" (National Planning Commission 2012:263). It also identifies the problem with higher education as "low participation rates, high attrition rates" (National Planning Commission 2012:271), which is often reiterated in student success literature in South Africa (Scott, Yeld and Hendry 2007; Scott 2009b). The phenomenon is analogous to the situation in basic education: participation rates might initially be high, but there are also high attrition rates.

This chapter looks into South African research into data recorded on the Higher Education Management Information System (HEMIS) (see below). The national student success terminology includes the following: module pass percentage, reported annually (number of students who pass a module v number who registered originally); throughput rate (achieved by dividing the number of graduating students by the number of first-time entering students); and time to completion (Department of Higher Education and Training 2019). The present study uses module pass percentage plus minimum time to completion rather than throughput rates as measures.

For the purposes of this publication, which covers 2009 to 2019, the Department of Higher Education and Training (DHET) (2021) report "Statistics on Post-School Education and Training in South Africa 2019" supplies a useful overview of the developments in South African higher education during this period. They drew their data from the audited 2019 HEMIS database in November 2020. The total enrolments, including Unisa, grew from 837 776 in 2009 to 1 074 912 in 2019, an increase of 28.3% (DHET 2021:9). Of those, 830 797 (77.3%) were Black African. The

biggest growth in enrolments was in SET (30.1% of the total in 2019) and education. Female students were in the majority in enrolment and graduation rates. In terms of graduates from public higher education institutions, the DHET (2021:26) gives the figures for four major areas: SET, business and management, education, and other humanities. The report notes:

> Graduates increased by 52.6% (76 516) over the eleven-year period (2009–2019), with notable increases recorded in the Business and Management (73.5% or 24 851) and SET (55.7% or 23 125) fields of study (DHET 2021:19).

The total number of graduates improved to 221 942 in 2019. The report also focuses on racial profiles of success:

> The average undergraduate success rate for students enrolled through contact mode of learning was 82.0% in 2019, which was 0.1 of a percentage point higher when compared with 2018. Students who recorded higher than average success rates were White, Indian/Asian and Coloured (89.8%; 87.5% and 84.0% respectively), while Africans recorded lower than the average success rate (80.5%) – this was observed throughout the period under review (DHET 2021:23).

The report continues:

> Success rate for contact students increased by 5.0 percentage points (from 77.1% to 82.0%) when comparing 2009 and 2019, and the highest increase in this period was for Indian/Asians (7.5%), followed by Africans (6.5%) and Coloureds (5.9%), while White students recorded a lower increase (4.4%) (DHET 2021:23).

The University of Pretoria (UP) did not differ significantly from the national figures for student success in 2019 (DHET 2021:103):

Table 1.1 Comparison of student success rates in 2019

	Black African	Coloured	Indian/Asian	White	Total
University of Pretoria	79.3	82.1	84.5	88.8	83.7
National	80.5	84.0	87.5	89.8	82.0

1.4.1 The University of Pretoria and student academic achievement

UP, like most other universities, had built up a certain confidence in the reliability of the final school examination to indicate a prospective student's potential to succeed at university prior to 2008. The University's results in terms of module pass percentage and graduation in minimum or extended time were better than those of the majority of institutions in the country. However, the results of the intake of students who wrote the first outcomes-based NSC examinations showed that the module pass percentage was down from previous years. The drop in the 2008 module pass percentage was the event that precipitated UP's investigation into its student support and development structures as well as its attention to the First-Year Experience Conference, the Gardner Institute and Achieving the Dream (Ogude, Kilfoil and Du Plessis 2012). The latter is a community college movement in the United States aimed at improving student retention and success using data-based and coaching approaches.

The University of Pretoria was in the privileged position of having some of the better module success rates in the country between 2009 and 2019. However, disaggregating the data shows unequal module pass percentages of black African students v other population groups as well as better performance by female than male students (DHET 2019 and 2021; Mouton 2019). The same race discrepancies existed in minimum time to completion data, although by minimum time plus two years, the gap was narrower.

1.4.2 What external research contributed to understanding student success

Institutions often continue to use old systems, layering new initiatives on top of old principles and practices and blaming students for poor success rates. The reality is that institutions are often ill prepared for the students they receive, especially since the massification of higher education and changing student profiles. Real transformation efforts require wide stakeholder engagement and data, as well as a readiness to give up some practices and adopt new ones. The institution needs to change – whether it be in terms of its curriculum, its pedagogy, its student financing, its student support and development, or a combination of any or all of these aspects.

1.4.2.1 The South African context: Access and success

Student participation and success rates at universities had been a serious national concern in South Africa since 1994, especially the racial dimension of access and success. There are multiple historical and contemporary reasons for the discrepancies in participation and success rates prior to 1994, including political and socio-economic reasons. Impoverished rural and urban communities have a legacy of inadequately funded schooling that provides limited school completion or higher education prospects for the learners. Schooling remains an issue in preparing learners for university studies while itself being a high-attrition system (Bosch 2020).

Much of the early focus on student success in South Africa was in terms of what Tinto (1975) terms 'academic integration' (see the discussion on Tinto later in this chapter): epistemological access, curriculum reform and academic skills development, including literacy (eg, Volbrecht and Boughey 2004; Boughey 2005; Scott 2009a and 2009b). The impact of large classes and class attendance also received attention (eg, Snowball and Boughey 2012). More recent literature has focused on those aspects as well but also, more holistically, on student experience, advising, mentoring, counselling, well-being and all the activities that make up contemporary student support and development (eg Leibowitz, Van der Merwe and Van Schalkwyk 2009; Strydom, Kuh and Loots 2017).

Studies of data from the HEMIS show low participation rates and high attrition rates among black African students, in particular (eg, Scott, Yeld and Hendry 2007; DHET 2019). These cohort studies reveal how participation rates, attrition rates and access affect success for black African students in comparison to those of other population groups. Scott, Yeld and Hendry (2007) found that enrolments of black African students had doubled since 2000 but were still well below those of white students. Furthermore, fewer than 10% of those black African students ever received a qualification, demonstrating access without success. Scott used the findings of this study in a later publication (Scott 2009b) to show that many of the problems arose from systemic structural problems in higher education. National cohort studies continue to show the disparities, despite improvements, two decades later (DHET 2019 and 2021).

Scott (2009a, 2009b, 2019) has long advocated curriculum change through adding an

additional year for undergraduate degrees to make up for the knowledge and skills gap between schooling and university. His arguments were instrumental in the establishment of earmarked funding for extended curricula for at-risk students. His efforts of many years culminated in a proposal by the Council on Higher Education (CHE) (2013) (for which he coordinated a small task team's research) to extend the three- and four-year undergraduate curricula by a year for all students. For a variety of reasons, the higher education sector did not receive the proposal well, and it was never implemented.

In one of his latest publications, Scott (2019) focuses on the redesign of the South Africa higher education system to focus on student success for the benefit of both the individual and the country. His focus is systemic and national, so he recommends a system-wide rather than individual university approach, involving major stakeholders external to universities, and using a design-thinking strategy. His arguments remain rooted in students' mastery of their disciplines/fields to help them attain their qualifications and goals. He continues to stress the need for structural curriculum change, by which he means working with a more flexible qualifications framework. He contends that content, orientation, structure and delivery need to change together to align the curriculum for success for a diverse student body (Scott 2019:19). He also argues for evidence-based decision-making to implement interventions that will have the most impact (Scott 2019:20).

While Scott acknowledges that "quite" impactful co-curricular initiatives have been developed, such as tutoring, counselling, literacies and extended programmes, he labels them "fragmented, peripheral or supplementary" (Scott 2019:11), which by 2019 was not the case at the University or at many other higher education institutions in South Africa. In fact, he goes further and criticises the over-emphasis on what he terms "concurrent support" (Scott 2019:20), the kind of focus of many universities' student development programmes: tutoring, mentoring, advising and so on, at the expense of curriculum redesign supported from the highest level by DHET and institutional leadership. The only initiative that he condones is the extended curriculum programme, although he criticises its limited reach (Scott 2019:24). One has to think that curriculum change has to be broader than just extending curricula by a year. No data are provided on the impact of the extra year on student success or time to completion, or on what percentage of participants in these programmes makes it to the mainstream. Some very creative things are happening in many extended programmes, but

extending the existing curriculum by a year and adding some transitional elements such as additional literacies and skills is no guarantee of improved student outcomes.

Given his emphasis on curriculum, it is no surprise that Scott also comments on the role of academics in student success:

> Academic staff – who carry most responsibility for facilitating student success – are relatively autonomous, strongly influenced by traditional academic priorities and culture, often intrinsically motivated by academic values and commitment to their discipline, and independently minded; and for practical reasons such as that it is generally not possible to quantify any individual academic's contribution to undergraduate student success (Scott 2019:26).

He claims that there are no incentives for academics to improve students' educational outcomes or their own professional development in teaching more effectively.

Scott (2019:27) correctly states that

> there is a tension between insistence on a "total solution", achieving the necessary changes in all aspects affecting student success in one package, and an approach that, while informed by a comprehensive vision of what is required, acknowledges that different aspects of the challenge have different time-frames, and that introducing an order of priority may be necessary for effective change.

Scott favours the latter. Empirical experience at UP shows that a change strategy based on systems thinking can provide an aspirational vision. However, in reality, it takes time to identify all the stakeholders; bring them to a common understanding of the problem; identify, analyse, integrate and improve existing projects; pilot new initiatives to fill the gaps; and develop capacity – all within a constrained budget and with limited staff resources.

Chrissie Boughey published widely, beginning in the late 20th century, and has been a great commentator on South African higher education policy and practice. Her focus was strongly on language development and academic literacy (eg, Boughey 2002) and epistemological access (eg, Boughey 2005), often linking language and epistemological access in her writing. She was a leader in the academic development movement in South Africa (eg, Boughey 2007; Boughey and Niven 2012) and also wrote on teaching large classes (Snowball and Boughey

2012; Boughey 2015), among other topics. Some of her writing related critically to national policies (eg, Boughey 2018, writing on the use of earmarked grants for teaching and learning for disparate activities outside the mainstream curriculum).

In the past two decades, other South African researchers have focused in a more holistic way on academic and psychosocial aspects of student engagement and success. Unfortunately, few articles have been assembled into collections on particular themes. One such collection is *Focus on First-Year Success: Perspectives Emerging from South Africa and Beyond* (Leibowitz, Van der Merwe and Van Schalkwyk 2009), which showcases first-year experience initiatives at various universities in South Africa and other countries. Van Zyl (2017) compiled a number of case studies from five South African universities and wrote the introduction in which he addressed the under-preparedness of students but also of institutions as contributing factors to access without success. Van Zyl is linked to the South African National Resource Centre, which was established at the University of Johannesburg using funding from a Department of Higher Education and Training collaboration grant. It offers opportunities for research into student success, attendance and presentations at annual conferences and access to publication.

A more data-based approach to student success was promoted by the University of the Free State (UFS) using the SASSE (Strydom, Kuh and Loots 2017). SASSE is a deeply contextualised version of the National Survey of Student Engagement (NSSE) in the United States, developed by George Kuh, which became the basis of many of his ideas about which practices influence student success (see the discussion of some of Kuh's ideas in the next section).

1.4.2.2 International research and experience in what counts in student success

1.4.2.2.1 More holistic definitions

In a review of the literature on what matters in student success, Kuh et al (2006:7) state:

> For the purposes of this report, student success is defined as academic achievement, engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills and competencies, persistence, attainment of educational objectives, and postcollege performance.

The researchers identify from the meta-analysis a number of issues that come up frequently, such as high attrition rates. They conclude that "students who may be at risk of premature departure or underperformance [include] historically underserved students (first generation, racial and ethnic minorities, low income)" (Kuh et al 2006:3). The quality of secondary education as a factor in student success also emerges, but so does the quality of the post-schooling education that students receive. The authors state that

> some students more than others are better prepared academically and have greater confidence in their ability to succeed ... what they do during college – the activities in which they engage and the company they keep – can become the margin of difference as to whether they persist and realize their educational goals (Kuh et al 2006:3).

Kuh et al's (2006) success indicators are predominantly quantitative, but some attempt is made to consider qualitative indicators. So quantitative data (which might be secondary school grades, as used in South Africa) are often taken as predictors of academic success; grades at university and persistence to graduation are often predictors of further success. They acknowledge that

> some of the more difficult to measure aspects of student success are the degree to which students are satisfied with their experience and feel comfortable and affirmed in the learning environment (Kuh et al 2006:5).

Possible qualitative indicators that they mention are a graduate's willingness to attend the same institution for further study or to recommend it to someone else. Graduate attributes such as appreciation of diversity, the ability to work with different people and value-driven attitudes are highlighted, among others. They conclude:

> Novel definitions are borne out of ingenuity and necessity and often require measures of multidimensional constructs. In part, their emergence is due to the increased complexity of the postmodern world and the need for institutions to be more inclusive of a much more diverse student population (Kuh et al 2006:6).

Definitions are also likely to vary for different people:

> In fact, Rendón (1995) found that the most important indicators of Latino student

> success include believing in one's ability to perform in college, believing in one's capacity as a learner, being excited about learning, and feeling cared about as a student and a person (Kuh et al 2006:6).

The Rendón findings have something in common with those that emerged from various surveys at UP. In a longitudinal study in one faculty, "caring" came out repeatedly as what students valued most (Haupt and Erasmus 2015). In the data from the Student Academic Readiness Survey (STARS), which was instituted in 2010, one of the three factors that most impacted on student success was self-efficacy (Lemmens 2011); that is, students believing that they could achieve in a particular field.

The review (Kuh et al 2006) also touched on issues affecting persistence (eg, parental/familial encouragement, support of friends, finances, being the first in the family to attend university, and the role of meaningful engagement), particularly among underserved populations. They include a list of quantitative and qualitative indicators of student success.

The review of student success literature by Kuh et al (2006) highlighted several theoretical perspectives on the topic, including sociological (with specific reference to Tinto), organisational, psychological, cultural and economic perspectives. It can therefore be inferred that student success as a practice has multi-disciplinary theoretical bases.

In his publication, Cuseo (2007) asks what constitutes student success and isolates several indicators: student retention (persistence), educational attainment, academic achievement, student advancement and holistic development. In South Africa, indicators are usually focused exclusively on retention and academic achievement: student success rates, student time to completion, student retention rates, throughput rates and quality of student passes according to spread of marks. Institutions do not report to the DHET on holistic experience and development, which are much more difficult indicators to measure. Cuseo (2007:6) identifies several critical features of learning experiences:

> Student success is more likely to be experienced and evidenced when students: (1) feel personally validated and they matter to the college, (2) believe that their effort matters and that they can influence or control the prospects for success, (3) develop a sense of purpose and perceive the college experience as being personally relevant, (4) become actively engaged in the learning process and in the use of campus

resources, (5) become socially integrated or connected with other members of the college community, (6) think reflectively about what they are learning and connect it to what they already know or have previously experienced, and (7) are self-aware and remain mindful of their learning styles, learning habits, and thinking patterns.

To some extent, the SASSE results (Strydom, Kuh and Loots 2017) could be used for this purpose in South Africa, although the survey has its limitations. First, it is a voluntary survey with a focus on self-reported experience, so it might not reflect the picture for all students; the student participation rate might be low as well. Second, it is also not compulsory for all institutions to use the survey, so a system-wide perspective of student experience is not possible.

1.4.2.2.2 Academic and psychosocial integration

Vincent Tinto was one of the earliest theorists on student success and remains involved and significant today. In the mid-1970s, he synthesised research in the field to arrive at two vital factors related to student retention and success: academic and psychosocial integration of students from the first year (1975). His theoretical perspective is sociological. He is particularly concerned about students who are socio-economically challenged, as data show that they are less likely to persist or succeed in higher education. His research is thus of great relevance to the South African context.

When he visited South Africa at the invitation of the CHE to present a series of workshops on "Conceptualising a coherent approach to student success" (Tinto 2013), he pointed out that people tend to fixate on his initial theoretical framework and ignore the vast body of work he has produced since. However, his two basic concepts are repeated in subsequent research (see, for instance, Tinto 2008; Tinto 2012; Tinto 2017).

At the workshops presented to all universities, Tinto made two striking points. First, for many students, if integration and support do not happen in the classroom, they do not happen. Second, student success is the result of intentionality (Schreiber, Luescher-Mamashela and Moja 2014). To expand on his first point, many students have crowded timetables or family responsibilities or need to earn and therefore cannot find additional time to attend tutorials or visit advisors. Tinto insists that institutions have to address the classroom experience

(noted in Tinto 2008, 2012, 2013–14 and 2017). This assertion places the responsibility for student success firmly with academics, who sometimes tend to externalise this role to support departments. He writes on the topic of attributes of "effective classrooms", linked to his initial idea of social and cognitive development: "the more students are academically and socially engaged with academic staff, and peers, especially in classroom activities, the more likely they are to succeed in the classroom" (Tinto 2012:5). He argues that the reason student success initiatives do not make an impact is that they occur at the margins of the classroom experience. He recommends setting high expectations that are clearly communicated, giving first-year students, in particular, timely support (possibly through team teaching or learning communities), giving feedback on assessment and using "pedagogies of engagement" (Tinto 2012:7): problem-based learning, cooperative learning and group work.

The University of Pretoria tries to contextualise Tinto's theories of making the classroom matter by sending emails to lecturers of first-year students, heads of departments and deputy deans with information on the growth mindset and providing support resources that they can share with students. These include short videos they may want to show in class. A short PowerPoint presentation with this information is also included to make it easier for lecturers to put together a presentation at the beginning of a lecture.

In another paper, Tinto (2008) also advocates for supplemental instruction, a specific form of tutoring that has a direct link to what goes on in one classroom, as well as basic skills learning communities that link skills across two or more courses (eg, accounting and English) that use pedagogies of engagement and connect people socially and academically. The University of Pretoria's tutorial module is adapted from the supplemental instruction model, particularly for high impact modules, and some departments have experimented with learning communities.

Tinto also sees the value of using new technology to work on data that will provide timely feedback on students who are at risk (Tinto 2008 and 2012). For several years, the learning management system at the University, clickUP, has offered such data through Blackboard Analytics for Learn™ and, more recently, through Blackboard Predict™.

On the same point, but with a slightly different focus, Tinto makes an analogy to Isaac Newton's assertion that objects in motion stay in motion to support his argument that students need to be assisted in gaining momentum to pass modules in order to ensure that success engenders

continued momentum: "Gaining and maintaining motion is key to student completion" (Tinto 2013–14:1). Under-preparedness within mainstream programmes can delay progress. Tinto also mentions students who have not made a clear educational or career pathway choice and thus change programmes, delaying completion. He discusses "intrusive advising" (Tinto 2013–14:5) as a strategy in this regard. At the University of Pretoria, for instance, students are asked to complete an "educational pathway" to focus their attention on their goals.

Tinto has repeatedly made the point that student success is based on success in the classroom, not in a single classroom, but "in a sequence of classes one after another over time" (Tinto 2013–14:5; Tinto 2012). Tinto points out that poorly designed and incoherent programmes, or modules that have a high failure rate, sometimes negatively affect students. Measures taken by institutions include course re-design, academic support (such as supplemental instruction or tutoring) and first-year learning communities. At UP, both the team- and data-based approaches to module review, as well as the scholarship of teaching and learning projects, lead to these ends.

The second crucial point that Tinto reiterated at every CHE workshop was that student success "is the result of an intentional, structured course of action that is systematic and coordinated in nature involving many people across campus" (Tinto 2013). Tinto defines what it means to be intentional as follows:

> First, it means an institution or programme has to develop a long-term course of action with clearly defined goals that can be measured so as to enable it to assess to what degree it is achieving those goals. It is too often the case that programs are unable to clearly define the goals they are trying to achieve or the degree to which they are successful in doing so. My point is simple: before you begin, make sure you can clearly define the goals of your efforts, how you will measure those goals, and in turn determine whether you are successful in achieving those goals. There are many outcomes that are not easy to measure. Doing so may involve the collection of both quantitative as well as qualitative evidence (Tinto 2013).

Tinto includes the allocation of resources as part of an intentional approach. He emphasises the value of formative and summative data in such an approach, including a way of capturing the authentic student voice. He stresses the need for structure, which he defines as an

organising person or entity to ensure that plans and data are put into action. The idea of structure links to coordination at the University of Pretoria, where, for instance, a FLY@UP manager was appointed within the Academic Development portfolio of the Department for Education Innovation.

In terms of being systematic, Tinto discusses focusing on experiences that help to achieve a specific outcome and not trying to focus on every element. In another paper (Tinto 2008), he criticises the lack of connection between student development initiatives and the proliferation of initiatives instead of a focus on making the classroom experience and the education setting/environment better. Furthermore, the whole system has to be on board: all the key stakeholders and those in positions of authority within structures have to collaborate, and they need to communicate with the manager of the programme. The discussion of FLY@UP in Chapter 7 demonstrates this tenet.

Tinto (2013) warns that the successful implementation of a programme takes time, and it progresses and evolves over decades. He urged people attending the CHE workshops to start the process by learning and consulting, then to develop and pilot the proposed programme, making adjustments to improve the product. The programme should then be scaled for institutional effectiveness, and monitoring and evaluation should be built in to measure its success.

Tinto (2017) makes a distinction between "retention" (university's point of view) and "persistence" (students' perspective). He equates "persistence" with "motivation" and prioritises three elements of motivation: "self-efficacy, sense of belonging and perceived value of the curriculum" (Tinto 2017:2). Despite challenges encountered, students will expend energy on a particular activity to attain their goals if they have a strong sense of self-efficacy. Tinto's point is that self-efficacy is learnt, and therefore not fixed, so it can be influenced by experiences at the university. However, support must be supplied early enough in the first year to stop the reinforcement or development of poor self-efficacy (see also Dweck 2007 and the idea of the growth mindset, which is included at the University of Pretoria from the orientation of first-year students). He thus emphasises early warning systems using both predictive and formative learning analytics. His second element, a sense of belonging, develops every day in contact with academics, peers and staff, in academic and social settings. From orientation,

a university can develop a culture of welcoming and inclusion through shared academic and social experiences, engaged pedagogies in the classroom and student societies.

Tinto stresses that the curriculum is within the control of the university. Students need to see its relevance to their goals. Initial course choice is important, as is clarity on what the programme entails. The curriculum must be inclusive of the experiences and histories of the students. It is important to connect knowledge at the first-year level to the outcome of the degree and the application of knowledge.

1.4.2.2.3 Student success and high impact practices

Kuh started his empirical research into student success and institutional culture in the 1980s. In the early 21st century, Kuh developed what he termed "high impact practices" from the data emerging from the NSSE in the United States, which influenced policy, practice and research in student success. UFS later worked with him to design the SASSE (Strydom, Kuh and Loots 2017), deeply contextualising the original for the local context. Both UFS and the CHE sponsored Kuh's visits to South Africa (Kuh 2014a and 2014b), during which all universities were invited to attend workshops with him. Kuh's work is a good example of how data can become actionable.

Kuh's research remains empirical, but the theoretical roots might be traced back to Astin's (1984) theory of involvement and Pascarella and Terenzini's (1980) theoretical model for predicting first-year student persistence, among other things. These theories were developing when Kuh began his own research and were well-established by the time he proposed high impact practices.

Astin's (1984) involvement theory is grounded in psychology. It falls into what has been termed "network-based" theories in which students' interactions with the university and student motivation/involvement (evidenced through what they put into their learning and experiences) are as important as academic grades. Quite simply, student involvement refers to the amount of physical and psychological energy the student devotes to the academic experience. Thus, a highly involved student is one who, for example, devotes considerable energy to studying, spends much time on campus, actively participates in student organisations and frequently interacts with faculty members and other students. Conversely, a typical uninvolved student

neglects studies, spends little time on campus, abstains from extracurricular activities and has infrequent contact with faculty members or other students (Astin 1984:518).

The University of Pretoria's FLY@UP initiative and per-faculty online orientation modules for first-year students aim to make campus life and class attendance more "worthwhile" by giving students tools to engage more in class and on campus. In addition, lecturers are using more tools for classroom engagement, notable among which are clickers (audience response systems).

Astin (1984) debunks three theories that, even today, are prevalent in higher education, related to an emphasis on subject matter, resources or the needs of the individual. Firstly, the subject matter theory prioritises neither effective learning nor good teaching but rather the content expertise of the lecturer. Students are passive recipients. Secondly, the resource theory assumes that resources will improve learning:

> The term resources includes a wide range of ingredients believed to enhance student learning: physical facilities (laboratories, libraries, and audiovisual aids), human resources (well-trained faculty members, counselors, and support personnel), and fiscal resources (financial aid, endowments, and extramural research funds) (Astin 1984:520).

One of Astin's criticisms of this theory is that having the resources does not indicate that they are being used effectively, or at all, or that there are monitoring mechanisms to ensure that they are used to promote learning. It is FLY@UP's mission to encourage students to make full use of resources, to make resources better known to students and to destigmatise their use. A second criticism is that institutions that support resource theory spend a great deal of time and money acquiring limited resources – the most successful students and the most prestigious professors. As both are limited resources, any university attracting high proportions of such resources depletes the system and disadvantages other universities. Thirdly, he discusses the individualised or eclectic theory that tries to focus on the needs of individuals. Astin sees this as desirable in many ways but also expensive and ultimately not feasible given the state of research into teaching and learning.

It is clear that the NSSE in the United States and the subsequent definition of high impact practices by Kuh were influenced by involvement theory. The actionable nature of the high

impact practices also leads to success behaviours. Involvement theory also aligns with the FLY@UP focus on students taking responsibility for their own learning.

Pascarella and Terenzini (1980) wanted to move from a descriptive approach to student success to one that is conceptually or theoretically based. They conducted a longitudinal study at Syracuse University in New York State with approximately 10 000 students. They compared the expectations of incoming students with their actual experience based on a survey methodology. Tinto's (1975) model of academic and psychosocial integration was already available. Pascarella and Terenzini's study came up with a multi-dimensional conceptual framework comprising five dimensions: peer group interactions, faculty (lecturer) interactions, faculty concern for student development and teaching, academic and intellectual development and goals, and institutional commitment. These dimensions are visible in the questions posed in the NSSE.

Kuh's high impact practices are limited in scope to ten practices, many of which South African universities have implemented. Kuh discussed these practices in two workshops at UFS, funded by their Siyaphumelela Grant, with the topics "Identifying and ensuring HIPs quality" and "What matters to student success: The promise of high impact practices" (Kuh 2014a and 2014b). South African universities do not employ all of the practices and usually contextualise those that they use. At the University of Pretoria, all except writing-intensive courses have been part of the system for many years, with learning communities being a newcomer, introduced in 2015 through funding from the Siyaphumelela project but later integrated into the tutoring services. Even undergraduate research was promoted after 2011 when inquiry-led learning was embedded in the University's Strategic Plan 2025. There are instances of international collaboration at the University using videoconferencing to hold shared classes, but few actual semester-abroad experiences. Given the South African context, however, diversity in terms of race, gender, socio-economic status, location (urban v rural), language, first generation and other relevant concepts are promoted in the mainstream curriculum, during community engagement and through an elective short course, Doing Diversity Differently. Internships have been part of the offering of Career Services and have been intensified as part of the fully online Ready-for-Work initiative, but work-integrated learning for credit has been part of the learning landscape for decades in professional and vocational degree programmes. The University's flagship community engagement programme has been running for more than 20

years, and in any given year, about a third of the registered students undertake community engagement to earn credit towards their qualifications. It is the most well-established programme implemented at scale in the country, at very little cost to the University.

Some of the high impact practices rely on the academic departments to implement engaging and integrative activities for students. The University decided post-2010 to focus scarce resources on what it defined as "high impact modules": predominantly first-year modules with high registrations, serving students from multiple programmes and faculties and, therefore, potentially at risk of high failure rates. Funding tutorials for high impact modules has proven to be effective in increasing the success rates of those modules.

At the workshops at UFS, Kuh (2014a and 2014b) also discussed engagement activities that would lead to deep/integrated learning, as identified by the NSSE. He advocated for high impact practices and activities such as orientation, advising and tutoring to be made mandatory. At the University of Pretoria, the online first-year orientation module (UPO) and at least one generic contact UPO workshop are already mandatory for first-year students as part of FLY@UP. In South Africa, making support compulsory is not always feasible in funding-constrained environments or when students' academic timetables are already overloaded.

Kuh's research shows that high impact practices have a positive impact on a range of outcomes, particularly for students from "historically underserved communities" (Kuh 2014a and 2014b). This body of students is of primary concern to any South African university and part of the problem that sparked the University of Pretoria's student support model.

1.5 A WIDER DEFINITION OF STUDENT SUCCESS

In many ways, the student support and development activities at the University of Pretoria prior to 2009 reflected a deficit model and did not operate as an integrated system. The University moved from an uncoordinated series of student success interventions, dispersed between faculties and professional and support departments, to a more intentional, systemic approach under the leadership of the Vice-Principal.

In 2009, existing activities included orientation for and mentoring of first-year students, arranged by the Department of Student Affairs, as well as faculty-based tutoring across

different years with no clear criteria set for selection (see Chapter 4 for a discussion of tutoring and mentoring). Student Affairs also housed health services, including counselling. The counsellors, registered with the Health Professions Council of South Africa, also doubled as advisors on study skills and time management, among other things, which impacted negatively on the time they had for their professional focus. This situation suggested that there was a gap in the provision of student support – the role of advisor.

The theories and practices of people in the field of student engagement and success were central to the expansion of the understanding of student success as well as a shift in paradigm at the University of Pretoria. Theories of change informed the way in which this move could be managed most effectively. This chapter therefore focuses on student success and change management theories and practices that influenced the University's thinking about optimally supporting students to succeed.

1.5.1 Other contributory factors to student success and persistence

Student dropout and failure are often attributed to a lack of student preparedness for higher education (eg, Scott 2009b). Universities cannot control the schooling system and so have to operate within their own sphere of influence, the university curriculum, structures, policies, experiences, resources and so on. It has been argued that many students who clearly have potential are under-prepared for the "traditional forms of education at present offered in South Africa" (Council on Higher Education 2013). However, it could equally be the result of other factors (see international, national and University of Pretoria research included in this chapter and others in the publication): for instance, gaps in institutional preparedness to provide holistic student experiences. Based on the same CHE (2013) publication, Van Zyl (2017:2) claims that the poor levels of student success (especially at first-year level) clearly illustrate that "the system has not yet come to terms with the learning needs of the majority of the student body (Council on Higher Education 2013)". The cited CHE publication is actually a proposal for a more flexible curriculum, and the latter idea has been consistently advocated for a couple of decades (eg Scott 2009a, 2009b and 2019).

Within any institution, a siloed approach or ineffective leadership could also account for institutional under-preparedness. Wider research and experience show that student

success is a factor of academic achievement but that that could be influenced by personal circumstances, experiences on campus, engagement in relevant activities, support and development activities, and agency (eg Leibowitz et al 2009; Van Zyl 2017; Naidu 2019). Student success is thus multi-dimensional.

Two other contributory factors could be that we are not thinking systemically and that we are not using evidence effectively. In many ways, leadership and broad stakeholder engagement can ameliorate the problem (see Chapter 2). Existing institutional research capacity can be identified and improved to support more inclusive leadership within the system (see Chapter 3).

1.5.2 A model for holistic, integrated student success

Based on the mutually reinforcing synergy of theory and practice, a model was developed that informs all student engagement and success interventions at the University. The model can also be used as a tool for any institution to implement a successful, systemic and integrated model of student support to ensure minimum time to completion for undergraduate students.

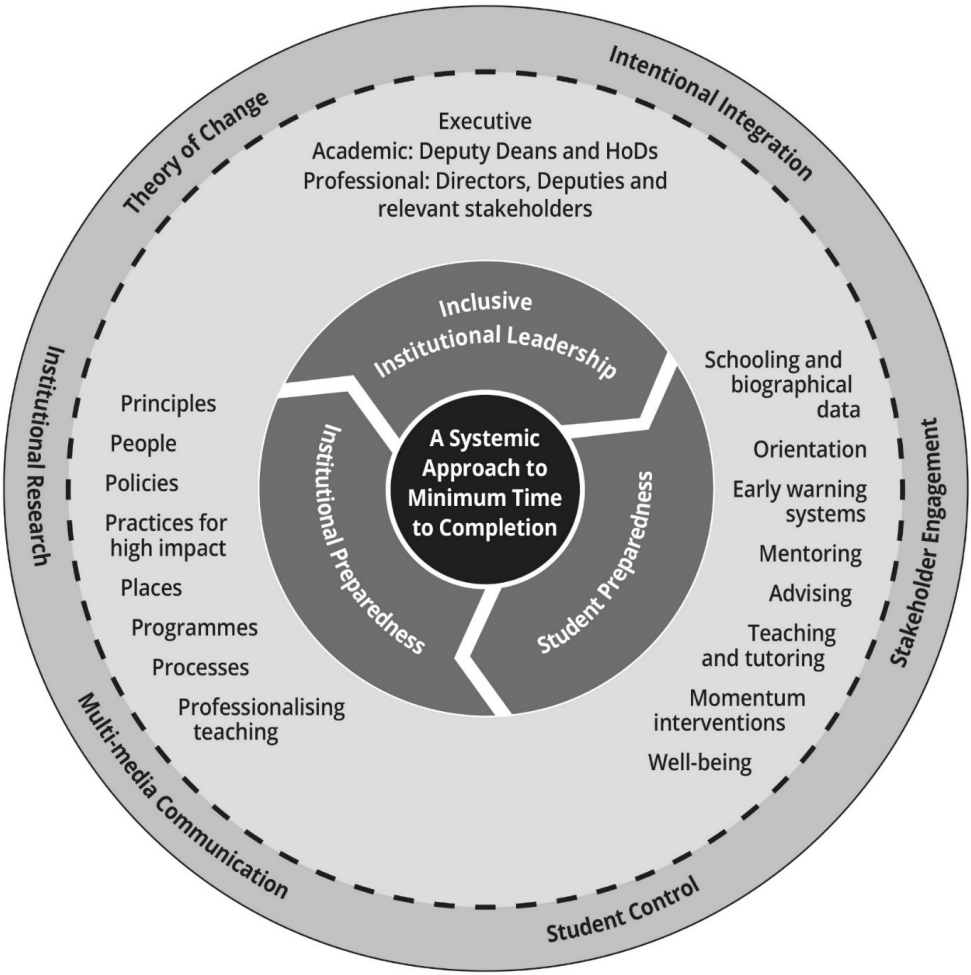


Figure 1.1: Conceptual map of student success model

2 THE ELEMENTS OF A SYSTEMIC APPROACH TO STUDENT SUCCESS IN MINIMUM TIME

This section of the chapter discusses the core concepts in the model of inclusive institutional leadership, student preparedness and institutional preparedness.

2.1 Inclusive institutional leadership

Leadership was important from the early days of designing a model for a student academic development and excellence model. From 2009, it was led by the then Vice-Principal: Teaching and Learning, Professor Nthabiseng Ogude (Ogude, Kilfoil and Du Plessis 2012). There was a slight hiatus during the transition to the current Vice-Principal: Academic, Professor Norman Duncan, who led the coherent integration of initiatives into a single system with a clear brand. This systemic approach, engaging multiple stakeholders, culminated in the FLY@UP concept. In both cases, the vice-principals were inclusive: they acknowledged and involved the existing leadership at all levels in the University as well as the full range of available services. They expanded the group of stakeholders central to initiating and managing a change towards a new concept of and new system for student success. The structural mechanism was a Student Access and Success Committee reporting to the Senate Committee for Teaching and Learning (the student success committee, later re-labelled the FLY@UP Committee). Data were central to the effort, and existing capacity and leadership in student success research were intentionally leveraged. The FLY@UP campaign was widely communicated through marketing campaigns, posters and events.

Initial leadership from the Vice-Principal: Teaching and Learning is described by Ogude, Kilfoil and Du Plessis (2012). It is clear that, in its early stages, a developmental approach was adopted, and specialists from various departments, as well as stakeholders, were involved. National and international ideas and models were identified (Gardner Institute, First-Year Experience conference, Achieving the Dream) and, in some cases, adapted for the South African context, specifically the University of Pretoria context.

The greater integration of initiatives and the inclusion of the broader student voice occurred some years later, in 2015, with the Finish Line is Yours (FLY@UP) campaign under the leadership of the Vice-Principal: Academic.

2.2 Student preparedness

In 2009, 60.6% of learners who wrote the South African NSC school-leaving examinations passed. In early 2020, the Minister of Basic Education celebrated the 2019 pass rate as the highest since 1994: 81.3% (Bosch 2020). Yet Bosch's article goes on to demonstrate that this

is not a true reflection of educational success in basic education in South Africa. It reflects the percentage of passes among the learners who wrote the NSC, not of the cohort that entered basic education in 2008. It does not account for dropouts or learners from that cohort still in the system because they failed along the way. Possibly a third of those who started basic education emerged having obtained the NSC. This is already a tremendous loss to the individuals and the country. The attrition continues for those fortunate enough to pass the NSC with sufficient marks to access a higher education institution.

Higher education collects data at module level on both passed v registered and passed v written, the former figure (the module pass percentage) usually being lower because it reflects dropout and failure. Cohort studies reveal graduation in minimum time or longer, while graduation/throughput rates reflect the percentage of students graduating in a year versus the total university registration (see some of the South African and UP data below and in Chapter 3 for more information on the latter.)

At UP, a combination of data from the student system, STARS and other research produces a list of possible problem areas. Some challenges are transitioning to higher education; getting to know the environment; computer skills; career guidance and goal setting; study skills for a specific discipline; taking responsibility for own time management; assessment skills; socioeconomic background and financial need; physical and mental health; accommodation; being the first in the family to attend university; rural background; and competence in the language of teaching.

The University designed an integrated system of solutions that included academic orientation (face-to-face and online with UPO modules); mentors for first-year students to assist with transition and psychosocial integration (voluntary); a compulsory first-year module for computer skills as well as digital and information literacy; compulsory first-year English academic literacy modules in most faculties; tutors; advisors; health services; a variety of social options such as student societies; a variety of sporting codes; residence life; campus life for those not in residence; computer laboratories; Wi-Fi; FLY@UP activation events; a focus on a growth mindset; and encouraging student agency and voice.

2.2.1 What South African data were describing

Weighting of subject results achieved in the National Senior Certificate or equivalent school-leaving examination leads to an academic point score. Legislation lays down the minimum achievements in various school subjects for admission to an undergraduate degree, diploma or higher certificate, but a university senate can also approve an academic point score above this minimum for specific programmes.

The DHET has captured the relative success of students in higher education institutions on the HEMIS since 2000. In a cohort analysis, *2000 to 2016. First-Time Entering Undergraduate Cohort Studies for Public Higher Education Institutions* (DHET 2019), the department cites another of its papers, the White Paper for Post School Education and Training (DHET 2013), which states: "improvement of undergraduate throughput rates is a key strategy for increasing graduate outputs, for providing the skills needed by the economy, and for ensuring that larger numbers of students are available for postgraduate study". The following definition is important for the purposes of understanding the cohort data:

> Cohort studies are the study of first time entering undergraduate students, who are tracked over a 10 year period to determine the percentage of students that have dropped out from their studies or who have completed their studies. The purpose of extending the study over a 10 year period is to take cognisance of the distance education method of educational provisioning (DHET 2019:13).

The study excludes non-South Africans because the South African identity number is used for tracking – for instance, for transfers between higher education providers, which shows whether a student has left the system or just a particular institution. Any individual university's data will differ slightly from those in the DHET report because universities would include non-South African students. However, the overall picture painted by this 2000 to 2016 report is gloomy.

The national cohort studies (DHET 2019) note that 31.5% of the 2000 registrations dropped out of undergraduate degrees (3-6 years) and diplomas within the first year of study (23.6% for contact only); by 2009 (year 10), 47.1% of this cohort had dropped out (42% for contact only). For the 2009 cohort, 21.1% dropped out within the first year of study (17.4% for contact only). Because of the time span of the cohort study, the 2019 figures were not available.

The University of Pretoria uses minimum time to completion and also provides minimum-plus-one and minimum-plus-two data for executive decision-support. Degrees span three to seven years (the longest being veterinary science). In response to the DHET (2019) study, Mouton (2019) prepared a presentation on the University's statistics for comparison. The good news was that UP's throughput rate exceeded the national rate by more than 13 percentage points for three-year qualifications and improved year on year. Less welcome information was that dropouts had not declined in the period. The latter data need to be unpacked to uncover movement between programmes, for instance, with students remaining at the University but in a different programme.

For the UP contact cohort in 2009, 16% dropped out after the first year, and there was a cumulative dropout of 31% and a cumulative graduation rate of 66% by year 10 (2017). For the 2013 cohort, there was a 12% dropout rate after the first year and a cumulative dropout of 26% by 2019. By 2019, the cumulative graduate total was 71%. Female students tended to outperform male undergraduate students, a common phenomenon internationally. The black African percentages for the 2013 cohort show a 14% dropout and only 64% cumulative graduation by 2019, clearly pointing to a problem that needs to be addressed.

It is useful to have internal dashboard capabilities that can produce cohort studies, but it is acknowledged that some institutions might not have a student data system capable of generating cohort studies. UP's dashboards not only allow users to access them; users may also select parameters, which include institutional, faculty or departmental data; race, gender, programme, success rates as reflected by passed v registered; graduation in minimum time; throughput rates (refined UP definition); retention/persistence data; progression data from year to year; cohort analysis; duration of degree programme (3–7 years in the case of UP); NSFAS status; and biographical status (rural/urban, home language v language of instruction).

2.2.2 University research into student preparedness

Research at UP (Lemmens 2012) shows that the NSC results remain the primary predictor of student success at the University, particularly results in English. Annual analysis of the results shows that the University receives many of the top performers in the country. In some faculties, the NBTs are used in combination with the school results to make decisions about

acceptance, often alongside other criteria. The University has also participated in the SASSE; however, using the SASSE data for institutional or faculty-based initiatives has proven to be problematic because of the low response rates. Other sources of information on student success include literature reviews, Achieving the Dream (a community college student success initiative), the First-Year Experience conference as well as other conferences, the Gardner Institute, networks and capacity building opportunities.

2.2.2.1 Transition to university

From 2009 to 2012, it was clear from the annual survey after orientation that first-year students experienced overload during the short initial orientation and forgot much of what they heard. That is why, in 2013, an extended online orientation was designed (UPO) for implementation in 2014. It was initially generic but became faculty-specific in 2015 after feedback from the 2014 pilot. Faculty Student Advisors (FSAs) supervise this compulsory, eight-week module for the first semester, but the content remains available to first-year students throughout the year. UPO is not a content repository: students are expected to engage with and complete activities. It is also a dynamic environment, with new units being developed annually in response to feedback from the students. Advisors are introduced to students during the contact orientation period and are therefore familiar to them before they start UPO. In 2019, the completion rate for the combined faculty UPO modules was 94%.

Monitoring of student engagement and success occurs not only through UPO and advising; first assessment results and reports from tutors and mentors also provide data, as does student activity on clickUP. Advisors have access to these data and send "nudges" to students – some just to congratulate them and encourage them to continue with their good work, but others to alert individual students to risk and give them guidance on resources such as tutorials and advising. The Faculty of Economic and Management Sciences has had a six-week project since 2014: the first assessment data trigger contact with the students who are at risk.

The Higher Education Research and Innovation (HERI) unit has monitored first-year dropout/persistence for more than a decade. This longitudinal study, which uses telephonic interviews with first-year students who drop out, shows that course choice is consistently the primary reason. Many students do not get into their first choice of degree or select a degree that turns out to be a wrong choice.

STARS, conducted during orientation, produces results within days, enabling very early allocation of mentors and referrals to advisors. All mentors are trained and monitored. The mentoring programme is evaluated annually using a variety of data from mentors and mentees (see Chapter 4 for a short discussion of the programme).

Tutoring (see Chapter 4) is based on an adapted supplementary instruction model, so it starts in the first week of the semester, which is a good thing. However, the drawback is that it is voluntary. Tutors are trained, monitored and evaluated by coordinators and lecturers. Students might also be requested to evaluate a tutor.

Nudging has been mentioned a couple of times. It involves sending short motivational and informational messages to students, whether congratulatory or advisory, always with an action attached, such as "consult your Faculty Student Advisor". Nudging was a strategy that came up at a Siyaphumelela conference, and the Head of the Higher Education Research and Innovation Unit subsequently visited Civitas Learning in the USA to learn more about it. He used it initially in nudges to first-year students who had under- or over-registered for modules, and the activity was later taken over by the advisors.

Medical students start the year on the Hatfield Campus. They are allocated a third-year mentor from the beginning of the year, although the third years are on a different campus. First-year students move to the Prinshof Campus at mid-year, and there, too, they have additional orientation by the Dean, Deputy Dean: Teaching and Learning, the Head of the School and the advisors. They also have closer contact with their mentors.

2.2.2.2 Transitions to subsequent years

Any transition to a subsequent undergraduate year occurs within the disciplines but also through the students' access to faculty student advisors. The transition from first to second year might be more important for veterinary science students, who move from the Hatfield to the Onderstepoort Campus. It is customary for the first-year BVSc students to spend at least a day on the Onderstepoort Campus at the beginning of the year, joining the second-year BVSc and veterinary nursing students in their orientation on that campus. The faculty has a part-time advisor, given the smaller number of students.

2.2.2.3 Transition to employment or further studies

Educational engagement that leads to successful transition to employment or further studies starts in the classroom, with suitable curricula and pedagogies, some of which involve work-based practice, work-integrated learning and clinical practice. Academic integration considers active engagement, relevance, application in contexts, etc, through formal lectures, tutorials, assignments and research projects, practical work, work-integrated learning and community engagement. Curricular community engagement is considered to develop desirable skills for the workplace. Inquiry-based teaching and learning at undergraduate level has also been part of the University's Strategic Plan since 2011, developing basic research skills for postgraduate studies as well as the workplace. In this way, the academic programme becomes the centre of transitioning into employment or postgraduate qualifications.

The University remains continually alert to surveys on skills needed to enter and remain in the contemporary workplace as an employee or entrepreneur. From 2016, a small task team of relevant stakeholders designed a Ready-for-Work initiative, a fully online programme of mostly one-hour tutorials, offered on the learning management system through Enterprises University of Pretoria. It is free to the University's students. By 2019, the inventory contained approximately 40 professional online development tutorials dealing with topics ranging from writing your first CV to all things related to finding and keeping employment, as well as a number of soft skills and a package on artificial intelligence (the last being the only one still under construction). A free, online entrepreneurship programme is also part of the broader initiative.

2.3 Institutional preparedness

2.3.1 The importance of evidence and data in supporting change to ensure student success

2.3.1.1 Institutional research

A close examination of the University in 2009 showed a siloed institution. Lecturers took responsibility for their academic work, considering holistic student development the

responsibility of support departments. Epistemic access was not an overt consideration, although it was being strongly advocated in South Africa (eg, Boughey 2005; Scott 2009a and 2009b). Curriculum reform, particularly in the field of extending the time to completion of three- and four-year programmes, was also a point of discussion nationally (Scott 2009a and 2009b) but not considered at the University, besides the extended (Natural and Agricultural Sciences, Economic and Management Sciences) and augmented (Engineering, Built Environment and IT) programmes being funded as a separate initiative. Tutoring was seen as an academic activity, and Chapter 4 explains how the Student Access and Success Committee uncovered, improved and integrated this activity. Many support departments did not consider themselves to be involved in student support and development. Student Affairs was central to non-academic support and development, focusing more on psychosocial integration (Tinto 1975).

Faculties operated without knowledge of one another's good practices in teaching, so there was no question of good practice in one faculty being contextualised and scaled for other faculties. The Student Access and Success Committee created a community of practice that had not previously existed, and this was later strengthened by the Vice-Principal: Academic's creation of a specific forum for the deputy deans of teaching and learning, which still meets three to five times a year. The Student Access and Success Committee (renamed the FLY@ UP Committee) and later the Tshebi Data Analytics Committee included a wide stakeholder group, transcending faculty and support department divisions and integrating student success initiatives in a more holistic way.

Data in the HEMIS showed that some modules regularly produced lower success rates. The High Impact Modules Project, started in Natural and Agricultural Sciences and then scaled to all faculties through the Student Access and Success Committee, was an acknowledgement that the problem might lie with the module rather than the students when the pass percentage was low. The focus was mainly on first-year modules but later included modules at any level that might be impeding student progress or graduation. Such modules were reviewed to establish the causes and provide solutions, which included curriculum redesign in some cases. Initially, provision was made for tutorials for those modules as well as introducing other practices that were likely to engage students, encourage persistence and promote eventual success in terms of achieving their goals and qualifications. The University developed increasingly sophisticated ways of dealing with such modules through a team- and data-based approach

under the auspices of the Tshebi committee.

The University conducted research into student success for decades, originally focused on institutional data needed for executive decision-making and reporting to government. These descriptive data were rarely shared at lower levels in the University and were not accessible except through what is now the Institutional Research and Analytics unit.

Two critical entities for institutional research at the University are the Institutional Research and Analytics Unit in the Department of Institutional Planning and the Higher Education Research and Innovation Unit in the Department for Education Innovation. Audited data from the University's HEMIS are a major source for analysis, as were data from the student system. Although the HEMIS data are highly aggregated, and therefore not useful to address concerns around individual students at a formative stage, data patterns over a number of years provide useful trends. This capability is especially pertinent at the level of module success (so at-risk modules) or even first-year retention and success (eg, number of credits for which students registered – see below and Chapter 3 on data). At one stage, the University changed to a new system that disrupted its ability to conduct cohort studies, but the switch to PowerHEDA (Higher Education Data Analyser) reversed that situation. Not only that, but it also allowed the Institutional Research and Analytics unit to develop dashboards that could be used by lecturers, advisors and so on, and offered to provide training in their use. Student success is fairly good when compared with national data and fairly stable, increasing slightly each year.

The Higher Education Research and Innovation Unit initially conducted research into student success from perspectives other than marks and academic outcomes (see Chapter 3). Much of the unit's work was done in collaboration with the Dean of Students and his departments but was rarely shared at the executive level or with the faculties. The unit employs a mixed-methods approach, using data from the HEMIS, information from surveys or focus groups, literature reviews, piloting of new ideas and other sources.

Survey data were used but sparingly. Surveying of students is strictly controlled at the University to prevent over-surveying. When student data are used, or surveys designed for distribution to students, such applications require approval from the Registrar in addition to the usual ethics approval. As a result, many of the UP reports referenced in this publication remain unpublished because approval was given for strictly internal distribution.

From 2010, STARS was the first questionnaire that first-year students completed, and the results, in combination with data from the student system, were used to refer them to the mentoring and advising systems. The survey became the first early warning system at the University. It was clear from the results of this self-report survey that many students were insecure about aspects of their skills or the support they had or needed. That is why it was good that the results could be used to refer students to mentors and advisors so that they became actionable.

A student feedback instrument is regularly updated so students can give input on the teaching within a module or on tutoring. It is supported by a Senate-approved Policy on Student Feedback. The Higher Education Research and Innovation Unit is responsible for convening a stakeholder team to update the policy and the instrument. The results are mainly used for performance management of lecturers and the improvement of modules where problems are identified. A limitation is that the questionnaire is implemented at the end of a semester, so students who progress do not see the impact of their feedback. The value of completing the survey thus causes a certain amount of scepticism. Class representatives are able to report problems in a timelier fashion through their interactions with lecturers and sometimes the Dean.

Descriptive data could only take the University a certain distance along the road of student support and development. The Department for Education Innovation led the move to predictive analytics, particularly through its E-Education Unit and its Higher Education Research and Innovation Unit. The learning management system, based on Blackboard Learn and labelled as clickUP at the University, supported the initiative from the e-learning angle. The University piloted both Analytics for Learn and Blackboard Predict. An interesting trend emerged: data showed that students who were regularly engaged online significantly outperformed those who were less engaged. This finding boosted the hybrid approach to teaching and learning adopted by the University. A second project by the Higher Education Research and Innovation Unit used Hobson's Predictive Analytics Report Framework and thousands of students' data to determine the most significant early predictor of student retention and success in the first semester. It turned out to be the number of modules for which students registered: if students registered for too many or too few modules in a semester, it seriously affected their chances of graduating in minimum time. The University was able to check its data and send

out nudges (messages of encouragement and advice) to students to help them correct the problem before the cut-off date for changes.

Employer surveys by the University enabled the institution to update programmes but also to develop a fully online Ready-for-Work programme run through Enterprises at UP. It is free to registered students and develops skills valued in the workplace (including soft skills and an orientation to digital skills) as well as those useful for finding employment (eg, writing a CV researching potential employers, interview behaviour, and even the gig economy) (see Chapter 10).

3 CONCLUSION: CRITICAL ENABLERS

Each institution will have unique enablers and barriers, but the University found that there were elements that could influence the success of initiatives and might be generalisable to other institutions. So each university has to reflect on what works for them, in their context, and why. Below are some of the conclusions that the University of Pretoria has drawn from its research and experience.

Principles are enablers as they influence priorities, policies and practices. The University managed to move student success from Goal 5 of the Strategic Plan 2025 in the first five-year iteration to Goal 1 in the second five-year iteration. Students are valued in all their diversity, and the University cares about their success. Their holistic development is intentionally and consistently pursued and improved, evidence-based, and everyone's responsibility, from the student to every member of staff.

There can be no doubt that inclusive leadership is a major enabler. Executive leadership is key, but so is thought leadership at different levels in the institution. When the Executive acknowledges this distributed leadership and forms a wide team of stakeholders, initiatives are made visible, become integrated and gain impetus. The University was fortunate to have the Vice-Principal: Academic as the overall leader.

An understanding of theories of change is crucial to leading institution-wide initiatives. The University had a clear but complex problem: student undergraduate degree completion in minimum time across race and gender. No single entity working alone could solve such a

problem, often termed a "wicked problem" in systems thinking literature (eg, Allen and Kilvington 2018). An intentional, systemic, human-centric approach was needed, involving all stakeholders. The theory of change was that if the University coordinated, scaled and foregrounded student success interventions, more students would graduate in minimum time. Furthermore, if we used existing data, generated new data and created structures and systems for analysis, changes would be more effective.

A critical realisation from the start was that time is needed to mature a system, not least because change management takes time. An integrated and effective student success system does not develop overnight – it is likely to need three to five years and perhaps longer. An institution needs to plan, build capacity, design and pilot data-based initiatives, collect more data, adapt and either pilot again or try to implement with the willing or scale across the institution within the context of each faculty or other unit.

Student involvement is crucial and can occur at many levels. It might start with Student Representative Council members on governance bodies. Then, it should engage more students in consultation and creation so that their voices can be heard in decisions that are made for their benefit. At the University of Pretoria, students are invited to engage from first-year orientation, where there is a focus on the growth mindset (Dweck 2007), through FLY@UP activities, consultations with advisors and attendance of tutorials, to realise their full academic potential while taking care of all aspects of their well-being. Orientation, FLY@UP and advising include encouragement for students to learn self-regulatory practices that will enable them to be more responsible for their own success.

Resources are obviously important, both internal and external (financial, human, IT systems, policies, capacity). Besides operational budgets, universities are fortunate to have University Capacity Development Grants to help launch and maintain some activities. Resources from external foundations have also assisted at the University. The Kresge Foundation funded Siyaphumelela, involving five universities in the first iteration to learn together to use data and proven success strategies to improve first-year retention and success. The Michael and Susan Dell Foundation and the MasterCard Foundation provided wrap-around funding for activities like advising and tutoring as well as tuition and residence fees. Within South Africa, the South African Institute of Chartered Accountants' Thuthuka and Ikusasa Student Financial

Aid programmes provide similar facilities to students, as do several other donor funding opportunities. Advising was a new initiative, and expertise was built at the University through a community of practice. A course for advisors has recently been developed by UFS as part of a collaboration grant from the University Capacity Development Programme. The University was part of the collaborative team. IT systems are important as repositories of data, and IT staff are needed to integrate particular systems and capacities needed to achieve some student success outcomes.

So the University developed a relatively sustainable and effective student success programme over a decade within a systemic change management paradigm. Many of its approaches could be contextualised and replicated at other institutions as part of an integrated system, not as stand-alone initiatives. Strong executive leadership and stakeholders' acceptance that each has an important role to play in student experience and success are both crucial.

References

Allen, W, and M Kilvington. 2018. "An Introduction to Systems Thinking and Tools for Systems Thinking." Presentation based on material for a Greater Wellington Regional Council introductory systems thinking workshop, Wellington, New Zealand. Accessed 24 April 2019. http://learningforsustainability.net/post/intro-systems-thinking/.

Astin, AW. 1984. "Student Involvement: A Developmental Theory for Higher Education." *Journal of College Student Personnel* 25 (4): 297–308. Accessed 24 August 2019. https://www.researchgate.net/publication/220017441_Student_Involvement_A_Development_Theory_for_Higher_Education.

Betts, F. 1992. "How Systems Thinking Applies to Education." *Educational Leadership* 50 (3): 38–41. Accessed 24 April 2019. http://www.ascd.org/publications/educational-leadership/nov92/vol50/num03/How-Systems-Thinking-Applies-to-Education.aspx.

Bosch, E. 2020. "Matric Results: Are Pass Rates a Real Measure of Success?" *Times Live*. Accessed 15 January 2020. https://www.timeslive.co.za/news/south-africa/2020-01-15-watch-matric-results-are-pass-rates-a-real-measure-of-success/.

Boughey, C. 2002. "'Naming' Students' Problems: An Analysis of Language-Related Discourses at a South African University." *Teaching in Higher Education* 7(3): 295–307.

Boughey, C. 2005. "'Epistemological' Access to the University. An Alternative Perspective." *South African Journal of Higher Education* 19(3): 230–242.

Boughey, C. 2007. "Marrying Equity and Efficiency: The Need for Third Generation Academic Development." *Perspectives in Education* 25(3): 1–11.

Boughey, C. 2015. "Approaches to Large-Class Teaching Large-Class Pedagogy: Interdisciplinary Perspectives for Quality Higher Education, David J. Hornsby, Ruksana Osman, Jaqueline de Matos-Ala (Eds.): book review." *South African Journal of Science* 111(1): 4–5.

Boughey, C. 2018. "Using the Curriculum to Enhance Teaching and Learning." *South African Journal of Science* 114(9–10): 1–3.

Boughey, C, and P Niven. 2012. "The Emergence of Research in the South African Academic Development Movement." *Higher Education Research and Development* 31(5): 641–653.

Brookings Institution. 2018. *Drawing from Improvement Science to Bridge Education Research and Practice*. Accessed 29 April 2019. https://www.brookings.edu/blog/education-plus-development/2018/04/25/drawing-from-improvement-science-to-bridge-education-research-and-practice/.

Carnegie Foundation for the Advancement of Teaching. nd. Accessed 29 April 2019. https://www.carnegiefoundation.org/our-ideas/six-core-principles-improvement/.

Council on Higher Education. 2013. *A Proposal for Undergraduate Curriculum Reform in South Africa: The Case for a Flexible Curriculum Structure*. Pretoria: Council on Higher Education.

Cuseo, J. 2007. "Student Success: Definition, Outcomes, Principles and Practices." Excerpt from "The Big Picture", a column appearing in *E-Source for College Transitions* (Electronic Newsletter), published by the National Resource Center for the First-Year Experience and Students in Transition, University of South Carolina. Accessed 6 July 2021. https://www.sccollege.edu/CollegialGovernance/GuidedPathways/Documents/Student%20Success%20-%20Definition,%20Outcomes,%20Principles%20and%20Practices.pdf.

Department of Higher Education and Training. 2013. *White Paper for Post-Education and Training: Building an Expanded, Effective and Integrated Post-School System*. Pretoria.

Department of Higher Education and Training. 2019. *2000 to 2016. First-Time Entering Undergraduate Cohort Studies for Public Higher Education Institutions*. Pretoria: Department of Higher Education and Training. https://www.dhet.gov.za/hemis/2000%20to%202016%20first%20time%20entering%20undergraduate%20cohort%20studies%20for%20public%20heis.pdf.

Department of Higher Education and Training. 2021. *Statistics on Post-School Education and Training in South Africa 2019*. Pretoria. ISBN: 978-1-77018-864-8. https://www.dhet.gov.za/DHET%20Statistics%20Publication/Statistics%20on%20Post-School%20Education%20and%20Training%20in%20South%20Africa%202019.pdf.

Dweck, CS. 2007. *Mindset: The New Psychology of Success*. New York: Ballantine Books.

Haigh, M. 2011. "Invitational Education: Theory, Research and Practice." *Journal of Geography in Higher Education* 35(2): 299–309. https://doi.org/10.1080/03098265.2011.554118.

Haupt, S and H Erasmus. 2015. *Faculty of Economic and Management Sciences: Longitudinal Research Report*. Unpublished report. Department for Education Innovation. University of Pretoria.

Kigotho, W. 2015. "Higher Education Boosts Job Opportunities." *World University News*. Accessed July 7, 2021. https://www.universityworldnews.com/post.php?story=20150116110024170.

Kim, DH. 2000. *Systems Thinking Tools: A User's Reference Guide*. Toolbox Reprint Series. Pegasus Communications. ISBN: 1-883823-02-1.

Krstić, M, JA Filipe and J Chavaglia. 2020. "Higher Education as a Determinant of the Competitiveness and Sustainable Development of an Economy." *Sustainability*, 12(16) 1-22. doi:10.3390/su121666070/.

Kuh, GD. 2014a. "Identifying and Ensuring HIPs Quality." *Siyaphumelela Workshop II*. University of the Free State.

Kuh, GD. 2014b. "What Matters to Student Success: The Promise of High Impact Practices." *Siyaphumelela Workshop I*. University of the Free State.

Kuh, GD, J Kinzie, JA Buckley, BK Bridges, and JC Hayek. 2006. *What Matters to Student Success: A Review of The Literature*. National Postsecondary Education Cooperative.

Leibowitz, B, A van der Merwe and S van Schalkwyk (eds). 2009. *Focus on First-Year Success: Perspectives Emerging from*

South Africa and Beyond. Sun Media, Stellenbosch. ISBN: 978-1-920338-12-1; e-ISBN: 978-1-920338-22-0.

Lemire, S, CA Christie, and M Inkelas. 2017. "The Methods and Tools of Improvement Science." In *Improvement Science in Evaluation: Methods and Uses. New Directions for Evaluation*, edited by CA Christie, M Inkelas, and S Lemire, 23–33. Wiley Periodicals, Inc, and the American Evaluation Association.

Lemmens, J. 2011. *Student Academic Readiness, Learning Experience and Success of 2010 First-Time Entering First-Year Students at the University of Pretoria*. Unpublished report. Department for Education Innovation. University of Pretoria.

Lemmens, J. 2012. *An Evaluation of the NSC Grade 12 Results and Competency Based Tests to Place Students Appropriately in Academic Literacy Modules*. Unpublished report. Department for Education Innovation. University of Pretoria.

Lewis, C. 2015. "What Is Improvement Science? Do We Need It in Education?" Review Article. https://doi.org/10.3102/0013189X15570388.

Mouton, H. 2019. *Cohort Results and UG Student Success*. Unpublished report. University of Pretoria.

Naidu, E. 2019. "In search of a new ecosystem for student success." *University World News*, Africa Edition.

National Planning Commission. 2012. *National Development Plan 2030: Our Future – Make it Work*. The Presidency: Republic of South Africa. ISBN: 978-0-621-41180-5.

OECD. 2013. *Education at a Glance 2013: OECD Indicators*. OECD Publishing. http://dx.doi.org/10.1787/eag-2013-en. ISBN 978-92-64-20104-0 (print). ISBN 978-92-64-20105-7 (PDF).

Ogude, NA, WR Kilfoil, and G du Plessis. 2012. "An Institutional Model for Improving Student Retention and Success at the University of Pretoria." *International Journal of the First Year in Higher Education* 3(1): 21–34.

Pascarella, ET, and PT Terenzini. 1980. "Predicting Freshman Persistence and Voluntary Dropout Decisions from a Theoretical Model." *The Journal of Higher Education* 51(1): 60–75. https://doi.org/10.2307/1981125.

Purkey, WW. 1991. "What is Invitational Education and How Does It Work?" Paper read at Annual California State Conference on Self-Esteem. ERIC/EDRS. Accessed 31 May 2019. https://eric.ed.gov/?id=ED334488.

Regional Educational Laboratory Program. 2017. "Introduction to Improvement Science." Blog. Accessed April 29, 2019. https://ies.ed.gov/ncee/edlabs/regions/west/Blogs/Details/2.

Schreiber, B, T Luescher-Mamashela and T Moja. 2014. "Tinto in South Africa: Student Integration, Persistence and Success, and the Role of Student Affairs." *Journal of Student Affairs in Africa* 2(2): 2307–6267. https://doi.org/10.14426/jsaa.v2i2.64.

Scott, I. 2009a. "Academic Development in South African Higher Education." In *Higher Education in South Africa: A Scholarly Look behind the Scenes*, edited by E Bitzer. Stellenbosch: Sun Media. ISBN: 978-1-920338-14-5.

Scott, I. 2009b. "First-Year Experience as Terrain of Failure or Platform for Development? Critical Choices for Higher Education." In *Focus on First-year Success*, edited by B Leibowitz, A van der Merwe and S van Schalkwyk, 17–35. Stellenbosch: Sun Media.

Scott, I. 2019. *Designing the South African Higher Education System for Student Success*. SANRC FYE Thought Series 3. South African National Resource Centre, University of Johannesburg. https://www.sanrc.co.za/content/2019/04/I-Scott-Report.pdf.

Scott, I, N Yeld and J Hendry. 2007. "A Case for Improving Teaching and Learning in South African Higher Education." *Higher Education Monitor* No. 6. Pretoria: Council on Higher Education. http://www.che.ac.za/documents/d000155/index.php.

Snowball, JD, and C Boughey. 2012. "Understanding Student Performance in a Large Class." *Innovations in Education and Teaching International* 49(2): 195–205.

Sparreboom, T, and A Staneva. 2014. "Is Education the Solution to Decent Work for Youth in Developing Economies?

Identifying Qualifications Mismatch from 28 School-to-Work Transition Surveys." *Work4Youth Publication Series*, 23. ISSN: 2309-6780; 2309-6799. International Labour Office, Geneva. researchgate.net/publication/297760658_Is_education_the_solution_to_decent_work_for_youth_in_developing_economies_Identifying_qualification_mismatch_from_28_school-to-work_transition_surveys.

Statistics South Africa. 2019. *Quarterly Labour Force Survey. Quarter 3*. Accessed 8 July 2021. http://www.statssa.gov.za/publications/p0211/p02113rdquarter2019.pdf.

Strydom, F, G Kuh, and S Loots. 2017. *Engaging Students: Using Evidence to Promote Student Success*. Bloemfontein: Sun Media.

Sweeney, LB. 2001. *Systems Thinking: A Means to Understanding Our Complex World*. Pegasus Communications. Accessed 10 May 2019. www.pegasuscom.com.

Tinto, V. 1975. "Dropout from Higher Education: A Theoretical Synthesis of Recent Research." *Review of Educational Research*, 45: 89–125. https://www.doi.org/10.3102/00346543045001089.

Tinto, V. 2008. "Access Without Support Is Not Opportunity." Keynote given at annual conference of the National Institute for Staff and Organizational Development, of the University of Texas at Austin. Accessed 20 August 2019. https://www.insidehighered.com/views/2008/06/09/access-without-support-not-opportunity.

Tinto, V. 2012. "Enhancing Student Success: Taking the Classroom Seriously." *The International Journal of the First Year in Higher Education* 3(1): 1–8. https://doi.org/10:5204/intjfyhe.v2i1.119.

Tinto, V. 2013. "Promoting Student Success at Institutional Level." CHE Regional Symposium on *Conceptualising a Coherent Approach to Student Success*, 23 August 2013. Edited transcript of lecture 4. http://www.che.ac.za/content/regional-symposia-student-success-19-23-august-2013.

Tinto, V. 2013–14. "Isaac Newton and Student College Completion." *Journal of College Student Retention* 15(1): 1–7.

Tinto, V. 2017. "Reflections on Student Persistence." *Student Success* 8(2): 1–8. https://doi.org/10.5204/ssj.v8i2.376. ISSN 2205-0795.

Van Der Berg, S, C Burger, R Burger, M De Vos, G Du Rand, M Gustafsson, E Moses, D Shepherd, N Spaull, S Taylor, H Van Broekhuizen and D Von Fintel. 2011. "Low Quality Education as a Poverty Trap." *Stellenbosch Economic Working Papers*: 25/11. A working paper of the Department of Economics and the Bureau for Economic Research. University Of Stellenbosch.

Van Zyl, A (ed). 2017. *The First Year Experience in Higher Education in South Africa: A Good Practices Guide*. FYE Thought Series 1. South African National Resource Centre for the First-Year Experience and Students in Transition. Commissioned by the Fundani Centre for Higher Education and Training at the Cape Peninsula University of Technology.

Volbrecht, T and C Boughey. 2004. "Curriculum Responsiveness from the Margins? A Reappraisal of Academic Development in South Africa." In: H Griesel (ed). *Curriculum Responsiveness: Case Studies in Higher Education*. Pretoria: SAUVCA. 57-80.

Chapter 2

The Role of Leadership in Improving Student Success

N Duncan

Abstract

This chapter focuses on various issues related to student success and modes of academic leadership, starting with a consideration of the worryingly low participation and student success rates in South African universities. The chapter goes on to discuss why it is imperative that the participation and success rates be improved. This discussion is followed by a presentation of the range of interventions the University of Pretoria has implemented to improve its student success rates, namely the FLY@UP project, the Hybrid Teaching and Learning project, the curriculum transformation project, the Work-Readiness and Entrepreneurship project, the Tshebi Data Analytics for Student Success project, and the establishment of a community of practice for Deputy Deans: Teaching and Learning. The chapter proceeds to consider one of the key prerequisites for the success of these and similar student success interventions, namely leadership. Furthermore, it is argued that the interventions aimed at improving student success rates at the University of Pretoria are best served by what has been described as "shared" or "distributed leadership", a leadership style that has grown increasingly prominent in the teaching and learning community at the University. An important feature of the chapter is an examination of the notion of student success.

1 INTRODUCTION

In contexts such as South Africa, student success in the higher education system is an important and necessary priority. The reasons for this are uncomplicated. Firstly, there is a strong relationship between the proportion of a country's population that has university qualifications and the development potential of the country (Krstić, Filipe, and Chavaglia 2020). Compared to many other countries, South Africa has a very low university participation rate

(specifically, a rate of approximately 22%) and high dropout rates (Lourens 2020; MacGregor 2020; Roser and Ortiz-Ospina 2013), hence the need to improve the low student success rates.

Furthermore, higher education is costly, and many students from disadvantaged backgrounds simply cannot afford to repeat even one year of study (including a significant proportion of our students). Moreover, a sizeable proportion of students in South Africa (including at the University of Pretoria) are first-generation students, with the hopes of many people pinned to their success. The failure of any one of these students results not only in the curtailment of their career aspirations but also in the shattering of the hopes for better life prospects of others in their immediate family circles. In South Africa, as in many other similar contexts, obtaining a university qualification is viewed as one of the surest routes out of poverty. This is borne out by research that has consistently shown, over several years, that a university qualification is one of the strongest predictors of employability in contexts such as South Africa (Archer and Chetty 2013; Kigotho 2015; Richtel 2020). Given the extremely high unemployment rates in South Africa (29.1% in 2019) (Stats SA 2019), academic success is therefore of significant importance, particularly to first-generation students from poor or marginalised communities.

Perhaps it is apposite at this point to define student success. Cuseo's (2007) parsimonious definition states that student success is "a favourable or desirable student outcome". In fact, he identifies various "desirable outcomes" based on extant research. Pertinent among these, for the purposes of this chapter, are student retention, academic progression, qualification attainment, and holistic personal development. Before briefly considering these success outcomes, a word on student admission to the university system may be appropriate.

Of the 1 090 254 learners who enrolled in the first grade of the basic education system in South Africa in 2008, only 37.6% finished grade 12 (Bosch 2020). Furthermore, of those who finished grade 12, only a small proportion (36.9%) obtained scores that qualify them for admission to universities. Student admission to the higher education system can therefore be viewed as a significant achievement. Indeed, in the South African context, it can be considered the first important step on the road to academic and post-university career success.

The first outcome, *student retention*, refers to students' ability to persist in their studies until the completion of the qualifications for which they are enrolled (Cuseo 2007). Given a range of factors, including high levels of poverty (especially among first-generation students), this

is not an easy feat for a significant number of South African students. This challenge was highlighted during the national lockdown because of the COVID-19 pandemic. When the University of Pretoria had to switch to emergency remote (largely online) teaching, several students were at risk of suspending or abandoning their studies because they did not have access to Internet-enabled devices to engage in online learning, nor could many afford to purchase data to access the University's online teaching and learning platform. When the University made data available to students free of charge, some 17 000 of the total enrolment of 53 000 (ie, approximately 32% of all enrolled students) applied for the free data, which might be indicative of the proportion of the University's students who need at least some level of material support.

Of course, most academics at South African universities (and certainly at the University of Pretoria) realise that student retention is not simply a function of students' socio-economic backgrounds, gender, age, course of study, or individual efforts to persist. It is also a function of the responsibility assumed and support offered by universities to ensure that students persist with their studies until the completion of their qualifications. Students need support and guidance to stay the course. The support they need often extends beyond assistance with material resources. They also need to know that their university cares for them and is as invested in their success as they are.

The second outcome, *academic progression*, refers to students' completion of each successive level of study for the qualification for which they are enrolled (Cuseo 2007). One of the key determinants of student retention, "on-time" academic progression, is also an important determinant of "on-time" qualification completion.

The third outcome identified by Cuseo (2007) is *qualification attainment*, which refers to the completion of the qualification for which the student is enrolled. Currently, the vast majority of undergraduate students in the higher education system in South Africa do not complete the qualifications within the prescribed or minimum time. Statistics contained in the Department of Higher Education and Training (2019) report, *2000 to 2016 First-Time Entering Undergraduate Cohort Studies for Public Higher Education Institutions*, indicate that the throughput rate in minimum time for three-year degree programmes offered in contact mode was a mere 31.9% in 2017. As discouraging as this may be, it represented a significant improvement on

the average national performance in 2002, when the minimum throughput rate was 25.7%. The University of Pretoria's results exceeded the national throughput average reflected in the aforementioned report by a significant margin (in the region of 13%), largely due to its increasing focus on student success. Nonetheless, given the national attrition rates, no South African university can afford to be satisfied with its student completion rates, whether this is measured in minimum time to completion of qualifications or minimum time plus two years (a frequently used formula to measure student success in the South African higher education context).

Of course, as Cuseo (2007) correctly emphasises, student success cannot only be about academic retention, progression, and achievement. Such a conception of student success is much too narrow to serve the interests and needs of graduates adequately in our rapidly evolving 21st-century society, which brings us to Cuseo's fourth outcome of student success, *holistic personal development*.

Holistic development refers to the ways in which students' university studies allow them to develop not only their intellectual or academic abilities but also other facets of their life, such as their psychological capabilities and functioning and their capacity to engage productively and meaningfully with their social world. In other words, holistic development refers to the development of the student as a complex, multifaceted social agent (Cuseo 2007). Focusing on the cognitive or academic abilities of the individual students to the exclusion of other aspects of their development cannot but limit the role and student success endeavours of any university.

Over the past decade or so, the University of Pretoria has systematically expanded its conceptualisation of student success. This expanded conceptualisation extends beyond student enrolment, retention, academic progression, and qualification attainment. Specifically, it reflects an acknowledgement that student success is about more than the marks or grades obtained by students. It is also about what students themselves do to ensure their academic success and whether they have acquired the graduate attributes identified by the University by the time they complete their studies (see Fig 2.1 for an infographic on graduate attributes).

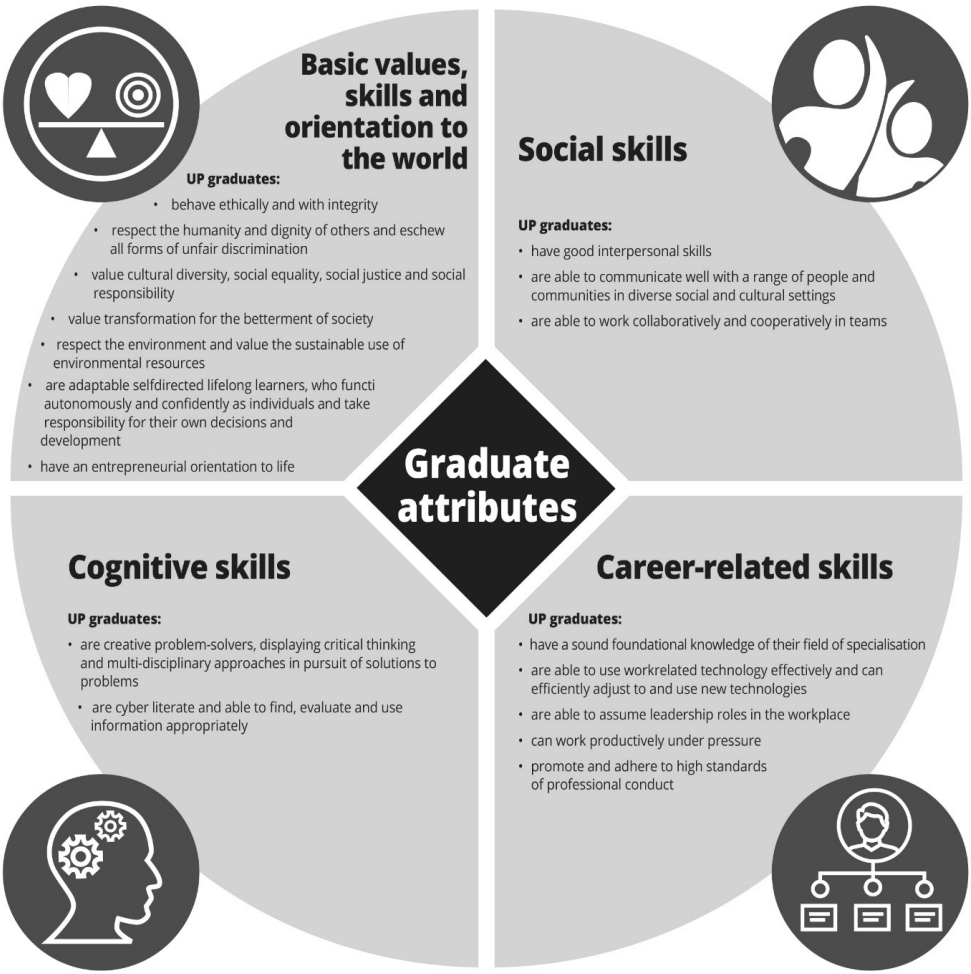


Figure 2.1: Graduate attributes at UP

Furthermore, it is about the support the University offers to facilitate their success. Also worth noting is that the University's understanding of student success emphasises the reciprocal link between student wellbeing (material as well as psychosocial) and student success (see Chapter 9). Importantly, this expanded conceptualisation of student success extends beyond the students' academic performance while at the University and includes their achievements

following their university studies – that is, their achievements in relation to their careers as well as, more holistically, their achievement as individuals.

2 INITIATIVES UNDERTAKEN BY THE UNIVERSITY TO FACILITATE STUDENT SUCCESS

The University of Pretoria positions itself as a research-intensive university. In keeping with this identity, the University has, over the past few decades, increasingly prioritised its research ambitions and endeavours – as it should. However, the University also understands that, in order for it to rank among the premier research-intensive universities in Africa and further afield, it also has to focus on its teaching and learning mandate. While the University, since its founding, has been committed to excellence in teaching and learning, this commitment (for a range of reasons, including its research ambitions) has been significantly sharpened over the past decade or so – after all, in the context of higher education, there is an increasing acknowledgement that excellence in research and teaching and learning are inextricably linked. Importantly, the intensified focus on excellence in teaching and learning has increasingly been linked to the translation of excellence in teaching and learning to student success. Thus, over the past ten-odd years, the University has implemented a range of initiatives aimed at facilitating student success cohesively. Consistent with the conceptualisation of student success presented earlier, these initiatives include the FLY@UP project, the Hybrid Teaching and Learning project, the Work-Readiness and Entrepreneurship project, the Curriculum Transformation Project, the Tshebi Data Analytics for Student Success Task Team and the establishment of a community of practice for our Deputy Deans: Teaching and Learning.

2.1 The FLY@UP project

In 2014, the minimum-time-to-completion rates for three- and four-year degrees were 37% and 39%, respectively. Recognising that these rates were far from satisfactory, the University initiated the FLY@UP project in 2015 (the acronym "FLY" stands for the injunction or reminder to students that *The Finish Line is Yours*) (see Chapter 7). The University intentionally deviated from earlier, dominant practices that appeared to create the impression (albeit unintentionally) that student success was largely a function of what lecturers and the University's student

support services can do for students to ensure that they are successful. Instead, the University of Pretoria increasingly focused on encouraging students to take responsibility for their own success – an orientation that coheres strongly with one of the key graduate attributes that the University prioritises, namely self-reliance. Of course, this does not imply the under-valuing of the significant contributions of lecturers and the University's student support services to student success. Rather, the intention of the FLY@UP project is to emphasise the critical role that students play in their own success while at university and after they leave.

Another critical element of the FLY@UP endeavour is the inculcation of a growth mindset in our students. Given the challenging personal circumstances of many of our students, and in view of extant research signalling the salutary mediating effects of a growth mindset on student performance (Claro, Paunesku, and Dweck 2016), encouraging the development of a growth mindset is a critical element of the FLY@UP initiative.

Since the initiation of the FLY@UP project, the University's average minimum-time-to-completion rates for three- and four-year qualifications have improved markedly. Specifically, the average minimum-time-to-completion rate for three-year programmes currently stands at 45%, 8% higher than it was prior to the implementation of FLY@UP. Admittedly, this improvement could have been due to a range of factors besides the FLY@UP project. However, the FLY@UP project, more than any other intervention, placed student success firmly and visibly on the University agenda.

It is important to note here that, since the outset, the FLY@UP initiative was driven not only by the University's Executive Committee and the office of the Vice-Principal: Academic (who is responsible for the University's teaching and learning programmes), but importantly also by the Deputy Deans: Teaching and Learning, the Director and Deputy Directors of the Department for Education Innovation, heads of departments and the Faculty Teaching and Learning Committees. It is a true example of distributed or shared leadership.

2.2 The Hybrid Teaching and Learning project

The University of Pretoria has experimented extensively with the use of online educational technologies since the 1990s, the first university in South Africa to do so. For example, as early as 1991, the university adopted the use of computer-based testing. In 1998, it adopted the

precursor of its current learning management system, Blackboard Learn, branded as clickUP. In the same year, the University initiated a development programme aimed at training staff in the use of clickUP and in 2000, introduced a digital literacy module, which included the training of students in the use of clickUP. However, while the University had experimented with the use of the affordances of online technologies and blended learning (alongside classroom-based teaching and learning) in the service of student success for many years, it was not until 2016 that the University formally adopted a hybrid approach to teaching and learning. The approach is characterised by different permutations of contact and online delivery, with the understanding that all modules should have both a significant contact element (at least 70%, given funding formulas) and a complementary online component.

The University of Pretoria adopted the hybrid teaching and learning approach for several reasons. First, the hybrid model allows students to access a wider array of learning material, including rich online learning resources. Second, the model harnesses the affordances of online technologies in order to create 21st century teaching and learning opportunities that can enhance the development of life and workplace skills and practices. Third, the hybrid approach allows students to take greater responsibility for their own learning experiences, thereby better preparing them for post-university or lifelong learning. Furthermore, the approach allows students to develop as self-regulated learners by affording them opportunities to access and critically evaluate information independently to achieve their learning outcomes. *En passant,* the approach therefore articulates well with the University's inquiry-based approach to learning. Fourth, the hybrid approach makes individualised learning more achievable while better allowing the University to meet the learning needs of larger numbers of students. It also enables students to remain in constant, interactive contact with lecturers, fellow students and resources. Lastly, it is argued that the hybrid approach leads to greater levels of student success (at least at an academic level) than models that rely exclusively on online teaching and models that rely solely on traditional face-to-face teaching. This is simply because some students do less well when placed in traditional face-to-face teaching and learning contexts than in digital contexts while the reverse applies to others. The hybrid approach therefore offers the possibility of attending to at least some of the preferences and needs of all students simultaneously.

Since the formal adoption of the University's hybrid approach to teaching and learning in

2016, 96% of all undergraduate (contact) modules now have a significant online component in addition to the traditional contact component. The University's hybrid approach to teaching and learning therefore appears to be well entrenched at this point. This is largely due to the significant leadership in online learning, teaching and assessment in the Department for Education Innovation and all of the Deputy Deans: Teaching and Learning to its programmatic implementation.

2.3 The Curriculum Transformation project

Recognising that student success is inextricably linked to what is taught and how it is taught, in 2017, the University adopted an official framework for curriculum transformation titled *Reimagining curricula for a just university in a vibrant democracy*. Developed by academics and students from across the University under the aegis of the Vice-Principal: Academic, the framework identified the following four cornerstones of the University's curriculum transformation project: (a) responsiveness to social context, (b) epistemological diversity, (c) renewal of pedagogy and classroom practices, and (d) an institutional culture of openness and critical reflection.

Under the leadership of our Deputy Deans: Teaching and Learning, in 2018, all faculties developed and submitted curriculum implementation plans cast within this framework for the period 2018 to 2022. To date, much progress has been made in enhancing epistemological diversity and crafting curricula that are suited to South African and global needs and conditions. Of course, much more work will be required in future to ensure that our curricula are aligned to the abilities, needs and aspirations of our students, as well as the needs of the communities and broader contexts in which they will function.

2.4 Work-Readiness and Entrepreneurship project

In 2017, the University established its Work-Readiness and Entrepreneurship (WREn) project under the auspices of the Careers Services Office, Enterprises University of Pretoria, and the Department for Education Innovation (see Chapter 10). The project was designed to provide graduates with the skills to integrate into the world of work, either as employees or as entrepreneurs. Additionally, the project intentionally provides first-generation students who

do not have access to the types of professional networks and opportunities that other students often have access to with the necessary support to launch their careers once they enter the world of work (cf Richtel 2020). Important to note, however, is that, while the programme is aimed at enhancing student success beyond the University, it is also linked to efforts to enhance student success while they are still studying. We believe that having a clear vision of their end goals (among others, their careers beyond university) serves as a strong motivator for students to do well in their studies and focus on completing them in the minimum time.

Consisting of two pivotal components, namely a ready-for-work programme and an entrepreneurship programme, WREn provides all UP students with gratis co-curricular, fully online, self-directed modules that are designed to provide them with skills identified by employers, entrepreneurs and alumni as critical for career success, currently as well as in the future. Large numbers of students have enrolled for the ready-for-work and entrepreneurship modules since their inception, and the feedback about the value of the programmes and the broader project has generally been very positive. Nonetheless, much more work will have to be done to extend and refine these programmes, particularly in view of the rapidly changing world of work. The COVID-19 pandemic has significantly intensified the pace of the changes in the world work, which means that the work of extending and refining these programmes has become more urgent.

2.5 The Tshebi Data Analytics for Student Success Task Team

In 2016, the Senate Committee for Teaching and Learning established the Tshebi Data Analytics for Student Success Task Team (see Chapter 3). All Deputy Deans: Teaching and Learning, the directors of all key professional and support services (such as the Department for Education Innovation, the Department of Institutional Planning, the Department of Student Affairs, the Department of Enrolment and Student Administration and the Department of Residence Affairs), as well as members of the Student Representative Council (SRC) (specifically the two student representatives responsible for the Academic portfolio) serve on this task team. As an aside, a critical element of the University of Pretoria's approach to driving student success is the understanding that it requires the input and commitment not only of lecturers and students but also of all other sectors in the University community, including the professional

and support services sectors. In other words, we consider student success as a "whole-institution" enterprise.

The primary goal of the task team is to mine and analyse all of the University's data archives with the aim of monitoring student performance trends as well as identifying the enablers of and obstacles to student success. The findings of the task team's analyses are fed back to faculties so that they can develop and implement appropriate interventions aimed at enhancing student success. The task team has proven itself remarkably successful at various levels. Particularly worth noting is the fact that since its establishment, this task team, unlike many other University task teams or committees (that experience a regular turnover of members), has gradually grown in membership, with the majority of its members having been on the task team since its inception. This clearly speaks to the members' perceived value of the task team's work, particularly in respect of using a data-driven approach to improving student success rates.

The data- and team-driven high impact modules (HIMs) review project is one of the Tshebi Data Analytics for Student Success Task Team's more successful recent interventions. The project focuses on improving the pass rates of HIMs with a pass rate below 75% and a student enrolment of more than 500. The purpose of the project is to provide a multifaceted evaluation of the modules, followed by targeted interventions to increase module success rates and improve student success more broadly. The rationale for the focus on the HIMs is that we believe if we can significantly improve their success rates, we shall significantly improve the University's overall student success rates.

Twenty modules with very poor outcomes were included in the HIMs project in 2019. Following detailed analyses of the available data and a series of focused interventions, the pass rates for the modules included in the project improved by an average of 14 percentage points from 2018 to 2019. This, in turn, has resulted in an increase of one percentage point (from 82.5% to 83.5%) in the average module success rate for all undergraduate modules for the same period.

While the Tshebi Data Analytics for Student Success Task Team was conceptualised by the Vice-Principal: Academic, and while he attends all of the task team meetings, the chairing and leadership of the task team were delegated to one of the strongest academics and influencers in the field of student data analytics, namely the head of the University's Higher Education

Research and Innovation Unit, which is located in the Department for Education Innovation.

2.6 Deputy Deans' Community of Practice

Eight of the University of Pretoria's nine faculties offering undergraduate programmes have Deputy Deans: Teaching and Learning, whose primary task is to ensure excellence in teaching in their faculties. The Deputy Deans are assisted in this task by their faculties' Teaching and Learning Committees. One of the faculties, because of its size (a small student complement and staff establishment compared to other faculties), does not have a Deputy Dean: Teaching and Learning. Instead, the Chair of its Teaching and Learning Committee fulfils the brief and participates as a full member of the community of practice described below.

Given varying student success rates from one faculty to the next, in 2017, the Deputy Deans: Teaching and Learning of all faculties were organised into a community of practice so as to allow faculties to share good teaching and learning leadership practices in the interest of improved student success rates across the University. Thus far, this community of practice has been highly effective and enabled members not only to offer leadership to their own faculties in respect of teaching and learning but, importantly, also to offer collective leadership to the University in the field as well.

The University has embarked on a range of other activities over the past few years to improve student success rates, including several faculty-specific initiatives. However, given that they are discussed in detail elsewhere in this volume, I will not describe them here.

3 SHARED OR DISTRIBUTED LEADERSHIP

It is our belief that the FLY@UP campaign captured the collective imagination of the University because of the commitment invested into it by all of our Deputy Deans: Teaching and Learning and other key role-players at the University, such as the directors of the Department for Education Innovation, the Department of Institutional Planning, the Department of Student Affairs, the Department of Enrolment and Student Administration, the head of the University's Careers Office, the heads of academic departments, and members of the student body and the SRC. The evident success of the Tshebi Data Analytics for Student Success Task Team was

also due to the involvement of the Deputy Deans: Teaching and Learning and the director and deputy directors of the Department for Education Innovation, as well as their commitment to employing a data-led approach to student success. As indicated, the Deputy Deans: Teaching and Learning also played a central role in driving the University's hybrid approach to teaching and learning as well as its Work-Readiness and Entrepreneurship project.

It has become evident over the past six years that the University of Pretoria's teaching and learning agenda has been driven increasingly by what is referred to in the literature as "shared" or "distributed leadership". Specifically, this agenda is developed and managed by the role-players listed in the paragraph above, among others. Of course, while this shared leadership approach to driving the University's teaching and learning agenda has developed significantly since 2014, its growth has been serendipitous and organic rather than by design or intentional at the outset. In view of the indications of the approach's apparent success in certain endeavours, it may be in our interest to undertake ongoing research on the styles of leadership best suited to our student success ventures.

In view of the above, it may be useful to briefly consider the notion of distributed leadership.

3.1 What is distributed leadership?

Leadership in higher education institutions has become the focus of increasing research and debate in recent years. This is due to a range of factors, including rapid social change, student demands for curricula that are attuned to their realities, the impact of rapidly changing technology on the functioning of universities, the increasing resource-intensiveness of higher education accompanied by decreasing financial resources, and the increasing pressures to enrol more students while maintaining or increasing the quality of teaching and research (Black 2015; Van Ameijde, Nelson, Billsberry, and Van Meurs 2009).

Kezar and Holcombe (2017) and Black (2015) argue that the styles of leadership that have predominated and, arguably, been effective in the higher education sector in the past several decades may have become somewhat outmoded and unable to assist significantly in improving the performance of institutions of higher learning. Kezar and Holcombe (2017: 1) argue that traditional styles of leadership, with their strong reliance on vertical "command-and-control" approaches and the actions and prowess of a few solitary individuals "at the

top", may have to make way for more modern "collaborative leadership practices distributed throughout the [institution]" if higher education institutions are to adequately meet the needs and ambitions of their stakeholders in the context of the 21st century. At the University of Pretoria, we believe that this is particularly true in the case of efforts to improve student success rates significantly. As Black (2015: 57) notes, if universities wish students to be the drivers of their own success, and if academics are to be empowered to facilitate student success (within the context of the constraints and opportunities characterising 21st-century higher education), forms of leadership that model this ambition and are more conducive to it are required:

> In higher education, the development of learning communities, encouraging social change or inspiring in students a sense of being part of a global society, demands a much more adaptive and open sense of leadership, which is contrary to the hierarchical command-and-control mind-set. Academic leaders need to dispense with "positional" authority, normally associated with command-and-control leadership, in order to enable more transformational learning approaches to be undertaken by students.

Distributed leadership is considered to provide a viable alternative to "old-school" vertical command-and-control leadership, particularly given that it appears to allow for the levels of autonomy prized by academics (Jones, Applebee, Harvey, and Lefoe 2010) and the levels of autonomy and self-efficacy that we would wish our students to acquire. Moreover, distributed leadership appears to align well with the notion that student success should be a "whole-institution" enterprise.

While there exists a surfeit of definitions of distributed leadership, Kezar and Holcombe (2017) identify the following three characteristics (inter alia) common to most definitions of this leadership style.

First, distributed leadership entails leadership assumed by multiple persons, which implies that this form of leadership is essentially relational in nature (Kezar and Holcombe 2017). Indeed, as Van Ameijde et al (2009) observe, distributed leadership is a function of "the interactions of diverse individuals which together form a group or network in which essential expertise is a dispersed quality". Along similar lines, Woods, Bennett, Harvey, and Wise (in

Jones et al 2010: 361) note that distributed leadership is "the idea that leadership is a property of groups of people".

Second, many proponents of distributed leadership argue that distributed leadership and formal institutional or positional leadership are not mutually exclusive. Indeed, it is increasingly recognised that eschewing the role of formal institutional leadership or management for an exclusive focus on distributed leadership is potentially counterproductive (Black 2015). Individuals with positional authority, such as Deans and Vice-Principals or Deputy Vice-Chancellors, fulfil important roles and can (and, in fact, frequently do) champion distributed leadership approaches (Gosling, Bolden, and Petrov 2014; Jones et al 2010; Van Ameijde et al 2009).

Third, many definitions recognise that distributed leadership is not necessarily dependent on positional leadership. Indeed, it relies on a range of attributes or variables that need not include formal institutional or positional authority, such as specialist expertise, knowledge, and skills (including expertise, knowledge, and skills related to digital technologies in the current context), a keen understanding of context, and the ability to inspire others (Kezar and Holcombe 2017).

To these three characteristics of distributed leadership in relation to teaching and learning in the higher education sector, the following, which is cited by Hofmeyer, Sheingold, Klopper, and Warland (2015: 182), should be added for the purposes of this chapter: "The focus of distributive leadership is on collective collaboration rather than individual power and control to build leadership capacity in learning and teaching".

This attribute of distributed leadership was repeatedly demonstrated during the emergency remote teaching and learning that was necessitated during the national lockdown resulting from the COVID-19 pandemic. In my opinion, it was the focus of Deputy Deans: Teaching and Learning on the pre-eminence of student success instead of a need to assert their individual authority and an over-reliance on hierarchical practices that resulted in the University's relatively smooth transition from hybrid to exclusively online teaching and learning.

3.2 WHY PROMOTE DISTRIBUTED LEADERSHIP FOR STUDENT SUCCESS IN HIGHER EDUCATION?

First, it is argued, at least at a theoretical level, that the notion of distributed leadership coheres with the culture of collegiality and the primacy of ideas that are perceived to have characterised the nature and functioning of universities over time (Van Ameijde et al 2009).

Second, institutions of higher education are increasingly characterised by cultural and social diversity, which renders them progressively and richly complex. It stands to reason that in contexts of increasing diversity, efforts at improving student success rates are better served by shared or distributed leadership, particularly where such leadership itself is characterised by diversity (Van Ameijde et al 2009).

The increasing social complexity and diversity of institutions of higher education have been intensified by the recent surge in technological advances that are exerting a profound impact on these institutions. According to Uhl-Bien, Marion, and McKelvey (2007), these advances have resulted in increasing levels of disruption and instability in society and institutions of higher education. Of course, distributed leadership is more conducive to the agility and innovation that are required for institutions of higher education to function optimally (particularly in relation to student success initiatives) within conditions characterised by such disruption and instability (Uhl-Bien et al 2007).

Third, given that shared decision-making is one of the core features of distributed leadership, there is a greater likelihood that there will be broader buy-in in respect of decisions taken on the basis of distributed leadership processes rather than command-and-control processes (Kezar and Holcombe 2017). This principle was compellingly illustrated when the University of Pretoria had to pivot to online teaching and learning. In ordinary circumstances, this would be a daunting task, given the size of the University. However, because all the Deputy Deans: Teaching and Learning and all the directors of professional and support services mentioned earlier were part of planning and managing the process of moving all academic activities online, the process was relatively seamless and the outcome accepted by most.

Fourth, distributed leadership facilitates co-ownership of the University's strategies in respect of teaching and learning. Importantly, it also ensures continuity in the implementation of these strategies. Where the development and implementation of teaching and learning strategies reside only with those in formal positional leadership, there is always the risk that

these strategies may be neglected or abandoned with changes in positional leadership – a routine occurrence in institutions of higher education where positional leadership positions are normally held for fixed terms (Kezar and Holcombe 2017).

Lastly, as indicated earlier (Fig 2.1), there appears to be a greater alignment between the functioning and effects of distributed leadership and the range of graduate attributes that the University wishes its students to develop than would be the case with many other leadership styles. These attributes include strong communication skills, the ability to assume leadership roles when called on to do so, respect for the leadership offered by others, and the ability to function well in teams. Distributed leadership also allows the institution to model the belief that knowledge is not the preserve of a select few but of many, including students.

3.3 Other leadership attributes required to drive student success in the South African context

Of course, the University of Pretoria does not rely solely on positional leadership and distributed leadership practices to drive its student success endeavours. It also relies on what can be described as a critical consciousness on the part of its academic leaders in the current conjuncture. This critical consciousness or orientation includes:

- *An acknowledgement of the deep inequalities in South African society*. The impact of these inequalities based on gender, race, socio-economic class, language, etc, continues to insert itself in the functioning of the University. Our efforts to improve our student success rates will come to nought if we do not intentionally address these inequalities in the interventions we put in place to improve our students' university experience and their success. Moreover, an important part of our work as academic leaders is to equip our students with the knowledge and skills to understand and deal with these inequalities – as students and as they enter the wider world as graduates.

- *An acknowledgement that significantly improving current student success rates will be a pyrrhic achievement if it is not accompanied by the elimination of the differential student success rates based on gender, race, language and socio-economic class that remain evident in our student success data*. Judging by observed student success patterns, past patterns of institutionalised inequality continue to cast a long shadow over student performance, as is evident at so many universities. It is only when the question of whether a student is

black or white, male or female, or English- or isiZulu-speaking do not predetermine her or his academic and career success that overall improved student performance can be considered a significant achievement.

- *An appreciation of the value of education as a public and common good.* A university qualification does hold significant advantages, including, as indicated at the beginning of this chapter, better chances of employment and consequently improved living standards. However, as Riddle (2014) very persuasively argues, we will do our students, universities, and broader society a greater service if we bear in mind and work towards the public good of what education and student success can achieve. Increased levels of education in any context, he argues, is predictably accompanied by "broader participation in democratic processes, reduced … poverty rates, environmental sustainability and social equality" (Riddle 2014) and various other social benefits.

One of the principal aspirations of the University of Pretoria is that the education it affords its students should give them access to the knowledge, skills, attributes, resources, and freedoms that will enable them to fulfil their career aspirations, and more importantly, the knowledge, skills, and attributes that will enable them to contribute to the life chances of others in our society who do not yet have the opportunities that they have (cf Sen 1999; Reid-Henry 2012). This is a critical aspect of the student success agenda of the University of Pretoria.

4 CONCLUSION

I conclude this chapter with the statement made in the introduction: *Student success in the South African higher education system is an important and necessary priority*. It is important for individuals as well as the broader society. For the reasons mentioned earlier, however, South Africa is not doing particularly well in terms of student success rates, so it is incumbent on universities to work towards turning the tide. This chapter strives to illustrate the value of distributed leadership in advancing this endeavour at the University of Pretoria.

References

Altbeker, A. and E Storme, 2013. *Graduate Unemployment in South Africa: A Much-Exaggerated Problem.* Johannesburg: Centre for Development and Enterprise.

Archer, E, and Y Chetty. 2013. "Graduate Employability: Conceptualisation and Findings from the University of South Africa." *Progressio* 35(1): 134–165.

Black, SA. 2015. "Qualities of Effective Leadership in Higher Education." *Open Journal of Leadership* 4: 54–66.

Bosch, E. 2020. "Matric Results: Are Pass Rates a Real Measure of Success?" *Times Live*. https://www.timeslive.co.za/news/south-africa/2020-01-15-watch-matric-results-are-pass-rates-a-real-measure-of-success/.

Claro, S, D Paunesku, and CS Dweck. 2016. "Growth Mindset Tempers the Effects of Poverty on Academic Achievement." Proceedings of the National Academy of Sciences of the United States of America Early Edition, pp. 1–5. https://web.stanford.edu/~paunesku/articles/claro_2016.pdf.

Cuseo, J. 2007. "Student Success: Definition, Outcomes, Principles and Practices, E-Source for College Transitions." University of South Carolina: National Resource Center for the First-Year Experience and Students in Transition. https://fdocuments.in/document/student-success-definition-outcomes-principles-and-student-successpdfstudent.html.

Department of Higher Education and Training. 2019. *2000 to 2016 First-Time Entering Undergraduate Cohort Studies for Public Higher Education Institutions*. Pretoria: Author. https://www.dhet.gov.za/hemis/2000%20to%202016%20first%20time%20entering%20undergraduate%20cohort%20studies%20for%20public%20heis.pdf.

Gosling, J, R Bolden, and G Petrov. 2014. "Distributed Leadership: what does it accomplish?" *Leadership* 5(3): 299-310. https://ore.exeter.ac.uk/repository/bitstream/handle/10036/3430/ Distributedleadership.pdf?sequence=6&isAllowed=y.

Hofmeyer, A, BS Sheingold, HC Klopper, and J Warland. 2015. "Leadership in Learning and Teaching in Higher Education: Perspectives of Academics in Non-Formal Leadership Roles." *Contemporary Issues in Education Research* 8(3): 181–192.

Jones, S, A Applebee, M Harvey, and GE Lefoe. 2010. "Scoping a Distributed Leadership Matrix for Higher Education", 359–369. https://ro.uow.edu.au/asdpapers/126.

Kezar, AJ, and EM Holcombe. 2017. *Shared Leadership in Higher Education: Important Lessons from Research and Practice*. Washington, DC: American Council on Education.

Kigotho, W. 2015. "Higher Education Boosts Job Opportunities." *World University News*. https://www.universityworldnews.com/post.php?story=20150116110024170.

Krstić, M, JA Filipe, and J Chavaglia. 2020. "Higher Education as a Determinant of the Competitiveness and Sustainable Development of an Economy". *Sustainability* 12(16): 1–22. https://doi.org/10.3390/su12166607.

Lourens, A. 2020. "Reporting on Student Retention – From Retrospective to Predictive." *University World News*. https://www.universityworldnews.com/post.php?story= 20200909192707500.

MacGregor, K. 2020. "Access, retention and student success – A world of difference." *University World News*. https://www.universityworldnews.com/post.php?story= 20200904081106566

Reid-Henry, S. 2012. "Amartya Sen: Economist, Philosopher, Human Development Doyen." *The Guardian*. https://www.theguardian.com/global-development/2012/nov/22/amartya-sen-human-development-doyen.

Richtel, M. 2020. "How the pandemic is imperiling a working-class college." *New York Times*. https://www.nytimes.com/2020/12/28/us/college-coronavirus-tuition.html?referringSource=articleShare.

Riddle, S. 2014. "Education as a Public Good, not a Private Commodity." *The Conversation.* https://theconversation.com/education-is-a-public-good-not-a-private-commodity-31408.

Roser, M, and E Ortiz-Ospina. 2013. "Tertiary Education." *OurWorldInData.org*. Retrieved from: https://ourworldindata.

org/tertiary-education.

Sen, A. 1999. *Development as Freedom*. New York: Anchor Books.

Stats SA. 2019. *Quarterly Labour Force Survey. Quarter 3*. Pretoria: Author. http://www.statssa.gov.za/publications/P0211/P02113rdQuarter2019.pdf.

Uhl-Bien, Marion and McKelvey 2007

Van Ameijde, JDJ, PC Nelson, J Billsberry and N Van Meurs. 2009. "Improving Leadership in Higher Education Institutions: A Distributed Perspective." *Higher Education* 58(6): 763–779.

Chapter 3

Data Analytics and Student Success

J Lemmens, AJJ Jordaan, WR Kilfoil and HJ Mouton

Abstract

This chapter focuses on the creation of synergy between institutional preparedness and student preparedness with data and various types of analytics. Most theory-based approaches, whether focused on student success or systemic change, adopt stakeholder-driven approaches and data-based decision-making, supported by the development of systematic tools.

All South African universities have, at a minimum, an institutional research office mandated to collect the data needed for reporting on the Higher Education Management Information System (HEMIS). The data are normally highly aggregated, not allowing for a focus on the individual student. While such capacity within an institution is a necessary condition for pursuing analytics, it is not sufficient to allow for an intensive focus on data and student success.

Furthermore, capacity building is core to taking analytics into the mainstream. Such capacity building would need to be systematic and intentional. Data literacy should not be over-estimated.

In this chapter, various types of analytics are defined. The development of learner as analytics and learning analytics at the University is traced, as is capacity building through a central data committee and working with individual faculties, departments or lecturers. Moving from descriptive to predictive analytics is a trajectory that is considered as well. Through all this activity, the ethical use of student data should be paramount.

1 LINK TO CONCEPTUAL FRAMEWORK

This chapter is a case study of the evolution of learner and learning analytics at the University. It links to the conceptual framework (Fig. 1.1, Chapter 1) in that it focuses on the creation of synergy between institutional preparedness and student preparedness through the use of data and various types of analytics. The third element of the framework, leadership, came initially

from lower levels of the University, from units within directorates: in Education Innovation, the Higher Education Research and Innovation and E-Education units and, in Institutional Planning, the Institutional Research and Analytics office. When data-driven approaches were integrated into student success initiatives by the Vice-Principal: Academic, he acknowledged and extended the leadership in Education Innovation and Institutional Planning. Through the formation of a central data committee, Tshebi, he ensured that knowledge about data was shared widely with other support departments and with faculty academic leaders, in this case the Deputy Deans: Teaching and Learning. The latter then became the champions within their own faculties.

Most theory-based approaches, whether focused on student success or systemic change, adopt stakeholder-driven approaches and data-based decision-making, supported by the development of systematic tools (see Chapter 1). Systems Thinking, for instance, claims that people often do not use data and trend analysis but merely react to events and look for quick solutions. They do not deeply investigate underlying factors – for which they need data – as it is a more time-consuming approach. However, it is also a more effective method of finding innovative and lasting solutions.

Systems Thinking also introduces the idea of "wicked problems" that cannot be solved from one perspective only or by a single entity (eg Allen and Kilvington 2018). The University's wicked problem at the start of the period was student completion in minimum time across race and gender. The following theory of change was postulated: if we coordinated, scaled and foregrounded student success interventions, more students would graduate in minimum time; if we involved all stakeholders, chances of the initiative's success were greater; and if we used existing data, generated new data and created structures and systems for analysis, changes would be more effective (see Chapter 1).

All South African universities have, at a minimum, an institutional research office mandated to collect the data needed for reporting on the Higher Education Management Information System (HEMIS). The data for HEMIS are highly aggregated, not allowing for a focus on the individual student. At most, the data drill down to faculty or departmental level. Reports and analyses are often inaccessible to all but the Executive and some senior managers. While such capacity within an institution is a necessary condition for pursuing learner analytics, it is not

sufficient to allow for an intensive focus on data and student success. For that reason, at least one person (but preferably more than one) with the necessary data science or psychometric training, and a background in the use of data for student success, would be needed to pursue learner and learning analytics. Their work would inform decision making about the use of resources to support students and the effectiveness of various interventions. It might well be that many institutions have such capacity in one or another of their portfolios whether planning, academic or student affairs. At the University, experience demonstrated that analytics flourished within the academic portfolio as it was closely linked to the mainstream academic project.

Furthermore, capacity building and a common understanding are core to taking analytics into the mainstream. Access often means creating visualisations such as dashboards for various faculties. Capacity building enables a variety of stakeholders to make the best use of the dashboards. Such capacity building needs to be systematic and intentional as the data literacy levels of staff should not be over-estimated.

At its best, analytics is about enabling action, starting rich conversations and creating an ecosystem of complementary tools that many people can access and use appropriately to improve student success. The tools support student and staff development initiatives in an integrated way to achieve maximum impact, as illustrated in Fig 3.1.

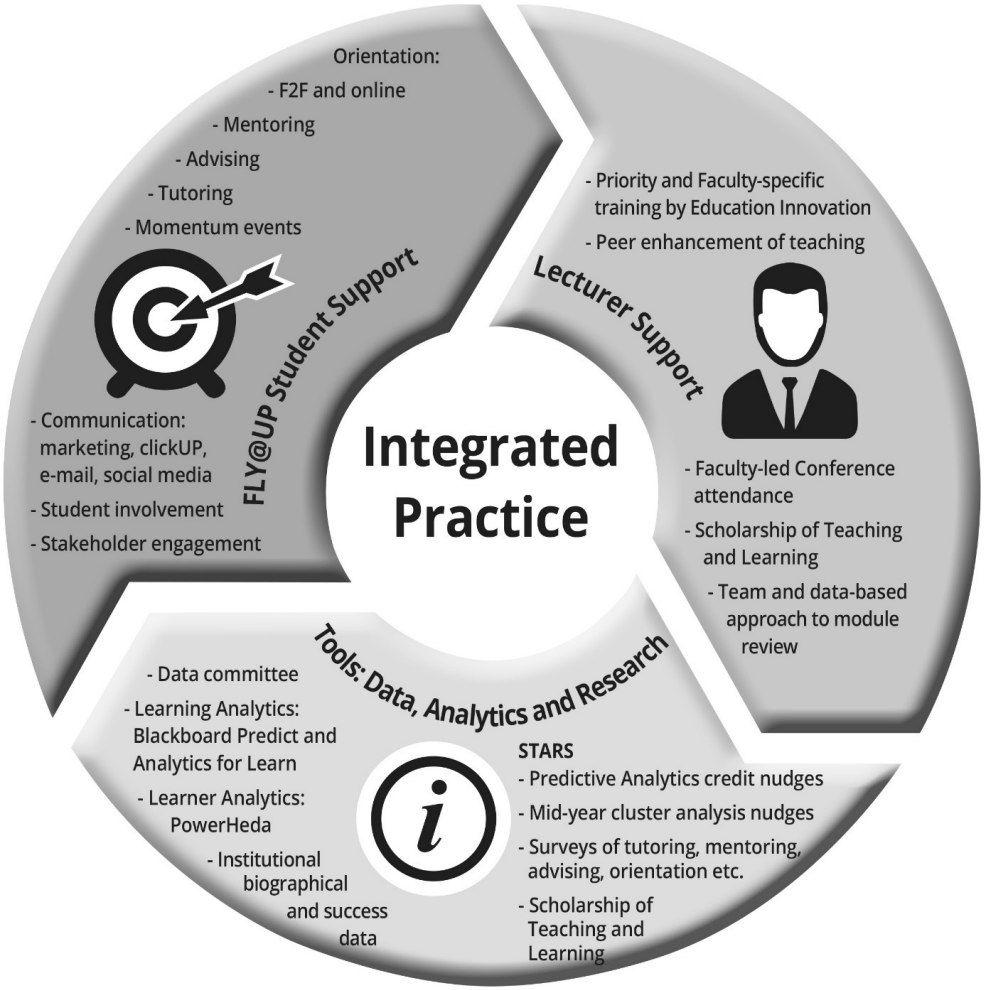


Figure 3.1: Data and integrated student success practice

This case study discusses various tools and how they developed over a number of years to support evidence-based student success interventions. Student success is an evolving process that can start small and then be scaled with the appropriate use of research, data and tools.

2 DATA AND ANALYTICS DEFINITIONS

As part of developing a shared understanding among stakeholders, it is important to use a common set of definitions for data terms. All South African public universities are familiar with the definitions in the HEMIS, but definitions oriented more towards learner analytics and learning analytics might be unfamiliar.

Some of the most commonly used words and phrases are defined below, and more are to be found in the data dictionary compiled as part of the Siyaphumelela project funded by the Kresge Foundation since 2014/15 (see the discussion of Siyaphumelela later in this chapter) (South African Institute for Distance Education 2019). Some definitions overlap with those given below because five universities collaborated on the dictionary project.

> *Academic analytics*: "Academic analytics (AA) is the improvement of organisational processes, workflows, resource allocation, and institutional measurement through the use of learner, academic, and institutional data" (Long and Siemens 2011).
>
> *Analytics*: Statistical techniques, machine learning algorithms and artificial intelligence are applied to large (raw) data sets, usually to answer a particular question and detect meaningful patterns, and the results are used for modelling, interpretation, decision support, etc.
>
> *Data*: Information, often quantitative, that has been converted into another form, aggregated or otherwise combined to be processed or analysed.
>
> *Data ethics*: Using data in a way that does no harm, protects the subjects of research and their privacy and has the informed consent of the subjects for the collection of data for a clearly pre-defined purpose.
>
> *Learner analytics*: The analysis and interpretation of student data in order to support student success effectively.
>
> *Learning analytics*: "Learning analytics (LA) is the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs" (Siemens 2011).
>
> *Predictive analytics:* Identifying aspects of student behaviour and performance associated with success, tracking data on these indicators and then pro-actively intervening before a problem arises.

This chapter expands on the definitions as appropriate in the discussion, and other terms are explained as they occur.

There is a tendency to differentiate between learner analytics and learning analytics. Learner analytics uses audited, aggregated student success data, as well as other biographical and demographic data captured on the student information system; learning analytics focuses more on the behaviour of the individual student at the formative stage of the learning process: for instance, in accessing the learning management system.

Another term often heard is 'big data'. The concept of big data does not include HEMIS data available to universities or the university system as they do not meet the criteria for big data as defined by Gartner (nd):

> Big data is high-volume, high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation.

HEMIS certainly has a large volume of data, but data are collected annually so HEMIS data do not comply with the velocity criterion. The data come from a limited set number of universities and thus there is not a huge variety of sources either. The analysis of big data sets is beyond the capability of humans, and machines are needed to process the data. In some countries, such as the United States, this type of data collection and analysis might be possible for well-funded institutions, but in South Africa universities tend to rely on smaller data sets and the analytics skills of institutional researchers or possibly the artificial intelligence embedded in commercial products such as learning management systems.

3 THE CONTEXT OF THE UNIVERSITY OF PRETORIA

3.1 University strategies and policies

There are many critical success factors for launching and sustaining a student success focus, and one of them is intentional institutional leadership, both through strategic planning and resourcing, and through making a member of the Executive team accountable for innovation, monitoring and progress (see Chapter 2). Ethics around student data use should also be the responsibility of an Executive team member. Policies can either facilitate or hinder student success, and sometimes they have to be changed.

3.2 The University of Pretoria's Strategic Plan 2025

The University's Strategic Plan 2025 (University of Pretoria 2011), known as UP 2025, was divided into five-year cycles, each with five goals. In the first cycle (2012–2016), "to increase access, throughput and diversity" as related to students was goal five. In the second cycle (2017–2021), the following became goal one: "to enhance access and successful student learning". It was a significant shift in focus. High-level strategic intent backed up by annual academic plans and short-term goals laid the foundation for the prioritisation of student success and the effective implementation of innovations and their consolidation. Targets and measures were built into the annual plans related to UP 2025 and cascaded to faculties and support departments. Performance management meetings could focus on the progress towards achieving specific goals. The formation of structures such as the Student Access and Success committee, and later the Tshebi data committee, also ensured regular discussions on how far the University had advanced.

Each year the short-term plans prioritised student success, including the elimination of differential student success rates based on race, gender, class and other critical variables. Strategies included up-scaling the extent of data-based decision making.

Ethical use of data

At the University, the Registrar is the Chief Information Officer (CIO). A matrix on data governance was developed in 2014/15 based on one used by George Washington University. The Registrar headed the multi-stakeholder task team. It took about 18 months to finalise as all stakeholders had to be identified and their information elicited and entered into the framework. There were various iterations and rounds of consultation. All the issues of definitions of particular roles – who inputs data, who uses data, who curates data – are dealt with in that matrix and the accompanying policy. Such a matrix does not automatically ensure the effective or efficient use of data, however. There are still challenges with no central data repository: owners have to be identified and approached in order to ascertain if required data are collected and connected systematically or ever analysed and used.

The Registrar is also part of the ethics clearance process, protecting students and their data. Analytics often draws raw data from the student information system and produces derived

variables by combining different data sets. The Higher Education Research and Innovation (HERI) unit in the Department for Education Innovation has to apply for ethics clearance for student-related studies and informed consent forms are part of the ethics of data use. The Registrar approves much of HERI's work, with the proviso that reports cannot be published, even though student data are anonymised or aggregated for reporting purposes.

One challenge is that data in the student information system is not necessarily in a format needed for analytics. Time has to be spent getting data into the correct format and cleaning the data. It is therefore advisable for IT departments to work with institutional research departments to ensure a usable format across the system. Inter-departmental collaboration is one of the characteristics of a systemic approach to change and to student success.

The University also has in place a policy on surveys and an office that ensures that surveys are approved and distributed across the year and that students are never over-surveyed. For this purpose, a survey register is maintained by Institutional Planning, under the leadership of the Registrar.

3.3 Institutional research into student success

3.3.1 Higher Education Research and Innovation unit

For the sake of accuracy, the development of learner and learning analytics at the University is traced through the lens of the annual reports of the Department for Education Innovation, as its staff provided the leadership in the field of analytics. While these were internal documents, they can also be sourced on the UP repository (repository.up.ac.za).

HERI is located in the Department for Education Innovation. It is a very small unit with never more than three or four researchers employed. While it would be wonderful to have more than 20 analysts, as they have at some US institutions that have managed a major student success turn around, even one or two core people with expertise can have an impact way beyond their numbers.

Besides the analytics skills needed, mainly supplied by psychometric expertise, people who have worked in the unit have had experience in student success at university. HERI staff

members were the first to study international trends in student success through the work of people like Kuh (Kuh et al 2006; Kuh 2014a; Kuh 2014b) and Tinto (2008; 2012; 2013; 2017). They also conducted their own institutional research, sometimes at the request of the Executive, but also to address problems identified by the Department of Student Affairs and the Senate Committee on Student Life. HERI's work evolved to focus on academic preparedness of students, first-year orientation, advising, tutoring and experience of students and became linked to the academic portfolio.

HERI worked with the Bureau for Institutional Research and Planning (now the Institutional Research and Analytics – IRA – unit in the Department of Institutional Planning, a reference that will be used going forward) to access institutional data on student success. For instance, they worked together on developing criteria for student risk after the first semester by using student success data to perform a cluster analysis.

Tools developed and used by HERI while collaborating with the student portfolio included task teams, workshops, focus-group and individual interviews (face-to-face and telephonically), questionnaires, surveys, and data mining. Main areas of interest were institutional and sometimes faculty problems, policy development, performance indicators for teaching and learning, the student learning experience, the student feedback instrument , non-cognitive factors affecting student success, and a Quality of Learning Index .

HERI came into its own when it aligned to the Vice-Principal responsible for academic matters and the Senate Committee for Teaching and Learning in 2009. The University came to realise that, if student success is not integral to the academic project, and if other departments do not see themselves as key stakeholders, then an integrated and systemic approach to student success is not possible.

Executive vision and leadership are key to the effectiveness and momentum of any student success initiative. Because of concerns about the first intake of students from the outcomes-based education schooling system, the Vice-Principal: Teaching and Learning at the time had been attending conferences internationally to explore research and practices in first-year experience and student success. She made contact, for instance, with the Achieving the Dream network and the Foundations of Excellence organisation during 2008. As the Department for Education Innovation in which HERI was located reported to her, she was aware of their

expertise and turned to them for leadership in using data to produce evidence for decision-making when expectations of lower success rates for the OBE intake were realised. Thus, the Vice-Principal: Teaching and Learning requested the head of HERI to act as project manager for an institution-wide project on student retention and success in 2009. A multi-stakeholder Steering Committee for Student Access and Success was established (renamed the FLY@UP Committee in 2018), chaired by the Vice-Principal, and reporting to the Senate Committee for Teaching and Learning.

The focus areas for HERI in 2009 and related tools established a pattern of activities that matured over the next decade (Department for Education Innovation 2009 to 2019):

- *Profiling of first-year student risk*: A system of surveys was developed, piloted and scaled. The first of these was based on previous work examining the impact of non-cognitive factors on student success: the Student Academic Readiness Survey. Its purpose was to determine the academic readiness (cognitive and non-cognitive) of first-year students and refer them to tutoring, mentoring and academic advising if at risk. A second was the Survey of the Learning Experience of Undergraduate Students – part of the Quality of Learning Index. It was developed in 2008 and 2009 with the aim of capturing final-year students' perceptions across six domains: quality of programmes, lecturer engagement, student engagement, learning environment, assessment, and quality of student support services (both academic and non-academic). Then, the telephonic, semi-structured exit interviews with first-year withdrawal candidates, begun in 2008, continued and became an annual longitudinal study: "wrong study or career choice" has remained constant as the primary reason for dropping out over the years. A cluster analysis on first-semester results identified students in need of assistance and they could be appropriately referred (to an advisor or tutor or elsewhere).

- *High impact modules (HIMs)* became a focus for the University: HIMs are modules with high enrolments serving many different programmes and faculties and therefore potentially at risk of high failure rates. In the United States, these are often termed "gateway" modules. HERI and IRA determined criteria for these modules using a weighted index of success variables, including module cancellation rates, year

marks, attendance rates for examinations, pass-rates following first examination, supplementary examination attendance rates, and pass rates for supplementary examinations, year level, and number of students enrolled.

- *An early warning system*: A proposal on an Early Alert and Referral System (later became UP CARES – continuous alert, referral and engagement system) was sent to the Executive in late 2009. It included the use of data mining tools in PeopleSoft Oracle and provision for the use of the grade centre facility in the learning management system as primary sources of data for the monitoring of student performance. The University's learning management system is based on Blackboard Learn™ and is known as clickUP. For referral purposes, HERI undertook a mapping exercise of academic advisors/counsellors in the Departments of Student Affairs, Client Services in Academic Administration, staff in academic structures, peer advisors (SRC and leaderships of Faculty and Day Houses), as well as recruitment officers working beyond the borders of the University. It was only later (2011/12) that Faculty Student Advisors were appointed and gradually became the focus of referral activities.

- *Evaluation of student support and development activities* such as the first-year orientation programme run by Education Innovation and the mentoring programme run by Student Affairs.

The early warning tool, the Student Academic Readiness Survey (STARS), was initially piloted in 2010 during registration of first-year students with 6 835 students from five faculties (Department for Education Innovation 2010). It assessed students' academic readiness by gauging their self-identified support needs in areas like motivation, wellbeing, integration and support, goal orientation, academic skills, anticipated/current academic involvement, and vocational identity. For the reports, biographical data from the student information system (gender, race, home language, preferred language of education, and admission point score) were merged with student responses, using student numbers as anchors. Information was generated from derived variables for reports to individual students. Reports were also sent to faculties and an aggregate institutional profile was available. A shortlist of students per risk area was generated. HERI developed a handbook containing guidelines on how to interpret the reports and a summary of the psychometric properties was made available. No referral

system to advisors/counsellors was in place in the first year of implementation. However, as the new advising system went from strength to strength, advisors became pivotal for all student interventions.

In 2011, the Student Academic Development and Excellence Model (SADEM) was consolidated (Ogude, Kilfoil, and Du Plessis 2012). That year also saw a needs analysis of the most significant data in predicting academic success and a start on an inventory of "owners" of relevant data at the University. National benchmarking of similar initiatives also took place.

Many South African universities had already started on a first-year experience initiative of some kind: Stellenbosch University and the University of Johannesburg are two examples. In 2008, Stellenbosch University organised The 1st Southern African Conference on the First-Year Experience that featured presentations from many institutions ranging across curriculum, pedagogy, orientation, language skills development, tutoring, and more. The conference programme suggests disparate initiatives with no coherent philosophy or integration of initiatives. The University of Johannesburg began its first-year experience in 2010 (Motsabi and Van Zyl 2017: 19).

The University's own first-year experience initiative was strengthened as an integrated, systemic initiative by the appointment of a Deputy Director: Academic Development in Education Innovation from March 2012. The first-year experience was defined

> as a holistic ecosystem of academic, co-curricular and extra-curricular activities within the university as part of a larger socio-economic and social context, largely unique to each student. The experience is deliberately facilitated by the University to help students to transition to their new environment, to retain students and to help them to succeed. It is everyone's responsibility at the University to ensure that the student's first year, particularly the first semester, is a positive experience (Department for Education Innovation 2012).

The use of "ecosystem" stresses the systemic nature of the endeavour as it was developing. Intentionality is emphasised in the use of "deliberately facilitated" and system-wide stakeholder involvement is made clear in the idea that student success and experience are "everyone's responsibility".

Using funding from the Department of Higher Education and Training's Teaching Development Grant (TDG), one Faculty Student Advisor was appointed for each of six faculties on a pilot basis in 2012. Finally, the University had a basis for the referral of at-risk students.

The University had not participated in the pilot of the South African Survey of Student Experience (SASSE) and the Lecturer Survey of Student Experience (LSSE). SASSE was based on the United States' National Survey of Student Experience (NSSE) and redesigned for South Africa in a collaboration between the University of the Free State and the NSSE Institute. In 2014, the updated version of SASSE moved away from the original five benchmarks (Strydom, Kuh and Loots 2017) and introduced ten indicators. UP first participated in 2014, with HERI as the organising entity, and the two surveys replaced two internal tools (Department for Education Innovation 2014).

The survey was a way of benchmarking with national higher education institutions using a standardised instrument. The institutional results were discussed by the Steering Committee on Student Access and Success and then a roadshow was held to share the information with each faculty, both institutional and faculty-specific. The limitation at the University was that, once disaggregated to faculty level, the participation rate was too small in some faculties to give reliable guidelines on areas in which to engage. The survey has continued to run in three-year cycles since, administered through HERI, although it has not proven to be an actionable instrument in some faculties. The University concluded that, to have the greatest effect, it would need to be the backbone of a student support system rather than an additional tool. However, as the University already has a strategy in place, SASSE is likely to remain as an input into the data sets.

After encountering the Predictive Analytics Reporting (PAR) Framework (a division of Hobsons Inc), HERI started to shift its focus from descriptive to predictive analytics (Department for Education Innovation 2016 to 2019). Large volumes of University data were processed by Hobsons and two reports were received from the PAR Framework, both indicating that course credits are highly predictive of progression and graduation rates. This evidence was the incentive for the implementation of the nudging campaign. According to Desouza and Smith (2016: 12), "the concept behind nudging and nudge theory centers on prompting individuals to modify their behavior in a predictable way (usually to make wiser decisions) without coercing

them, forbidding actions, or changing consequences". As part of this activity, HERI researchers gained skill in working with large datasets and preparing them for data analysis and data visualisation. They started using the Student Success Matrix (SSMx) as a tool and conducted a number of interviews with deputy deans of faculties. The SSMx is an intervention inventory software tool that is used to document, measure and share student interventions with key stakeholder across the University. They continued to map interventions on the SSMx to obtain a broad perspective of the interventions at the various stages of the student life cycle.

3.3.2 Institutional research and HEMIS

The University has had an institutional research unit for many years. One of its main functions is to collect and audit institutional data, including student success and completion data, for institutional decision-making and for reporting annually to the Department of Higher Education and Training, which is the entity through which public universities are subsidised. The data are high-level and aggregated and therefore of limited direct use to staff in deciding on student success initiatives at module or individual level.

HERI has always had a student rather than a governance orientation. It started to collaborate with Institutional Research and Analytics (IRA) on a cluster analysis after the first-semester student success data became available (Department for Education Innovation 2010). A cluster analysis is a statistical method for finding relatively homogeneous clusters of cases based on measured characteristics. The analysis showed which students were at risk based on their first-semester marks. Originally, such students were referred to tutorials and the faculties. Once a system of Faculty Student Advisors had been developed, the results could be communicated to them so that they could proactively contact students at risk. This type of referral mechanism only developed after the formation of the Steering Committee for Student Access and Success. (See Chapter 5 on Faculty Student Advisors and Chapter 7 on FLY@UP for more information on advising.)

IRA switched to the Higher Education Data Analyser (HEDA) software system in 2015. The new software has allowed them to produce directly accessible dashboards for faculties and other role-players. The dashboards are not static and users can adjust parameters to focus the results of their queries. Through Tshebi, particularly during 2018, capacity was developed in the faculties on the optimum use of these dashboards.

In 2018, there was a refocusing of Tshebi's work to include research into student wellbeing. Under the leadership of an educational psychologist from the Faculty of Education, student researchers were trained to conduct the research, and data were collected, analysed and then actioned (see Chapter 9).

At a Tshebi meeting, Mouton (2019) cited statistics from the DHET (2019) report, *2000 to 2016 First Time Entering Undergraduate Cohort Studies for Public Higher Education Institutions*, on all public universities:

> The throughput rate in minimum time for 3 year degree programmes offered in contact mode improved from 25.7% in 2002 to 31.9% in 2017 (an improvement of 6.2 percentage points).

According to this DHET report, the University's results exceeded the national throughput average by more than 13%. Given the national attrition rate, though, no university can afford to be satisfied with its student completion rate, whether in minimum time or in minimum plus two, a frequently cited statistic. That is why FLY@UP is so important: the University is intentionally integrating initiatives to address both an institutional and a national problem.

Mouton (2019) reports as follows on University cohort data for the 2014–2017 cohorts in three-year degrees:

Table 3.1: Graduation in minimum time for three-year degrees

Cohort year	Completion year	Overall %
2014	2016	39%
2015	2017	43%
2016	2018	45%
2017	2019	44%

The FLY@UP campaign (see Chapter 7) would have affected students in all of these cohorts. Most significantly, those entering in 2016 at the start of the campaign experienced a full three years of exposure to messages on self-regulation, developing a growth mindset, applying themselves consistently, making good use of resources, and so on. For the four-year degrees, the picture is slightly different.

Table 3.2: Graduation in minimum time for four-year degrees			
Cohort year	Completion year	Overall %	Overall % excluding extended programmes
2013	2016	41%	46%
2014	2017	41%	47%
2015	2018	39%	45%
2016	2019	38%	44%

One reason for the apparently low throughput is that professional four-year degrees and extended programme four-year degrees are combined, the latter having a significantly longer time to completion. It might also be that, for the last two cohorts, the 2016 disruptions had a more serious negative impact on the professional degrees, which often require practical work. Completion rates in minimum time plus one and minimum time plus two show a more positive picture for both three- and four-year degrees.

Given the interest of the student success campaign in disparities in the success rates of students along lines of race, it can be noted that persistence rates are high, with students succeeding in their own time, with no difference in completion rates after Y+2 between black African students and other students. While the University talks of 'minimum time to completion', students often refer to that as 'record time', accepting that it might take them longer to reach their goals and graduate.

3.3.3 Learning management system and data

A significant analytics step was taken in 2013 with the investigation of Blackboard Analytics for Learn™ for a pilot in 2014, which started on a small scale in the Faculty of Economic and Management Sciences (Department for Education Innovation 2013). Based on what was learnt through the initial investigation of the product and the marketing literature, there were high expectations:

> [The software] gathers extensive data about the user activity, course design and student grades within the online classroom environment. The Blackboard Analytics for Learn™ system combines these data with student and course attributes from the PeopleSoft system to provide comprehensive reports and dashboards for students, lecturers and different levels of management. These reports can provide information

> on the activity and marks of a single student across his/her modules; the performance of all students in the modules in a particular department or programme; and the use of the clickUP system across a faculty and even across the whole institution (Department for Education Innovation 2013: 28).

Perhaps some frustration was inevitable as there proved to be problems with the integration of the software with PeopleSoft, and with data inconsistency. The importance of systems integration as a key success factor cannot be sufficiently stressed.

Even with the small pilot successes, the institution faced a real institutional change management problem as lecturers were reluctant to input grades data. Initially the system also relied on one person in the e-learning division and there were problems when someone in Information Technology Services moved the system to another server, requiring its re-installation. Analytics for Learn was thus not the start of universal access to student learning management system data that the literature had promised. It was only the persistence of one individual and the gradual onboarding of champions that resulted in the eventual effectiveness of the analytics produced.

Nonetheless, by the following year, the analytics system was proving its usefulness in specific if limited ways (Department for Education Innovation 2014). Data from the system were used to provide feedback to faculties about the role of the clickUP in their teaching and learning strategies. A report was submitted to relevant stakeholders in the investigation of the use of clickUP at master's level. Reports were also provided for ten at-risk undergraduate modules for reviews as part of the Siyaphumelela project. The system provided valuable data for the Six Weeks project in the Faculty of Economic and Management Sciences for a second year running. Dashboards were improved and developed.

Aligned to the growing importance of analytics, the e-Education unit in EI developed new training for academics. The new clickUP METRICAL (Measure and Track for Impact through Analytics) was adapted to a case-study methodology to illustrate how the data available in clickUP could answer questions lecturers might have on student engagement within their own modules. It could only be presented in November 2014 for the first time, owing to technical problems with Analytics for Learn.

E-Education continued in 2016 to determine the impact and value of such a system for the

University. Data from the analytics system were used to provide feedback to faculties about the role of clickUP in their teaching and learning strategies. The development of dashboards for deans and deputy deans in faculties enabled them to access clickUP usage data. The dashboards aggregated clickUP use per faculty and provided insight into course design and student engagement. Two dashboards focused on student grades and aimed to indicate students at risk based on the grades captured in clickUP. As many lecturers were reluctant to put their data into the system, the one dashboard had limited range. Another dashboard had a student focus and provided grade exception data per programme, module and department.

The dashboards were refined for deputy deans and students, and dashboards introduced for academic heads of departments (Department for Education Innovation 2017). The dashboards provided descriptive data for heads of departments to monitor students' formative progress as well as the level of clickUP usage. Analytics for Learn data showed that first-year students above the third quartile of clickUP users outperformed those below the second quartile by 15% on average in 2018. In other words, students who regularly used clickUP performed significantly better than those who did not. Of course, the corollary is that there must be engaging activities to draw students to clickUP each day. From 2016, the online presence of undergraduate modules, which was already substantial, grew annually until, in 2019, 95.5% of all undergraduate modules had an online presence (Department for Education Innovation 2019). The nature of lecturers' use of the environment also changed from its functioning mainly as a repository to broader use for assessment and engagement. As the quality of the use of the learning management system improved, so did the frequency of student visits to clickUP. The percentage by which regular users of the system outperformed those who used it less regularly rose to 16.6% in 2019.

At the same time as HERI was moving to predictive analytics through the PAR Framework, e-Education began to explore Blackboard Predict™ (Department for Education Innovation 2017). Prediction data of week 8 of the first semester of 2017 showed a strong to very strong (r 0,55 to r 0,79) correlation with the final semester grades of students. A range of historical data is fed into a machine learning algorithm and the likelihood of a student not passing a particular module is predicted. The software was piloted in the Faculty of Engineering, Built Environment and IT in 2018 and became a mainstay for the new team- and the data-based approach to module review initiated in 2019.

So, for both HERI and the E-Education, there has been an evolving focus on the individual student and predictive analytics. The value of the data is not in the predictions but in the interventions and the discussions between students and advisors to ascertain why they seem to be at risk and what can be done about the situation.

Blackboard Predict™ will be further scaled. The move of the Blackboard AWS SaaS environment and the implementation of the improved Pyramid 2020 Blackboard Analytics software will allow the University to develop reports using integrated machine learning algorithms. In addition, they will improve the scalability and stability of the system.

The University also participated annually in the EDUCAUSE Center for Analysis and Research (ECAR) (https://www.educause.edu/ecar) Study of Students and Information Technology, and data were analysed for wider use when capacity was available. Otherwise, they were used to inform decisions about e-learning: for example, how to cater for students' preference for blended learning.

A lesson learnt from working with different systems was that convergences and differences between input from different data sources can lead to greater innovation.

3.4 SAHELA

The University started thinking about learner analytics and learning analytics far earlier than other South African institutions. EI, under the leadership of the Director, the Head of HERI and the Head of e-Education, organised the first South African Higher Education Learning Analytics (SAHELA) event from 1 to 5 July 2013 (Department for Education Innovation 2013). The event was presented as part of a global initiative organised by the Society for Learning Analytics Research (SoLAR – https://www.solaresearch.org/) in collaboration with Stanford University's Learning Analytics Summer Institute. The first three days of SAHELA were facilitated online, linked to the Stanford presentations. Finally, more than 40 people from various national institutions participated in face-to-face presentations and discussions on learning analytics at the University. It was clear from institutions' presentations that, at most South African universities, analysts were predominantly using HEMIS data to produce reports for executive decision-makers, some of them very good reports. However, proactive student and learning analytics were not taking place.

In 2015, it was decided to link SAHELA to the South African Association for Institutional Research (SAAIR – https://www.solaresearch.org/) conference as a pre-conference workshop. Awareness was raised every year for four years through this workshop, led by the University, sometimes in collaboration with other universities and usually with an international presentation as well. From 2018, SAAIR mainstreamed learner and learning analytics as a theme in its annual conference as other universities were starting to build capacity and could conduct research and deliver papers.

3.5 Siyaphumelela

Siyaphumelela (siyaphumelela.org.za) is an initiative launched by the Kresge Foundation in late 2014 to promote the use of data to improve the chances of success of first-year students in South Africa. Initially four but later five universities were recipients of the grants, including the University of Pretoria, and participation strengthened the developing capacity at the University. The grantees formed a community of practice over the years, often providing opportunities for collaboration on common areas of development. It was the start of an exciting period of prioritising data and student success.

For the University, the objectives of the project were to enhance its ability to make evidence-based decisions to increase student access, throughput and diversity; to build high-level data analytics capacity with advanced statistical analysis of individual student data; and to identify trends in student academic readiness, needs and success indicators. The project stressed the importance of a multi-stakeholder student success team, which already existed at the University in the form of a Steering Committee for Student Access and Success. Its membership was expanded in 2015 to include Institutional Research and Analytics and Information Technology Services. At that time, its mandate was also altered to include a focus on the use of data to increase student success. The Siyaphumelela project also required institutions to use SASSE, which the University had already started to do, and conduct module reviews. A data coach was provided from the Achieving the Dream movement in the United States. A year later (2016), the Tshebi data analytics committee was launched as it was necessary for the Steering Committee to focus more holistically on student success initiatives, integrated through FLY@UP, which was conceptualised in 2015.

During the first year of Siyaphumelela, the University began to develop capacity, first in HERI and IRA, The two units worked with consultants from STATOMET (an internal statistical analysis unit) to develop particular analytics skills and capacity for analysis in identifying first-year students at risk. With the assistance of STATOMET, logistic regression techniques were established as an additional analysis procedure, as well as the use of Bayesian modelling. A predictive modelling procedure to determine throughput rates for different scenarios was explored and relevant programmes established. The researchers in the two units later infused their new skills when working with the Tshebi committee. In subsequent years, capacity development refocused on building capacity more widely in the academic sector of the University. As a result of analytics capacity development in Institutional Research and Analytics, a dashboard was developed to include examination statistics and present throughput analysis results to all academics to further support the student success initiative at UP.

Module review by outside experts and internal lecturers was initiated in 2015 as part of Siyaphumelala in addition to the programme and departmental reviews normally conducted by the Quality Assurance unit. Student success data for the reviews was provided from IRA and the learning management system. This model was expanded after the first year to include both peer review and the use of HEMIS data to conduct purely data-based reviews.

The Kresge Foundation sponsored a data coach from the USA for Siyaphumelela institutions. She assisted with analysing the University's context related to criteria established by the Achieving the Dream network (a consortium of community colleges aiming to improve student success through data-led interventions); and making meaning with data by presenting it more visually to tell a story. She provided assistance to the two institutional research units and met with the Steering Committee on Student Access and Success each year. The Kresge Foundation also supported attendance at Achieving the Dream conferences in the USA. The University managed to send at least two people per year from the Tshebi committee – mainly institutional researchers, student success practitioners and Deputy Deans: Teaching and Learning. Regular attendance, particularly by the Vice-Principal: Academic, was funded by the University.

In South Africa the project was managed by the South African Institute for Distance Education

(SAIDE – https://www.saide.org.za/). One of its functions was to organise an annual conference at which the partner universities each presented one institutional paper in addition to other papers, and students were also invited to attend and present. As the project developed, so institutional researchers and academics began to present workshops and papers as well. The Kresge Foundation sponsored a number of presenters from international institutions, including Georgia State University (nda), a leader in the US in using data to provide equity of outcomes for black male students. Following a dictum often heard at Achieving the Dream, "students don't do optional", Georgia State provided compulsory additional support for all students and found that the actual target group improved as well without being stigmatised by being singled out. Georgia State uses approximately 200 data points as part of their tracking system. For instance, on their website, they note the following:

> Excessive tardiness or absences, lack of participation and engagement in the course, failure to submit assignments or submission of incomplete assignments, difficulty comprehending course content, or grades that indicate potential failure in the course are all indicators that a student may be at risk of academic failure (Georgia State University nda – https://www.gsu.edu/).

They also have a specific grade allocated for each module. If a student is not performing at that level at a specific point in time, they are then connected with an advisor. The University was able to benchmark with Georgia State after making contact at the conference. Another useful contact made through a presentation at the Siyaphumelela conference was with Civitas Learning. A subsequent visit (in 2017) inspired the nudging campaign later developed by the University.

Credit load is significant in the context the University. Extensive research at the University in 2016 and 2017, in collaboration with the PAR Framework, revealed that credit enrolled is a major predictor of student completion in minimum time, both in terms of under-enrolment and over-enrolment. Students who register for too few modules for a semester, or who drop modules, or register for too many modules, are at risk of not completing in minimum time.

As a result of this research, and benchmarking with Civitas Learning, a nudging campaign was instituted immediately after registration in 2018. Nudges alerted first-year students that they ought to check their registrations with the faculty administration staff and either register for

additional credits or drop unnecessary ones. Lemmens and Mphanda (2019) report that, after the nudges to students in three-year degrees, 61% of students with low credit loads and 88% of students with high credit loads remained at risk – they either did not consult or consulted but did not change. For the four-year degrees, the proportions were 54% (low credit loads) and 50% (high credit loads). In early 2019, data showed that 139 students had low credit risk, but many responded to the nudges and by 25 February only 52 (37%) still had too few credits; 92 students had high credit risk, but many responded to the nudges and by 25 February 49 (53%) still had too many credits. Nudges are merely a steering mechanism and students may choose not to act on the recommended direction.

The nudging campaign was also operationalised in mid-year after a cluster analysis, which used a credit-fail ratio, showed students in five risk categories: high performers, not at risk, moderate risk, high risk, and very high risk. Nudges were tailored to each group, with messages ranging from "we are proud of you" to "a helping hand". Nudges are always positive and always have a single call to action. The main call to action was to see an advisor, and 2018 data showed that those who followed the advice were more likely to progress to the following year than those who did not.

Towards the end of the initial grant period, participating universities were invited to submit a project to earn a bonus equivalent to the annual amount of the grant. The University used nudging as the basis for its application. The project ran and, on submission of a report, was approved for the bonus. Nudging was subsequently integrated into the functioning of the advisors, ensuring its continuity.

Student might also drop modules in order to maintain a good grade point average, often to retain place in a residence, not realising that effectively they have ensured that they will take longer than the minimum time to finish their degree. Students wanting to drop modules are now referred to an advisor prior to finalising the decision. The students have a different perspective on dropping modules from that of the University, which records their action as a "failure" on the system.

Siyaphumelela created a community of practice with the five institutions participating in the grant, which led to fruitful sharing of ideas and collaboration. UP worked with one of the partners on capacity building, sharing what it had learnt about Bayesian modelling, while the

other university contributed expertise developed in the use of software for data visualisations. All of the universities also participated in the Advising and Data Ethics teams and in finalising the data dictionary. Collaboration between institutions is a good practice that could be more common in a country in which data analysis capacity is constrained.

The *Horizon Report™ | Teaching and Learning Edition* (EDUCAUSE 2020) notes Siyaphumelela as an example of the effective use of analytics for student success.

4 ETHICS AND THE POPI ACT

Ethics is associated with principles that can be applied in any situation where an individual or organisation is faced with making judgments on concepts such as morality, fairness, social responsibility, and positive or negative impact on the welfare of others. When it comes to student data, these issues are paramount, but universities might weigh the protection of student privacy against the benefit that could be derived for students through the analysis of their data to implement targeted interventions for groups or individuals. Often the end of ensuring student privacy is achieved through the de-identification of data. However, the more that universities move away from aggregate group data to the profile of individual students, again for their own good, the more safeguards they have to put in place to ensure that access to student data is well managed. Profiling could also have the negative effect of creating labels from which students would find it difficult to escape.

Ethics clearance is required for all research at the institution. The application form includes information on the research methodology, the credentials of the researcher(s), a copy of the informed consent form and any questionnaire to be used. However, after approval from the ethics committee, further approval is required from the Registrar for any research using student data.

The *Protection of Personal Information Act* 4 of 2013 (POPI) (Republic of South Africa 2013) contains eight conditions for the lawful processing of information. In 2015, the University introduced its own Protection of Personal Information Policy and Guidelines to ensure contextualised compliance with the Act.

The Siyaphumelela project also concerned itself with the ethical use of student data. An ethics

task team was established in 2016 on which all participating universities collaborated. Prinsloo (2017) presented the resulting "Guidelines on the Ethical Use of Data: A Draft Narrative Framework" at the Siyaphumelela conference the following year. It dealt with seven principles:

1. The moral relational duty of learning analytics
2. Defining student success in the nexus of student, institution and macro-societal agencies and contexts
3. Understanding data as framed and framing
4. Student data sovereignty
5. Accountability
6. Transparency
7. Co-responsibility (Prinsloo 2017: 23)

After further feedback, the final documents were made available on the SAIDE Siyaphumelela website as open educational resources (OERs) under a creative commons licence for any university to use: *Ethical Use of Student Data: Narrative, Guidelines and Templates* (SAIDE 2018). Many of the ideas in the document drew on JISC's (2016) "Code of Practice for Learning Analytics". OERs are often valuable resources as bases or benchmarks for a university's own development or simply for adapting to an institution's own context. If they are from a reliable source, such as SAIDE or JISC, they can really benefit universities whose own capacity is limited.

One concern, given the resource-constrained higher education sector in South Africa, is what is termed "academic triage". "Triage" is a medical term referring to large groups of wounded people and having to decide which to treat first – where to use your resources effectively. Prinsloo and Slade (2014: 315) explain "triage", as they understand it in higher education, as follows:

> In the context of this article, the 'wounded' in higher education may therefore refer to those students who are at risk of not surviving the ordeal, by either dropping out of their studies or (continuous) failing. Not only do students' failure and dropout constitute a risk for students, but they pose an increasing risk for the sustainability of higher education. Educational triage is therefore defined as balancing between the

futility or impact of the intervention juxtaposed with the number of students requiring care, the scope of care required, and the resources available for care/interventions.

One of the aims of using scarce resources effectively is fairness. One of the triumphs of Georgia State University (https://success.gsu.edu/ ndb) is its use of data to plan interventions for all students rather than specific groups.

It is of primary importance to recognise that a student cannot be defined by a series of data points such as marks, family and school background, financial status, or interactions on the LMS. A student is a complex human being, more than the sum of all of these data. Aspects such as resilience, motivation, a sense of wellbeing, perseverance, or the development of a growth mindset have been shown to move a student beyond any initial profile and result in successful outcomes, even if not in minimum time.

5 CONCLUSIONS

5.1 Institutional preparedness

5.1.1 Capacity building

Capacity has been built in all faculties to manage student success through the use of tutors, advisors and mentors, as well as data. Tutors and advisors have been successful in turning around problem modules or promoting student capacity to study better or attend to their wellbeing, which has improved both retention and success rates for individuals. Faculties therefore continually seek additional funding to increase both tutoring and advising. More data and analytics tools have been made available, first to Deputy Deans: Teaching and Learning in faculties, and then to heads of academic departments and individual lecturers. Through Tshebi in particular, deputy deans' ability to access and manage dashboards from the University's repositories has been promoted.

From 2019, the data- and team-based approach to reviewing at-risk modules has also exposed groups of lecturers and department heads to the more effective use of available

data, and results for the chosen modules demonstrate an average improvement of 13.3%. For the future, it is important to expose every lecturer to data that they can use to promote student success, and the University has developed a model to achieve this end.

Table 3.3: Model for data- and team-based approach to module review

Category	Modules	Support	Data	Process
Low touch	All	None	Blackboard student success dashboards available to each lecturer	
Medium touch	Pass rate < 75% and enrolment < 500	Negotiated support from education consultants (ECs) and instructional designers (IDs)	Blackboard dashboards and PowerHEDA data	Deputy Deans: Teaching and Learning (DDs) for internal (faculty level) discussion and intervention
High touch	Pass rate < 75% and enrolment > 500	Negotiated support from HERI, ECs and IDs	Blackboard dashboards, PowerHEDA data, formative evaluations with survey/FGIs, data analysis, pathway analysis	DDs for internal (faculty level) discussion and intervention AND Tshebi committee discussion

5.1.2 From descriptive to predictive analytics

Since 2018 there has been a move away from descriptive analytics only, as captured in dashboards, to predictive analytics. The Universe facilitated this move using a dual approach. First, it added Blackboard Analytics for Learn™ in 2013, and then Blackboard Predict™ in 2017 to make clickstream data on the Blackboard Learn™ learning management system, branded as clickUP, available to lecturers in each module. This has meant a culture change to convince academics to enter all student marks on the system. A great deal has been achieved but more work needs to be done to bring all lecturers on board. One piece of interesting data is that students who "attend" the online portion of their module on a regular/daily basis outperform those who do not. The second part of the approach entailed conducting an investigation of large amounts of UP data with a US company on the Predictive Analytics Reporting Framework. One result was that the number of credits attempted predicted student progress – too many or too few indicated that a student was not likely to complete in minimum time.

This information led to the nudging campaign in 2019. Both sets of analytics data are used in the data- and team-based approach to module review. Going forward, the approach will make data available to all lecturers. A great deal of change management still needs to occur.

5.2 Enablers and challenges

Some challenges have been mentioned throughout the chapter, as have some enablers, which are reiterated here.

5.2.1 Enablers

- Executive leadership by the Vice-Principal: Academic, within the framework of an institutional strategic plan with goals and targets, was a critical success factor. To enable inclusive leadership, the University established the multi-stakeholder Steering Committee for Student Access and Success and later Tshebi, both reporting to the governance structure, the Senate Committee for Teaching and Learning.
- Institutional research capacity, audited databases in Institutional Research and Analytics and educational student success expertise in HERI existed and was used more effectively. UP CARES benefited from an increasing ability to harness online analytics as well as data from STARS for student referrals to mentors and advisors. Convergence between HERI's interest in analytics and the analytics affordances of the learning management system, particularly in the field of predictive analytics, produced a more focused student success ecosystem that benefited the academic project.
- Benchmarking from a variety of organisations continually informed the University's approach, and ideas garnered were adapted and contextualised.
- The Kresge Foundation provided funding and other resources, and it has been possible to interact with other Siyaphumelela partners and to link particularly to those partners working most closely in the same area of analytics.
- Synergy with the TDG until 2017 and with the UCDG since 2018 has been important as the grant increases the sustainability of student support initiatives such as tutoring, mentoring and advising as well as the piloting of analytics products.

- The procurement of goal-specific software to support learner analytics and learning analytics is fundamental. These tools require the involvement of all the stakeholders in a university to gain the maximum benefit and return on investment. For this purpose, a focused approach and joint vision are required.

5.2.2 Challenges for change management

Institutions face a number of challenges in implementing an effective data ecosystem. Most are not insurmountable barriers; to effect change, they merely require strategic intent, leadership, some expertise, some funding, and a great deal of persistent persuasiveness and hard work.

Table 3.4: Challenges and change management

Challenge	Potential change management
Isolated, siloed efforts, on the periphery	Make data-led student success a measurable strategic priority. Provide executive leadership. Mainstream into academic project. Amend or develop policy. Form multi-stakeholder committees. Work on whole system design. Integrate initiatives. Create a data ecosystem.
Staff capacity	Start with what you have: the institutional research office that deals with HEMIS data, any other department conducting research into student success, data strength within faculties. Build capacity throughout the faculties through multi-stakeholder committees.
Clean, appropriate, accessible data	Start with what you have: the institutional research office that deals with HEMIS data, the SIS and any other databases. Create dashboards accessible to key stakeholders. Make action the purpose of data collection, analysis and visualisation. Create a common understanding of key terms.

Resistance	Make data-led student success a measurable strategic priority. Provide executive leadership. Use performance management to ensure goals are met. Conduct small-scale pilots prior to major implementations. Work with champions.
Funding	University Capacity Development Programme Operational budgets Other sources
Stigma for students	Make interventions compulsory for all students. Use nudges to individuals that always carry a positive spin and an action to be taken.

Each university has to consider its own capacity and context. Some institutions might be starting from a small number of institutional researchers with limited data collection but starting small is completely acceptable. Others might be accustomed to working in siloes but executive leaders could change the situation by creating multi-stakeholder committees. The important thing to realise is that data give an institution an effective way of making decisions on resource allocation, structures and policies to support student success.

References

Allen, W, and M Kilvington. 2018. "An Introduction to Systems Thinking and Tools for Systems Thinking." Presentation based on material for a Greater Wellington Regional Council introductory systems thinking workshop, Wellington, New Zealand. Accessed 24 April 2019. http://learningforsustainability.net/post/intro-systems-thinking/.

Department for Education Innovation. 2009. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2010. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2011. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2012. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2013. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2014. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2015. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2016. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2017. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2018. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department for Education Innovation. 2019. *Annual Report*. University of Pretoria. Unpublished. repository.up.ac.za.

Department of Higher Education and Training. 2019. *2000 to 2016 First Time Entering Undergraduate Cohort Studies for Public Higher Education Institutions*. Pretoria. DHET Directorate: Higher Education Management Information Systems.

Desouza, KC and KL Smith. 2016. "Predictive Analytics: Nudging, Shoving and Smacking Behaviors in Higher Education." *EDUCAUSE Review* September/October. https://er.educause.edu/articles/2016/8/predictive-analytics-nudging-shoving-and-smacking-behaviors-in-higher-education.

EDUCAUSE. 2020. The *2020 EDUCAUSE Horizon Report™ | Teaching and Learning Edition.* Accessed 28 February 2020. https://library.educause.edu/resources/2020/3/2020-educause-horizon-report-teaching-and-learning-edition.

Gartner. nd. "Big Data." Gartner Glossary. Accessed 27 May 2020. https://www.gartner.com/en/information-technology/glossary/big-data.

Georgia State University. nda. "Frequently Asked Questions." Georgia State Home. Accessed 20 June 2020. https://success.students.gsu.edu/early-alert/#1492023508867-656a4ba8-695b.

Georgia State University. ndb. "Student Success Programs." Georgia State Home. https://success.gsu.edu/.

JISC. 2016. "Code of Practice for Learning Analytics. – June 2015." https://www.jisc.ac.uk/sites/default/files/jd0040_code_of_practice_for_learning_analytics_190515_v1.pdf.

Kuh, GD. 2014a. "Identifying and Ensuring HIPs Quality." Siyaphumelela Workshop II. University of the Free State.

Kuh, GD. 2014b. "What Matters to Student Success: The Promise of High Impact Practices." Siyaphumelela Workshop I. University of the Free State.

Kuh, GD, J Kinzie, JA Buckley, BK Bridges, and JC Hayek. 2006. "What Matters to Student Success: A Review of the Literature." National Postsecondary Education Cooperative.

Lemmens, J, and E Mphanda. 2019. "Evaluation of the UP Nudging Campaign." Siyaphumelela Conference. Accessed 8 August 2019. https://www.siyaphumelela.org.za/resources.php.

Long, P, and G Siemens. 2011. "Penetrating the Fog: Analytics in Learning and Education." *Educause Review*. https://er.educause.edu/articles/2011/9/penetrating-the-fog-analytics-in-learning-and-education.

Motsabi, S and A van Zyl. 2017. "The University of Johannesburg First Year Experience Initiative." In Van Zyl, A *The First Year Experience in Higher Education in South Africa: A Good Practice Guide*. Commissioned by the Fundani Centre for Higher Education and Training, Cape Peninsula University of Technology; Co-ordinated by Dr Andre van Zyl, Director of the Academic Development Centre, University of Johannesburg. heltasa.org.za. Accessed 20 October 2020.

Mouton, H. 2019. *Cohort Results and UG Student Success*. Unpublished report. University of Pretoria.

Ogude, NA, WR Kilfoil, and G du Plessis. 2012. "An Institutional Model for Improving Student Retention and Success at the University of Pretoria." *International Journal of the First Year in Higher Education* 3(1): 21–34. ISSN: 1838-2959.

Prinsloo, P. 2017. "Guidelines on the Ethical Use of Student Data: A Draft Narrative Framework." https://www.siyaphumelela.org.za/documents/5a61c7b737ff5.pdf.

Prinsloo, P, and S Slade. 2014. "Educational Triage in Open Distance Learning: Walking a Moral Tightrope." *The International Review of Research in Open and Distance Learning* 15(4): 306–331. https://doi.org/10.19173/irrodl.v15i4.1881. Accessed 15 October 2020. https://files.eric.ed.gov/fulltext/EJ1039846.pdf.

Republic of South Africa. 2013. *Protection of Personal Information Act 4 of 2013*. *Government Gazette*, 26 November 2013. http://www.justice.gov.za/legislation/acts/2013-004.pdf.

Siemens, G. 2011. 1st International Conference on Learning Analytics and Knowledge, Banff, Alberta, February 27–March 1, 2011. http://tekri.athabascau.ca/analytics/.

South African Institute for Distance Education (SAIDE). 2018. *Ethical Use of Student Data: Narrative, Guidelines and Templates.* https://www.siyaphumelela.org.za/resources.php#.

South African Institute for Distance Education (SAIDE). 2019. *Data Definitions*. https://www.siyaphumelela.org.za/definitions.php.

Strydom, F, G Kuh, and S Loots. 2017. *Engaging Students: Using Evidence to Promote Student Success*. Bloemfontein: Sun Media.

Tinto, V. 2008. "Access without Support is not Opportunity." Keynote, annual conference of the National Institute for Staff and Organizational Development, University of Texas at Austin. Accessed August 20, 2019. https://www.insidehighered.com/views/2008/06/09/access-without-support-not-opportunity.

Tinto, V. 2012. "Enhancing Student Success: Taking the Classroom Seriously." *The International Journal of the First Year in Higher Education* 3(1): 1–8. https://doi.org/10:5204/intjfyhe.v2i1.119. ISSN: 1838-2959.

Tinto, V. 2013. "Promoting Student Success at Institutional Level." CHE Regional Symposium on *Conceptualising a Coherent Approach to Student Success*, 23 August 2013. Edited transcript of lecture 4. http://www.che.ac.za/content/regional-symposia-student-success-19-23-august-2013.

Tinto, V. 2017. "Reflections on Student Persistence." *Student Success* 8(2): 1–8. https://doi.org/10.5204/ssj.v8i2.376. ISSN: 2205-0795.

University of Pretoria. 2011. *Strategic Plan 2025*.

Chapter 4

Tutoring: At the Interface of Teaching and Learning

WR Kilfoil

Abstract

Tutoring and mentoring had been student support activities at the University of Pretoria (UP) prior to the consolidation of student success efforts from 2009. They align respectively to Tinto's (1975) original classifications of student support into academic integration (tutoring) and psychosocial integration (mentoring).

Mentoring is not a key focus of this chapter, but it is briefly discussed to complete the picture. It was originally included as an activity in the guidelines for tutoring but became a separate activity in 2008.

Tutoring as part of academic integration is the focus of this chapter. In 2009 and 2010, the Vice-Principal: Teaching conducted a situational analysis at the University, using a survey and a study of the institutional tutoring policy, "Guidelines for Operating a Tutor System as a Supplementary Support Programme for Students at Risk" (Department of Human Resources 2002).

The situational analysis led to a stakeholder workshop in 2010 as it was clear that an institutional understanding of the concept of tutoring, and of the most effective and efficient models of tutoring, needed to be created.

Following the workshop, two documents were prepared. In 2010, education consultants in the faculties completed another analysis, including the information in the 2009 survey. However, an additional question referred to the identification of high-impact modules (HIMs), as they had become the criterion for assigning tutors to modules. HIMs are defined as modules with high enrolments, serving multiple programmes, and potentially at risk of high failure rates.

The Vice-Principal: Teaching and the Director: Education Innovation prepared a proposal on models for tutoring that was submitted to the Senate Committee for Teaching and Learning in 2011, based on all the preliminary work plus further consultation. Subsequently, tutoring continued to be adopted and adapted for HIMs and fully integrated into the student academic development system.

1 CONTEXT: RATIONALE AND APPROACH

The rationale for tutoring lies in its perceived and proven value in promoting retention and success. This chapter indicates why the University chose to use tutoring (the underlying problem) as well as the model that evolved and some evidence of the impact of tutoring on student outcomes.

Longitudinal University data (Lemmens et al 2010) at the start of the period under consideration showed that first-year dropout occurred early in the first semester or when students did not return at the start of the second semester. Some of the reasons included wrong course choice (top reason for more than a decade since 2009), lack of academic achievement, finances, personal reasons and family problems. One conclusion that can be drawn from the study is the importance of assisting students as early as possible.

> The greatest percentage (37.7%) of students started experiencing problems with their studies and/or chosen course during the first quarter or semester (about middle February to March). A further 21.1% started having difficulty during the second quarter or semester (about end March to May), while 20.2% experienced problems right from the onset [sic], during the orientation week, with a small percentage (2.4%) reporting problems prior to university entry. Of the remaining students, 14.5% started having trouble during May or June and 4.2% during the third quarter or semester (July to end August) (Lemmens et al 2010: 25).

Tutoring and mentoring were already student support activities offered by the University prior to the consolidation of student success efforts from 2009. For instance, the annual report of the Department for Education Innovation (2008) noted:

> Training of tutors is conducted by EI, currently strongly based on a Supplemental Instruction (SI) model. SI attempts to address the problems associated with providing academic support to students and to remain student centred. Costs of tutor training are covered by the Skills Development Fund (Learning and Development, Department of Human Resources). In 2008, 182 tutors were trained.

1.1 Supplemental instruction

Before proceeding, a short discussion of SI seems necessary, particularly as the concept crops up in reports from Education Innovation, the 2009/2010 situational analyses and the 2011 proposal to the Senate Committee for Teaching and Learning. In the initial situational analysis, and the proposal, 'supplemental' is used as a synonym for 'voluntary', which only accounts for part of the approach, as this definition from the University of Missouri–Kansas City (which initiated the approach in 1973) shows:

> Supplemental Instruction (SI), created at the University of Missouri–Kansas City, is a non-remedial approach to learning that supports students toward academic success by integrating 'what to learn' with 'how to learn'. SI consists of regularly scheduled, voluntary, out-of-class group study sessions driven by students' needs. Sessions are facilitated by trained peer leaders who utilize collaborative activities to ensure peer-to-peer interaction in small groups. SI is implemented in high-risk courses in consultation with academic staff and is supported and evaluated by a trained supervisor (University of Missouri–Kansas City nd).

SI is thus more systematic than just 'voluntary participation', although that is an element. Its voluntary nature, as opposed to an approach that targets so-called 'at-risk' students, avoids stigmatising such students by targeting only them for remediation. Instead, it focuses on modules identified based on set criteria. It is student-centred and aims to improve retention and success. It requires a special coordinator and specific training for tutors (known as session/SI leaders). SI leaders are near-peers who facilitate SI sessions in a non-directive manner by encouraging students to work through their understanding of the topic in a supportive environment and solve problems within a group. Content is a focus but so are learning skills and study strategies. No more than 20 students should be present as the sessions are like small-group discussions rather than classes. As will be seen later, tutorial classes at UP exceed this small number in many cases. It is important to note that SI sessions are based on the students' agendas, their questions and problems, rather than material prepared by a lecturer and presented by a tutor. Records are kept of student attendance and progress. SI is also known as peer-assisted learning (PAL) or peer-assisted study sessions (PASS).

Marra and Litzinger (1997: 4–5), in an article entitled "A Model for Implementing 'Supplemental

Instruction' in Engineering", point to two theoretical underpinnings for SI that are equally valid for any form of tutoring. The first is educational theory on how students learn and their inability, very often, to move from concrete to abstract thinking and link new ideas to existing knowledge. The second is students' lack of metacognitive ability, which can be developed through tutorial sessions. While they do not mention it, a third is the opportunity to work with peers to articulate and refine understanding and clarify any uncertainties. (See Painter et al 2006 for further discussion of the underlying theories.)

2 SITUATIONAL ANALYSIS OF TUTORING IN 2009

2.1 A DEFINITION OF TUTORING

Tutoring is understood as a co-curricular activity facilitated by near-peer tutors and relates directly to teaching and learning. The aim is to ensure that students have a better understanding of the knowledge and skills in a module and to deepen student learning in a peer-supported environment, which will influence retention and success in that module and eventual graduation. The University's thinking about tutoring aligns with Tinto's (1975) original classifications of student support into academic integration (tutoring) and psychosocial integration (mentoring). Tinto (2008) also advocates SI, a specific form of tutoring that has a direct link to what goes on in one classroom, as well as basic skills learning communities that link skills across two or more courses (eg Accounting and English) that use pedagogies of engagement and connect people socially and academically. Kuh (2014) also identifies the use of learning communities and SI as high impact practices.

In the context of South African higher education, a tutor can be anyone who has successfully completed the module or programme, from a near-peer tutor (eg a second-year student tutoring a first-year student – the preferred mode at the University) to a postgraduate tutor (eg a master's student in Mathematics tutoring students in a first-year Mathematics module) or even someone outside the University (eg a Mathematics teacher). The assumption is that the students will participate in lectures in a large group, but will subsequently work with a tutor in a smaller group to make meaning of what was presented in the lecture and consolidate their knowledge. It is also assumed that a tutor would receive generic training on

how to facilitate learning in others from a specialist teaching unit and/or the lecturer, as well as specific, regular briefings on a particular module from the lecturer.

Situational analyses of tutoring across the faculties were conducted by means of surveys in 2009 and 2010. A template was designed for each faculty to complete. The "Guidelines for Operating a Tutor System as a Supplementary Support Programme for Students at Risk" (Department of Human Resources 2002) were also examined. The latter will be discussed first to give the context.

2.2 Policy

The Senate approved the document "Guidelines for Operating a Tutor System as a Supplementary Support Programme for Students at Risk" in 2002. The following are some of its key points:

> "The tutor system for the University of Pretoria has been instituted as an integrated subsystem of a larger academic and non-academic support system for all students at risk"
>
> "... provide help to students in a group context and on an individual basis"
>
> "Assistance provided through the tutor system is aimed at supporting the student-centred learning model of the University, which is oriented towards the development of problem-solving thinking. It is not primarily a 'crutch system' to support struggling students over the entire course of their studies. The overarching goal is to help students who are in support programmes to acquire skills quickly so that they can function independently and achieve success."

The tutors' duties originally spanned the areas of academic and psychosocial support, but this has narrowed to the former: since 2008, tutoring has been meant to improve retention and academic success. The guidelines stressed that the system was faculty-based with support and training provided by the Department for Education Innovation, and this continues to be the basis for the tutoring model. The 2002 guidelines stipulated that faculties should budget for tutors annually through the personnel budget process. Tutoring remains partly a University cost but, since the Teaching Development Grant (TDG) was first instituted in 2009 – the University Capacity Development Grant (UCDG) from 2018 – it has been partially funded through that resource.

The 2002 guidelines say students, not modules, should be targeted but tutoring became linked to high impact modules as part of the development of the integrated student support system at the University from about 2011/2012. A few might also be modules impeding progress or graduation at a more senior undergraduate level.

While not excluding postgraduate tutors, the 2002 guidelines focused on peer tutors so that there was not a great gap in age between tutor and tutee. There was a proposal at an early stage of the integration of student support and development services to use all tutor funding for postgraduate tutors, with a focus on the benefits to the postgraduate students in terms of their financial position and professional skills, but it was not the preferred model for successful tutoring for undergraduate students. One of the arguments of Eric Mazur (2010), a physics professor at Harvard University who initiated just-in-time peer instruction, was that he was so far removed from having learnt the concepts that he was often unable to explain them as well as a peer who had just learnt them. In an interview, he said: "This is what we call 'the curse of knowledge' or the 'expert blind spot'. The more expert you become, the less aware you are of conceptual difficulties, and the harder it is to teach beginners. This experience led me to peer instruction" (Duvillard 2019).

An additional consideration was that, given the payment scales specified by Human Resources for the remuneration of undergraduate and postgraduate students, the number of postgraduate students who could be appointed would not have served the number of students who needed access to tutoring. For all tutors appointed on TDG and later UCDG funding, the grant letters sent to the faculties specified near-peer tutors and not postgraduates, although this situation might still differ in some faculties.

The 2002 guidelines specifically excluded tutors from some activities such as lecturing, marking and acting as research assistants. However, it is clear from the situational analysis that these activities were included in some faculties or departments as part of a tutor's responsibilities. The guidelines focused on academic knowledge and skills, study skills and initially even transition for first-years and psychosocial integration. As is described later in this chapter, from 2008, the mentoring programme specifically took over the psychosocial integration.

There was an expectation that there would be coordinators (termed "subject guardians" in the

2002 guidelines) within faculties or departments who would work with the tutors. There was some evidence of this in the survey results. There was also an expectation that tutors would attend the classes of the subjects in which they would tutor. While there was some evidence of this in the responses to the survey, it was also clear that it was not always the case and that senior/postgraduate students in particular were expected to act more independently in preparing for tutorials.

It was evident from the analysis that the policy was sound, but it was failing in implementation for a variety of reasons, some of which have been mentioned. One outcome of the analysis and subsequent survey was a decision not to revise the policy at that stage but rather to improve its implementation. Clarity was needed on:

- stakeholders and roles;
- principles for making decisions on which modules required tutors;
- tutor selection (criteria), development and support, roles, titles (tutors v assistant lecturers v research assistants);
- flexible training and continuous guidance for tutors;
- the appointment of a subject coordinator to oversee the tutor process for a department;
- monitoring, including by coordinators who would monitor adherence to the minimum standards of the tutor policy; and
- funding.

Initially, the Department for Education Innovation merely aligned its tutor training work to the Human Resources guidelines, but gradually the teaching portfolio took over responsibility for the policy. In 2016, the Senate approved the "Policy on Teaching Support Staff", designed by Education Innovation and a stakeholder committee. It included tutoring and an appendix entitled "Guidelines for Implementing the UP Tutoring System" based on the old guidelines. The purpose of the policy document clearly narrows the function of the tutor and other teaching support staff to academic integration.

The purpose of the "Policy on Teaching Support Staff" is to ensure that teaching support interventions have a positive impact on teaching and learning excellence as well as student success at UP. Such interventions seek to promote student success and academic integration and to reduce attrition rates. The interventions focus on:

- subject-oriented academic support, as well as general academic development and guidance; and
- the early identification of and provision of assistance to students who need help academically or otherwise, or the referral of these students for specialised help.

The 2016 guidelines used the same model approved by the Senate Committee for Teaching and Learning in 2011 (see Fig 4.1 below).

The 2016 document also set out the principles behind the tutoring model:

- Student-centredness
- Academic excellence for all students
- Integration into the academic support and development strategy of the faculty
- A focus on high-impact and/or high-risk modules, in the first year primarily (not necessarily for all modules, given limited resources)
- Adequate resourcing
- Quality assurance: the coordination of planning, resourcing, implementation, monitoring, documenting data, evaluating and improving

The echoes of a supplemental instruction approach are clear in the ideas of student-centredness and encompassing all students.

2.2.1 MENTORING

Before proceeding with the situational analysis, a brief discussion of mentoring is given below because the guidelines stated that one of the roles of the tutor was to ensure the psychosocial integration of first-year students. However, that became the role of mentors after near-peer mentoring was implemented at the University in 2008, organised by the Department of Student Affairs. The main goal of mentoring was, and remains, to assist first-year students to transition successfully to university by providing psychosocial support. Without such support, students might drop out within the first semester. Having a peer mentor who has been through the experience within the last year or two can support students in persisting with their studies or seeking appropriate assistance for problems involving academics, advisors, tutors or administrators. Mentors help their mentees to become 'campus wise'.

Campbell and Campbell (2007: 136) define mentoring as "any situation in which a more-experienced member of an organization maintains a relationship with a less experienced, often new, member and provides information, support, and guidance for the purpose of enhancing the latter's chances of organizational success". It is clear that this definition would cover student peer mentoring as implemented at the University.

From the start, the peer mentoring scheme was open to all first-year students and was based on potential mentors volunteering their services. Mentors were then offered training and mentees were allocated. A small number of coordinators regularly monitored and supported the mentors, who submitted reports on a regular basis. At the end of the mentoring period, usually the first semester, full reports were submitted and an evaluation conducted by the Department for Education Innovation. The research showed that, although the mentorship programme focused on the psychosocial integration of students, some mentees had a misconception of what the mentor's role was (they could never differentiate between a mentor and tutor). Mentors would also assist their mentees with specific modules as care was taken to match the mentees with mentors in their own faculties or disciplines (Mphanda and Vilakazi 2016, Mphanda 2017 and 2018).

An interesting fact is that, after the first pilot in 2008, many students who had been mentored themselves volunteered to be trained as mentors, a trend that continues. The original idea was for there to be a ten-to-one ratio of mentees to mentors, but so many students volunteer each year that the ratio is as low as two to one.

Later, the basis for the initial selection of mentees became the Student Academic Readiness Survey (STARS) (implemented from 2010). First-year students completed the survey during orientation week, self-reporting on various categories such as finances, study skills, home support, and so on. The results were then combined with data from the student system such as APS, first-generation, rural v urban location, and so on. Individual students received their reports, but they were also shared with faculty managements and with the mentoring leader in Student Affairs. Students who identified themselves as at-risk were then proactively contacted to join the mentoring programme, especially if they were first-generation or came from a rural area. Other students were welcome to request a mentor, but the programme became known as the STARS mentorship programme.

The activity led by Student Affairs is extremely cost-effective as funding is only required for the training of mentors and the payment of four coordinators (students) who monitor the mentors. The funding has come from the TDG/UCDG for some years.

The mentoring leader in Student Affairs also assists with the training of house committees in residences.

The Faculty of Health Sciences has its own compulsory mentorship programme, assigning each first-year student to a third-year student. The monitoring and evaluation are well-structured within the faculty, led by academic staff. The faculty has extremely high retention and success rates.

2.3 Faculty survey

In line with the Systems Thinking approach outlined in Chapter 1 (Allen and Kilvington 2018; Betts 1992; Kim 2000; Sweeney 2001), the improvement and systemic application of tutoring at the University from 2009 included wide stakeholder consultation. Other aspects of a Systems Thinking approach included data gathering (using a survey) and analysis, development of a shared understanding and further consultation before a model was developed for use in all faculties. What emerged from the 2009 survey was a comprehensive picture of the diversity within and across faculties. Within a faculty, models often differed at the departmental or school levels as well. Clearly, there was no common faculty or institutional understanding of the concept of tutoring.

In the main, senior undergraduate or postgraduate students were employed as tutors in 2009. For undergraduates, tutors had to be at least one year more advanced than those whom they were tutoring – for example, a second-year student tutoring first-year students – but it did seem that more senior students were favoured. Given limited funding, it is more cost-effective to use near-peer tutors as more can be employed – Human Resources determines the annual hourly pay scales based on educational level – so potentially many faculties were not working efficiently with their funds, particularly if they employed postgraduate students to tutor undergraduates.

The appointment process was faculty-based, using the process outlined in the "Guidelines

for Operating a Tutor System as a Supplementary Support Programme for Students at Risk": advertise, interview, appoint. Appointment was based on the applicant's academic record, but some faculties also considered demographic data (representivity of race and gender). The applicant needed to have completed the modules in which s/he would be tutoring. Skills looked for during interviews were the ability to communicate, enthusiasm and commitment. Some students were invited to apply or were nominated by a lecturer because of certain identified strengths. This process was aligned to the faculty-based student academic development and excellence model that emerged from 2009.

The survey results claimed that facilitation was the approach, not repeating a lecture, although some tutors seemed to prepare presentations. Corroboration of facilitation rather than repetition comes from responses to two other topics: it was noted that tutors moved among the students as they solved problems or did homework, and consulting sessions focused on individual student need. Tutors also prepared questions and worksheets, led structured discussions, and asked students if they had problems they wished to raise. Practical work seemed to be favoured in terms of problem-solving and applying what was learnt from the lecture or the textbook. In Humanities, in particular, there was mention of a supplemental instruction model being followed, although not systematically.

Other duties included:

- administrative tasks;
- marking;
- assistance to lecturers;
- assistance to students who missed practical sessions (called "demmies" in Natural and Agricultural Sciences);
- some mentoring of students who did not attend tutorials; and
- some provision of information on undergraduate or honours programmes.

Little mention was made of other types of tutors. In Financial Sciences, lecturers and articled clerks might be used, and a life coach was available to students. Academic trainees were also used. In Law, some ad hoc tutoring was conducted by a departmental assistant. In practical classes, some demonstrators also tutored. The School of Medicine in Health Sciences employed a contextual tutor: a senior academic whose job it was to provide study support, falling into three categories:

1. Language, study and emotional support offered to MBChB and BChD students during the first year through the EOT 110 and 120 language modules
2. Study support offered to MBChB and BChD students during their second year by selected tutors
3. Individual support offered to students ranging from the first to the final year of the MBChB

The guidelines stipulated that training by the Department for Education Innovation was compulsory but not all faculties complied. Six of the nine faculties reported using Education Innovation consistently in conjunction with lecturers for the initial training, then the lecturer or coordinator worked with the tutors going forward. Education Innovation's training had an underlying set of principles in terms of learning facilitation and tutoring but it was customised per faculty.

There was variation between and within faculties in terms of the interaction between tutors and lecturers. The predominant mode seemed to be weekly meetings, but in some departments/schools/faculties, meetings were not as frequent and not formalised. The former seemed scheduled but ad hoc meetings also occurred. Lecturers and tutors often discussed the upcoming tutorial and what would be dealt with, and the lecturer might prepare notes or materials for the tutor to use. Problems arising in tutorials were also discussed. Lecturers might announce topics in class and then the tutor would discuss them with students, or the tutor would use the textbook or study guide to work through them. They might prepare a short test. Some accessed old examination papers. Most faculties expected tutors to attend the formal lectures in the module that they tutored.

The types of tutoring offered included:

- group tutorials / discussion classes (often scheduled on timetables);

- tutor assistance during practical sessions; and
- consultations.

The School of Medicine was an exception: it reported tutors meeting students during lunch hours or afternoons for an hour or so every day.

The focus of tutorials appeared to be content (tutorial assignment, feedback on assignment, problem). The structure was not clear. Perhaps the most common part of a structure mentioned was that many tutorials ended with an assessment that might or might not count towards a semester mark. The Faculty of Humanities responded: "The idea is that it should be structured around one or more activities, such as discussions, case studies, exercises". The Faculty of Natural and Agricultural Sciences gave the only real detail of a structure:

- Pre-practical quizzes on clickUP – Chemistry (graded)
- Pre-practical lectures – Microbiology
- Pre-practical exercises – Chemistry, Mathematics
- Post-practical test – Mathematics fortnightly; Geology at end of term; Physics
- Homework exercise book – Statistics (not graded but tutors are available for assistance)

Natural and Agricultural Sciences incorporated its hour-long tutorials in compulsory three-hour practical periods, ensuring that all students participated. In Mathematics, Physics, Statistics and Chemistry, problem-solving might be essential before students could master the work. This practising of problems could be facilitated via the tutorial session.

The tutor-to-student ratio in the guidelines was 1:15. Given the funding constraints, and the nature of the understanding of what a tutorial entailed, most faculties exceeded this norm. The highest ratio was 1:400, should all students attend, and figures in excess of 100 students were not uncommon. Besides finances, other factors noted were the availability of suitable tutors, space in the timetable, and the nature of the module.

The guidelines stipulated that faculties had to budget annually for tutors, which was interpreted variously in faculties as operational budget, faculty funds, dean's funds, or departmental funds. Some additional funding sources were mentioned such as the Extended Programme earmarked grant and a private donor for one of the Law modules. There was also mention of using vacant posts.

Perhaps the most common duration and frequency of tutorials was one hour, once a week, but it varied, increasing one or the other dimension. Some faculties ran no tutorials and just had consulting hours. The School of Medicine had daily times for meetings with tutors but perhaps these were more individual or small-group sessions rather than large, scheduled meetings – it was not clear.

Most of the tutorials were voluntary, although they were compulsory in some departments or programmes, particularly in the faculties of Natural and Agricultural Sciences and Engineering, Built Environment and IT. In the latter, lecturers often seemed to run the tutorials, finding it less bother than training students as tutors. Sometimes students who were performing badly were referred to tutors – drawbacks of this approach are stigmatisation and a late start to assistance. A phenomenon noted was that weaker students often did not make use of the service for fear of being stigmatised while good students voluntarily attended to improve their marks even more and earn distinctions. The latter was a common perception, but no scientific study was made in any faculty. Contrary to the other faculties, Engineering, Built Environment and IT noted that its best students could not be bothered with tutorials.

Challenges experienced across the faculties included:

- inadequate availability and size of physical facilities for tutorials to accommodate the large numbers;
- poor attendance at some tutor sessions;
- students not preparing for sessions;
- scarcity of good quality tutors with sufficient knowledge and skills who qualified academically to be appointed as tutors;
- not enough time available in the timetable;
- insufficient funding leading to high tutor-to-student ratios or too few tutors to make a difference;
- inadequate remuneration of tutors;
- students' attitudes – some thought they were too clever to bother with tutoring, while struggling students did not make use of the tutor out of fear of stigmatisation;
- insufficient contact between tutors and individual students to lessen the chance of students in large classes falling through the cracks; and
- inadequate monitoring and quality control.

Funding made available from the University as part of the annual operational budgeting process was unfortunately not earmarked for tutors, but they were included in what was known as an S999 budget that covered part-time lecturers, tutors, demonstrators, and so on. Funding from the Teaching Development Grant from 2009, therefore, made a difference in terms of the number who could be employed. The grant also required monitoring and evaluation of tutoring services and their outcomes. The large class issue was also addressed intensively through the Department for Education Innovation by education consultants working in the faculties, so interventions related to pedagogies as well as additional tutoring.

Faculties recommended that:

- funding for additional tutors be made available, allied to increased tutor rates;
- tutorials be timetabled, with a venue allocated;
- facilitation of individual or small-group mentoring be used rather than lecturing;
- more structured training be given per department;
- a new attitude to tutoring be encouraged so that departments saw tutors as part of the academic integration of students and as part of the academic solution (not add-ons);
- senior academics be involved as supervisors;
- workable guidelines on tutoring models be developed; and
- principles be developed for determining which modules needed tutors.

In terms of the last recommendation, the student success committee had started thinking in terms of high impact modules (HIMs), based on work in Natural and Agricultural Sciences, and they became the basis for decision-making on which modules should be allocated tutor funding. HIMs were usually at the first-year level, with large enrolments, serving students from a variety of programmes, with different APS. This combination of factors exacerbated the potential for failure in these modules.

Education consultants were tasked in 2010 with confirming the data in the 2009 survey information and adding any other information. One additional question related to whether HIMs had been identified, and most of the faculties indicated that they had been, through the agency of the Higher Education Research and Innovation Unit in Education Innovation. For the rest, the information was much the same. The output was to inform the Faculty Plans for 2011.

The situational analysis revealed some research into tutoring models in two departments in the Faculty of Humanities, and faculty-wide research was subsequently conducted in that faculty (in 2013 and 2016). The Deputy Dean: Teaching and Learning in the faculty championed the investigation, which the education consultant allocated to the faculty from Education Innovation expedited. Two other faculties also conducted research into their tutoring: Natural and Agricultural Sciences (Louw 2018) and Economic and Management Sciences.

3 INSTITUTIONAL WORKSHOP AND PROPOSAL FOR TUTORING MODEL

Subsequent to the 2009 survey, an institutional workshop was held (2010) to try to arrive at a shared understanding of tutoring, a common understanding being essential in Systems Thinking. The invitation made the purpose of the workshop clear: "The aim of the workshop is to confirm institutional roles linked to responsibilities in the tutoring process and to improve the implementation of tutoring, UP wide". It noted the following questions for debate at the event:

- What constitutes tutoring and who needs tutoring?
- What are each party's roles and responsibilities in this tutoring process?
- What resources do we need to deliver tutoring?
- How will we manage expectations in the process?

In line with a Systems Thinking approach, an inclusive range of stakeholders was invited to the workshop.

Students who were part of the student access and success committee participated in the workshop. However, a limitation of the investigation into tutoring at the institutional level was that it did not involve a wide range of students and was not about the students' experience of tutoring or their needs in relation to tutoring. The exception was the Faculty of Humanities' research into tutoring.

Based on the preliminary analyses and the workshop, two sets of documents were designed: faculty-level plans for 2011 and a model for tutoring within the institution, which was approved by the Senate Committee for Teaching and Learning (2011).

The draft proposal on "Tutor Models for Undergraduate Modules" (Ogude 2011) went through several iterations after consultation with relevant stakeholders. In retrospect, it was not ground-breaking. It recommended three models to be implemented from 2011, to be reviewed annually thereafter:

1. Supplemental Instruction (the University's variant)
2. Compulsory Tutoring for Students at Risk
3. Consultation

The Venn diagram clusters in the centre of Fig 4.1 below represent these three proposed models of tutoring within a systemic approach:

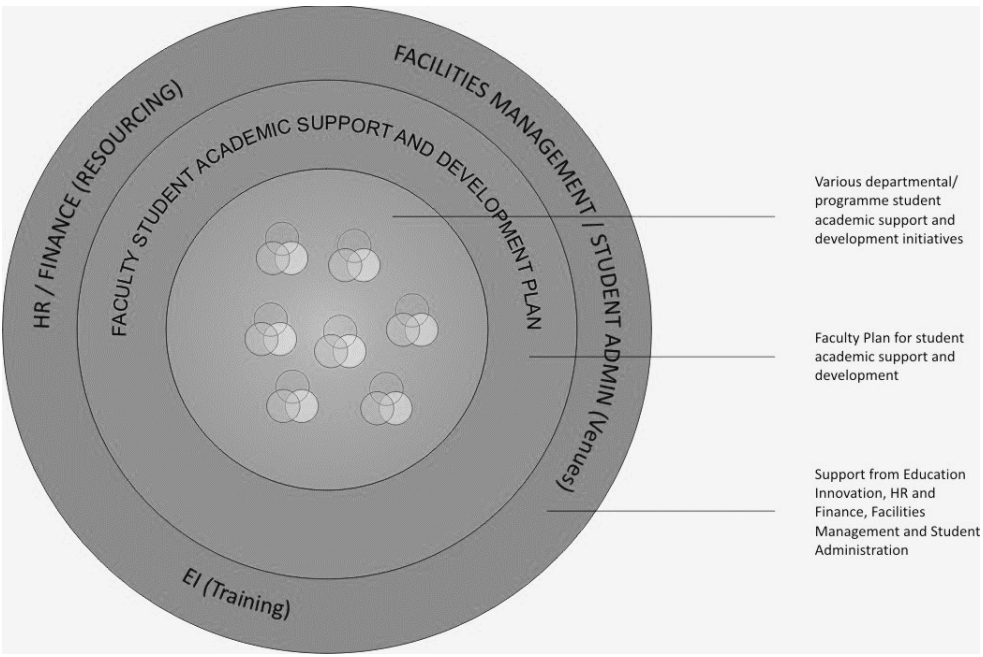


Figure 4.1: Tutoring model

Supplemental instruction was still a looser concept than the formal system developed by the University of Missouri. The proposal suggested it would be best to use this approach for high-demand first-year HIMs and that it be available to all students from the first week of study on a voluntary basis. The reason for restricting tutoring to certain modules was the need to

apply limited human and financial resources in the most efficient manner. In terms of the compulsory approach, it was restricted to at-risk students, not taking into consideration that two faculties had indicated that their tutorials were already compulsory for all students – in one case because they were integral to the three-hour practical sessions.

One of the most significant recommendations was the following: "It is recommended that tutorial activity be planned as integral to the curriculum and teaching and learning strategy, timetabled and lecturers stress the importance of tutorials in study guides and during lectures" (Ogude 2011). If tutoring's goal is academic integration, it must be planned as part of the curriculum. It also needs to be championed from the highest level in the faculty, so the document proposed that deans promote attendance.

4 PROGRESS SINCE 2011

4.1 Tutoring model

The model for tutoring that evolved between 2009 and 2019 at the University can be depicted as follows:

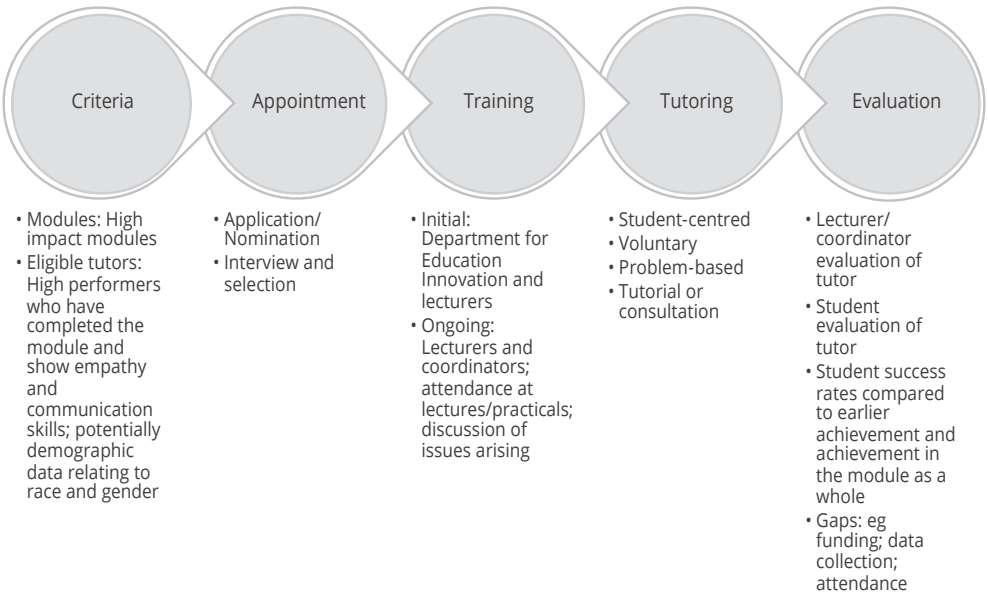


Figure 4.2: Processes involved in tutoring

The earliest attempts at integration included five faculties only, but that soon became all nine faculties with undergraduate programmes. After 2011, diversity still existed across the University, but at least there was a shared understanding of the types of tutoring preferred for HIMs. Risks included having a sufficient pool of students to tutor others, funding for tutors, and venues for tutoring linked to the academic timetable.

Annual data suggest a strong correlation between modules that received tutoring and an improvement in success rates. However, the student success system that developed was complex and integrated: students had access to mentors, advisors, tutors, and so on, and therefore it was difficult to link the annual improvement in student success rates to a single intervention.

Some faculties, like Humanities, appointed tutors to all first-year modules while others focused on HIMs, modules with pass rates below 70% or ones that were considered to have inherently difficult knowledge and skills. Natural and Agricultural Sciences had a large number of HIMs as they offered service modules at the first-year level for multiple programmes in six faculties. They therefore had more need for tutors for first-year modules than the faculties they were servicing: Health Sciences, Veterinary Science, Education, Engineering, Built Environment and IT, and Economic and Management Sciences. (This need has always been one basis for the allocation of funds for tutoring from the TDG/UCDG.)

Training of new tutors by Education Innovation in collaboration with faculties showed an increase from about 2013, but the number of tutors employed was greater than those trained, as only first-time tutors were trained:

Table 4.1: New tutors trained annually

Year	Number of tutors
2009	182
2010	221
2011	286
2012	204
2013	493
2014	418
2015	497
2016	412
2017	356
2018	356
2019	544

From 2009, the practice of using an education consultant from Education Innovation plus the academic staff member(s) in a team teaching model for tutor training continued. In this way, tutors were prepared for the role that they had to play in the teaching and learning activities in their departments. Students derived the benefit of both theoretical grounding and subject-related practical advice from role models. The University's customised SI model continued to underpin the approach to address problems associated with providing academic support to students and remaining student-centred. The Skills Development Fund administered by the Learning and Development Unit in the Department of Human Resources covered the costs of tutor training.

While student attendance of SI tutorials is voluntary, some first-year students in need of academic support were identified in a mid-year cluster analysis and directed to tutorials based on their first-semester performance. The students were required to join extra tutoring during the fourth quarter, especially when they were enrolled for HIMs.

Such was the regard in which tutoring was held by 2013 that donor-funded schemes such as Thuthuka, Dell Young Leaders and the MasterCard Foundation Scholars Program encouraged their undergraduate beneficiaries to make use of tutoring. They often provided additional tutoring as well, sometimes using companies external to the University. For the Thuthuka Tutor Training Programme in the Department of Accounting, students prepared a reflective portfolio after training and then received a certificate from Continuing Education at UP (now renamed Enterprises University of Pretoria).

After 2011, there were other faculty-specific initiatives that improved tutoring and its integration with the broader student support model. One science-based and one humanities-based faculty are discussed below. E-tutoring and learning communities as forms of tutoring are also outlined.

4.1.1 FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

The Faculty of Natural and Agricultural Sciences had many HIMs such as first-year Mathematics, Physics, Chemistry, and Biological Sciences, so it is no surprise that they had a particular focus on improving student success. A model for improving the quality of the first-year academic experience was presented to the Chair of the Faculty Teaching and Learning Committee. The

presentation addressed HIMs, students at risk, effective tutoring systems and the reduction in the dropout rate of first-year students. These were key aspects in the faculty improvement plan. The data collected from the Higher Education Research and Innovation Unit (HERI) of Education Innovation were used in conjunction with faculty experiences to feed into the discussions and the Faculty Plan.

After a workshop and other initiatives relating to concerns about student performance in certain modules in Natural and Agricultural Sciences in 2010, the faculty piloted more rigorous SI based on the University of Missouri model. The model was adopted based on its national and international success record. It is well-established internationally as good practice and continues to address challenges of student under-preparedness, high-risk modules and dropout rates. Nelson Mandela Metropolitan University, which is certified in SI, offered the training. Institutions can be certified to use the system by the International Centre for SI, situated at the University of Missouri–Kansas City. Mathematics and Chemistry first-year modules, which had more than one thousand students each, piloted the SI model in 2011. Despite the teething problems experienced with the implementation of the SI principles, regular participants showed improved performance in comparison to non-participants. The project thus continued in 2012. The education consultant allocated to the faculty by Education Innovation implemented and managed the SI and organised a workshop with SI leaders. However, it proved to be administratively onerous, without adding substantively to the tutoring model in use, and therefore did not continue beyond the pilot.

In 2015, Natural and Agricultural Sciences conducted an intensive survey into their tutorial services. The education consultant conducted a pilot study, using interviews, to inform the questions for the survey that she compiled for distribution to the entire faculty. The consultant analysed the data and compiled the report, and it was quality assured by the Deputy Dean: Teaching and Learning. The report (Louw and Potgieter 2015) served at the Senate Committee for Teaching and Learning, and the Vice-Principal: Academic indicated that he would like similar information to be gathered in other faculties. The data collected from this survey were reworked as conference papers (Louw 2016a and 2016b).

For many reasons, the tutor system became an essential part of the undergraduate offerings in Natural and Agricultural Sciences. For instance, tutorials were used to bridge the weak

foundation in mathematics and science delivered by secondary education in South Africa and to develop conceptual mastery of complex subject content through interpersonal interactions. Because of the large class sizes, especially at the first-year level, smaller tutorial groups or tutoring within practical's meant that tutors worked at the interface of teaching and learning. The tutor system was well organised: tutors were trained to facilitate learning rather than to provide answers; they acted as peer mentors and coaches; they administered assessments and ran practical training sessions in laboratories and other learning environments.

4.1.2 FACULTY OF HUMANITIES

The Faculty of Humanities undertook a formal study in 2013 on the effectiveness of their tutoring system. The aim of the research project was to determine whether there was a correlation between the frequency of tutorial attendance and students' marks. The education consultant facilitated the project. Many role-players, including heads of departments, relevant lecturers, tutor coordinators, tutors and students, contributed to this huge project in various ways, such as collecting tutorial attendance data, taking part in interviews and/or completing questionnaires. By collecting sets of tutorial attendance data and relating these to student academic point scores (combined results from final school examinations) and semester marks, statistical conclusions could be drawn to demonstrate that there was a definite link between tutorial attendance and student performance (in terms of semester marks). After the June examination, the analyses were repeated for five modules from five selected departments (called focus departments). Three out of the five modules indicated a positive correlation between tutorial attendance and final marks. To determine the factors contributing to the success of tutoring systems, in-depth interview and questionnaire data (quantitative and qualitative) were gathered from the five focus departments. The findings highlighted both the numerous contributions and value added by individual departmental tutoring systems, as well as the challenges experienced at various levels of the broader system. These findings addressed two of the main purposes of the research: to inform changes to Humanities' tutor plan aligned to the policy and to refine and improve the entire tutoring system in the faculty (Lotriet et al 2013). A further research project was undertaken in 2016 (Lotriet, Erasmus and Mostert 2016).

As a result of the tutor impact research conducted in 2013, Humanities reworked and refined

its tutor policy in 2014 for submission to the Senate. The education consultant coordinated and facilitated the process of reworking and refining the document. The results of the research allowed the faculty to allocate funding more effectively in 2014.

Humanities drafted a Faculty Tutor Plan for acceptance at the Faculty Board in 2016. The consultant coordinated the drafting of this plan on behalf of the Faculty Teaching and Learning Committee and all tutor coordinators in the faculty. The tutor system remained one of the most resource-intensive, yet most rewarding teaching and learning interventions in the faculty. Tutor support was available in all departments of the faculty and resources were distributed according to the departments' needs. Having established workable models aimed at addressing particular departmental/discipline/module challenges, the departmental tutor systems were built on experience and learning. The aim was to improve the pass rates, marks and throughput of mainly first-year students (but also of students at other year levels) or at-risk students. Activities included small-group tutorials, one-on-one or very small-group consultations with the tutor, online activities, marking, and additional activities such as in-class support.

The tutoring models employed across the Faculty of Humanities were as diverse as the faculty itself. Data collected from the first semester reports in 2016 evidenced that models had matured over time, and it was clear that (from the 2013 research project onwards) departments had reflected and experimented with new ideas and insights from the research. They aligned the aims of their tutoring systems with the methods implemented, such as:

- more interactive small-group tutorials;
- more engagement of students by means of assignments;
- inclusion of clickUP discussions and tests; and
- focusing on student challenges, such as reading and writing.

An example of good practice in the faculty was that of the Department of Sociology. In collaboration with the Writing Centre, it redesigned its tutorial system to enhance the reading capacity of first-year students in particular. Improvements and innovations were closely linked to departmental challenges.

The biggest challenge in Humanities was funding tutors as an essential part of the teaching model. Most departments reflected on and included in their plans examples of aspects that they could improve, independent of monetary resources. These included but were not limited to:

- closer monitoring of their systems (especially tutor evaluation by students and tutorial class visits);
- implementation of clickUP (which would have a huge influence on tutor training – especially the general Education Innovation training at the beginning of each year);
- experimenting with ways of getting more students to attend tutorials; and
- working more closely with the Writing Centre.

The Faculty of Law strengthened its tutorial system in 2014. Separate workshops were conducted with lecturers in the departments of Mercantile Law and Private Law on the development of a tutor model. The purpose was to train all tutors in and evaluate the effectiveness of tutoring through class visits.

4.1.3 E-TUTORING

Accounting Science was the first academic unit to identify the need for e-tutoring, and Education Innovation worked with them in 2010 to ensure that the system could start in 2011. This kind of small-scale, voluntary adoption of an innovation provides an opportunity to pilot and later improve and scale interventions. A few years later, to support the rollout of the hybrid teaching and learning model, the Faculty of Economic and Management Sciences embarked on a large-scale e-tutoring approach. The Department of Accounting, as the forerunner, developed a workshop for tutors on "Presenting a virtual tutorial". A Tutor Practices Survey was administered to all relevant departments in the faculty with the aim of determining the nature and extent of a hybrid approach regarding tutoring. Various lecturers presented at teaching and learning brown bag lunches on topics such as "Using Collaborate to facilitate online tutoring".

In 2014, the Faculty of Natural and Agricultural Sciences began to experiment with e-tutoring in collaboration with the E-learning Unit in Education Innovation. Tutors were quick to pick up skills. Blackboard Collaborate was used by e-tutors in Natural and Agricultural Sciences in 2016 (Louw 2016 a and b).

The Faculty of Humanities started to use e-tutoring as a substitute for, or for the enrichment of, the tutoring models in departments in 2015. The tutor training traditionally offered by the consultant of the faculty was changed to include online tutor training after a needs analysis in the faculty. Instructional designers from Education Innovation provided training to academic staff and tutors in the departments of English and Ancient Culture Studies on how to use the clickUP discussion tool to support students. The following year, the Faculty of Humanities hosted a number of Teaching and Learning Discussion Fora. Tutor coordinators had two sessions (January and October) in order to discuss various aspects of the tutor system, such as effective management and e-tutoring. The session in October was a first in the faculty where tutor coordinators, heads of departments and other faculty members could discuss student support interventions. The tutor coordinator for the Department of Philosophy presented ideas for efficient tutoring system management, while a group of students from Psychology gave a group presentation on their department's newly introduced learning community system (see a discussion of learning communities below).

In response to the University's hybrid learning project, e-tutoring gained momentum after 2016 (see table 4.2 below), and a different model of tutor training (with a greater focus on online tutoring) was planned.

Table 4.2: E-tutors trained

	2016	2017	2018	2019
Number of e-tutors trained	54	155	106	100

Two instructional designers from Education Innovation developed an "E-tutoring 2016" clickUP module for the e-tutor training, focusing on theory and principles of tutoring online, followed by practical experience in the discussion forum. After that, the tutors attended a Blackboard Collaborate session to highlight the possibilities the environment afforded them. Tutors were very positive about the use of Collaborate. One instructional designer developed a Turnitin and Assessment tool-grading workshop and presented it to a small group of tutors using their own devices.

The instructional designers also developed and distributed surveys to the e-tutors and e-tutor coordinators to gauge their experience of e-tutoring. Feedback on the e-tutoring training was positive. It was evident that the tutors could see the benefits and possibilities and that they knew which tools they could use in the subject areas they tutored. They also made valuable

recommendations that were used to improve the training. The training was extended to four hours to allow enough time for tutors to put into practice what they were learning.

The results of this initiative were presented at the national UP2U community of practice meeting at the University of the Witwatersrand (Pretorius and Kriel 2017). The e-education team reported on findings from two surveys sent to e-tutors and e-tutor coordinators as well as an innovative way the accountancy tutors used Blackboard Collaborate. Other papers also arose from the development of e-tutoring (eg Nagel 2017).

4.1.4 LEARNING COMMUNITIES

Kuh (2014) labels learning communities as a high-impact practice. The idea is that students who have two or more modules in common work together in small groups to improve mutual understanding of their modules. The communities are meant to serve as an intervention to strengthen not only academic performance but also social cohesion.

Once again, the University adapted the concept to its context and requirements. For example, in 2017, Humanities piloted learning communities led by tutors in the Department of Psychology, since it had the largest enrolment of the faculty's first-year students. According to academic records, 1 239 of the 1 417 SLK 120 students enrolled in various learning communities. The main aim was to provide students with an online platform to communicate, network and engage with academic material and each other. Given that the primary goal was to implement an online system, clickUP was used to create six different learning communities. Five groups included students from the Hatfield and Prinshof campuses and one was for students at Groenkloof Campus. Tutors employed in the Department of Psychology facilitated these groups. A tutor coordinator, the module coordinator and a lecturer for the first-year module SLK 120 supervised all communication regarding these communities.

This pilot afforded the lecturer the opportunity to create activities conducive to fostering academic performance, assisting students with study material and helping them prepare for semester tests and examinations. The communities allowed for continuous learning and engagement with academic material beyond the classroom. They also promoted social cohesion and built relationships among the students.

Lecturers or facilitators posted activities at the beginning of each week, giving students a few

days to complete the assignments (formative, not for marks). They released the memorandum for the activity at the end of the week, allowing students to assess their progress regarding the content covered. Facilitators also allowed for brief discussions on the content if needed. Activities included mini-tests for each chapter, which consisted of multiple-choice questions, interactive questions, and both long- and short-answer questions. Students also received news items related to psychology and neuroscience, which helped them to engage with research and current situations about psychological development. Helpful video material with fact sheets assisted students to study for upcoming tests. Practice tests and memorandums were also available to aid students in preparing for their semester tests.

Students communicated feedback to learning community facilitators, representatives and SLK 120 student representatives. Most students reported the learning communities to be very helpful and noted that the extra activities aided them in their preparation for semester tests. If they missed a lecture, the learning communities helped them catch up and allowed for self-assessment. Students also indicated that the content was interesting and gave a different perspective on the field of psychology.

The faculties of Natural and Agricultural Sciences and Economic and Management Sciences also conducted learning community pilots in 2017, using tutors to facilitate the groups. All pilots reported greater success rates.

Such activities are ongoing but are not perceived or funded as separate from mainstream tutoring activities.

4.2 Further research into tutoring

A project was launched in 2015 to investigate the impact of tutoring on tutors (Dresselhaus and Lemmens 2015). Many tutors reported that their own marks improved, as did skills such as time management, managing interpersonal relationships and assertiveness. The research found that tutoring also created a love of teaching, improved their presentation skills and reinforced their course choices. The report concludes: "Generally the tutoring system is characterised by a strong community of practice in a well-functioning tutor system: that is tutors and tutor supervisors".

A second research project focused on piloting a feedback instrument for tutorials (Sehlapelo 2015). The SRC had requested of the Senate Committee for Teaching and Learning that students who attended tutorials be given the opportunity to give feedback on tutors. The feedback given on the 11 items was that the students agreed or absolutely agreed with the statements made about the tutors in terms of knowledge, preparation, teaching skills, respectfulness, approachability, provision of opportunities for engagement, assistance in preparing for upcoming work, and so on. The instrument was scaled across the University.

5 CONCLUSION

The projected outcome of tutoring is better understanding of the subject being studied, as evidenced by higher retention and success rates. The annual results for modules that offer tutoring seem to support the achievement of this outcome as success rates mostly improve. However, attendance is not taken in most tutorials so the institution cannot determine if an individual student improves his or her marks through attending tutorials.

Surveys are considered an indirect measure of outcomes, especially when they are voluntary and not scientifically randomised. However, feedback from beneficiaries is considered evidence of impact. In 2019, therefore, a pilot survey of 26 questions was launched with first-year students. It was administered during a compulsory module for first-year students (Academic Information Management), and therefore the response rate was excellent (4 108 students) (University of Pretoria 2019). Of those, 27.78% indicated that they did not use the services of a tutor regularly. For most of the questions, more than 90% of students agreed that the tutors were approachable, available and useful. The same proportion agreed that tutorials had:

- increased their knowledge and skills;
- allowed them to ask questions they did not have the opportunity to ask in class and to interact more than they could in class;
- helped them with how to approach questions;
- presented different examples from those covered in class;
- helped them solve academic problems; and
- positively change their knowledge, skills, and attitudes.

The same majority indicated that they had implemented what they had learnt from their tutor(s), were more confident of their chances of success and would recommend tutorials to a friend. The one challenge seemed to be fitting tutorials into already tight lecturing schedules (17.65%).

The survey results correlate with lecturers' perception of the efficacy of tutoring and the increase in the success rates of most modules that use tutors. The University is investigating a way of capturing the data of individual students to ascertain whether their marks improve if they attend tutorials.

References

Allen, W and M Kilvington. 2018. "An Introduction to Systems Thinking and Tools for Systems Thinking." Presentation based on material for a Greater Wellington Regional Council introductory systems thinking workshop, Wellington, New Zealand. Accessed 24 April 2019, http://learningforsustainability.net/post/intro-systems-thinking/.

Betts, F. 1992. "How Systems Thinking Applies to Education." *Educational Leadership*, 50(3): 38–41. Accessed 24 April 2019, http://www.ascd.org/publications/educational-leadership/nov92/vol50/num03/How-Systems-Thinking-Applies-to-Education.aspx.

Campbell, TA and DE Campbell. 2007. "Outcomes of Mentoring At-Risk College Students: Gender and Ethnic Matching Effects." *Mentoring and Tutoring*, 15(2): 135–148.

Department for Education Innovation. 2008. Annual Report. University of Pretoria. Unpublished.

Department of Human Resources. 2002. "Guidelines for Operating a Tutor System as a Supplementary Support Programme for Students at Risk." University of Pretoria.

Dresselhaus, FHW and J Lemmens. 2015. "The Academic Performance of Student-Tutors at the University of Pretoria." Department for Education Innovation. Unpublished report.

Duvillard, L. 2019. "Eric Mazur, a Trailblazer in Teaching." An EPFL interview. Accessed 7 June 2021, https://actu.epfl.ch/news/eric-mazur-a-trailblazer-in-teaching/.

Kim, DH. 2000. *Systems Thinking Tools: A User's Reference Guide*. Toolbox Reprint Series. Pegasus Communications. ISBN: 1-883823-02-1.

Kuh, GD. 2014. "Identifying and Ensuring HIPs Quality." Siyaphumelela Workshop II. University of the Free State.

Lemmens, J, GI du Plessis, LCJ Rai, M de Klerk, Y Mitchell, VJ Julie, R Barker and JH van Niekerk. 2010. "Exit Interviews at the University of Pretoria – Full Report." Department for Education Innovation: Higher Education Research and Innovation Unit. University of Pretoria. Unpublished report.

Lotriet, M, HC Erasmus, S Mostert and GS de Jager. 2013. "Faculty of Humanities Tutor System Research." University of Pretoria. Unpublished report.

Lotriet, M, HC Erasmus, and SN Mostert. 2016. "Tutoring Targets – the Challenge of Evaluating Success." *Journal for New Generation Sciences*, 14(1): 61–76. (ISSN 1684-4998).

Louw, I. 2016a. "Tutor Support to Turn Tutorials into Learning Spaces." SANRC FYE Conference, Johannesburg, 26 May.

Louw, I. 2016b. "Tutorials: Dreaded Necessity or Learning Opportunity?" ICED HELTASA, University of Cape Town, 23–25 November.

Louw, I. 2018. "Reclaiming Tutorials as Learning Spaces in the Sciences." *Mentoring and Tutoring: Partnership in Learning*. https://www.tandfonline.com/eprint/pCAHeya9WdhuJEk5sSBm/full.

Louw, I and M Potgieter. 2015. "Report on the Tutor Survey Conducted in the Faculty of Natural and Agricultural Sciences. Education Innovation and Faculty of Natural and Agricultural Sciences." University of Pretoria. Unpublished report.

Marra, RM and TA Litzinger. 1997. "A Model for Implementing 'Supplemental Instruction' in Engineering." Conference: Frontiers in Education Conference, 1997. *27th Annual Conference. Teaching and Learning in an Era of Change. Proceedings.* DOI: 10.1109/FIE.1997.644821. Print ISBN: 0-7803-4086-8. Print ISSN: 0190-5848.

Mazur, E. 2010. "Confessions of a Converted Lecturer." Accessed 7 June 2021, https://www.youtube.com/watch?v=hbBz9J-xVxE.

Mphanda, E. 2017. "Evaluation of the STARS Mentorship Programme: 2017 Cohort." University of Pretoria. Unpublished report.

Mphanda, E. 2018. "Evaluation of the STARS Mentorship Programme: 2018." University of Pretoria. Unpublished report.

Mphanda, E and P Vilakazi. 2016. "Evaluation of STARS Mentorship Programme: 2015-Report." University of Pretoria. Unpublished report.

Nagel, L. 2017. "E-tutoring at UP – Definitions, Rationale, Processes, and some Tough Decisions." Paper presented at Teaching and Learning Faculty series, University of Pretoria. Unpublished.

Ogude, NAO. 2011. "Tutor Models for Undergraduate Modules." Proposal to the Senate Committee for Teaching and Learning. University of Pretoria. Unpublished.

Painter, SL, R Bailey, M Gilbert and J Prior. 2006. "New Directions for Supplemental Instruction." *New Directions for Teaching and Learning*, 106: 73–84.

Pretorius, G and D Kriel. 2017. "Next Level E-tutoring." Paper presented at UP2U meeting, Johannesburg, 23 March. Unpublished.

Sehlapelo, HP. 2015. "Report on the Pilot of the Tutor Student Feedback Survey Conducted in the STK 120 Module." Department for Education Innovation. University of Pretoria. Unpublished report.

Sweeney, LB. 2001. "Systems Thinking: A Means to Understanding Our Complex World." Pegasus Communications. Accessed 10 May 2019, www.pegasuscom.com.

Tinto, V. 1975. "Dropout from Higher Education: A Theoretical Synthesis of Recent Research." *Review of Educational Research*, 45(1): 89–125.

Tinto, V. 2008. "Access Without Support Is Not Opportunity." Keynote given at annual conference of the National Institute for Staff and Organizational Development, of the University of Texas at Austin. Accessed 20 August 2019, https://www.insidehighered.com/views/2008/06/09/access-without-support-not-opportunity.

University of Missouri–Kansas City. nd. "Supplemental Instruction." Accessed 12 May 2021, https://info.umkc.edu/si/.

University of Pretoria. 2019. "Beneficiaries of Tutoring," Unpublished survey results.

Chapter 5

Towards Collaboration for Student Support: A Case Study of Advising

A Naidoo

Abstract

Faculty Student Advisors were introduced at the University of Pretoria in 2012/13. Advising had formerly been part of the work of counsellors employed in the Department of Student Affairs although their main function was psychological counselling and they were registered with the Health Professions Council of South Africa. Having to address goal setting, study skills, time management and the like took away from the time they had to devote to their professional health and wellbeing activities. However, for holistic academic development, many students did need access to advice on their studies beyond what could be managed in the lecture hall. Advisors could also listen to the initial introduction and refer students to counsellors if necessary or to tutors or even back to their lecturers. Advisors became central to the contact orientation programme for first-year students and later to the monitoring of the extended online modules in different faculties. Initially, participating faculties received access to a single advisor but their value was soon perceived and faculty demand for additional advisors grew.

1 INTRODUCTION AND BACKGROUND

Over the last twenty years, South Africans have had greater access to higher education than was ever possible during the apartheid era. However, having access does not imply success. Kuh (2008) shows that, although institutions in the USA have more minority students entering, fewer complete their degrees when compared to non-minorities. In this post-apartheid period, all South African institutions of higher education have opened access to all races. Universities are taking in students, many of whom may not be prepared for the expectations of post-secondary study, and, arguably, institutions themselves are also unprepared for the type of students they are admitting. These institutions have a moral obligation to address

both student and institutional under-preparedness in order for students to succeed. Fischer and Scott's (2011) study draws the conclusion that higher education in South Africa can be referred to as a low participation, high attrition system.

Student success at the tertiary level may be defined as academic achievement; engagement in educationally purposeful activities; satisfaction; acquisition of desired knowledge, skills and competencies; persistence; attainment of educational objectives; and post-university performance (Kuh et al 2007). The University's own definition is outlined clearly in Chapter 1. Reducing attrition at South African universities focuses mainly on academic achievement, but Chapter 7 illustrates that students themselves focus on the total experience more, and Chapter 9 demonstrates that academic success is a necessary but not sufficient condition for student wellbeing. While success can be generally linked to engaging in educationally purposeful activities and the acquisition of desired knowledge, if a student does not have the skills, attitudes and persistence to succeed, it makes no sense to highlight satisfaction or post-university performance.

In 2010, at UP, data on student performance were available, but what was missing was a follow-up once it was known which students were at risk of failing. All universities have masses of data, but most of it remains dark (not used), fragmented and not actioned. As a first step towards attempting to improve student success, the position of Faculty Student Advisor (FSA) was created in the Faculty of Education in 2011, and then in four other faculties in 2012. Subsequently, 2013 saw all nine faculties having their own advisors with clearly defined roles. The name arose in 2012 to distinguish them from the counsellors in the Department for Student Affairs who were employed to deal with health-related issues as opposed to study problems. Chapter 7 discusses the matter in more detail. In 2019, there were 21 FSAs across ten faculties – Mamelodi campus had been added as a faculty with its own Dean since the start of the project.

Kuh (2015) posed the following question at a conference: "What is the best predictor of satisfaction with the campus climate for learning?". His answer was "Academic Advising". Tinto (2013–14, 5) also discusses "intrusive advising" as a strategy.

2 THE FIRST INSTITUTIONAL ATTEMPT

Using Tinto and Pusser's (2006) conditions for educational change occurring first with institutional commitment, the University developed a support system. At *institutional level*, the position of FSA was created by the Vice-Principal: Teaching and Learning. Inclusive and intentional institutional leadership thus led to greater institutional preparedness by putting in place people who could assist students on academic matters that were not discipline related (for which they had lecturers and tutors).

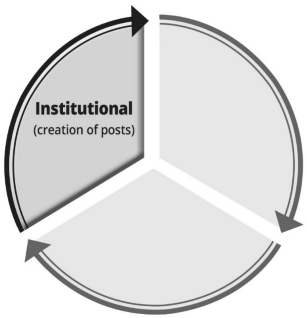


Figure 5.1: Institutional level commitment to resourcing advising

A faculty-based support model was the basis for the strategy from the start. The advisor works within a faculty, reporting either to the deputy dean in faculties where such positions exist, or to the Chair of the Teaching and Learning Committee. The rationale was that those at the highest level of teaching and learning in a faculty would successfully drive advising. In some faculties, this leadership has led to the advisor sitting on the faculty's Teaching and Learning Committee. In these cases, the advisor has grown to understand the strategic thinking around student success, and all departments in the faculty know their advisor(s). In some instances, the need for more than one advisor was expressed, and one or more additional advisors provided. Thus, the condition of support (Tinto and Pusser 2006) at the faculty level of commitment began in two-thirds of the faculties, while the other one-third lagged behind but are now on board. In order to maintain the institutional link, all advisors meet monthly as a Community of Practice under the leadership of the Deputy Director: Academic Development in the University's Department for Education Innovation.

Figure 5.2: Faculty-based student support

By combining expectation and involvement (Tinto and Pusser 2006), these conditions require the buy-in and accompanying commitment of students. This case study focuses on the FSAs' influence on student success.

3 THE ROLE OF FACULTY STUDENT ADVISORS

Funds to appoint advisors initially came from the Teaching Development Grant from the Department of Higher Education and Training from 2012 to 2017 and the University Capacity Development Grant (UCDG) since 2018. As a result, these posts are funded on an annual contract basis. There was a high turnover in the positions during 2013 and 2014 when advisors went in search of more secure positions. In addition, advisors chose to relocate to other faculties when they were not happy with where they were. A consequence was a lack of continuity within faculties and more time required to train or re-train incumbents in the new environment. There appeared to be some kind of stability at the end of 2015 with advisors expecting that their positions would become permanent in the future. In 2019, the University created nine permanent posts, which were internally funded. The additional posts are still funded by the UCDG.

Advising has been a common practice in the United States (US) for many years. It must be pointed out, however, that the understanding of advising in the US differs from the system that developed at UP. It was the first university in South Africa to introduce this role, and the understanding of the requirements of the position evolved as the system was tested and grew. The job description includes, among others, the following five functions:

- Contacting and monitoring the students as soon as they are identified as being potentially at risk of not succeeding
- Keeping a record of each session, together with feedback from the various channels of support to which the students are referred
- Working in close collaboration with the Department of Student Affairs, where both the mentoring programme for first-year students and the student counsellors reside (students might be referred to the counsellors and the FSA would follow up)
- Inviting students who lack "skills", to group sessions for study, test-taking and time-management skills (individual sessions are also conducted with any student requesting such skills)
- Tracking students' performance and directing them to the academic assistance available

The role of advisors has been to enable first-year students to transition to the different pace of learning at university. Lowe and Cook (2003) note that when students fail to transition to the new environment, they tend either to underachieve or drop out. They quote Johnstone's (1994) work showing that a lack of interest in academic work is related to disengagement from university life. In addition, not knowing what to expect at university can be daunting for students. Upcraft, Gardiner and Barefoot (2004) believe that many students enter university with little understanding of, or preparation for, change and cannot cope with the academic, social and personal adjustments as a result. As lecturers seldom address these needs in their classrooms, the role of the advisor has become crucial to promoting student success.

Originally, with the creation of this new support post, it was expected that advisors would be able to identify students who needed assistance and then provide such assistance. However, it is not feasible for an advisor to identify individual students needing assistance, even in the first-year student group, as approximately 9 000 new students register annually. According to the student surveys conducted by Lemmens (Student Academic Readiness Survey in 2011, 2012 and 2013) at the University of Pretoria, many students perceived that they lacked the skills to cope with the requirements of university studies. The results of the survey are combined with other data such as admission point score, whether the student is from an urban or rural background, whether he or she is first in family to attend university and the derived variable is used to refer students proactively to advisors and mentors. As a result, advisors focus on providing workshops on study skills, time management and goal setting, as

well as setting up appointment schedules and proactively approaching students identified as "at risk" by the early warning survey during registration of first-years or the cluster analysis in mid-year after the first-semester examination results of all students have been analysed. This level of student involvement has been a greater challenge than was expected. However, because research (Astin 1993; Braxton, Hirschy, and McClendon 2004; Kuh 2003; Kuh et al 2007; Pascarella and Terenzini 2005) shows that student engagement affects grades and persistence, the University persevered in finding innovative solutions to promote students' awareness of and engagement with advisors.

Participation rates in three faculties in 2015 showed that only 17% of students responded to the invitation to interact. When invited to attend directed workshops, many students signed up, but only about 30% of them actually attended. In those faculties where the advisors were invited into the classroom to showcase their services, students showed greater interest. Students remarked that it was easier to approach someone who cared enough to go to their classrooms. The results of a study undertaken at the University show that, of the high-risk group contacted by the advisors, students who attend more sessions with the advisor are more likely to be successful in their first-semester academic outcome (Naidoo and Lemmens 2015). These results were a further spur to make the services of the advisors generally more salient to students.

Although their job description speaks of there being a close working relationship between lecturers and the advisors, so that the academics can help to steer students towards advice when they appear unable to cope, there is often no link between lecturers' and students' expectations of each other. Tinto (2006–2007, 3) remarks that the real work of retaining students "falls on the shoulders of student affairs professionals who generally seek to provide students with the assistance needed in order for them to persist".

A decision was made to have Faculty Student Advisors introduce themselves to the students during the orientation period at the start of the academic year. In 2015/16, the advisors were introduced as one of the many services provided by the University. The value of the advisors' services became diluted, and later in the year some students even claimed that they did not know who their faculty advisor was – the registration and orientation period often causes information overload. The advisors were then given a more prominent position during

orientation. They also contributed to the development of the extended online orientation programme for first-years, the pilot being a generic module (UPO) (explained in more detail in 4.1 below), and the succeeding programmes adapted to make one UPO per faculty. The UPO modules run for eight weeks, monitored by the advisors, so they are continually in contact with the students, but UPO remains open on clickUP, the learning management system, for the whole year.

The above description demonstrates once again that introducing student success innovations takes time. A project also evolves from what might have been the original concept, into something made more effective by experience.

There was concern about the lack of engagement of many students. Using the premise that engaged students are more likely to succeed, the University turned to theory and successful practice to determine optimal ways of getting students engaged. This was the start of the minimum time to completion campaign at the University – the Finish Line is Yours (FLY@UP) described in Chapter 7.

4 INITIATIVES TO PROMOTE STUDENT SUCCESS

Kuh (2008) advises that, to promote student success, students need to participate in at least two of the following high impact practices:

First-year seminars and experiences

1. Common intellectual experiences
2. Learning communities
3. Writing intensive courses
4. Collaborative assignments and projects
5. Undergraduate research
6. Diversity/global learning
7. Service Learning

8. Internships and field placements

9. Capstone courses and projects

Kuh's classification of high impact practices stemmed from the data collected during the National Survey of Student Engagement (NSSE) in the United States. Not all are equally applicable to South Africa, although the survey has been extensively adapted for the local context by the University of the Free State with Kuh's assistance and is known as the South African Survey of Student Engagement (SASSE).

As the University's focus on practices to improve student success has gained impetus since 2009, using some of these high impact practices made sense. Glennie, in her interview with MacGregor (2016), places these practices in a South African context by referring to some of them as "promising practices". In keeping with this concept, this case study elaborates on the role of the advisor in promoting the promising practice of the first-year seminar and experiences. Thus far, a synopsis of the developments at the University to enable the implementation of the first high impact practice has been provided. What follows is a description of how two projects have been integrated as a collaborative effort towards increasing student success. By promoting the two projects, a strong student commitment has been encouraged.

4.1 The first-year seminar and experiences at UP

A fully online module with the code UPO101, which aimed to prepare all first-year students for study at UP, was developed in 2014 as an extension of first-year orientation at registration. All first-year students were automatically registered for this module, which could be completed independently by the end of the first semester. Students had access to the material in this module throughout the year. This was the University's version of a first-year seminar. UPO101 included presentations by fellow students in the faculty, as well as sections on reading and writing skills, how to use the learning management system (also a central focus in the compulsory first-year module on Academic Information Management – AIM), what is available at the health services, student counselling, the library (also introduced in AIM), and other student services. Advisors were tasked with promoting the completion of this online module but were not directly involved in its development at that early stage.

Uptake by students was not good in the first year as there was no specific staff member with whom to communicate, as there is with all other modules in the students' curriculum. Only when students obtained a "progress unsatisfactory" response from administration at the end of the first semester did many attempt to complete the online module. To improve this situation, in 2015 separate faculty-specific modules with unique codes (UPO101 for Humanities; UPO102 for Science, etc) were created. All queries regarding these modules were referred to advisors; hence, an additional task for advisors was to coordinate the first-year seminar. They monitored the involvement of students and reminded them of deadlines. Once again, there was a delay in completing the module but, at the end of that year, there was a completion rate of 77%.

In reviewing the module for 2017, there was a more deliberate effort to elicit advisor participation. They contributed to specific sections while working with a dedicated module coordinator. This module was also used as a vehicle to drive the FLY@UP campaign that targeted student responsibility for their own success.

From humble beginnings in 2011/ 2012, by 2019 advisors were so well-entrenched that they were central to every student success activity on multiple campuses. These activities included orientation of first-year students, supervision of the UPO modules, FLY@UP activities, giving advice on changing programmes or dropping courses, provision of weekly first-year academic support sessions during the first semester (of which students had to attend at least one), presentation of generic workshops; and individual consultations.

The UPO modules were adapted after monitoring and reflection to an eight-week, online extended orientation programme. Advisors were major contributors to the content and outcomes of the modules. Topics covered weekly included details of the advisors and other resources, time management and goal setting, academic reading and writing, note taking, study methods, and examination preparation. The UPO modules were monitored constantly by the advisors and students were motivated to engage with and complete the module through weekly nudges. A nudge is an electronic message of encouragement and advice. Assessments in UPO, which encourage student engagement, were concluded within a few weeks of delivering the eight-week content. The resources and tools contained in UPO remained available to students throughout the academic year. This resource provided

the first-year students with access to academic support and consultation with advisors on academic challenges throughout the year.

5 PLACING RESPONSIBILITY ON THE STUDENT

As discussed in Chapter 7, the FLY@UP campaign aims to show students the result of taking the responsibility to reach their goal of completing their studies in the minimum time allotted to the qualification. This initiative was launched towards the end of 2015, but only in 2016 was a post created for someone to drive the campaign. In 2016, FLY@UP gathered momentum when institutional advertising of the campaign appeared across all campuses. The three main messages – "choose your modules carefully", "manage your time and work consistently" and "aim for a good semester mark" – are highlighted in Chapter 7.

Activities relating to graduating on time were held in student recreational areas, and the advisors were included so that new students could identify their own advisor. Although many of the activities planned for the second half of the second semester in 2016 were cancelled, owing to student protests, it became evident that, with no classes being held, students had to take more responsibility for their studies. Fortunately, academics continued to engage with students online and support them in various ways, with off-campus meetings and some on-campus activities such as practical sessions in laboratories. The library continued to provide exceptional service, so the students were not completely alone.

The activities around FLY@UP for 2017 were showcased as an introductory activity during the orientation period. Advisors introduced themselves to their respective faculty cohorts and explained why it was important for them to begin studies by focusing on their endpoint or goal. The link between FLY@UP and UPO was explained, together with other services that advisors provide. Students were also informed that the UPO for 2017 was ten weeks long and had ten themes. The assumption was that all ten activities could be completed online by the end of April. Advisors reported a greater number of students visiting them, but there was still a sense of apathy regarding attendance at their workshops.

In addition, the manager of the FLY@UP campaign trained the advisors to monitor student progress on UPO online and to communicate with all who had not made progress in the module. This push on the part of advisors resulted in more students being motivated to

complete the course. Barkley (2010) speaks of students' motivation being activated or suppressed in specific situations. The FLY@UP campaign is a means to activate the students' motivation, which is why the events are termed "activations".

Figure 5.3: Integrated institutional, departmental and student system to promote success

The regular and, at times, weekly communication by the advisors resulted in a completion rate of 72% by the beginning of May 2017, while at the end of May 2016 it had been 67.8%. In 2019, UPO produced a 94% completion rate, with 9 378 students enrolled for the module.

It is believed that getting the students engaged through an online module like UPO as part of their first-year experience will encourage greater student engagement. The advisors were actively involved, using UPO to advertise their workshops and motivate students in stressful times such as during tests and examinations. Overall, it was determined that, at least in the UPO module, monitoring and encouragement improved the level of student engagement. It was hoped that such engagement would filter into the classroom where it could affect student achievement levels and hence improve student success.

6 CONCLUSION: ADVISING AS A COMMUNITY OF PRACTICE

As an institution, the University has initiated and developed the three aspects of change (institution, faculty and student) further since 2011. The move to give advisors some permanence to their positions and the focus on systematic training for advisors, predominantly through their community of practice, allowed for the development of a level of professionalism. The advising work has been fully integrated into the FLY@UP campaign as discussed earlier, and data indicate that there has been an improvement in the success rates at the University. What began as a pilot in 2011, with one FSA, is now an established practice at the University with an Advising Manager and space for growth of the role of advisors.

Advising was very much part of the literature on education in the United States in 2009, when the University began with a student development and excellence model. The University did not attempt to copy what was done in the United States, not least because the institution did not have that level of resourcing and still does not – practice suggests a ratio of one advisor to 300 students, which is not feasible given the South African context. But the University's journey shows that it is possible to evolve a completely new system and gradually monitor, evaluate, reflect on it and adapt it until it serves a university's needs. This innovation by the University has been adopted and adapted in South Africa, and for the past two or three years it has been the focus of a collaboration grant from the Department of Higher Education and Training.

(Revised from a case study submitted by A Naidoo to the South African Institute of Distance Education in 2017 as part of the Siyaphumelela project funded by the Kresge Foundation. It is available as an open educational resource under a Creative Commons license.)

References

Astin, A. 1993. *What Matters in College? Four Critical Years Revisited*. San Francisco: Jossey-Bass.

Barkley, EF. 2010. *Student Engagement Techniques: A Handbook for College Fa*culty. San Francisco: Jossey-Bass.

Braxton, JM, AS Hirschy, and SA McClendon. 2004. "Understanding and Reducing College Student Departure." *ASHE-ERIC Higher Education Report* 30(3). San Francisco: Jossey-Bass.

Fisher, G, and I Scott. 2011. "Higher Education." Unpublished paper commissioned by the World Bank. Pretoria.

Kuh, GD. 2003. "What We're Learning about Student Engagement from NSSE." *Change* 35: 24–32.

Kuh, GD. 2008. *High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter*. Washington: Association of American Colleges and Universities.

Kuh, GD, J Kinzie, JA Buckley, BK Bridges and JC Hayek. 2007. "Piecing Together the Student Success Puzzle: Research, Propositions and Recommendations." *ASHE Higher Education Report Series* (pp 1–182). San Francisco: Jossey-Bass.

Lowe, H, and A Cook. 2003. "Mind the Gap: Are Students Prepared for Higher Education?" *Journal of Further and Higher Education* 27(1): 53–76. Routledge, part of the Taylor and Francis Group.

MacGregor, K. 2016. "From Promising Practice to Proven Student Success Models." *University World News Global Edition*. Issue 420.

Naidoo, A, and J Lemmens. 2015. "Faculty Intervention as Support for First-Year Students." *Journal of Student Affairs in Africa* 3(2): 17–32.

Pascarella, TE, and PT Terenzini. 2005. *How College Affects Students: A Third Decade of Research* (Vol 2). San Francisco: Jossey-Bass.

Tinto, V. 2006–2007. "Research and Practice of Student Retention: What Next?" *Journal of College Student Retention* 8(1): 1–19. Sage.

Tinto, V. 2013–14. "Isaac Newton and Student College Completion." *Journal of College Student Retention* 15(1): 1–7.

Tinto, V, and B Pusser. 2006. "Moving from Theory to Action: Building a Model of Institutional Action for Student Success." *National Postsecondary Education Cooperative*.

Upcraft, ML, JN Gardiner, and B Barefoot. 2004. *Challenging and Supporting the First-Year Student: A Handbook for Improving the First Year of College*. Wiley online library.

Chapter 6

Aligning Academic Staff Development to Student Development

M Potgieter and I Louw

Abstract

The focus of this chapter is on academic staff development in the Faculty of Natural and Agricultural Sciences at the University of Pretoria, specifically the support, development and recognition of academics as teachers, with the overall objective being to promote both student success and professional wellbeing. Lecturers are key stakeholders in student success initiatives. However, they are typically appointed for their expert disciplinary knowledge and research achievements; they cannot reasonably be expected to perform their teaching tasks with insight and responsiveness without professional development. The chapter describes the evolutionary development of continuous professional development in Natural and Agricultural Sciences over a period of seven years as part of institutional preparedness to support student success. The authors reflect on its reach and impact, identify critical success factors and demonstrate how current practice aligns with the vision of *A National Framework for Enhancing Academics as University Teachers* (DHET 2018) for the tertiary sector as a whole. This process of building institutional capacity for the professional development of academics for teaching, as the University of Pretoria has done, requires leadership and pragmatism, policy and practice. It is intentional. It requires the involvement of all stakeholders and resources that are available to lecturers, anytime, anywhere, ideally through online provisioning. The model can be scaled to the whole sector.

1 INTRODUCTION

Institutional preparedness plays an anchor role in the systemic approach to minimum time to completion that was adopted by the University of Pretoria. We use the term "institutional preparedness" to refer to an institutional structure and culture that supports and promotes student retention, persistence and educational attainment. It is an overarching term that presupposes "faculty readiness", ie that faculty structures and management actively support

these goals. The authors of the *Student Academic Development and Engagement Model* (Ogude, Kilfoil, and Du Plessis 2012), the forerunner to the Finish Line is Yours (FLY@UP), acknowledged that faculty readiness was a shortcoming of this model, because faculties functioned fairly autonomously and faculty leadership did not necessarily take up the approaches advanced by this model. The focus of this chapter is on academic staff development in the Faculty of Natural and Agricultural Sciences (NAS) at the University, specifically the support, development and recognition of academics as teachers to promote student success.

Change management literature emphasises the need for a holistic approach and the involvement of all stakeholders. Lecturers are key stakeholders in student success. Tinto (2017) points out that, for many students, if support does not happen in class, it does not happen: timetables are full, some students need to work, some have family responsibilities, some have transport problems, to suggest but a few demands on students' time.

2 NATIONAL CONTEXT

The literature abounds with reports that indicate the strong link between teaching quality and student performance, especially for borderline and under-prepared students (Debad 2020; Heck 2009; Tucker and Stronge 2005, to name but a few). The discourse about student preparedness for tertiary education in South Africa has shifted in recent years to question whether institutions are prepared to provide the kind of learning experience that would support the broad range of South African students to be able to succeed (Dhunpath and Vithal 2012). The model described in Chapter 1 of this publication has institutional preparedness as one of its three key elements, the other two being leadership and student preparedness.

One response of the Council on Higher Education (CHE) in South Africa to the challenge of low throughput in higher education institutions was to launch a Quality Enhancement Project (QEP) in 2014 "to build and/or strengthen the capacity for high quality provision at institutional, learning programme and individual levels" (Council on Higher Education 2014). The first phase of the project comprised four focus areas, which included the enhancement of academics as teachers as Focus Area 1. The QEP framework document stated that, among other factors, teaching is affected by teacher knowledge of pedagogies and practices that promote student learning. Academics are typically appointed for their expert disciplinary

knowledge and research achievements. Very few of them have received formal training to prepare them for teaching. It can therefore not be taken for granted that they will have the knowledge that is required for them to be effective teachers, especially in the fast-changing environment of higher education.

More recently, the Ministry of Higher Education and Training published *A National Framework for Enhancing Academics as University Teachers* (DHET 2018) to steer national strategies for the development and recognition of academics as teachers, and to guide the allocation of resources for teacher development. This framework responds in part to worrying national patterns of student success, at undergraduate as well as postgraduate level. It acknowledges that an important factor affecting student success is academics' ability to teach in ways that respond to students' learning needs. The DHET framework identifies six action imperatives for enhancing academics as university teachers that can be mapped to different levels of the education system, from school/faculty level to institutional, inter-institutional and national level. Four of these imperatives relate to faculties and are particularly relevant to the work reported in this chapter. The remaining two focus on institutional leadership and institutional structures for teacher development. The action imperatives for faculties are:

- to enable continuous professional development for university teachers;
- to ensure that academics are recognised and rewarded for the work that they do as university teachers;
- to promote knowledge production and knowledge sharing about university teaching and learning; and
- to develop expectations of academics in their role as university teachers.

For at least the last two decades, the Department of Higher Education and Training has supported academic staff development through earmarked grants, first through the TDG and, since 2018, through the UCDG. The notion that improving the quality of teaching is a means to enhance student success is thus widely believed and supported.

3 THE FACULTY OF NATURAL AND AGRICULTURAL SCIENCES

Natural and Agricultural Sciences is the largest and most diverse faculty of its kind among residential universities in South Africa. It has 13 discipline-based departments ranging

from actuarial science to food and consumer sciences, and these are loosely grouped into four clusters: mathematical sciences, physical sciences, biological sciences, and food and agricultural sciences. Just over 290 academics are permanently employed in the faculty, of whom roughly 80% are involved in teaching at undergraduate level. Annually, about 4 700 students enrol for bachelor's degree programmes and about 420 for BSc honours degrees. A hybrid teaching model is used for all disciplines at undergraduate level. A hybrid model typically combines formal in-class lecturing with online engagement, and practical training and/or tutoring in small to medium sized groups. Student learning is further supported by a well-organised system of student tutoring, advising and mentoring. Natural and Agricultural Sciences is served by an education consultant who is appointed in the Department for Education Innovation, but assigned almost fulltime to the faculty to support academic staff development and teaching excellence and innovation.

4 SETTING THE SCENE: INSTITUTIONAL DEVELOPMENTS

The tertiary education sector in South Africa has witnessed a number of changes in the past decade that have become strong drivers for change, such as significant expansion of student enrolment, reduced government subsidies combined with rising operating costs (which effectively froze the growth of the academic staff contingent), and rapid advances in teaching technologies and innovative pedagogies. These changes are not unique to South Africa, but rather an international phenomenon (Kim 2019; Mok 2016; Edwards and Bone 2012). Many tertiary institutions worldwide responded by incorporating online education into their offering, either as fully online programmes or blended with contact teaching, to provide flexibility and a richer learning experience and to reduce operating costs (Ferguson and Sharples 2014; Anderson and McGreal 2012). UP was the first university in South Africa to explore and then embed online education in a blended mode as an integral part of its offering, in 1997. A short recent history of the move to the notion of hybrid as opposed to blended learning follows.

At the end of 2014, the Council of the University approved a hybrid delivery model as its vision for achieving excellence in teaching and learning. The first Flexible Futures conference was held in January 2015, supported by the TDG for staff development, to discuss and

assess models of hybrid teaching and learning. The aims of the conference were to identify good practice in relation to hybrid learning and the application of e-learning technologies, to examine the flexibility that different models of hybrid learning and e-technologies can offer, and to explore the nexus between hybrid learning and research productivity within the context of research-intensive universities. Specialists were invited for presentations, such as Sue Rigby (Vice-Principal: Learning and Teaching, University of Edinburgh), George Siemens (Executive Director: Learning Innovation and Networked Knowledge Research Lab, University of Texas), Sherman Young (Pro Vice-Chancellor: Learning, Teaching and Diversity, Macquarie University) and Wayne Mackintosh, the founding director of the Open Education Resource (OER) Foundation and UNESCO/COL/ICDE Chair in OERs at Otago Polytechnic, New Zealand.

The notion of "hybrid" was energetically debated in University committees responsible for the management of teaching and learning for most of 2015 in order to understand its meaning fully and establish how it differed from the better known "blended" approach to teaching and learning. Eventually, agreement was reached that "hybrid" is an overarching construct that includes both blended and fully online delivery as well as various contact modes such as lectures, tutorials, practical sessions, work-integrated learning and community engagement. It is characterised by different modes of delivery in combination or separately; it includes face-to-face teaching and learning enhanced by appropriate technology to support student engagement outside of contact sessions, and it maximises students' participation in their own learning.

A second Flexible Futures conference – Shaping E-Learning for Higher Education – was held in November 2015 to showcase innovations in all aspects of teaching and learning, giving a platform to University staff to showcase their hybrid approaches. Since then, a Flexible Futures conference has been hosted by the University every year, with growing participation from other universities in South Africa. In terms of the DHET framework, Flexible Futures enables continuous professional development, ensures peer-enhanced learning by promoting knowledge production and sharing about hybrid teaching and learning, and recognises the excellent work done by lecturers in supporting student engagement and success through their teaching.

5 SETTING THE SCENE: HISTORICAL DEVELOPMENTS IN THE FACULTY

The sudden drop in first-year module pass rates in 2009, as compared to 2008, was attributed to unreliable data for the first intake of students who completed the new NSC school-leaving examinations in public high schools in South Africa. The drop in student success prompted the Deputy Dean: Teaching and Learning of Natural and Agricultural Sciences to organise biannual workshops for the lecturers involved in so-called high impact modules (HIMs). HIMs are courses with a significant impact on student progress and success owing to large enrolments and strategic placement in multiple programmes. This initiative foregrounded student success as the top teaching and learning priority and aligned the faculty to University-wide initiatives driven by the Vice-Principal: Teaching and Learning (Ogude, Kilfoil, and Du Plessis 2012). Through the HIMs project, funding was provided for student support (summer/winter schools, expansion of the tutor system, supplemental instruction, appointment of student advisors), but there was limited investment in academic staff development beyond the priority courses already provided for contact and e-learning by the University's Department for Education Innovation.

After a brief sabbatical visit to Purdue University in 2012, a chemistry education researcher approached the deputy dean with a proposal to establish a platform for academics with a passion for teaching to pursue this interest through joint activities, discussions, information sharing and relationship building. This Community of Practice (Lenning et al 2013) would be called the Science Teaching and Learning (SCITAL) Forum and would serve the following objectives:

> to build capacity in the scholarship of teaching and learning, improve teaching and learning practices in the faculty, increase research capacity in tertiary mathematics and science education and develop research collaboration across disciplines and between tertiary institutions (Potgieter 2012).

The deputy dean endorsed this vision and the SCITAL Forum was launched in September 2012, supported by a small grant of seed funding from the TDG. The Forum was active for the next four years (2013–2016), hosting four to seven events per year, each attended by 40–60 staff members from Natural and Agricultural Sciences and a few other faculties and support departments.

The programme of activities evolved organically from the interests of the steering committee and topical issues in teaching and learning in the faculty, the institution and the higher education sector. The overview of activities shown in Table 6.1 indicates that three of the four initial goals were served, with support to improve teaching and learning practices in the faculty featuring strongly.

Table 6.1: Overview of SCITAL Forum events (2012–2016)

Objectives	2012	2013	2014	2015	2016
1. Build capacity in the scholarship of teaching and learning	0	2	0	0	0
2. Improve teaching and learning practices in the faculty, including teaching innovation	1	2	3	4	2
3. Increase research capacity in tertiary mathematics and science education	0	2	0	0	0
4. Share information about international trends in online teaching and learning	0	0	2	0	0
5. Recognise teaching excellence	0	0	1	0	0

Two objectives were added: namely, recognition of teaching excellence and sharing of information on international teaching and learning trends, specifically online. It became clear to the steering committee that interest in capacity development for research in science education (Table 6.1, objectives 1 and 3) was limited. The faculty is the most disciplinary research productive in the institution, which negatively affects the capacity and drive of academics to engage in discipline-based education research. For three consecutive years, one high-profile mid-year event was organised to which external presenters were invited. Attendance at these events increased from 60 in 2014 to about 350 in 2016. In 2016 the steering committee collaborated with the Department for Education Innovation to organise a Hybrid Fair, the biggest achievement of the SCITAL Forum. The fair featured the various facets of hybrid learning and showcased the multitude of technology-mediated teaching methods that can be used in the service of student success. The fair was styled as a fun event with about 28 booths where role-players in the field of teaching innovation, including commercial vendors, presented their wares and interacted with visitors and with one another. The Hybrid Fair was opened by the Vice-Principal: Academic and was attended by students, staff from all faculties, support departments, deans and deputy deans.

There were also a number of other events:

Table 6.2: Overview of SCITAL Forum special events (2012–2016)					
Objectives	2012	2013	2014	2015	2016
Other	SCITAL launch		Developments in the higher education sector		Learning spaces (2)
High-profile events			Symposium: The CHE proposal for undergraduate curriculum reform in SA (Scott and Webbstock) N = 60	Workshop: Using and analysing visual representations in teaching and learning (H-K Hu, Taiwan) N = 92	Hybrid Fair: Exhibition with 28 stalls and firehose session for presenters N = *ca* 350

During the four years of its existence, the SCITAL Forum established a single focus: namely, to improve the student learning experience through the development of academics as teachers, instead of combining this with capacity building for discipline-based education research as was initially planned. A community built on trust and respect was established, and the values of sharing, nurture, innovation, and experimentation embedded. The uptake of SCITAL Forum activities testifies to the fact that it addressed the need of academics for a safe place to share about teaching strategies, including those that did not work as planned, thereby honing academics' skills for teaching in the rapidly changing tertiary environment. All four of the faculty-level imperatives of the DHET approved framework can be seen in fledgling form in these activities, with particular emphasis placed on peer-enhanced teaching through sharing.

The #FeesMustFall events of September/October 2016 forced lecturers to convert their practice almost overnight to fully online teaching and learning. Fortunately, the use of a learning management system (LMS) at the University was fairly mature and many of the lecturers had attended the priority training courses on its use offered by Education Innovation. Most students were also familiar with working on the LMS in most, if not all of their modules. The majority of Natural and Agricultural Sciences lecturers adapted reasonably smoothly to the new mode of teaching and assessment and demonstrated remarkable creativity and resilience (Potgieter et al 2019; Tekane, Louw, and Potgieter 2018). This experience confirmed the value and contribution of staff capacity building through the SCITAL Forum and Education Innovation, as well as the excellent timing of hosting the Hybrid Fair, which had introduced a wide audience to the tools available for online teaching and learning.

6 ALIGNING STAFF DEVELOPMENT IN THE FACULTY WITH FLY@UP

Several drivers precipitated a reconceptualisation of academic staff development in Natural and Agricultural Sciences in January 2017. The most important was the disruption caused by the #FeesMustFall events of September/October 2016 during which lecturers experienced first-hand the power and pitfalls of virtual teaching and learning. A few months prior to that, the Vice-Principal: Academic had launched a campaign to market aggressively the FLY@UP message that students are primarily responsible for their own success. Lecturers welcomed this message but needed clarification on their role in meeting the objectives of the project. They needed assistance to create a richly resourced and meaningful learning experience that would support students in their quest to graduate in minimum time. At about the same time, the growing momentum surrounding the implementation of the hybrid model in teaching practice had reached a point where it had become an institutional performance expectation for lecturers. Furthermore, a teaching portfolio comprising a teaching philosophy, self and peer evaluation of teaching and student feedback had become a requirement for all applications for promotion or lifting of probation for academic staff. These factors, both top-down and bottom-up, provided the incentive for lecturers to prioritise their personal development for teaching. Academics needed assistance with the development of teaching portfolios and required training and skills development for the design of effective hybrid learning and the optimal use of modern teaching technologies. The SCITAL Forum and the HIMs workshops were too limited in their reach to address this need.

In January 2017, the Deputy Dean: Teaching and Learning, with the assistance of the education consultant, restructured professional development of academics. A two-pronged approach was adopted: (1) regular, informal lunchtime meetings that focused on improving teaching and learning practices in the faculty, which would preserve the sense of community, sharing and learning of the SCITAL Forum, and (2) needs-driven training conducted by the education consultant to provide tailored professional development opportunities for staff. The SCITAL Forum was rebranded and expanded as FLY@NAS to align it with the FLY@UP project, thereby capitalising on the branding and institutional momentum generated by the project. The vision for FLY@NAS was to nurture, support and develop academics as teachers, in this way promoting their professional wellbeing and improving student success. Specifically, the aspiration was to provide a platform for sharing of teaching "experiments", even if they did

not deliver on expectations, to develop skills for effective use of teaching technologies, to celebrate achievements, and to improve lecturers' knowledge and understanding of students and their behaviour. Long before the publication of DHET framework, the University and the faculty were pursuing good practice in continuous professional development.

6.1 FLY@NAS BROWN BAG LUNCH EVENTS

Similar to the pattern for the SCITAL Forum, FLY@NAS hosted five or six informal lunch-hour sessions per year, each attended by 30–60 staff members. Over the three-year period (2017–2019), sessions were dedicated to topical issues related to FLY@NAS, improvement of knowledge and understanding of students, the sharing of innovative practices, and recognition and celebration of teaching excellence (see Table 6.3).

Table 6.3: Overview of FLY@NAS brown bag lunch events

Objectives	2017 (5 events)	2018 (6 events)	2019 (5 events)
Sessions dedicated to topical issues for FLY@UP	2 (Effective use of Blackboard for teaching; assessment)	0	1 (Self-assessment of hybrid teaching practice)
Improve knowledge and understanding of students		3 (From neuropsychology: Information processing, student motivation and mindset)	
Share innovative teaching and learning practices (frequently focusing on teaching technologies)	3	2	2
Recognition for teaching excellence	0	1	2

6.1.1 Topical issues for FLY@NAS

In 2017, two sessions were dedicated to encouraging lecturers to use the LMS Blackboard Learn™ functionalities effectively. One early adopter of teaching technology demonstrated synchronous online teaching using the Blackboard Collaborate™ platform in a large-enrolment

first-year course and techniques to engage his students actively. The instructional designer dedicated to Natural and Agricultural Sciences by the Department for Education Innovation provided an overview of the clickUP (internal branding of Blackboard Learn™) assessment tools and how these functionalities can be structured to reduce demand on lecturers and optimise learning through timely feedback. In 2019, the Head: E-Education in the Department for Education Innovation, introduced the Hybrid Learning Self-Evaluation App, which was developed as a tool for academics to characterise their hybrid teaching and learning practices, thereby highlighting both achievements and areas for development.

6.1.2 Improve knowledge and understanding of students

Despite good intentions from both sides, teaching and learning are often hampered by a lack of understanding between lecturers and students. Three FLY@NAS sessions in 2018 were devoted to cognitive psychology and its implications for teaching and learning to address this need. Cognitive psychology deals with the way people process information; it focuses on what happens within the mind to link stimulus (input) with response (output). Two young academics from the Department of Psychology enlightened lecturers about memory, attention and emotion and how to use this information to the advantage of students. In a second session, they presented the latest understanding of motivation, which generates, directs and sustains what students *do* to learn. The third session dealt with neuroplasticity and strategies to assist students to develop a growth mindset (Dweck 2007), which is believed to cultivate a love of learning and resilience in the face of failure. The DHET framework acknowledges that "teaching development is as much about cultural change as it is about developing good pedagogical practices" and that a good understanding of students' needs and aspirations will improve their experience of the tertiary environment (DHET 2018). This series of topics was aimed at enlightening academics about drivers of student behaviour so that they are able to direct it constructively.

6.1.3 Innovative teaching and learning practices

Almost half of the FLY@NAS sessions in the past three years have been dedicated to lecturers sharing their teaching innovations, what worked well and which aspects required further improvement. This strengthened the culture of informed teaching experimentation that

was established through the SCITAL Forum. It also links to improvement science discussed in Chapter 1 and other systemic approaches to change. Academics are well-acquainted with experimentation in their disciplinary research, but needed reassurance and guidance on a similar approach with teaching to improve the quality of students' learning experience. The majority of these events showcased new teaching technologies: for example, the demonstration of software suitable for e-assessment of disciplines heavily populated with symbols and formulas (mathematics and statistics) and free software for screen capture during teaching with subsequent compression to reduce data demand. In another session, two lecturers shared their experience of crafting assignments that required students to incorporate Sustainable Development Goals and demonstrate dissemination through community engagement to create public awareness. In one project, students had to develop a media item, such as video, podcast or narrated PowerPoint, aimed at informing and educating small-scale farmers. In the other, students developed a video to promote public awareness of a specific endangered animal species.

It was a common occurrence to see young academics on stage during these lunch-hour sessions; young lecturers were generally more adept at using technology and were willing to try something new even when teaching large groups of students. The overwhelmingly positive response of students to their endeavours provided the necessary motivation and reward. Most students are digital natives and expect a high-tech offering as integral to contact teaching; as a result, they related better to these young lecturers than to their senior counterparts. The opportunity to share their educational experiments during a lunch-hour session encouraged reflection and focus in their practice. It also provided recognition and a sense of belonging, because other lecturers were inspired and found value in their work.

Two senior academics presented their innovative practices. One described his very successful approach to make quantum physics accessible to second-year students, arguably the most challenging subject in undergraduate physics, which was plagued by low student motivation and poor performance. Another explained how he facilitated the process for third-year students to prepare a "species biography" in the format of the scientific journal, *Flowering Plants of Africa*. This assignment generated three submissions at the standard of a publishable piece of work. FLY@NAS sessions were attended regularly by senior academics, with ten of the 13 heads of department attending at least one session during 2018 and 2019.

6.1.4 Knowledge production and sharing

FLY@NAS created an opportunity for lecturers to learn and grow together to achieve the goal of achieving excellence in teaching and learning. Effective instruction requires a scholarly approach to teaching, one of informed and responsible experimentation, followed by reflection and refinement of practice. The DHET approved framework identified promotion of knowledge production and knowledge sharing as an imperative for action that maps onto every one of the four levels of the South African education system (DHET 2018). By hosting the annual, national Flexible Futures conference on innovative teaching and learning practices, the University has enacted this imperative at the inter-institutional level since 2015. The Natural and Agricultural Sciences deputy dean encouraged scholarly practice that culminates in scientific outputs, such as conference presentations and scientific publications, through financial support for conference attendance. Natural and Agricultural Sciences lecturers were active participants and presented a number of papers at Flexible Futures conferences from their inception (two in 2015; eight in 2017; three in 2018; eight in 2019). Natural and Agricultural Sciences lecturers, student advisors and the education consultant presented papers and workshops at other national teaching and learning conferences as well, such as Siyaphumelela (2016, 2017 and 2019), HELTASA (2015, 2016 and 2018), SAARMSTE (2019 and 2020), SANRC FYE (2015, 2016, 2017 and 2018), the University of KwaZulu-Natal Teaching and Learning Higher Education conference (2016 and 2017) and the Stellenbosch SoTL in the South conference (2017). A number of academics made presentations on their teaching innovations and discipline-based education research at international conferences as well (Denmark, Brazil, Malaysia, Australia and the USA). A highlight of these was the Reimagine Education conference in Philadelphia, USA, where the academic concerned was the overall international winner in the category "Presence Learning", while another lecturer won gold for the best education project in Africa. During the past five years, at least 17 papers on mathematics and science education in the faculty have been published in peer-reviewed journals and several others are under review.

A particularly interesting development in terms of knowledge production and sharing was the launch of a faculty newsletter on innovative teaching practices. A young mathematics lecturer approached the Natural and Agricultural Sciences education consultant in 2018 with a proposal to capture the numerous teaching innovations that were emerging in the faculty in

an electronic newsletter to ensure that this information is better disseminated and preserved as a resource for future use. After ensuring endorsement from faculty management, the *T&L@NAS Bulletin* was launched on 1 August 2018 and is published biannually with the two initiators as joint editors. This bulletin complements *SQUARED² UP*, the faculty's other newsletter, which is published three times a year and deals mostly with research achievements. The *T&L@NAS Bulletin* is the first of its kind at the University and is aimed at raising awareness of teaching innovations and effective instruction in science disciplines. The bulletin contains short stories on new teaching innovations, the use of promising new teaching technologies, as well as accounts of teaching approaches that have stood the test of time. The editors also maintain a *HowTo@NAS* guide where readers can find stepwise instructions on how to implement these technologies. The emergence of this bulletin from the grassroots of teaching practice in the faculty bears testimony to the growth in stature of teaching and learning in a research-intensive faculty over the past seven years. It reflects a culture in which such expressions of creativity and effort are valued and encouraged.

6.1.5 Recognition of teaching excellence

Recognising and rewarding good teaching has been a practice at the University for many years, with faculty awards aligned to institutional laureate awards, which in turn align to the national teaching award. In a healthy professional community, struggles are shared and achievements are celebrated (Sullivan 1995, 15; Lenning et al 2013, 9). Teaching excellence was celebrated once during the existence of the SCITAL Forum, but it became a regular feature of the FLY@NAS brown bag lunch programme. In one session, two professors, who each taught undergraduate courses for at least 40 years at UP, shared their wisdom and experiences; in another, a team of lecturers presented their design of an entirely new inquiry-based practical course for third-year organic chemistry for which they were given the highest recognition in the institution, the institutional Laureate award for Excellence and Innovation in teaching.

The largest department in the faculty, Mathematics and Applied Mathematics, had well-established procedures for awarding an annual prize for excellence in teaching. The University allocated funding for faculty teaching awards through the DHET TDG (later the UCDG), for the period 2013–2020. These grants enabled the faculty to expand its recognition of teaching excellence, initially to another large department, Statistics, and then to the other three clusters

of departments, Physical Sciences, Biological Sciences and Food and Agricultural Sciences. At the end of 2019, the faculty celebrated teaching awards to six lecturers. It is important to note that these awards were made after a transparent process of peer review and the recipients were primarily young lecturers (three in their early thirties and two in their forties) who were still building their research careers. This means that these early career academics received recognition for their commitment and efforts towards teaching, from which undergraduate students benefited greatly, despite the fact that it inevitably competed for time with their efforts in disciplinary research. Recognition of competence as a researcher is typically much more visible across the university system – for example, through rewards for research outputs, fellowships and research ratings – which highlights the need for recognition for teaching excellence. The achievement of Natural and Agricultural Sciences lecturers demonstrates that faculties and academics do not have to choose between excelling in either research and teaching. Indeed, excellence in research and teaching and learning can and should go hand in hand.

6.2 Continuous professional development of lecturers

The remaining two of the four action imperatives that the DHET framework proposed to be enacted at faculty level will be dealt with in this section: viz, to enable development for university teachers, and to develop expectations of academics in their role as university teachers.

6.2.1 Creating the expectation of professional development

While continuous professional development is a requirement for the maintenance of most professional designations such as veterinarian, health and social service professions, engineering and architecture (Bezuidenhout and Naude 2015), most universities in South Africa do not require lecturers to undergo formal training either before service or during their academic career (Cameron and Woods 2016). The high student dropout and low throughput rates in South Africa and the fact that university subsidies are partially determined by student throughput rates have led universities to invest in the professional development of academics as teachers through the equivalent of centres of teaching and learning – Education Innovation – and employment of academic development professionals. However, this has not yet been formalised as a continuous professional development requirement at the University.

The Vice-Principal: Academic is committed to promoting teaching as being of equal importance to research for acknowledgement, funding, promotion and career progression. Under his leadership, the submission of a concise teaching portfolio as a demonstration of teaching competence has become compulsory for career advancement processes, a requirement that aligns with international practice (Olsson, Mårtensson, and Roxå 2010; Legget and Bunker 2006). Within broad institutional guidelines, faculties were given scope to develop their own specifications for portfolios to ensure contextual relevance. The Natural and Agricultural Sciences guideline for the teaching portfolio required that the following components were included: a teaching philosophy, the candidate's teaching track record at UP, self-evaluation of teaching, at least one peer review report of teaching, and a reflective narrative on student evaluation of teaching. Two of these components were new to most academics, the philosophy of teaching statement and peer review of teaching.

6.2.2 Peer review of teaching

Academics are accustomed to the practice of peer review in research and publication but, until recently, the processes of teaching and learning have not been subjected to formal peer review, at least not in the majority of South African higher education institutions. Peer review of teaching is firmly established in the USA for quality management purposes and it has also taken root in Europe and Australia. In 2012, the Deputy Vice-Chancellor and Provost of Macquarie University initiated a comparative international project examining peer review of teaching. The project was an international collaboration between two universities in Australia (Macquarie University and La Trobe University), Lund University in Sweden and the University of Pretoria. The project team developed guidelines for the implementation of peer review as a vehicle to improve teaching quality (MacQuarie University 2014) and published their findings as a scholarly monograph (Sachs and Parsell 2014). The project positions peer review of teaching as a professional development activity that should benefit both the reviewee and the reviewer. It emphasises the key role that effective social and communication skills play in building collegial and trusting relationships between the reviewee and the reviewer, particularly when discussing areas in need of improvement. The reviewer is seen as a critical friend who engages with the reviewee for quality enhancement, not quality assessment. This approach reduces the perceived threat of peer review and grants control of the process to the

reviewee. Rather than there being a directive from management (top-down), the reviewer is invited by the reviewee for a class visit (bottom-up), and the terms under which the review will take place are negotiated prior to the event.

During 2015, the requirement of including a report of peer review of teaching in the teaching portfolio was endorsed by senior management in Natural and Agricultural Sciences. The deputy dean and education consultant developed guidelines for its implementation based on principles advocated in the MacQuarie University peer review guidebook (MacQuarie University 2014). Despite being a significant change of practice in the faculty, this development was accepted without much objection by Natural and Agricultural Sciences' academics. In general, lecturers did not feel threatened, partly because peer review is common practice in other areas of their profession and partly because they were able to select the reviewer, subject to approval by the head of department. With few exceptions, lecturers chose to invite the education consultant for the class visit, which testifies to the level of trust and collegiality that she has established in the faculty. The education consultant conducted 52 class visits for peer review in the faculty in 2016, 58 in 2017, 46 in 2018 and 61 in 2019. During these class visits, she gained an overview of teaching practices in the faculty, what to emulate and what to avoid, and insight into the challenges faced by lecturers. These experiences enabled her to address the shortcomings of teaching in her engagements with individual lecturers during 2016 and 2017 (Louw 2018). Lecturers benefited from these interactions because of the relevance and quality of her contributions. Increasingly, newly appointed young academics have engaged the education consultant either as a professional coach or for a short-term involvement to improve their teaching outcomes. Mid-career academics typically enlist her assistance with the preparation of a teaching portfolio for promotion purposes.

6.2.3 Continuous professional development reconceptualised

Two factors sparked the reconceptualisation of continuous professional development in Natural and Agricultural Sciences at the start of 2018. The first was a consequence of the success of education consultant engagements – she could no longer satisfy all the requests for personal assistance – and the second the formalisation of development in teaching and learning as a performance expectation for academics in the faculty. The faculty leadership developed a new template for annual performance contracting that specified, among other

things, that all lecturers, irrespective of years of experience or seniority, had to attend at least one training session presented by Education Innovation or the education consultant in a two-year period. This expectation was a new development in the faculty; the bar was therefore set quite low. It applied to heads of department as well in terms of ensuring participation by their staff. As a result, interest in continuous professional development increased, especially the faculty-specific training offered by the education consultant. Some heads of department requested tailor-made training for the whole department: for example, on the art and science of presenting a lecture or writing learning outcomes for study guides. Others expected individual lecturers to satisfy this requirement based on their own needs.

In response to these developments, the education consultant restructured training into concise topics that could be presented in 50-minute micro-learning sessions to small groups of lecturers at a time, or repackaged for departments on request. Training focused on development of teaching portfolios, effective lecturing, curriculum matters, assessment, how learning works, and how to foster a growth mindset rather than a fixed mindset, among other things (see Table 6.4). The Deputy Dean: Teaching and Learning and the education consultant visited all heads of department at the start of 2018 to provide information on training planned for 2018 and give detailed feedback on staff attendance of continuous professional development sessions in the previous year. They elicited heads of departments' support for training in general and their cooperation to ensure that this expectation would be included in their departmental workload allocations and performance contracts with lecturers for 2018. The process was repeated at the start of 2019.

Table 6.4 provides an overview of training offered by the education consultant in 2018 and 2019 with information on attendance. Attendance records indicate that about 48% of lecturers in Natural and Agricultural Sciences participated in at least one development event over the two-year period of 2018 and 2019, with many of them attending multiple sessions. The number increases when attendance of training sessions offered by Education Innovation is included. While these strategies certainly did not ensure that all lecturers participated in continuous professional development activities, it exposed the majority of academics to modern learning theories, innovative teaching practices and new teaching technologies. It should be borne in mind that training was entirely voluntary until 2018, and since then it has been incentivised through the performance management system, but mostly without penalties for non-

participation. The DHET framework acknowledges that professional development cannot be imposed; lecturers should take responsibility for their own development. Incentives such as performance contracting remain an extrinsic motivator. For training to have a lasting impact, lecturers should engage because they are intrinsically motivated by their personal goals for achievement and professional satisfaction. However, as the culture of excellence in teaching and learning takes root in the faculty, it is more likely that intrinsic motivation will become the primary driver for participation in training.

Table 6.4 Overview of continuous professional development (CPD) training sessions offered by the education consultant in 2018 and 2019

Training sessions	Scope	2018 (Attendance)	2019 (Attendance)
Marketing of *CPD training*	Presentations at departmental meetings to share the scope of planned CPD activities for the year	6 of 13 departments (Total: 134)	3 additional departments (Total: 40)
Preparing a teaching portfolio	Essential for probation and promotion candidates	NAS: 57	NAS: 102
Writing *learning outcomes* for study guides	Formulating clear learning outcomes (LOs), aimed at the intended level of Bloom's taxonomy, with NQF level descriptors in mind and alignment of LOs with assessment	Individuals	NAS: 48
Curriculum mapping			NAS: 15
Teaching:			
The art and science of presenting a lecture	Research-based principles governing a good lecture.	NAS: 52	NAS: 66
How to be an authentic teacher in Higher Education	The P.E.A.K.S (personal characteristics, experience, accomplishments, knowledge and skills) that a lecturer brings to class		NAS: 8
Flip without flop	How to conduct a flipped classroom		NAS: 39
Assessment:			
Planning	How to plan assessment in terms of Bloom's taxonomy; weighting and mark allocation; principles of fairness, authenticity and others		NAS: 17
Rubrics	Designing rubrics for assessment	NAS: 10	
Grading	Training for assistants who mark in teams		NAS: 4

How learning works: Part 1	1. Students' prior knowledge and learning 2. Students' knowledge structures and learning	NAS: 47 Other: 21	NAS: 25 Other: 39
How learning works: Part 2	3. What motivates students to learn 4. How do they develop mastery	NAS: 29 Other: 21	NAS: 26 Other: 7
How learning works: Part 3	5. How can feedback enhance learning? 6. What is the role of course climate? 7. Students becoming self-directed learners	NAS: 29 Other: 19	NAS: 26 Other: 7
Growth mindset	The difference between a *growth* and a *fixed* mindset and how lecturers can influence the views students hold of their abilities	NAS: 32 Other: 20	NAS: 25
Training on request	A combination of topics suitable to the context	Mixed: 14	Mixed: 38

6.2.4 Continuous professional development resources

The book *How Learning Works* (Ambrose et al 2010), authored by academic development experts associated with the Eberly Centre for Teaching Excellence and Educational Innovation at Carnegie Mellon University, became a particularly rich resource for activities in the faculty. This book synthesised empirical research and research-based learning theory into practical advice on how to improve tertiary teaching. The content is packaged into seven principles for smart teaching, and is presented in a manner that is accessible to lecturers in any discipline. These principles are:

1. Students' prior knowledge can help or hinder learning.
2. How students organise knowledge influences how they learn and apply what they know.
3. Students' motivation determines, directs, and sustains what they *do* to learn.
4. To develop mastery, students must acquire component skills, practise integrating them, and know when to apply what they have learned.
5. Goal-directed practice coupled with targeted feedback enhances the quality of students' learning.

6. Students' current level of development interacts with the social, emotional, and intellectual climate of the course to impact learning.
7. To become self-directed learners, students must learn to monitor and adjust their approaches to learning.

Continuous professional development has adopted a hybrid approach as well. The education consultant and instructional designer for Natural and Agricultural Sciences established a second resource, namely the FLY@NAS clickUP module, which is a module in the LMS with a large collection of useful documents, such as templates, study guides and PowerPoint presentations from FLY@NAS and other events. The module shares literature about curriculum development, assessment and other relevant topics. All newly appointed lecturers are enrolled after their academic induction. Until recently, the clickUP announcement function was only used to advertise events, but with the onset of COVID-19 this platform became an essential component of the communication mechanism in Natural and Agricultural Sciences. The education consultant posted weekly announcements where essential information was shared, as well as advice and support in the form of "Titbits", which are popular blogs that are reduced to the key points only, but with a link to the actual document.

7 DISCUSSION

After at least seven years of evolutionary development, the empowering of academics for effective instruction is currently firmly established in the faculty. The SCITAL Forum set the scene for staff development for teaching in an informal, exploratory manner. The forum cultivated a professional community with the common goal of pursuing excellence in teaching and learning. The values of sharing, innovation and experimentation were embedded, and valuable lessons were learnt about the needs and interests of lecturers. The SCITAL Forum evolved into FLY@NAS at the start of 2017 when developments in the faculty and the institution posed new challenges for expansion of staff development and alignment with the University's priorities. Since 2017, the FLY@NAS project has consisted of two distinct continuous professional development components: regular, informal lunchtime meetings and needs-driven training conducted by the education consultant. The lunch events have been used to share innovative teaching and learning practices, recognise achievement and improve lecturers' understanding of students. They provide an opportunity for honest engagement

with the challenges associated with teaching and learning in a rapidly changing environment, which means that lecturers routinely shared both successes and failures of experimentation with teaching technologies and alternative assessment. FLY@NAS events have provided a nurturing environment for young academics where their contribution has been valued. Activities have validated quality teaching as a professional pursuit and built community among all lecturers, irrespective of the stage of their careers. Most importantly, over time, the faculty has established a pedagogy of care in which students and their aspirations are placed at the centre of academics' work.

The establishment of continuous professional development as an expectation for all academics required visionary and decisive leadership at institutional and faculty level. Teaching and research typically compete for academics' time and resources. Since recognition for research accomplishments is often more visible and tangible, lecturers prioritise research above teaching unless there is an incentive or formal expectation otherwise. In the case of UP, the Vice-Principal's requirement of a teaching portfolio that includes peer review for all career development transitions, and the faculty requirement of participation in performance contracting, provided the impetus for a significantly increased uptake of training. Over the past two years, FLY@NAS has ensured that the majority of Natural and Agricultural Sciences lecturers have been exposed to information and resources that could enrich and improve their teaching practice and student success. During 2018 and 2019, more than 48% of all lecturers participated in training offered by the education consultant, and an unknown number enrolled for training by Education Innovation, which is no small feat in a research-intensive science faculty.

The faculty can boast several achievements in teaching innovation and the scholarship of teaching and learning (SoTL). These accomplishments can be ascribed, at least in part, to the SCITAL Forum and FLY@NAS, which have resulted in multiple presentations at teaching and learning conferences, publication outputs, successful applications for SoTL funding, Laureate Awards for Excellence in Teaching and Learning (2014, 2016 and 2019), and two international awards for teaching innovation. While these measurable achievements are celebrated, other important measures of success that are more difficult to assess, such as the quality of the student's learning experience and workplace readiness upon graduation, are also actively pursued by the faculty.

The information presented in this chapter highlights two critical success factors: namely, leadership at institutional and faculty level and the effective facilitation of academic development by professionals associated with the Department for Education Innovation. Visionary and decisive leadership ensured that a scholarly and professional approach to teaching and learning has taken root in the institution, and more specifically in the faculty. Excellence in teaching and learning has been validated as a necessary and expected professional pursuit alongside excellence in research. Continuous professional development for academics at all stages of their careers has become a performance expectation in the faculty, and appropriate, high-quality training is provided by the education consultant dedicated to Natural and Agricultural Sciences and other professionals in the Department for Education Innovation. This process of building institutional capacity for the professional development of academics for teaching, as the University has done, can be scaled to the whole sector. It requires leadership and pragmatism, policy and practice – in other words, institutional preparedness. It is intentional. It requires the involvement of all stakeholders, so that practices can develop organically from the bottom up in an environment where this is encouraged, thereby ensuring sustainability. It also requires making resources available to lecturers anytime, anywhere, ideally through online provisioning.

Finally, this chapter demonstrates that academic staff development in the Faculty of Natural and Agricultural Sciences, as it has evolved over the past seven years, has enacted each one of the action imperatives identified by the DHET framework as leverage points to improve student success through the strengthening of university teaching. Four of these imperatives operated at faculty level and the remaining two at institutional level. While the principles and objectives of the DHET framework resonate well with the University's, there is one element missing in the national framework that is valued highly in Natural and Agricultural Sciences: namely, the promotion of staff wellbeing. Academics have to adjust to ever changing and increasing demands on their practice, both in teaching and research. Lecturers who are equipped with competencies for both effective instruction and quality research will enjoy the satisfaction of a job well done, which is essential for their professional wellbeing. The wellbeing of academics was therefore an important goal that motivated and directed faculty activities alongside that of improving student success.

8 CONCLUSION

There is consensus that excellence in teaching is a crucial factor in ensuring student success. Academics' ability to respond to current demands on the system – such as inequality and under-preparedness, combined with rapid advances in technology and associated changes in workplace requirements – entails their having access to quality professional development opportunities at every stage of their careers. Staying abreast of these developments through sustained excellence in their teaching practice contributes to student success as well as to their professional wellbeing. This chapter described the organic development of continuous professional development in Natural and Agricultural Sciences over a period of seven years. The authors reflected on its reach and impact, identified critical success factors and examined how current practice aligns with the vision of the DHET framework for the tertiary sector as a whole.

Ogude, Kilfoil, and Du Plessis (2012) recognised that faculty readiness was a weakness in the model at the time, because faculties function fairly autonomously and faculty leadership does not necessarily implement effective strategies to achieve student success. The Natural and Agricultural Sciences success story is ascribed to several factors, among them the fact that the faculty endorsed the University's vision and student success goal, and faculty leadership acted with the necessary commitment to implement it successfully.

However, higher education institutions in South Africa and elsewhere faced yet another major challenge shortly after the start of the first semester in 2020, when the world was thrown into turmoil by the COVID-19 pandemic. Lockdown forced lecturers to resort to fully online teaching at very short notice, initially expecting the change to be temporary, but gradually realising that the duration would be open-ended. Teaching remotely meant that lecturers had limited opportunity to draw on their professional communities to establish what best practice would be for these circumstances. There was also little time for reflection and analysis because the workload associated with the sudden change of mode became overwhelming. This development presents new challenges to institutional and faculty leadership and academic development professionals to ensure that gains achieved in teaching excellence prior to 2020 are maintained and strengthened. A renewed commitment to the goal of teaching excellence is required from them to lead academics out of the current situation of compromise to a new

normal where only the best practices are retained and instruction is once again informed by scholarship and communal reflection. The higher education sector is currently being tested, not just for resilience, but also for its ingenuity to use these challenges as opportunities to elevate tertiary teaching and learning to a new level of efficiency and achievement.

References

Ambrose, SA, MW Bridges, M DiPietro, MC Lovett, and MK Norman. 2010. *How Learning Works: 7 Research-based Principles for Smart Teaching*. San Francisco: Jossey-Bass.

Anderson, T, and R McGreal. 2012. "Disruptive Pedagogies and Technologies in Universities." *Educational Technology and Society* 15(4): 380–389. Accessed 24 August 2020. https://www.j-ets.net/collection/published-issues.

Bezuidenhout, L, and L Naude. 2015. "Continuing Professional Development Practices (CPD)." In *Recognised Professional Bodies – An Initial Survey by SAQA-FPI*, edited by E French. Accessed 14 July 2020. https://www.fpi.co.za/documents/CPD_research_paper_Sept2015.pdf.

Cameron, A, and C Woods. 2016. "A Proposed 'Ladder of Learning' for Academics' Professional Development in Teaching." *South African Journal of Higher Education* 30(6): 176–190. https://doi.org/10.20853/30-6-732.

Council on Higher Education. 2014. *Framework for Institutional Quality Enhancement in the Second Period of Quality Assurance*. Pretoria: Council on Higher Education. http://www.che.ac.za/media_and_publications/frameworks-criteria/qualityenhancement-project-qep-process.

Debad, SJ. 2020. "Recognizing and Evaluating Science Teaching in Higher Education: Proceedings of a Workshop – In Brief." Accessed 17 August 2020. https://www.nap.edu/read/25685/chapter/1.

Department of Higher Education and Training (DHET). 2018. *A National Framework for Enhancing Academics as University Teachers.* Government of South Africa. Accessed 3 July 2020. www.dhet.gov.za.

Dhunpath, R, and R Vithal. 2012. *Alternative Access to Higher Education: Underprepared Students or Underprepared Institutions?* Cape Town: Pearson Education.

Dweck, CS. 2007. *Mindset: The New Psychology of Success*. New York: Ballantine Books.

Edwards, S, and J Bone. 2012. "Integrating Peer Assisted Learning and eLearning: Using Innovative Pedagogies to Support Learning and Teaching in Higher Education Settings." *Australian Journal of Teacher Education* 37(5): 1–12. Accessed July 12, 2020. https://researchbank.acu.edu.au/cgi/viewcontent.cgi?article=2024&context=fea_pub.

Ferguson, R, and M Sharples. 2014. "Innovative Pedagogy at Massive Scale: Teaching and Learning in MOOCs." Paper presented at European Conference on Technology Enhanced Learning 2014, Austria. https://doi.org/10.1007/978-3-319-11200-8_8.

Heck, R. 2009. "Teacher Effectiveness and Student Achievement: Investigating a Multilevel Cross-Classified Model". *Journal of Educational Administration* 47(2): 227–249.

Kim, J. 2019. "Thinking about 'Massification of Higher Education Revisited'." Accessed 10 July, 2020. https://www.insidehighered.com/blogs/technology-and-learning/thinking-about-massification-higher-education-revisited%E2%80%99.

Leggett, M, and A Bunker. 2006. "Teaching Portfolios and University Culture." *Journal of Further and Higher Education*

30(3): 269–282. https://doi.org/10.1080/03098770600802297.

Lenning, OT, DM Hill, KP Saunders, A Salon, and A Stokes. 2013. *Powerful Learning Communities: A Guide to Developing Student, Faculty, and Professional Learning Communities to Improve Student Success and Organizational Effectiveness*. Virginia: Stylus Publishing.

Louw, I. 2018. "Supporting Lecturers to Demystify Learning in a Science Faculty." *Proceedings of the 4th International Conference on Higher Education Advances* HEAd2018. Valencia, 20–22 June *(HEAd'18)* , 63–71. https://doi.org/10.4995/HEAD18.2018.8560.

MacQuarie University. nd. "Peer Review of Teaching." Accessed 14 July 2020. https://staff.mq.edu.au/public/download.jsp?id=67186.

Mok, KH. 2016. "Massification of Higher Education, Graduate Employment and Social Mobility in the Greater China Region." *British Journal of Sociology of Education* 37(1). Accessed 23 June 2020. https://www.tandfonline.com/doi/abs/10.1080/01425692.2015.1111751.

Ogude, NA, WR Kilfoil, and G du Plessis. 2012. "An Institutional Model for Improving Student Retention and Success at the University of Pretoria." *International Journal of the First Year in Higher Education* 3(1): 21–34. ISSN: 1838-2959.

Olsson, T, K Mårtensson, and T Roxå. 2010. "Pedagogical Competence – A Development Perspective from Lund University." In *A Swedish Perspective on Pedagogical Competence*, edited by A Ryegård, K Apelgren and T Olsson, 121–132. Uppsala University.

Potgieter, M. 2012. Proposal Approved by the Faculty Teaching and Learning Committee on 26 July 2012. University of Pretoria.

Potgieter, M, L Pilcher, R Tekane, I Louw, and L Fletcher. 2019. "Lessons Learnt from Teaching and Learning during Disruptions." In *Research and Practice in Chemistry Education: Advances from the 25th IUPAC International Conference on Chemistry Education 2018*, edited by M Schultz et al, 89–107. Springer. https://doi.org/10.1007/978-981-13-6998-8.

Sachs, J, and M Parsell (Eds). 2014. *Peer Review of Learning and Teaching in Higher Education: International Perspectives*. Dordrecht: Springer.

Sullivan, TM. 1995. "Creating and Sustaining Learning Communities." In *PHE Scholars Program Essays: Creating and Sustaining Learning Communities*, edited by C Dudgeon, TM Sullivan, and GK Wolfson, 13–30. Fort Lauderdale: Center for the Advancement of Education, Nova Southeastern University.

Tekane, R, I Louw, and M Potgieter. 2018. "#FEESMUSTFALL: Science Teaching during Student Unrest." *Alternation* 25(2): 161–180. https://doi.org/10.29086/2519-5476/2018/v25n2a7.

Tinto, V. 2017. "Reflections on Student Persistence." *Student Success* 8(2): 1–8. https://doi.org/10.5204/ssj.v8i2.376. ISSN 2205-0795.

Tucker, PD, and JH Stronge. 2005. "The Power of an Effective Teacher and Why We Should Assess It." In *Linking Teacher Evaluation and Student Learning*, edited by PD Tucker and JH Stronge, 1–14. Association for Supervision and Curriculum Development. http://www.ascd.org/publications/books/104136/chapters/The-Power-of-an-Effective-Teacher-and-Why-We-Should-Assess-It.aspx.

Chapter 7

FLY@UP: Students' Responsibility for their own Learning

H Byles

Abstract

This chapter describes and discusses the intentional integration of the student access and success system to influence student success and experience, and the time to degree completion of undergraduate students. The University's approach to student success is described and the chapter reflects on its evolution as well as it strengths and weaknesses. In terms of the model (Fig 7.1), there was a dual focus: the preparedness of the University and what it offered in terms of good practice in providing resources and services, and student preparedness as they entered the first year of university studies but also as they progressed to more demanding levels.

The University's extremely complex problem that could not be solved by old methods or by a single person or entity but needed innovative thinking and broad stakeholder involvement was student degree completion in minimum time across race and gender. The **F**inish **L**ine is **Y**ours (FLY@UP) project was initiated in 2015 by the Vice-Principal: Academic and first implemented in 2016. The use of "Yours" suggests to students that they need to take responsibility for their own success to a large extent. The discourse thus changed from support to growth or self-regulation. The strategy was characterised by:

- a more holistic approach to stakeholders, focusing on the whole University and not just faculties and selected professional departments;
- greater marketing and communication on campuses and using social media;
- the improvement of existing interventions and a focus on the growth mindset;
- greater involvement of students; and
- a more data-intensive approach, with the establishment of the Tshebi data committee.

The implementation commenced in 2016 and, despite political unrest and campus closures that year, the 2016 cohort of students in three-year degrees, whose minimum time to completion should have seen them completing in 2018, had the best time to completion among the 2014, 2015 and 2016 cohorts. Looked at from a variety of theoretical perspectives, we still have room for improvement but, based on the cohort results, FLY@UP is achieving what it set out to do.

1 REFRAMING STUDENT SUCCESS

Chapter 7 describes and discusses the intentional integration of the student access and success system to influence student success and experience, and the time to degree completion of undergraduate students. The University's approach to student success is described and the chapter reflects on its evolution as well as it strengths and weaknesses. In terms of the model (Fig 7.1), there was a dual focus: the preparedness of the University and what it offered in terms of good practice in providing resources and services, and student preparedness as they entered the first year of university studies but also as they progressed to more demanding levels.

The University's "wicked" problem was student degree completion in minimum time across race and gender. As explained in Chapter 1 in the discussion of Systems Thinking, the term "wicked", when used in describing a problem, implies that it is so complex that it cannot be solved by a single person but needs a team of multi-disciplinary stakeholders to work on a solution. The **F**inish **L**ine is **Y**ours project, or FLY@UP as it is known, was initiated in 2015 by the Vice-Principal: Academic and first implemented in 2016. The use of "Yours" suggests to students that they need to take responsibility for their own success to a large extent. The discourse thus changed from support to growth or self-regulation. The strategy was characterised by:

- a more holistic approach to stakeholders, focusing on the whole University and not just faculties and selected professional departments;
- greater marketing and communication on campuses and using social media;
- the improvement of existing interventions and a focus on the growth mindset;
- greater involvement of students; and
- a more data-intensive approach, with the establishment of the Tshebi data committee.

The implementation commenced in 2016 and, despite political unrest and campus closures that year, the 2016 cohort of students in three-year degrees, whose minimum time to completion should have seen them completing in 2018, had the best time to completion among the 2014, 2015 and 2016 cohorts. Looked at from a variety of theoretical perspectives, there is still room for improvement but, based on the cohort results, FLY@UP is achieving what it set out to do.

The University has a long history of providing some student support, both academic (for instance, tutoring) and in terms of health and psychosocial wellbeing. Prior to 2010, the Department of Student Affairs organised first-year orientation, mentors for first-year students, and counselling and health services for all. Faculties offered a limited tutorial service using their own funding. Each faculty examined at-risk modules, particularly when they revealed a pattern of low student success. Student success rates improved gradually over the years. However, the different initiatives were not compulsory nor were they conceptualised as a single, student-focused system. The Senate Committee for Teaching and Learning, chaired by a Vice-Principal, was the governance structure for undergraduate student success and was made up of deans/deputy deans, the heads of some professional and support departments (like the Director of the Department for Education Innovation), and two or three students from the Student Representative Council.

However, the intake of students from the outcomes-based schooling curriculum in 2009 and the subsequent drop in success rates precipitated a change. The Vice-Principal: Teaching and Learning investigated good practice in student support internationally by attending conferences, such as Achieving the Dream and the First-Year Experience, and consulting the Gardner Institute, which subsequently ran a week-long series of workshops at the University. She formed a sub-committee of the Senate Committee for Teaching and Learning – the multi-stakeholder Student Access and Success Committee, initially involving five of the nine faculties only but incorporating all of them within a year. Piloting and evolution are hallmarks of the system as it developed. The student support structures in place – particularly for the crucial first-year transition to university – were investigated, amended and scaled. Some new practices, such as student advising, were introduced. The first-year orientation programme developed a more academic focus and its organisation was transferred to the Department for Education Innovation. The evolution of the Student Academic Development and Engagement Model (SADEM) was reported in Ogude, Kilfoil and du Plessis (2012).

The University received a Teaching Development Grant for the first time in 2009 and was able to use these funds to support the developing model. In subsequent cycles of the grant (which became the University Capacity Development Grant from 2018), the student-facing activities of tutoring, mentoring and advising featured strongly. Faculties continued to supplement the provision of support services through their own funds.

The University had been implementing various student success initiatives intensively since 2010, but data showed that the problem of student completion in minimum time across race and gender remained in many faculties. The Vice-Principal: Academic and the Director: Education Innovation therefore launched an investigation into what other universities internationally were doing to solve the complex problem of student completion in minimum time across race and gender.

2 RESEARCH INTO MINIMUM TIME TO COMPLETION INITIATIVES

A desktop search in 2015 into minimum time to completion initiatives revealed the "15-to-finish" concept, which had started at the University of Hawai'i (nd). Their data showed that students failed to complete on time because they took only 12 credits per semester instead of 15. Part of the problem was that funding agencies only subsidised 12 credits. The university incentivised the taking of the additional credits by allowing students to pay for 12 credits but do 15. Another strategy was to offer students who graduated in minimum time a monetary incentive in the form of cash back. The campaign focused on demonstrating to students the financial implications of not completing on time: additional costs for fees, accommodation, books, etc – potentially increasing student debt and causing loss of income because they could have been employed. The campaign has since escalated to over 200 higher education institutions in the United States, and Complete College America offers a range of resources for use by these institutions. The organisation claims: "Data also show that students who take 15 credits do better academically and are more likely to persist" (Complete College America nd).

The solution is not directly transferable to the South African context as few universities have regular-sized modules in their programmes. Unlike in the USA, South Africa does not have a common basis like the three-credit hour. Different modules carry different credit weightings (where one credit = 10 notional or estimated hours of learning). While the minimum of 120 credits or 1 200 notional hours of work per year is laid down both by the National Qualifications Framework and the Department of Higher Education and Training, which provides subsidies to public universities, many university programmes far exceed the minimum credits each year. Having more than 120 credits a year places an additional burden on students and makes common advice about the number of credits impossible – it has to be given per programme.

3 THE CONTEXT OF THE UNIVERSITY OF PRETORIA

Students might take too many or too few modules when they register, putting themselves at risk of not completing in minimum time (see Chapter 3 on data analytics). They also drop modules in order to maintain a good grade point average (GPA), often to retain place in a residence, not realising that they have effectively ensured that they will take longer than the minimum time to finish their degree. Students wanting to drop modules are now referred to a Faculty Student Advisor prior to finalising their decision.

An attempt to have the Executive agree to a financial incentive for graduating in minimum time proved unsuccessful. In many ways, this is counterproductive, particularly given that what the University would earn in terms of government subsidy for students who graduate in minimum time would far exceed returning the fee of a single module to a student.

Because the campaign could not be about minimum credit load, the focus evolved to be on students taking responsibility for using the multiple resources at the University to ensure that they graduated in minimum time. The slogan, the Finish Line is Yours, became the rallying point. The "Yours" emphasises that the students have a responsibility take up what is on offer to help them succeed. The pronoun communicates the message that the approach has changed to one of self-regulation and empowerment rather than support that could lead to dependency.

4 FLY@UP: EVOLUTION FROM 2016

4.1 Manager

The new model required more than oversight by a committee: it required active management (Tinto 2013). The University appointed a programme coordinator with experience in academic skills development of students at the University. She held a Master's in education psychology and was registered with the Health Professions Council of South Africa. The established student interventions had to be maintained, integrated, supported, strengthened and better used. The campaign had to be taken to the students on social media as well as on campuses through marketing campaigns and events; to the lecturers and faculty or departmental

administrators through visits and events, and to all University departments, from Security Services to Finance, through contact sessions. From the outset, the coordinator employed a cooperative approach, aiming to involve as many stakeholders and University resources as possible.

4.2 Communication

The Department of Institutional Advancement, responsible for marketing and communication, was drawn in to help with messaging through media, particularly on-campus posters. The initial messages were very much in the spirit of similar "15-to-finish" messages: save time and money and increase opportunities by graduating in minimum time. Attention to financial matters was important in the University's context, not least because many students are either receiving funding from the National Student Financial Aid Scheme (NSFAS) or are barely able to manage their costs except by working, because they do not qualify for NSFAS assistance. Students spend less on fees, books, accommodation, travel, etc if they graduate in minimum time. If they do not, over and above these additional costs, they are losing money they could have been earning. For many students there is also the appeal of being able to support their families, who supported them in their studies.

Initial communication messages were based on an internal report entitled *A Trend Analysis of the Salient Reasons for Discontinuation: 2015–2018* (Mphanda and Lemmens 2019). This report clearly pointed out that the main reason for discontinuation of studies was course choice, with abandoning of a programme given as the second reason. Trailing quite a way behind were academic and financial reasons, although the latter has been moving up the scale. These institutional research data resulted in the initial campaign messages – namely, (1) manage your time, (2) work consistently, and (3) keep up a good semester mark. The messages gradually evolved to state that students who graduate in minimum time do the following: think carefully before dropping a module, ask for help, use resources, seek advice about financial aid and financial management, have a growth mindset, and manage time.

In 2019, there were two main communication campaigns, one in each semester. The first campaign shared the following messages: "choose your module carefully", "think carefully before dropping a module (after the second week of class)", "make responsible choices with

your time and work consistently", and "aim for a good semester mark". Students were urged to work consistently and pass on their semester mark rather than earning only the subminimum necessary for examination admission, which would mean they would risk all on doing well in the examination. These messages were reinforced through the inclusion of student voices (University of Pretoria nda) accompanying each of the messages:

- "I believe success starts in one's mind." (MBChB)
- "I managed to sort out my time management skills and now I can actually cope very well." (Bachelor of Education)
- "If you don't give up, you cannot fail." (BCom Accounting Sciences)

The second campaign was aligned with the period leading up to the final examinations and was an effort to combine various elements such as providing short, catchy, easy-to-follow study tips; motivating students to approach the examination with a growth mindset through the use of motivational quotes, and harnessing the talents of students by using their photographs portraying hope on campus. The result was a campaign with six messages delivered through posters, short videos, additional information on the FLY@UP website (University of Pretoria nda; University of Pretoria ndb) and social media:

- Study tip 1: Celebrate small victories.
    - "Success is not an accident. Success is a choice."
- Study tip 2: Start today, not tomorrow.
    - "Let your goals be bigger than your fears."
- Study tip 3: Study in short sessions of 30–50 minutes with a ten-minute break in-between.
    - "There is a big difference between not knowing and not knowing yet."
- Study tip 4: Do simple stretch exercises.
    - "It's not that I'm so smart, I just stay with problems longer."
- Study tip 5: Join or start a study group.
    - "A person can change their future by merely changing their attitude."
- Study tip 6: Drink water regularly.
    - "A challenge only becomes an obstacle when you bow to it."

Faculty Student Advisors play a key role in taking the message to the students. These advisors are qualified educational psychologists or people with equivalent qualifications and experience. First-year students are introduced to both the advisors and FLY@UP during the orientation period, when advisors present a session on the campaign and its messages. This activity serves a dual purpose in that it also puts faces to the names of advisors, which makes it less intimidating for a student to consult them. Continuing from there, the message is embedded in the University of Pretoria Online Extended Orientation (UPO) modules. There is a UPO module per faculty, facilitated by the relevant advisor(s) for each faculty. This online extension of the orientation has become the flagship project for FLY@UP. Unlike many other student success interventions – tutoring, mentoring and even advising – UPO is compulsory, not voluntary. Advisors monitor the students' work on the UPO modules so all students have a common experience, a common exposure to resources at UP, and engage with key skills such as time management, academic reading and writing, study methods and note-taking skills, stress management, and examination preparation. Advisors send weekly nudges encouraging students to complete the week's assessments by introducing the theme of the week and sharing a tip or motivational message. The advisors include in the nudges their contact details and an invitation to students to make individual appointments if necessary. In addition, in 2019, advisors presented generic group workshops of which students had to attend at least one as a requirement for UPO. This saw greater attendance than at any advising workshops in previous years and some students attended more than one workshop after realising the benefits. The overall completion rate for UPO in 2019 was 94%.

In reading Achieving the Dream (nd) literature or attending their conferences, one often hears "students don't do optional" but, given student timetables and constrained resources, it is not feasible to make additional activities compulsory. Owing to this fact, and the notorious reluctance of weaker or previously underserved students to access resources, most of the resources, such as mentors, tutors and even the advisory service, remain voluntary. Only in UPO has the University managed to introduce a compulsory, common grounding for students, which is what makes it so central to the FLY@UP campaign.

An added advantage of extended online orientation, and part of the vision of UPO, is providing a safe online environment for students who have never (or almost never) been exposed to computers and/or an online (learning) environment. One student commented in 2019 as follows:

> UPO is the first thing in this university that got me familiarised with a computer. To be honest I knew what a computer was but I was not used to doing school work or even playing with it. Now that was also the first mark in my studies because all my modules require me being hands on with a computer because of essays and all other online learning activities.
>
> Trust me when I say UPO is just not only an online module, it's a module that first year students can make use of to mark their first point towards their finish line. UPO is composed of activities and assignments that will make your learning experience worth it – hence it helped me set-up my goals, identify time wasters, improve my reading, observing and hands on (computer) skills, and lastly it helped me to analyse things that seemed unimportant and set my priorities in the right corner. Lastly UPO gave me a good kick off in my first semester with confidence and a positive attitude.

The manager has used social media as a strategy from the start, communicating on Facebook, Twitter and Instagram. These media enable interactivity with students, who express both negative and positive feedback. The channels are used to share information but also to promote the campaign with short videos, some of which were generated by students while others were professionally produced.

4.3 Stakeholder engagement

Stakeholder engagement focused on different segments.

4.3.1 Students

The on-campus posters drew everyone's attention, although the main target group was the students. Research conducted with a student panel by the Department of Institutional Planning (Nell 2016) showed that the posters and other activities had raised awareness among the majority of students. In total, 800 students of a panel of 1 922 completed the survey, which represents a 42% response rate. It seems that 80% of the respondents had some awareness of the campaign through the posters, the UP website, banners at the entrances and a big display on the library wall. At that early stage of the campaign, social media did not rank highly. Other activities aimed at the students included events in student spaces on the various

campuses that highlighted the advisors as well as units in the Department of Student Affairs, such as Student Health Services and Student Counselling Services. A competition was also launched, inviting students to enter "selfie" videos sharing their tips to graduate in minimum time. Responses to an open-ended question on what the campaign was about elicited various responses, the top three of which were academic motivation (45%), rapid degree completion (28.9%), and no waste of money and resources (8.4%). The responses to another open-ended question on the key messages reflected the main message of graduate on time (94%). Some students replied that they did not remember but others mentioned the University's slogan ("Make today matter"), working hard/consistently, not wasting money and striving for success.

The self-reported impact on students after the first year of implementation was a little disappointing: only 36% felt more motivated to work hard, 29.7% reported an improvement in marks, 32.2% claimed to be better prepared for tests and 35.7% believed that the campaign had changed their attitude towards their studies. The research was not repeated.

Attitude became a main focus in 2018 with the introduction of the growth mindset (Dweck 2007; Dweck 2015). In 2007, Dweck distinguished between a fixed and a growth mindset, the latter maintaining that everyone is able to learn. She sums up her initial idea as follows:

> We found that if we changed students' mindsets, we could boost their achievement. More precisely, students who believed their intelligence could be developed (a growth mindset) outperformed those who believed their intelligence was fixed (a fixed mindset). And when students learned through a structured program that they could 'grow their brains' and increase their intellectual abilities, they did better (2015 np).

Dweck writes:

> Perhaps the most common misconception is simply equating the growth mindset with effort. Certainly, effort is key for students' achievement, but it's not the only thing. Students need to try new strategies and seek input from others when they're stuck. They need this repertoire of approaches—not just sheer effort—to learn and improve (2015 np).

In other words, many students work hard but do not improve and might therefore become

demotivated. The second new idea that Dweck has introduced is the following:

> *How can we help educators adopt a deeper, true growth mindset, one that will show in their classroom practices?* You may be surprised by my answer: Let's legitimise the fixed mindset. Let's acknowledge that (1) we're all a mixture of fixed and growth mindsets, (2) we will probably always be, and (3) if we want to move closer to a growth mindset in our thoughts and practices, we need to stay in touch with our fixed-mindset thoughts and deeds (2015 np).

One of the biggest challenges is always to involve students directly in University initiatives. Members of the Student Representative Council (SRC) serve on governance committees such as the Senate and its sub-committees, but they send two or three students. The activities that are part of the FLY@UP campaign, whether face-to-face or online, have taken the campaign right to the students. Other student interactions focused on presentations to the SRC and to the class representatives once a semester.

Building on the interactions with student leaders, FLY@UP ambassadors were introduced. Student leaders were invited to lunchtime talks and workshops where they were encouraged to become FLY@UP ambassadors to carry forth the message of the campaign through being empowered. The talks and workshops were designed to give these leaders tools that they could use when presenting similar workshops to students under their leadership, for example, in their residences or Faculty Houses.

4.3.2 Staff

FLY@UP recognises that student success is everybody's responsibility, as strongly suggested by Tinto and Kuh, as well as change management theories such as invitational theory (see Chapter 1 for a discussion of the theory). As a result, an increasing focus on staff has emerged. Initially, staff members were merely made aware of the campaign. For example, each member of staff received a FLY@UP branded coaster, which contained a message from the Vice-Principal: Academic, thanking them for their contribution to UP's good examination statistics.

Since 2018, however, a greater focus on staff involvement has emerged. This strategy came about through a number of initiatives, most notably, perhaps, roadshows by the Vice-Principal: Academic, the FLY@UP manager and members of the FLY@UP team, and a roadshow to

all faculty academic administration departments, undertaken by the manager of FLY@UP. Breakfast or lunch events were organised for secretaries and administrative staff, who are often a student's first port of call. During these events, the focus was on positive sharing around everyday practices, that is, what staff already do to assist students. This sharing created an atmosphere of enablement and pride. The aim is to keep the events motivational as well as encouraging because these members of staff play a critical role in assisting and advising students towards graduating in minimum time.

A novel idea at the University in 2010 was the introduction of Faculty Student Advisors, who have proved invaluable in the services they provide to students (see Chapter 5). They enjoy the confidence of their faculties as well. If one were to draw a systems diagram, all student development paths would link to the advisors. They are involved in both the contact and the online (UPO) delivery of the first-year academic orientation programme, student FLY@UP events and, as mentioned earlier, monitoring student activity on UPO in their faculty. The advisors also refer students widely to tutorials, the mentorship programme, counselling, and so on. Recently, advisors have taken it upon themselves to assist in the arranging of various faculty-relevant interventions, such as career fairs, to inform students about their options and choices. The advisor for the Faculty of Natural and Agricultural Sciences formed ad hoc learning communities for Mathematics students. Similar learning communities were formed in other faculties, and workshops were converted into YouTube videos that are accessible around the clock.

4.3.3 Successes and challenges

One of the greatest challenges initially was getting students to attend workshops, and interact and engage during activations. Between 40% and 60% of students who booked for a workshop did not attend. With events arranged for students, the challenge was that students were reluctant to approach FLY@UP ambassadors and were only partly drawn by promotional items handed out with FLY@UP messages.

The solution to this challenge was not a simple one and, in 2019, an entirely different approach was followed after wide consultation with various departments within the University. The manager believed that the institution has all the resources available within its academic departments and various programmes to enable its students to come up with solutions. As

a result, in 2019 the FLY@UP campaign made a concerted effort not only to partner with as many structures offering resources as possible, but also to make use of student structures or class projects.

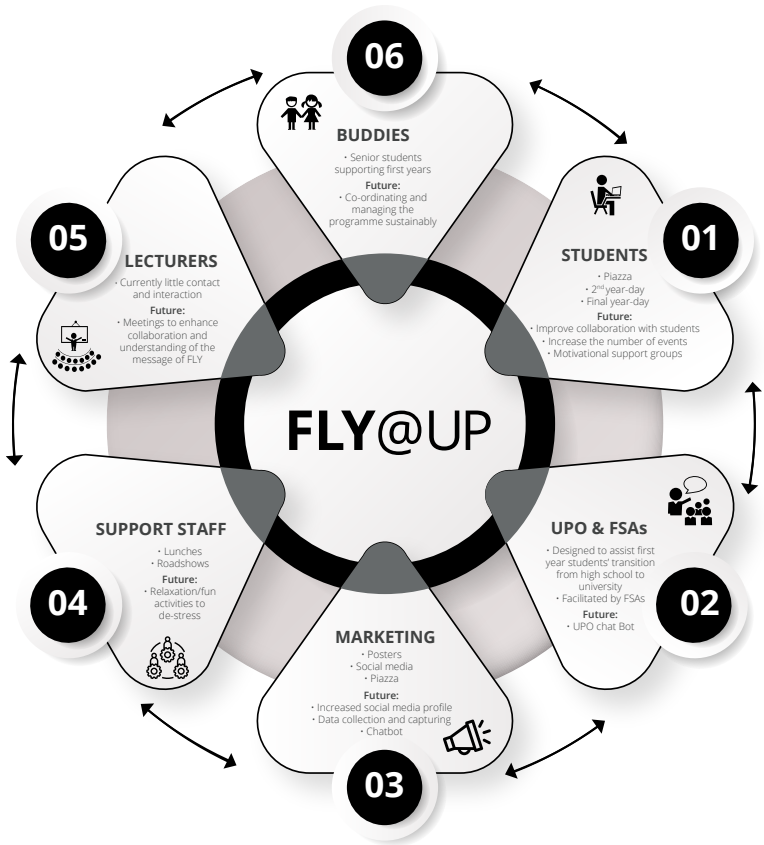


Figure 7.1: The FLY@UP model as it evolved

The momentum campaign (see Tinto: 2013-14:1) started in February 2019 with an open-air "activation" event, shortly after the orientation and the start of classes. A group of FLY@UP ambassadors (largely made up of students studying marketing) facilitated the day. Through this event, students were invited to "take the motivation they need". Motivational quotes were printed on note cards and pinned to a large notice board. Messages typically emphasised the importance of hard work and students taking responsibility for their studies and lives. Students could then take any of the note cards that had relevance in their lives. The focus

was on encouraging students to be mindful and to aim for a positive approach and outlook. This event was held in partnership with the University's Student Health Services and Student Counselling Services.

In April, FLY@UP hosted the first of its "fun days", which responded to students' feedback requesting some fun and relaxation. While it is clear from the University's research that academic success contributes to students' wellbeing, a balanced life does as well (see Chapter 5). Inflatables were set up for students to enjoy. The message was "work hard, play hard". This day was an important learning experience for the manager, especially in terms of logistics; for example, on this day, students had to stand in long queues to access the inflatables. Even though students had long waits, and some even had to leave without getting a chance to enjoy the inflatables owing to having class, the feedback was still overwhelmingly positive. Students loved the chance to relax and felt that the University cared about them and listened to their needs. The University, in focusing on student success, had approached the campaign single-mindedly while students focused on enjoying their student experience as well as on academic success. Approximately 450 students participated in the day's events and 112 provided feedback after the event, 67% rating it as excellent, 27.7% as very good, and the remaining 5.3% as either good or fair.

The May open-air event focused on examination preparation, and "examination survival kits" were handed out by, among others, a team of students from the marketing management Honours group. They interacted with students to make the day interactive, motivational and inspiring by explaining the meaning behind the kits and offering tips for the examinations. The feedback from students was positive and indicated that the kit addressed practical challenges the students faced, specifically that some of them lacked basic stationery (pens and notebooks) to prepare for and write their examinations. Students furthermore reported that they appreciated the information on where they could go to find help. Once again, feedback showed the impact of the intervention: students felt the University cares for them.

In the meantime, FLY@UP approached the marketing management Honours students to develop an innovative experiential marketing campaign to entice students to use the resources offered by UP. The students were tasked to create relevant, yet extraordinary, campaigns to generate student engagement with FLY@UP. The marketing students found the challenge to

be a valuable learning experience, as they were encouraged to think outside the box, but also in a practical way. The challenge not only gave students the opportunity to add value to FLY@UP, but also to provide the campaign with tools to help even more students in the future.

An idea that emerged from the marketing students was a senior student support day or, as it was called, "Eagle's Big League" support day. On this day, senior students were invited to learn about the University's support networks. Students were welcomed to the venue and received an empty FLY@UP bag, symbolising an empty toolkit, and were tasked with visiting all the interactive stalls highlighting various support structures. Marketing students running the stalls made use of games, pin boards, Faculty House representatives and mock set-ups for resources to make the displays interactive, attractive and fun. Once students' kits were full, they were (symbolically) equipped to "face their challenges", illustrated by their subsequently being allowed to complete the inflatable obstacle course and overcome their challenges.

Armed with more facilitators and online indemnity forms, FLY@UP hosted a second outdoor fun day to prepare students for examinations. Student Health Services and Psyche – a society of psychology students – together promoted the theme of mental health and wellness before the examinations. Students could get a henna tattoo in the form of a semi-colon, to support the de-stigmatisation of mental health issues and, in keeping with the global semi-colon initiative, implying that "the sentence does not stop here; there is life after depression, anxiety and even suicidal tendencies". Students further received tips to consider before "giving up" and an examination planner, in addition to the contact details of support resources handed out during the May examination. It was, once again, clear from the feedback that students felt the day offered them a much-needed opportunity to relax before starting earnest preparations for the examinations. Many students have also never had the opportunity to experience inflatables and thoroughly enjoyed letting their inner child run free. Others were motivated by physically overcoming their fear of heights, for example, and related that to being excited to overcome challenges in their studies.

Apart from offering support days, FLY@UP's manager felt the need to make a more tangible difference and thus partnered with a nearby optometrist who offered to test students' eyes and provide glasses at a discounted price. The glasses were paid for through FLY@UP and, to date, 130 pairs of glasses have been made. As is evident from the extract of feedback below,

students were grateful and felt that the glasses would make a positive change in their studies:

- "Receiving my glasses is a great privilege for me. It means I can focus on my studies without worrying about painful eyes or blurriness. It means I can see clearly in lectures and ease the tension from my eyes. Grateful for the opportunity given by the University and specsavers [optometrist], seeing clearly again is not something one should take for granted."
- "It means a lot to me because now I can focus in class and stand a greater chance at doing well. I am truly grateful."
- "It means that my sight has a bit more accuracy than before, which means I will be able to study even better!"
- "It really means a lot since I have been having eye problems since childhood but it has been hard for me to afford them. I have been struggling with my studies, more especially that in varsity we spend most of our time on computers or laptops. But now I am grateful for these glasses, thanks a lot to TUKS [UP], indeed, the finish line is mine. Thank you!"
- "This means the world to me and I'll be able to see clearly and realise my goal. I've been struggling to read but now that I have my reading glasses, I'll enjoy my books."

Finally, the manager of FLY@UP approached the Drama Department and was referred to the second-year drama students who agreed to showcase the messages of the campaign as their group assignment. These students managed to capture the essence of FLY@UP in an emotional and captivating performance that elicited reactions from the audience throughout. Students in the audience related to the messages and found hope in the dramatic and inspirational ending.

5 CONCLUSIONS

5.1 Student success

The University has expanded its understanding of student success and how the whole institution, as opposed to distinct segments, contributes to it.

- Student success is about more than marks. It is about meaningful experiences as a student, academically and psychosocially. It is about student well-being.
- Success is about more than what a university provides to the students. It is about what

students do for themselves, including accessing resources. It is about what they do for each other in teams and study groups.

- Student success is about more than university. It is also about success after university, as individuals, postgraduates or in the workplace. It is about independent learning as it relates to a lifelong-learning orientation.

5.2 Institutional preparedness

Institutional preparedness is core to achieving the goals of student success. All too often, students and their under-preparedness are blamed for poor academic success while, in fact, the university does not have adequate people, policies, processes and procedures in place.

Capacity has been built in all faculties to manage student success through the use of tutors, advisors and mentors, as well as data. Tutors and advisors have been successful in turning around problem modules or promoting student capacity to study better or attend to their wellbeing, which has improved both retention and success rates for individuals. Faculties therefore continually seek additional funding to scale both tutoring and advising.

Where policies have been found lacking, amendments have been proposed. Where processes have proved cumbersome, and a barrier to student access and success, they have been changed.

The student success team includes multiple stakeholders, including students. Staff who are not on the committee, but who in many ways are the frontline of contact between the organisation and the students (for instance, those in faculty administration, residences, Security Services, finance, and so on) have been drawn in through roadshows and consultation. The integration of services contributes to goal attainment. It takes a whole campus to educate and support a student to a successful outcome.

5.3 Student involvement

Student involvement was somewhat limited initially but has increased considerably with the maturing of the FLY@UP campaign. Student input is used for marketing and communication, and student leaders are involved as FLY@UP ambassadors. SRC members serve on the Senate Committee for Teaching and Learning, the FLY@UP Committee (previously the Student

Access and Success Committee), and Tshebi, the analytics committee. The Vice-Principal: Academic also consults twice a year with class representatives and brings them up to date with developments. The FLY@UP campaign involves as many students as possible on every campus through events at which advising and health services are present and has trained FLY@UP ambassadors to take the message to their fellow students. Students are also used to help with the orientation of first- year students, and feedback on the events is positive.

Students have been surveyed on the efficacy of tutoring, advising and mentoring, and the overwhelming majority agrees that they have benefitted from these interventions and would recommend them to others.

One of the key messages of the FLY@UP campaign is that students need to take responsibility for using resources to ensure their own success. That does not mean that the University can leave them to sink or swim. Regular events are needed to keep the message prominent for students and to foreground resources such as advisors or health services. Maintaining momentum is crucial.

References

Achieving the Dream. nd. https://www.achievingthedream.org/.

Complete College America. nd. Accessed 20 May 2015. https://completecollege.org/strategy/15-to- finish/.

Dweck, CS. 2007. *Mindset: The New Psychology of Success.* New York: Ballantine Books.

Dweck, CS. 2015. "Carol Dweck Revisits the 'Growth Mindset'." *Education Week.* Accessed 5 August 2019. https://www.edweek.org/ew/articles/2015/09/23/carol-dweck-revisits-the-growth-mindset.html.

Lemmens, J. 2018. *Siyaphumelela Nudging Campaign*. Unpublished report. University of Pretoria.

Mphanda, E, and J Lemmens. 2019. *A Trend Analysis of the Salient Reasons for Discontinuation: 2015– 2018*. Unpublished report. University of Pretoria.

Nell, C. 2016. "Awareness of the FLY@UP Campaign." PowerPoint presentation. Department of Institutional Planning, University of Pretoria.

Ogude, NA, WR Kilfoil, and G du Plessis. 2012. "An Institutional Model for Improving Student Retention and Success at the University of Pretoria." *International Journal of the First Year in Higher Education* 3(1): 21–34. ISSN: 1838-2959.

Tinto, V. 2013. "Promoting Student Success at Institutional Level." *CHE Regional Symposium on Conceptualising a Coherent Approach to Student Success*, 23 August 2013. Edited transcript of lecture 4. http://www.che.ac.za/content/regional-symposia-student-success-19-23-august-2013.

Tinto, V. 2013-14. "Isaac Newton and Student College Completion." *Journal of College Student Retention* 15(1): 1-7.

University of Hawai'i. nd. Accessed 21 May 2015. https://www.hawaii.edu/.

University of Pretoria. nda. FLY@UP website. https://www.up.ac.za/teaching-and-learning/article/2749000/news-and-events.

University of Pretoria. ndb. FLY@UP videos. https://bit.ly/204jaFr.

Chapter 8

Student Voices: From Periphery to Centre

H Byles and A Naidoo

Abstract

The success rate at the University of Pretoria fell in 2009 with the admission of the first students who wrote the outcomes-based National Senior Certificate. This fall prompted the Vice-Principal: Teaching and Learning to decide on a more integrated strategy for the student success initiatives in the University. Many voices contributed to the initiative, the first of which was an executive management voice. A need to improve existing student support and to provide increased support was raised by various levels of management and this resulted in the creation of a student access and success sub-committee of the Senate Committee for Teaching and Learning, a faculty-based approach to student success, and the introduction of Faculty Student Advisors. Advising was one of the first innovative steps in addressing the need to improve student success and added to existing tutoring and mentoring interventions. Next, attention was directed to modules with high failure rates, with a focus on lecturers and lecturer support. This strategy led to the voices of lecturers and advisors being heard, and their message was clear: students are unresponsive. The result was a realisation and consequent plan to give responsibility for their success back to the students. The voice of the academics sparked the development and implementation of the project, the **F**inish **L**ine is **Y**ours (FLY@UP). The many initiatives of FLY@UP gave a platform to the student voice through competitions, pledges and various activities that involved students. As a result, students felt heard and wanted to give back to the University in return. This chapter explores the impact of FLY@UP through the students' voices.

1 THE INCLUSION OF STUDENT VOICES

It is clear from Chapter 1 that change theories that influenced the University's model both directly and indirectly are human-centric. They advocate the involvement of all stakeholders in achieving effective change. Design theory – not discussed in Chapter 1, but also an approach to achieving change in complex situations creatively – goes further and advocates consultation with the users of services or products at various stages of the research and piloting of new

initiatives (The Interaction Design Foundation nd; IDEO U nd; Stanford University d.school nd; Career Foundry nd). The University's complex or "wicked" problem (extremely complex problem that could not be solved by old methods or by a single person or entity but needed innovative thinking and broad stakeholder involvement), as highlighted in several chapters, is student completion in minimum time across race and gender.

However, is it enough to coordinate, scale and foreground student success interventions intentionally to address this problem, when ideas are coming almost exclusively from staff? Students from formal structures are represented on governance committees, but usually only one or two students. The Vice-Principal: Academic initiated two meetings a year with class representatives, in addition to existing executive meetings with more formal structures, and tried to implement suggestions, but these efforts did not go far enough. FLY@UP involved formal structures in the ambassadors' programme (Chapter 7), but input into planning and the potential to receive systematic feedback from all students had to be achieved. What UP needed to accomplish is captured accurately by Wilson-Strydom (2015: 5): "Universities need to develop much deeper, contextualized understandings of who their students are and the complex web of conditions that influence what they can and cannot be and do as students".

2 THE CONTEXT FOR INCLUDING THE STUDENT VOICE

Many chapters look at how student support has grown at the University of Pretoria through effective leadership and increased institutional preparedness. To improve student success, it became necessary to look at it from other angles and perhaps ask different questions, or ask the same questions differently or to different people (Wilson-Strydom 2015). Tinto (2008) reminds us that student success in terms of the institution's perspective revolves around retention, whereas from the student's perspective the focus is on persistence. Consequently, this chapter brings in the voices of the students.

The University of Pretoria focused intentionally on student success, intentionality being another of Tinto's (2013) notions. Other chapters provide evidence of the use of resources geared towards student success. After the decline in success rates following the admission of the first students to write the outcomes-based National Senior Certificate, a need to increase student support was identified by executive leaders and resulted in the introduction of

Faculty Student Advisors (see Chapter 5), among other initiatives. Additional activities were to strengthen existing initiatives such as tutoring and mentoring and use data to support their improvement. These were only the first steps in addressing the need to improve student success. Next, attention was directed to modules with high failure rates (named high impact modules, which generally had high enrolments and served students in a range of programmes), with an emphasis on data, lecturers and lecturer support. This focus led to the voices of lecturers and advisors being heard, and their message was clear: students are unresponsive or under-prepared. The result was a realisation that perhaps the initiatives undertaken were too much about what the University could do for the students and not enough about what the students could do for themselves. Consequently, the University formed a plan to give the responsibility back to the student. In line with the theory in Chapter 1, it makes sense to change the lens to the student voice in this chapter, moving from the concept of retention (university's role) to persistence (student's role). Students are important stakeholders in the system and in their own success. In fact, students are agents who can choose to make resilient choices to use the necessary resources to succeed in their studies (Byles 2018). Such a student then has the potential to rise above apparent under-preparedness and obtain the capabilities to succeed (Rendón, Novak and Dowell 2005: 241).

In 2016, FLY@UP emerged from ideas put forward by staff. With the development of FLY@UP, attention moved closer to ideas put forward by students. Chapter 7 discusses student ambassadors and the involvement of BComHons (Marketing) students in planning engaging activities for students. The marketing students contributed to the development of proposals used to plan and execute student activities. Further, the FLY@UP activities of 2019 culminated in the drama production by second-year drama students. The wellbeing project discussed in Chapter 9 trained students to conduct the research to consult students extensively and intensively on what would contribute to their wellbeing.

From Astin's (1984) work, discussed in Chapter 1, it was evident that student involvement is critical for student success. In fact, students should be defined "as 'partners' in the construction of their success and 'co-conspirators' with an active role whereby university staff speak with, not for, students" (Allen and Nichols 2017: 124). For this reason, FLY@UP encouraged interaction with its "activations" throughout the year. In addition, interaction was encouraged through student buy-in achieved through using real student voices as part of the campaign.

3 STUDENT VOICES

Student voices were used to develop the first marketing video for FLY@UP. In year two of the project's existence, a student pledge day was held where students could sign the pledge to finish their degrees in the minimum time as registered in terms of the National Qualifications Framework. The motivational messages written by the students who made the pledge were used to create a mural that was on display for the entire year. This "meme" provided a form of motivation for the students, by the students. Students were able to see how their peers felt about the challenges to success:

- "Towards your reaching your goal, you are your only obstacle."
- "Show up for 7:30 class."
- "Keep up a good semester mark. You have no idea how it helps."
- "Set your mind to it and you will achieve."
- "Stop doubting yourself and make it happen."
- "Challenges will come but keep running – consistency will take you far."

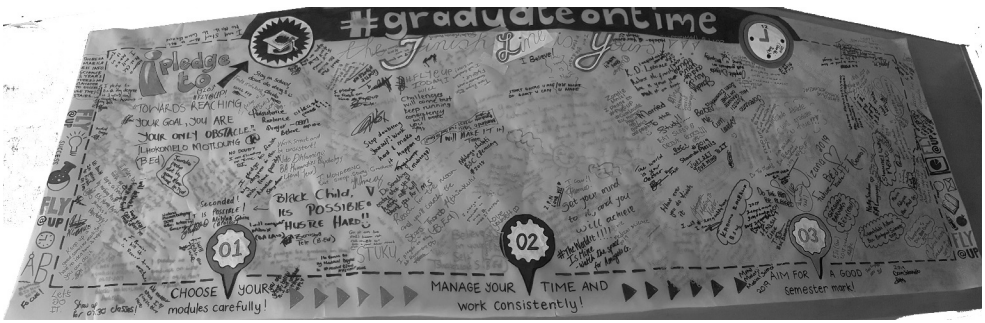


Figure 8.1: A photograph of the completed pledge

In 2018, student voices were used in the campaign launched in the first semester with the following messages:

- I am Boniswa, the finish line is mine because I went to my FSA for help instead of dropping a module I struggled with – Education student.
- I am Percy, the finish line is mine because I viewed difficult circumstances as opportunities to grow and enable me to reach one of my goals – Mathematics and Statistics student.

- I am Damien, the finish line is mine because I engaged with my lecturers who brought new meaning to the course work – Industrial Engineering student.

It was refreshing to hear from these three students that other students recognised them as they walked on the various campuses. Some stopped them to get more advice.

That year also saw the introduction of a competition where students could either share their FLY@UP experiences or their orientation success stories. These success stories were used as motivational student voices in the poster campaign supporting students through the examination period. They also gave professional services staff a glimpse of the challenges that students experienced on campus. The FLY@UP experience stories were taken up by the advisors to provide targeted support while the orientation stories were used to improve the programme for the following year.

From the experience of the previous years' successes, a further competition was launched in 2019. This time, students were invited to enter photographs that captured "hope on campus". The uptake was positive, with 42 students entering. Most of the entrants entered two photographs. Many of these photographs were used in the designs for the 2019 November examination campaign.

Students enabled others to hear their voices by sending in the following messages as part of the semester 2 campaign:

Student 1:

> Be a chameleon. Yes, our backgrounds are different. Our blending in capabilities vary. But always be mentally ready for anything that can instantaneously take you out of your comfort zone.
>
> #LifeAtTuks may sometimes be overwhelming because of academics, extracurricular activities, and so on. The University of Pretoria has an unbelievable range of student support services. Use them!
>
> Communicate your experiences. I have had a lot of academic and personal support because I have been aware of the kind of help that is available at the University for a number of things. Make sure you know where to access information and make the best use of it. #LifeAtTuks becomes even more of an amazing journey if you have a growth mindset so you can FLY@UP as you learn, impact and live the UP way :).

Student 2:

> My success, and development is highly dependent upon my own efforts and ability to adapt to change. Your future and destiny is in your hands, success was never going to be an easy journey.

Student 3:

> That people are important and that slowing down is not a bad thing. Taking a walk or a jog outside helps to clear your head. Ultimately, I learned that time is short, and it is good to work hard towards achieving a goal.

Student 4:

> Success is what you prioritise and what you put your efforts and passion into regardless of dire circumstances.

4 STUDENT INTERACTIONS

What follows is further evidence of how students, through their interaction in the various activities and exposure to on-campus and digital marketing of FLY@UP, perceive support at UP through their voices.

Longitudinal research at the University has indicated that course choice is the number-one reason why students do not finish their degrees in the minimum time. FLY@UP's response to this identification of course choice was to introduce an "educational pathway". Advisors facilitate the drawing up of the educational pathway plan with all first-year students at UP. It forms a map for the students and enables them to see the full picture of their engagement in their degree of choice. It further aims to guide students from the outset on the impact of dropping modules, once they come to the realisation that the degrees they are studying are not their ideal degrees or that they will not achieve the desired GPA as they are not coping.

To this end, FLY@UP began with the adoption of the message "choose your modules carefully", which was later adapted to "think carefully before choosing or dropping modules" and currently reads "choose your modules wisely". Here, the advisors play a pivotal role in guiding the students through these important decisions. The role of the advisor can only be of value if the students voice their dilemmas.

FLY@UP encourages students to adopt a growth mindset (Dweck 2016) and to aim at passing the degree for which they are enrolled, as it will teach them a variety of skills. The quote below shows how students grapple with where they find themselves.

Student 5:

> When I came to university I was anxious, you know I never knew what to expect. My first semester was very rough, I never got the marks that I expected to get. My first semester test results came through, and all my marks were less than 50%. By that time, I thought that University is not made for me. But then I picked myself up and told myself that there's no road to success that is easy. So I went all out and got extra help. So I then went to the faculty advisors and the student advisors for extra support and then I went with oomph to the supplementary exams and I passed them very well. My faculty advisors taught me how to have a proper time management and that has worked in hand and now I'm happy that I will excel in my modules and I will graduate on time.

Student 6:

> I remember applying for medicine last year and I was rejected. My teacher advised me to take B.Sc. Biological sciences and do a mid-year transfer. I took it as my second option against my parents will. During the Easter holidays my family kept asking me whether I had other options in case I don't make it. A week after recess I got chickenpox at res they said it was best if I went home so that I do not infect other students. It was heart breaking to leave knowing that a pile of work awaits. When I was home I kept getting notifications about school work, some days I cried and prayed. I came back after two weeks … I had lost hope and confidence. I was constantly reminded about how my faced looked and how I had missed out. I went for counselling and with the help of the lecturers, tutors, friends and my mentors I caught up, thrived and I survived.

Student 7:

> As a first year, coming straight from high school with admission into Veterinary Sciences which was my second choice, felt not that great but I was excited to finally come to learn independence. I'm the first one in my family to come to university, and that alone put a little bit of pressure on me that I must not play with this opportunity as we are not that advantaged at home and a lot was already expected from me. As soon as I started classes and wrote my first semester test, which was Chemistry, I just saw everything crash before my eyes. I just concluded that I was not cut out for University, even though had I nailed my Matric … The fact that I'm even doing a degree of my second choice added to my misery. It felt like I was thrown in the deep end. I was drowning. My first encounter with failure almost broke me down … I started to change my ways of studying. I put in a lot of effort in my academics from then on. Things

started changing for the better. I ended up passing all of my first semester modules. Even though I would be happy to get admitted into my first choice degree, I've fallen in love with Veterinary Sciences. Now I'm doing my second semester first year Vet modules, which I love. And in all of this experience, I learnt that hard work together with consistency are my two in one ticket to FLY at UP.

As this chapter reflects, the development of FLY@UP exposed the need to take into account the voices of the students. If FLY@UP had at its core that students take responsibility for their own studies, it was the obligation of the University to provide them with knowledge of, and access to, the necessary resources. As a result, all FLY@UP events were used as opportunities to gather feedback from students. Initially feedback was obtained at workshops held in the library. Here it became clear that students needed holistic support when it came to test and examination preparation.

5 INTEGRATED SUPPORT

As a result, FLY@UP events started to take on an integrated support approach by inviting dietetics students to do body measurements and advise students on healthy eating; HearX performed hearing screenings; Career Services, Library Services, advisors and student societies, day houses and faculty houses highlighted how they could impact on the students' lives. Later, FLY@UP entered into a partnership with Student Health Services and, from then on, activations always included academic and health resources as well as the other services mentioned above.

Students reported that these events and the "goodies" handed out (such as stationery and technology related items) that met their physical needs were well-received. Some comments from students were:

- Steps and coping skills are always beneficial.
- It will help me manage my time more effectively.
- It is nice to have support.
- I got a lot of information and guidance.
- Let's us feel that we not alone.
- It is inspiring what effort the university puts in me and encouraging me to succeed.

While the student voices were helpful in developing further support, they also provided the support team with a clearer understanding of the students' challenges while trying to achieve success at university.

Student 8:

> My story of success start from 1st year. I got pregnant during my first year, my parents disowned me and Shalitha and the AMOTO program was there for me. During my second year I couldn't walk for a week and TuksRes together with Shalitha and the clinic where there for me.

Student 9:

> Now among many students Geography is arguably one of the most challenging subjects especially if you don't have background knowledge in the subject. This was my experience last year when I came to the university almost failing Geography. But as soon as I saw the FLY@UP branding all around campus it changed my life. I started to take my academics seriously, I visited the student advisor who helped compile my timetable, she helped me with time management just to get my goals and career directions into place. So basically, I transitioned from feeling like Geography was this heavy weight on my academics to it now being my favorite module. I actually took it as an extra module this year when I didn't have to. It just reminded me of why I was here, which is to graduate but not only graduate, but graduate in minimum time.

In addition to the positive reports, feedback from students showed what they would like to see at future events:

- Academic games where students would win prizes for participating
- I would like to see entertainment
- More participation from students

Many students concurred that they would like entertainment at future events. They saw this as a means for students to make friends.

Student 10:

> When I first got to UP in 2016, I had no friends and being socially awkward didn't help even though I stayed at a Tuks Residence. Almost two to four weeks of lectures passed and the situation was not getting better and it had started to affect my academics.

Consequently, and in line with the request for holistic support prior to examinations, the team introduced fun days during examination preparation events. This decision meant the inclusion of fun activities such as inflatables (giant jumping castles) and games to supplement the academic message. BComHons (Marketing) students formed part of the team of students conveying the FLY@UP message. This innovation also opened up the possibility of changing students' behaviour in line with the fun theory. This theory states that fun is the easiest and most sustainable way to change behaviour: "Fun is not age, gender or race specific and is therefore the perfect vehicle to change a person's behaviour" (Chappell 2015).

Did the fun change behaviour? One might form the opinion that it did, based on the student voices heard after the events. Feedback is always elicited from students after activations and 98.2% of students felt that fun events add to student success. Feedback from students was as follows:

- Because as a student you deserve a breather from your studies every now and then to be able to have energy while studying.
- Having fun or doing activities activates your mind to do more.
- This event took place during test week for most students, including myself, so this helped in relieving stress.
- It reduced my anxieties about Tests and Exams.
- It was really thoughtful and motivational.
- It was very calming and gave me a fresh perspective about student habits and where I can improve.
- It help me calm down for a second during the hectic exam season that's approaching! I just got to calm down and that really helped.
- Because it helps students understand that every problem has a solution.
- It helps you relax and balance your studies.
- It refreshes your mind and gives you more reason not to give up in your studies.
- The exam kit equips with the necessary tools to help us pass well.

Furthermore, balance in student life involves both the social and the academic aspects. The fun days were especially useful for this:

- It is a great stress reliever and helps us bond with our friends and make great memories that we will remember forever.
- I believe that when the games hold meaning then they in themselves are a fun way to gain life skills and learn how to find balance in my life and studies.
- It's important to have a break and balance in school life.
- It keeps us aware of our metal health and other health. It helps us to relax.

6 CONCLUSION: LISTEN TO THE STUDENTS' VOICES

The student support team has gained from listening to the voices of the students. While these may have started as voices in the wilderness, they have caught the attention of the institution and have filtered through to all levels of management. Funds are set aside to meet the needs of the student through continued provision of opportunities to hear them.

Student voices have further highlighted the need for functions such as those of advising, as students acknowledge that the advice benefits them. The University has seen the need to make a number of positions permanent to provide a more secure environment for staff to perform optimally.

Student preparedness and success are not only about what students bring from their schools academically. They entail opportunities to develop holistically at university, to learn to stand on their own feet much more in terms of their studies, to use all resources available, to have input into initiatives that concern them integrally and to have their voices heard.

Formal student structures provide a place for student voices, as do student societies. However, student voices are also vital to any student success campaign as students listen to their peers and consult them, as some examples in this chapter have shown. Students regularly give summative feedback on teaching but, more often than not, they do not receive evidence that their voices were heard (mainly because they have progressed to another module). Through using material produced in competitions and implementing feedback received on activations, it is evident to students that the University is attending to their voices.

It is easy enough to emulate the activities discussed in this Chapter although resources are needed, however limited, as is dedicated management.

References

Allen, J. and C Nichols. 2017. "Do you hear me? Student voice, academic success and retention." *Student Success*, 8(2): 123-129. doi: 10.5204/ssj.v8i2.387.

Astin, AW. 1984. "Student Involvement: A Developmental Theory for Higher Education." *Journal of College Student Personnel*, 25(4): 297–308. Accessed August 24, 2019. https://www.researchgate.net/publication/220017441_Student_Involvement_A_Development_Theory_for_Higher_Education.

Byles, H. 2018. *Race, Class and the Equity Dilemma: Examining the Usefulness of a Biographical Questionnaire in Identifying Resilient-Agency (R-A) to Supplement Admission Criteria into the University of Pretoria*. Doctoral dissertation, University of Pretoria. Accessed 21 October 2020. https://www.nihss.ac.za/content/race-class-and-equity-dilemma-examining-usefulness-biographical-questionnaire-identifying.

Career Foundry. nd. "What Is Design Thinking? A Comprehensive Beginners' Guide." Accessed April 30, 2019. https://careerfoundry.com/en/blog/ux-design/what-is-design-thinking-everything-you-need-to-know-to-get-started/.

Chappell, B. 2015. "Sustainability + Fun = A Change in Behaviour." *Environment, Ethics and Cultures: Design and Technology Education's Contribution to Sustainable Global Futures*, edited by K Stables and S Keirl. Accessed 22 October 2020. https://ebookcentral-proquest-com.uplib.idm.oclc.org/lib/pretoria-ebooks/detail.action?docID=3035052.

Dweck, C. 2016. *Manage Yourself: What Having a "Growth Mindset" Actually Means*. Boston, Massachusetts: Harvard Business School Publishing Corporation.

IDEO U. nd. "Design Thinking." Accessed 30 April 2019. https://www.ideou.com/pages/design-thinking.

The Interaction Design Foundation. nd. "5 Stages in the Design Thinking Process." Accessed30 April 2019. https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process.

Rendón, L, I Novak, and D Dowell. 2005. "Testing Race-Neutral Admissions Models: Lessons from California State University-Long Beach." *The Review of Higher Education*, 28(2): 221–243.

Stanford University d.school. nd. "Get Started with Design Thinking." Accessed 30 April 2019. https://dschool.stanford.edu/resources/getting-started-with-design-thinking; https://dschool.stanford.edu/resources-collections/a-virtual-crash-course-in-design-thinking.

Tinto, V. 2008. "Access Without Support Is Not Opportunity." Keynote given at annual conference of the National Institute for Staff and Organizational Development, of the University of Texas at Austin. Accessed 20 August 2019. https://www.insidehighered.com/views/2008/06/09/access-without-support-notopportunity.

Tinto, V. 2013. "Promoting Student Success at Institutional Level." CHE Regional Symposium on *Conceptualising a Coherent Approach to Student Success*, 23 August 2013. Edited transcript of lecture 4. http://www.che.ac.za/content/regional-symposia-student-success-19-23-august-2013.

Wilson-Strydom, M. 2015. "Access and Success – Transitions into and through Higher Education." Briefing paper prepared for the second national Higher Education Transformation Summit, 2015. Available from https://www.justice.gov.za/commissions/FeesHET/docs/2015-HESummit-Annexure12.pdf

Chapter 9

Pathways to Wellbeing and Quality Education at University

I Eloff

Abstract

Student wellbeing has increasingly been anchored to the provision of quality education for undergraduate university students. In addition to positive academic outcomes for individual students and institutions, investments in student wellbeing may also yield positive societal outcomes for wellbeing at the systems level in the long term. This chapter aligns with the principles of care, optimism, respect, trust, and intentionality of invitational education. It reports on a multi-year, mixed methods wellbeing study that was conducted at a large, urban university in an African context within a broader project of support to undergraduate students, ie FLY@UP. The five pillars of invitational education (people, places, policies, programmes and processes) were expanded to include principles, professional teaching and high impact practices. The ongoing wellbeing study explores and investigates undergraduate student wellbeing both qualitatively and quantitatively. The study is conducted in three phases, which investigated (i) the status of students' wellbeing, (ii) in-depth understandings of certain wellbeing outcomes and (iii) student wellbeing over the course of the academic year, along with the various ways in which student wellbeing is supported at the institutional level. Data collection included rapid face-to-face interviews in nine university faculties on five campuses with undergraduate students (n=2 480), multiple focus groups (n=11) that ensured wide representivity from all scientific disciplines and quantitative measurement of psychological wellbeing over the course of an academic year. Psychological measures included the Flourishing Scale (FS), the Fragility of Happiness Scale (FOHS) and the Mental Health Continuum Short Form (MHC-SF). Baseline data (n=551) and follow-up data (n=281) were collected on all three scales at the beginning, and follow-up data were collected at the end of an academic year. This chapter presents a reflexive report on the overall findings that emerged from the project. While key empirical findings from the study continue to be presented on various platforms, this chapter will focus on the *process* of implementing an ongoing, empirically driven wellbeing project at an African university. The chapter highlights the potential of an integrated approach to wellbeing, the synergies between students and their learning environments, the importance of nuanced understandings of student wellbeing and the criticality of leadership at the executive level to support student wellbeing.

1 INTRODUCTION

Student wellbeing has increasingly been anchored to the provision of quality education for undergraduate university students. In addition to positive academic outcomes for individual students and institutions, investments in student wellbeing may also yield positive societal outcomes for wellbeing at the systems level in the long term.

A multi-year, mixed methods study was conducted at UP to explore undergraduate student wellbeing comprehensively. The purpose of the study was to collect qualitative and quantitative data on student wellbeing at the University of Pretoria and to investigate and deepen understandings of student wellbeing. Wellbeing was defined in terms of both hedonic wellbeing (eg feelings and non-cognitive expressions of an individual or a community's experience or state) and eudemonic wellbeing, which views wellbeing as a relational activity and a long-term practice of "being well".

2 PHASES OF THE WELLBEING PROJECT

The study was conducted in three phases, which investigated:

i) the status of students' wellbeing,

ii) in-depth understandings of certain wellbeing outcomes and

iii) quantitative assessment of undergraduate student wellbeing during the course of the academic year, as well as the various ways in which student wellbeing is supported at the institutional level within existing structures.

Phase 1 involved one-question data collection, the question being: "What contributes to your wellbeing as a student at the University of Pretoria?".

The focus was rapid face-to-face interviews in nine faculties on five campuses with undergraduate students above first year (n=2 480), using postgraduate students from the helping professions (Educational Psychology, Industrial Psychology, Clinical and Counselling Psychology and Social Work) as fieldworkers. Fieldworkers were trained in research ethics, wellbeing theory and data collection in the social sciences prior to entering the research field. The data collection also involved biograhical variables on age, race, gender, province, citizenship, language, and academic programme.

Phase 2 involved multiple focus groups (n=11) with wide representivity from all scientific disciplines, as well as student residences and international students. Experienced researchers from Psychology and Social Work were briefed as facilitators and utilised the same semi-structured interview protocol. The interviews focused on the results of phase 1 but also sought to answer the question "Why and how do certain factors contribute to student wellbeing at the University of Pretoria?". Focus group facilitators also intended to garner more in-depth insights into the findings from phase 1 of the project.

Phase 3 saw the quantitative measurement of psychological wellbeing over the course of an academic year to answer the question "How can student wellbeing be enhanced at the University of Pretoria?". Psychological measures included the Flourishing Scale, the Fragility of Happiness Scale and the Mental Health Continuum Short Form. These three measures have been used in diverse student populations in numerous countries, including South Africa (Keyes et al 2008; Schutte and Wissing 2017), and resonate with studies in other contexts (Dimalghani 2018). Baseline data (n=551) were collected on all three scales at the beginning (February/March) and follow-up data (n=281) were collected on all three scales at the end of an academic year (September/October). Student leaders from all the UP residences who were responsible for wellbeing (eg Wellbeing House Committee members) were provided with background to the project and requested to encourage students in their residence to participate in the electronic surveys with the three instruments. In addition, data were collected about existing wellbeing interventions at the UP residences.

Examples of successful wellbeing interventions that use minimal resources, that are student-generated and that can be implemented in a short period of time have been proven to have positive effects. All residence students at UP have been widely exposed to numerous wellbeing interventions that are tailored to the needs of the specific residence. The Woku-donsa wellbeing project provides access to additional wellbeing resources for all undergraduate students at UP. Many students have designed short wellbeing interventions, such as morning walks, social connection activities, financial wellbeing, peace gardens, prayer sessions for a variety of spiritual and faith groups, expert lectures and life skills education.

3 FINDINGS FROM THE WELLBEING PROJECT

3.1 Phase 1

Basically, the data from phase 1 showed that most students appeared to be doing fairly well and that there are multiple factors that support their wellbeing. Two key findings that impact on student wellbeing were found to be:

(i) a quality learning environment and

(ii) the critical role of academic and support staff.

It is important to note that the students indicated many issues under the broad theme of the quality of the learning environment. These included facilities in lecture halls, Wi-Fi, gardens to take a break in, access to affordable food options, and the library. It is also important to note that the role of academic and support staff is not necessarily framed in terms of personal counselling for wellbeing. Rather, students indicated the professionalism, preparedness and expertise of lecturers as factors that support their wellbeing (Eloff, O'Neil and Kanengoni 2021). They did mention a caring attitude during staff–student interactions as a factor that supports their wellbeing, but it is mentioned without the expectation of psychological expertise being present.

Table 9.1: Key themes and data on support factors for student wellbeing	
Theme	Example extracts from data
Quality learning environment	"The learning environment such as lecture halls, the library and the labs are well conducive for teaching and learning. There is great student support such as FSA's who assisted me with academic, personal and career goals. There is a wide array of extra-curricular activities such as leadership committees. This builds ones experience and exposes one to a different kind of support system. Fly@UP workshops and activators also disseminate useful information that helps students such as exam preparations and health and wellness." "Access to and from campus. Equipment that works such as overhead projectors and computers. These devices eases learning but if they don't work it can be greatly frustrating. Venues that are large enough and well ventilated especially on days when it's 30 °C+ outside. Funding for paying for studies as well as necessities such as accommodation and food where possible." "The well maintained campuses and learning environment. The fact that tuks creates a environment full of students who mostly have the same feeling towards learning. Well organised in their way they convey knowledge. The food is good and serves a array of students with different needs at the cafeteria." "What contributes to my wellbeing is being free from lack in terms of social wise such as : living in a healthy and safe res, having facilities to be able to do my school work, having food/healthy meal everyday, making sure I pass my modules, being able to have transport to go to school and attend lectures."
Role of academic and support staff	"People who are friendly and willing to help. Lecturers that are well scheduled. Lecturers who are understanding and willing to help. Availability of resources and study areas. Medical help available to all students." "Attitudes and enthusiasm of lecturers. Workload and the time for workload. Finances. Relationships and friends. My physical health. Whether I enjoy my subjects." "Some of my lecturers and tutors care about my wellbeing. The time and amount of work I have and get. My finances. My physical and mental health." "The help/assistance that we get from our lecturers/tutors with regards to academics. The help we get from counselors on campus as well as the clinic being there to assist us. The counselors are really helpful to talk to and they keep it all confidential which makes me feel safe." "Academics, effective lecturers and tutorials, safety, consultation times that are given to us." "The lecturers are supportive and prioritise every student that reaches out to them. Students are not just a number."

In addition to the dominant themes, the students also lifted out the following factors as *secondary themes*:

i. The safety and security they experience on campus
ii. The infrastructure to which they have access
iii. The student residences and the inherent support they have there
iv. Academic and student support

Table 9.2: Secondary themes and data on support factors for student wellbeing

Theme	Example extracts from data
The safety and security on campus	"The relative safety and social atmosphere on campus is one the strongest points that contributes to my wellbeing as a student on campus." "Academics, effective lecturers and tutorials, safety, consultation times that are given to us." "The fact that there are systems put in place to help the students. From security guards and cameras that keep students safe to counsellors who are always prepared to talk with students and friends and different societies helping with relaxing the mind after after hard work."
Infrastructure	"I go to the library to read novels I enjoy the peace and the books that surround me. I love sitting under the trees." "The student support centre. They have excellent psychologists that give excellent assistance with regards to deal with anxiety and stress. They also give great advice for other personal issues not regarding university." "The resources found in campus like library, labs, tutors, student advidsors, student health centre."
Student residences	"The support system of the university is very good and there are always someone to talk to in any situation. The res also gives a lot of attention to our well-being as students." "There is a good support structure available at the residences as well as on campus (House committee members and campus psychologists). I also have very supportive friends and family members who are always available." "As a residential student, I constantly make sure that I attend wellbeing sessions that are prepared by Tuks. The food that is prepared for us also contributes to my wellbeing because they do try to make a variety of vegetables. It is much easier for me to get to campus because my residence is nearby."
Academic and student support	"FLY@UP, excellent study material, great library services, good moral support," "The advice from faculty student advisors. Mentors. FLY@UP programme." "Balanced lifestyle. Student support services. Spaces to voice out my opinion. Academic support. Proper access to facilities. Non-victimisation by security and academics."

Many students indicated that their own academic success contributed to their wellbeing. Thereby, themes such as "academic support", "access to Wi-Fi" (ie infrastructure) and "supportive lecturers" were closely related to their academic success first, and then their wellbeing followed as a result (Eloff 2021; Eloff, O'Neil and Kanengoni 2021). The factors that students mention as supportive of their wellbeing are often tied together as a bundle of support factors. These vary from student to student, but the general themes remain fairly consistent across the data set.

In accordance with literature in the wellbeing field (Guse and Vermaak 2011; Wissing 2013), the students also mentioned:

i. Relationships
ii. Engagement
iii. Spiritual life
iv. Extra-curricular activities

Table 9.3: Themes and data on support factors for student wellbeing that connect to wellbeing constructs

Theme	Example extracts from data
Relationships	"My wellbeing is contributed through the relationships I have managed to build throughout my degree here at the university. Also getting to know individuals of different backgrounds has helped in that regard. Because it broadens my view of the world I am living in." "Having relationships with friends that study the same degree as you for motivation. Maintaining relationships with lecturers, as well as the tutors and mentors." "Positive relationships with peers means better access to study material [and] will [make] better learning experience, making handling workload easier."
Engagement	"Positive lecturers, stress reduced/free stress level relationships, peer associates, attending extra curriculum activities such as societies and having to attend socials. Sometimes attending to Ovuwa performing reduces school stress and calms the mind. Finding an identity, somewhere too fit in contributes to the general wellbeing. Mostly importantly being accepted by other races as one of them has made a great impact on my general wellbeing, although there are still challenges for a few individuals to accept this concept at universities." "The availability of the student health centre and the various societies as well as tutors who can help with my academics." "The food at the café. All the societies. All the friendly people. The free Wi-Fi."

Spiritual life	"Social activities. Friendships. Conversations with God. Being alone (solitude). Going for walks. Familiy relationships (calling home)." "Balanced study and life programme. Being able to share experiences with other people. Being able to go home to res and talk to my friends. Doing things such as serrie, sports, etc. Being well fed, fit and healthy. Growing spiritually and drawing closer to God." "Friendships/Relationships. Attending church services and homecell at res. Attending various events hosted at UP or by any societies on campus."
Extra-curricular activities	"I believe that performing well academically reduces stress and boosts selfconfidence, which positively contributes to wellbeing. A student also needs a good support system. One needs to be surrounded by friends and family who will support them during difficult times. Doing the things you love such as participating in sports, dancing, singing, etc, which make you happy will contribute positively towards your wellbeing." "Sleeping. Playing sport and sharing problems with friends." "State of the art facilities, access to different learning platforms, Convenience, Extra Curricullum activities, Societies and Clubs, Security measures, Diversity and standard of academic excellence."

This third and last tier of data was interesting since relationships, engagement, spiritual life and extra-curricular activities have been shown to have direct positive effects on wellbeing and are often found to be dominant themes in other populations (Pezirkianidis et al 2019; Turner and Theilking 2019; Cobo-Rendón et al 2020), but were found to be less pertinently mentioned by this group. This might be a function of the specificity of the research question that necessitated a response to the factors that are specific to the University itself. Nevertheless, this finding perhaps then provides an opportunity to broaden and build on these aspects of wellbeing within the UP context in the future, by intentionally creating environments where this can be strengthened. In addition, there seemed to be limited awareness of internal and external locus of control within the responses of the participants, and many of the responses were contained within only one or two domains of wellbeing, eg positive emotion, engagement, relationship, meaning and achievement.

3.2 Phase 2

During the focus groups in phase 2, opportunities were afforded to explore the findings from phase 1 in more depth. The quality of the learning environment at UP emerged again, with the

gardens and the safety and security on campus again bearing special mention.

The prominence of quality relationships now emerged more strongly – often tying together the various aspects that students mention as supportive of their wellbeing. Students mentioned close relationships with peers and family members, the importance of a sense of community within UP, and again the crucial role of mentors and lecturers.

Importantly, personal agency now emerged strongly as a factor that contributes to their wellbeing. From the focus group data, themes emerged that indicate that students were taking responsibility for their own wellbeing, making time for pleasure (eg hedonic wellbeing), giving back to others, and finding a life purpose. Doing well academically was indicated again as a critical factor that increases wellbeing.

Table 9.4: Wellbeing themes from the focus groups

Theme	Example extracts from data
Quality relationships	"... the sense of community ... the society around campus ... I can sit on the piazza and talk to people, like ... friendly faces." "... [lecturers] ... are an invaluable resource ... a source of well-being and the students just need to use it"... " if you go to them they will help they help." "... he takes genuine interest in every single student." "... support in the university, it could be financially, it could be personally, it could be academically."
Personal agency	"... forcing yourself doing the things you don't always feel like doing... when you look back, wow ... that builds well-being." "... engaging in things that make me happy, like watching series." "... contributing to the community and those around me." "... looking outside yourself." "... student societies like ... you can feel yourself making a contribution so that makes you feel better about yourself and ... it lessens the stress." "... academic success, so if you do well academically then your wellbeing is part of that."

3.3 Phase 3

The data for phase 3 were collected during the 2019 academic year – February and March

for the baseline and September and October for the follow-up. The results from the three psychometric instruments – the Flourishing Scale, the Fragility of Happiness Scale and the Mental Health Continuum Short Form – indicate significant declines in the mental health and wellbeing of the sample population over the course of the academic year, and have been published (Eloff and Graham 2020).

The decline in mental health and wellbeing over the course of the academic year persists for comparisons between the same group and separate, but comparable groups. Two separate comparisons were made, based on the baseline data (n=551) and on the follow-up data (n=281). In the first comparison (Group 1, baseline, n=443; follow-up, n=173), two independent, biographically (very) similar groups were compared. In the second comparison (Group 2, n=108) the results from the baseline and follow-up of the same group of students who completed the instruments at both time points were compared (Eloff and Graham 2020).

Both follow-up groups showed lower psychological, emotional and social wellbeing, lower psychological flourishing, and also reduced mental health on several of the items in the three scales (Eloff and Graham 2020).

Table 9.5 presents the individual items on each scale where a decline occurred during the course of the academic year for the participants in phase 3 of this study.

Table 9.5: Items indicating a decline in mental health and wellbeing over the course of the academic year

Mental Health Continuum Short Form			The Flourishing Scale			The Fragility of Happiness Scale		
	Group 1	Group 2		Group 1	Group 2		Group 1	Group 2
During the past month, how often did you feel: Happy?	✓	✓	I lead a purposeful and meaningful life.		✓	It is likely that our happiness could be reduced to unhappiness with a simple accident		✓
During the past month, how often did you feel: Interested in life?	✓	✓	I am engaged and interested in my daily activities.	✓	✓			

During the past month, how often did you feel: Satisfied with life?	✓		I am competent and capable in the activities that are important to me.	✓	✓			
During the past month, how often did you feel: That you belonged to a community?	✓	✓	I am a good person and live a good life.	✓	✓			
During the past month, how often did you feel: That our society is a good place or is becoming a better place for all people?	✓	✓						
During the past month, how often did you feel that people are basically good?	✓	✓						
During the past month, how often did you feel: That the way our society works makes sense to you?	✓							
During the past month, how often did you feel: That you liked most parts of your personality?	✓							
During the past month, how often did you feel: Good at managing the responsibilities of your daily life?	✓							

During the past month, how often did you feel: That you had experiences that challenged you to grow and become a better person?	✓							
During the past month, how often did you feel: That your life has a sense of direction or meaning to it?	✓							

On the Mental Health Continuum Short Form, individuals who exhibit low levels on at least one measure (item) of hedonic wellbeing and on at least six measures (items) of positive functioning are diagnosed with languishing mental health (Keyes 2005; Keyes 2006). In this study, there was a decline on 11 items for participants in this group.

The Flourishing Scale (Diener et al 2009; Schotanus-Dijkstra et al 2016) is an eight-item measure of relationships, self-esteem, purpose, and optimism as reported by the participant's self-perceived success in these areas. The scale provides a single psychological wellbeing score with 8 as the lowest possible score and 56 as the highest possible score. The mean scores for both groups at baseline and follow-up in this study ranged between 19.33 and 19.88 with medians between 20 and 21. There was a decline over the course of the academic year on four items.

The Fragility of Happiness Scale (Joshanloo et al 2015) showed only one decline for one group over the course of the academic year, viz on the item that assesses perceptions on whether happiness can be reduced to unhappiness with a simple accident. This scale measures fragility of happiness beliefs and has demonstrated acceptable validity, reliability, and measurement invariance in 15 cultures (Joshanloo et al 2015).

In summary, the findings from the quantitative phase of the Student Wellbeing project provide specific pointers on the areas where interventions can be focused. From these results, it seems that wellbeing initiatives should include self-efficacy, sense of direction, meaning and creating a sense of belonging as organising themes (Eloff and Graham, 2020).

4 CONCLUSIONS

The UP Student Wellbeing project highlights the potential of an integrated approach to wellbeing, the importance of flexible implementation options and the criticality of leadership at the executive level to support student wellbeing.

4.1 THE IMPORTANCE OF THE QUALITY OF THE LEARNING ENVIRONMENT IN STUDENT WELLBEING

When we consider the ways in which the wellbeing of university students can be developed, we often think about the "people" factors. We think of what student counsellors can do, what psychologists can do, what tutors and advisors can do, and the ways in which students themselves can take responsibility for their own wellbeing. These are important considerations. However, the findings from this project show that the quality of the learning environment impacts substantially on their wellbeing too. Investment in the quality of the learning environment can therefore support the wellbeing of university students in direct and indirect ways. Expanding our notions of "student wellbeing" to include the importance of their learning environments may therefore optimise their available support.

4.2 PROACTIVITY REGARDING DECLINES IN STUDENT MENTAL HEALTH THROUGH THE ACADEMIC YEAR

The quantitative findings from this project indicate pertinent declines in mental health and wellbeing for significant numbers of the student participants in this project. These declines were captured on three contextually reliable and valid psychometric instruments in two comparison groups. While the declines might be ascribed to the stress associated with pending examinations towards the end of the academic year, they still need some consideration as they pertain to student support. An item analysis of the three scales provides some guidance on the areas where declines are taking place (see Table 6.5). As mentioned, intentional interventions that address self-efficacy, sense of direction, meaning and creating a sense of belonging might be beneficial in the long term.

References

Cobo-Rendón, R, MV Pérez-Villalobos, D Páez-Rovira, and M Gracia-Leiva. 2020. "A Longitudinal Study: Affective Wellbeing, Psychological Wellbeing, Self-Efficacy and Academic Performance among First-Year Undergraduate Students." *Scandinavian Journal of Psychology* 61(4): 518–526. https://doi.org/10.1111/sjop.12618.

Diener, E, D Wirtz, W Tov, C Kim-Prieto, D Choi, S Oishi, and R Biswas-Diener. 2009. "New Measures of Well-being: Flourishing and Positive and Negative Feelings." *Social Indicators Research* 39: 247–266.

Dimalghani, M. 2018. "Importance of Religion or Spirituality and Mental Health in Canada." *Journal of Religion and Health* 57: 120–135.

Eloff, I. and M Graham. 2020. "Measuring Mental Health and Wellbeing of South African Undergraduate Students." *Global Mental Health* 7, e34, 1–10.

Eloff, I. 2021. "Student Wellbeing and Access to Technology: New Landscapes in Student Support" 299-311. In *Agile Coping in the Digital Workplace* by N Ferreira, IL Potgieter and M Coetzee. London: Springer Nature.

Eloff, I, S O'Neil and H Kanengoni. 2021. "Students' Well-being in Tertiary Environments: Insights into the (Unrecognised) Role of Lecturers." *Teaching in Higher Education*, e1-22.

Guse, T and Y Vermaak. 2011. "Hope, Psychosocial Well-being and Socioeconomic Status among a Group of South African Adolescents." *Journal of Psychology in Africa* 21(4).

Joshanloo, M, D Weijers, D Jiang, G Han, J Bae, J Pang, L Ho, et al. 2015. "Fragility of Happiness Beliefs across 15 National Groups." *Journal of Happiness Studies*, 16: 1185–1210.

Keyes, CLM. 2005. "The Subjective Well-being of America's Youth: Toward a Comprehensive Assessment." *Adolescent and Family Health* 4: 3–11.

Keyes, CLM. 2006. "Mental Health in Adolescence: Is America's Youth Flourishing?" *American Journal of Orthopsychiatry* 76: 395–402.

Keyes, CLM, M Wissing, JP Potgieter, M Temane, A Kruger and S van Rooy. 2008. "Evaluation of the Mental Health Continuum–Short Form (MHC–SF) in Setswana-Speaking South Africans." *Clinical Psychology and Psychotherapy* 15: 181–192.

Pezirkianidis, C, A Stalikas, A Lakioti and V Yotsidi. 2019. "Validating a Multidimensional Measure of Wellbeing in Greece: Translation, Factor Structure, and Measurement Invariance of the Perma Profiler." *Current Psychology*. https://doi.org/10.1007/s12144-019-00236-7.

Schotanus-Dijkstra, M, PM Ten Klooster, CH Drossaert, ME Pieterse, L Bolier, JA Walburg, and ET Bohlmeijer. 2016. "Validation of the Flourishing Scale in a Sample of People with Suboptimal Levels of Mental Well-being." *BMC Psychology* 4(12). https://doi.org/10.1186/s40359-016-0116-5.

Schutte, L and M Wissing. 2017. "Clarifying the Factor Structure of the Mental Health Continuum Short Form in Three Languages: A Bifactor Exploratory Structural Equation Modeling Approach." *Society and Mental Health* 7(3): 142–158

Turner, K and M Theilking. 2019. "Teacher Wellbeing: Its Effects on Teaching Practice and Student Learning." *Issues in Educational Research* 29(3): 938–960.

Wissing, MP (Ed). 2013. "Well-being Research in South Africa." Series: *Cross-Cultural Advancements in Positive Psychology*, volume 4. New York: Springer.

Chapter 10

Preparing for Success beyond University

WR Kilfoil, E Liebenberg, R Vally and A Antonites

Abstract

Higher education has in the past been regarded as an ivory tower for the creation and transmission of knowledge, not necessarily to contribute directly to the employability skills and prospects of university graduates. Except in professional qualifications with quite extensive work-based learning requirements, it was understood that graduates might enter a range of occupations aligned to their disciplinary knowledge and that context-specific skills would be acquired in the workplace. Nowadays, graduates are ideally expected to integrate more smoothly into the workplace environment after completion of their studies if they do not proceed to postgraduate studies. The absorption of graduates into the economy helps to reduce the worrying youth unemployment in South Africa. Though higher education institutions are increasingly tasked to produce work-ready graduates, their integration into the workplace is not without concern. Employers are faced with multiple applications for every position they advertise. Do the University's graduates have the edge over other graduates when it comes to being shortlisted for the interview and getting the job? Do these graduates know what skills and behaviours are valued in the workplace? The world of work, as personified by employers, has pointed to soft skills in addition to disciplinary knowledge needed to enhance the employability status of graduates and their immediate contribution to growing a skilled workforce to build the country's economy.

All University of Pretoria graduates acquire excellent disciplinary knowledge and the rate of their absorption into workplace within six months of graduation also indicates a sound level of preparedness. Yet, the University believes that as part of its conceptualisation of student success it should endeavour to buck the trend of the current dismal economic outlook through graduating young adults ready for work and/or lifelong learning. A free extra-curricular, fully online, self-directed programme has thus been designed for students based on skills identified by employers.

1 STUDENT'S SUCCESS JOURNEY AFTER COMPLETING A QUALIFICATION

This chapter reviews the development of an integrated system at the University to prepare

graduates to enter the world of work. It links to the conceptual framework (Fig 1.1, Chapter 1) in that it focuses on the nexus between leadership, student preparedness and institutional preparedness.

Graduate employability has become an increasing focus of attention internationally, particularly for academic programmes without a professional focus. The University of Pretoria had a particularly good employment rate for its graduates within six months of graduation but, when this showed a slight decline in 2017/18, the Executive, in collaboration with a number of stakeholders from across the University, took a number of steps to analyse, learn about and solve the problem. Key stakeholders included faculties, students, support departments, industry and business partners, and external experts. Executive leadership was core to the initiation and success of the process but its implementation relied on leadership distributed across Career Services, Enterprises UP and some individuals (see Chapter 2 on inclusive leadership). Graduates might opt to continue with postgraduate studies or enter the world of work as employees, independent professionals or entrepreneurs. The focus of this case study is the group entering the world of work. If they want to study further, or if their jobs require it, they might return to postgraduate or non-formal education and training later.

Designing and developing a ready-for-work strategy at a university requires a multiple-faceted approach, drawing on experts from the world of work and existing strengths in university academic programmes and career support opportunities. First, the process requires a mind-set that moves beyond the traditional ivory tower mentality to focus on students' goals. Students might well want to pursue postgraduate studies and research careers but, for many, meaningful employment is the primary goal. In Chapter 1, it was stated that student success was reconceptualised at the University to include, among other things, the notion that "student success is about more than university. It is also about success after university, as individuals, postgraduates or in the workplace. It is about independent learning as it relates to a lifelong-learning orientation". This case study shows that it was a complex challenge to develop an understanding of the continually changing knowledge and skills valued by employers, especially as we move into the age of the fourth industrial revolution and the status quo at the University and then set up an integrated learning and reward system to address the field of work readiness. The project is ongoing. The importance of inclusive leadership and wide stakeholder involvement were also important in a systemic approach.

South Africa has a long history of what are termed 'short learning programmes' or 'short courses', prepared for people already in the workforce. The South African Qualifications Authority (SAQA) states:

> Short course provisioning is one of the most dynamic features of the emerging education and training system of South Africa. This kind of provisioning is particularly associated with 'just in time', and 'just enough' learning to meet a specific need in workplace environments. Therefore, it is considered a viable and common method for optimal workplace functioning in all contexts and greatly facilitates access to learning in a manageable manner in terms of cost, time, energy and resources, for both the employer and employee.
>
> In addition, short course provisioning has a wider focus than workplace contexts: where research findings are disseminated and new knowledge is shared, it is also associated with continuing professional development.
>
> A third area where short course provisioning is important is where learners require a targeted short learning programme, to upgrade skills and knowledge to ensure success in their chosen field of learning (SAQA 2004:7).

However, they are not qualifications (so may not exceed 119 credits), are not registered on the NQF and are not required to adhere to NQF levels.

At UP, two entities offer such opportunities: the academic faculty, the Gordon Institute of Business Science, and the business entity, Enterprises University of Pretoria. People completing such courses receive acknowledgement from the University, even if only a certificate of attendance/ completion, although in rigorously assessed programmes it is more than this. They have been a valuable source of lifelong learning. In line with all academic offerings at the University, courses have become more blended and sometimes even fully online.

Nowadays, such offerings, especially when online, might be termed "microcredentials":

> Interest in micro-credentials has been growing, fuelled by demand from learners for short and flexible forms of learning and from industry and employers for verified skills-based credentials to satisfy the needs of the new world of work (Deloitte Access Economics, 2017). This trajectory has been largely shaped by external drivers

> forecasting the need for rejuvenated workforces as our digital ways of working expand in Industry 4.0, accompanied by the increased need for soft intra- and extra-personal skills (World Economic Forum, 2018). Globally, education leaders, practitioners and technologists are being challenged to respond to demands for new forms of credentialing, such as micro credentials, and to define how these fit with existing credentialing frameworks and an emerging digital credentialing ecosystem (Chakroun and Keevy 2018) (Rossiter and Tynan 2019:1).

The writers identify the following as common attributes of microcredentials, which correspond with the goals of short learning programmes:

- the acquisition of small units of learning, skills or competencies, which have a distinct value in the workforce or for professional needs;
- verification by a recognised and trusted issuing authority (such as an educational institution or industry body); and
- the issuance of a digital artefact, such as a digital badge, as an alternative to a traditional attestation of learning, such as a formal transcript (Rossiter and Tynan 2019:3).

It has not been a mark of short learning programmes at universities to offer ancillary skills to registered undergraduate students. At UP until 2017 the notion of support to students to transition successfully to the workplace was established through many professional qualifications, on the one hand and, on the other, through the Graduate Careers Office (renamed Career Services Office in 2015/16, the term used going forward) by way of face-to-face workshops and coaching but also through printed and online resources. The work of Career Services (a unit in the Department for Enrolment and Student Administration) was isolated from mainstream student success initiatives, as the portfolio did not report to the Vice-Principal: Academic. It was only when it became clear that student success had to extend beyond the University to meaningful employment that connections were made and a new, inclusive model developed.

Change often occurs in response to a stimulus, in this case the outcomes of research conducted by the University's Department for Institutional Planning into placement of University graduates within six months of graduating, particularly when data showed that a slightly lower percentage of students was being placed within six months of graduating.

The problem certainly called for an immediate response as well as further research and the involvement of a wide range of experts and stakeholders, an approach advocated by Systems Thinking (see Chapter 1).

One solution to the problem of employability was to develop a series of fully online, standalone tutorials related to skills identified by employers as valuable in the workplace, as part of the new ready-for-work initiative. Two factors affecting the impact of the programme will be the economic situation in the country and the voluntary nature of the ready-for-work online packages combined with the relatively small proportion of graduates who completed them.

Being ready for work might be regarded as a graduate attribute within the higher education system. Employers in South Africa and across the world are expecting graduates entering the workforce to have more than just disciplinary skills. Higher education ranking systems, which institutions across the world use to enhance their relevance, include student employability among their evaluation criteria. In a similar vein, employers globally are expecting graduates to integrate into the world of work more effectively. Although higher education institutions are primarily research and knowledge producing entities, the exponential increase in the number of students has also meant that most graduates would not consider academic research as a career option. Furthermore, the need for a skilled workforce has made tertiary education qualifications more attractive in the labour space.

Long before graduate work readiness started to trend, the University of Pretoria had an enviable record with more than 90% of graduates finding work placement within six months of graduating. Despite this, the University took heed of employers' stated need for graduates to acquire work-readiness skills in addition to disciplinary expertise. The importance of graduates finding employment, when youth unemployment in South Africa is more than 50%, is of major concern to the University. Hence, the commitment of the University is to be both an excellent academic and research institution and an institution that inspires confidence in the workplace so that its graduates are placed in prime positions.

How does a university balance the seemingly disparate portfolios of student work readiness, research, and knowledge production and dissemination? This quandary is something every higher education institution across the world has to consider. The University accepted that the work readiness of students was essential and that it needed to find innovative ways to

ensure this attribute and be confident that its graduates could have the edge when entering the world of work.

Guided by ideals of well-prepared graduates, one of the first aspects that needed unpacking was whether graduates had any idea about the workplace. Did they know what was expected of them? Did they have the range of skills, behaviours and personal attributes that could help them to succeed in obtaining and retaining meaningful work that would allow them to apply and expand their knowledge base?

2 REDEFINING STUDENT SUCCESS

Student success is no longer limited to acquiring knowledge of academic disciplines (see Chapter 1). How graduates envisage their future and think about the world and their place in it matters.

The *Chronicle of Higher Education* brought together a wide range of students from traditional first-years to adult learners on a panel (Lipka 2019). One panellist's contribution underlined the need for giving students the tools to succeed in their lives beyond university: 'If you're an art-history major or a mathematician, you still have to have these 21st century skill sets — project management, information literacy, computational understanding — because that's where the world is today' (Lipka 2019: 11). An online survey of business executives and hiring managers conducted on behalf of the Association of American Colleges and Universities found that

> learning outcomes that both audiences rate as most important include oral communication, critical thinking, ethical judgment, working effectively in teams, working independently, self-motivation, written communication, and real-world application of skills and knowledge (Hart Research Associates 2018:3).

Trend watchers update the list of desirable skills each year.

The need for a skilled workforce means many employers do not regard graduating students as sufficiently ready for the work environment. Some of the skills they find lacking are those mentioned in the previous paragraph. While in the past work readiness, except for professional and technical qualifications, was not perhaps the primary concern of higher

education, particularly in some disciplines, the demands of a knowledge economy have transformed the relationship between higher education and its communities. In South Africa, higher education institutions have, since 1994, also had to assume greater presence within their surrounding communities and within the framework of the national imperatives. By extension, such commitment is increasingly meant to include graduate work readiness.

If academic disciplines represent the core activity of a university, and the areas where its graduates learn to be independent and self-reflective knowledge experts, where and how would they acquire the array of additional skills needed to enhance their graduateness? In many professional qualifications that require work-based or integrated experience, including clinical, students are advantaged. Students in more generic degrees, without these compulsory engagements with the workplace, can undertake additional, voluntary, self-paced learning through courses, internships, short periods of employment, job shadowing, linking to mentors already in the workplace, and so on.

As mentioned previously, the stimulus for the change towards a wider ready-for-work programme was the research conducted by the Department for Institutional Planning into placement of University graduates within six months of graduating, particularly when data showed that a lower percentage of students was being placed within six months of graduating (Nell 2018, Nell 2019).

Table 10.1: Employment position of graduates after six months		
Year	In employment, full- or part-time, within 6 months	In employment or postgraduate studies within 6 months
2016 reporting on 2015 survey	89%	93%
2018 reporting on 2017 survey	85%	93%

It seems that between the 2016 and 2018 surveys, more students went into postgraduate studies, which is acceptable as it is a target for the University to grow its postgraduate enrolment.

3 ANALYSING THE LANDSCAPE OF WORK-READINESS

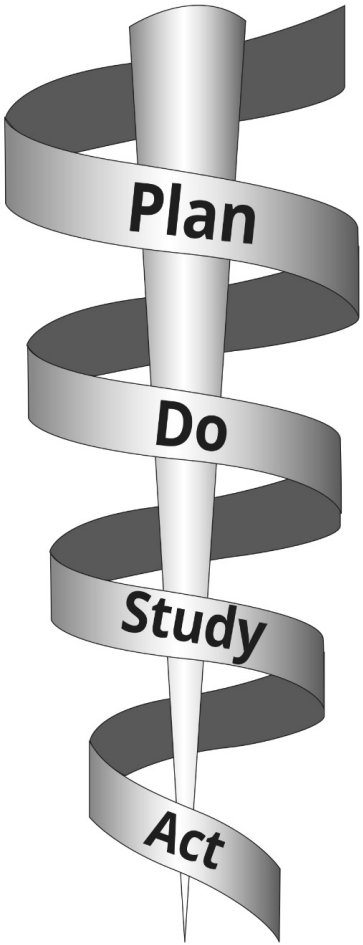
As mentioned already, work readiness of students has become a concern of higher education across the world. Employers have increasingly expressed the need for graduates to be better prepared for the workplace, whether as employees, entrepreneurs or professional practitioners.

3.1 Analysing the internal landscape for work-readiness activities

Fortunately, the University could use the data it had collected on student employment patterns to reimagine its approach to supporting student work readiness.

An essential purpose of the reconceptualised ready-for-work programme was to enhance the work readiness and employability prospects of University graduates through recognition of formal, informal and non-formal learning leading to the acquisition of knowledge and skills valued in the workplace. Formal learning, for instance, would be knowledge and skills gained through the successful completion of a Community Engagement or Work-Integrated Learning module as part of the curriculum. Informal would be, for example, knowledge and skills gained through the successful completion of professional online development (POD) tutorials offered free to UP students by Enterprises University of Pretoria (Enterprises UP) in collaboration with the Department of Enrolment and Student Administration or leadership courses offered by the Department of Student Affairs to student leaders. Non-formal might be knowledge and skills acquired through working with student societies, verified activities outside the University, and so on. The University, like other higher education institutions across the world, could not ignore that student success includes work readiness for a variety of employment or self-employment scenarios. Thus, it sought to develop a mindset of lifelong learning in graduates.

The process followed the ready-for-work campaign, as part of student success, drew inspiration from change management literature and the common cycle in improvement science, and specifically from the principle: "Engage rapid cycles of Plan, Do, Study, Act (PDSA) to learn fast, fail fast, and improve quickly" (Carnegie Foundation for the Advancement of Teaching nd). The planning stage is naturally exploratory, broad and often iterative but, as the process develops, action becomes more focused, although still iterative for improvement purposes.



Cycles of Plan, Do, Study, Act

Plan

- Research: Work readiness: Institutional and international
- Stakeholder consultation
- Investigation of phase 1: Task team with academic lead
- Wider stakeholder consultation on concept document
- Investigation of phase 2: Creating usable awards/records

Do

- Implementation of phase 1: Online, self-study tutorials
- Implementation of phase 2: Piloting then full implementation of Records of Achievement

Study

- Elicit feedback from students
- Evaluation of materials

Act

- Improvement of online packages
- Constant monitoring, evaluation and improvement

Figure 10.1: Iterative planning, implementation, monitoring, evaluation and improvement

The principle provided the theoretical background against which to plan successful implementation of the concept. Two to three years of institutional and desktop research and strategising were required before it could be phased in. Some dedicated management of the process was provided during that period.

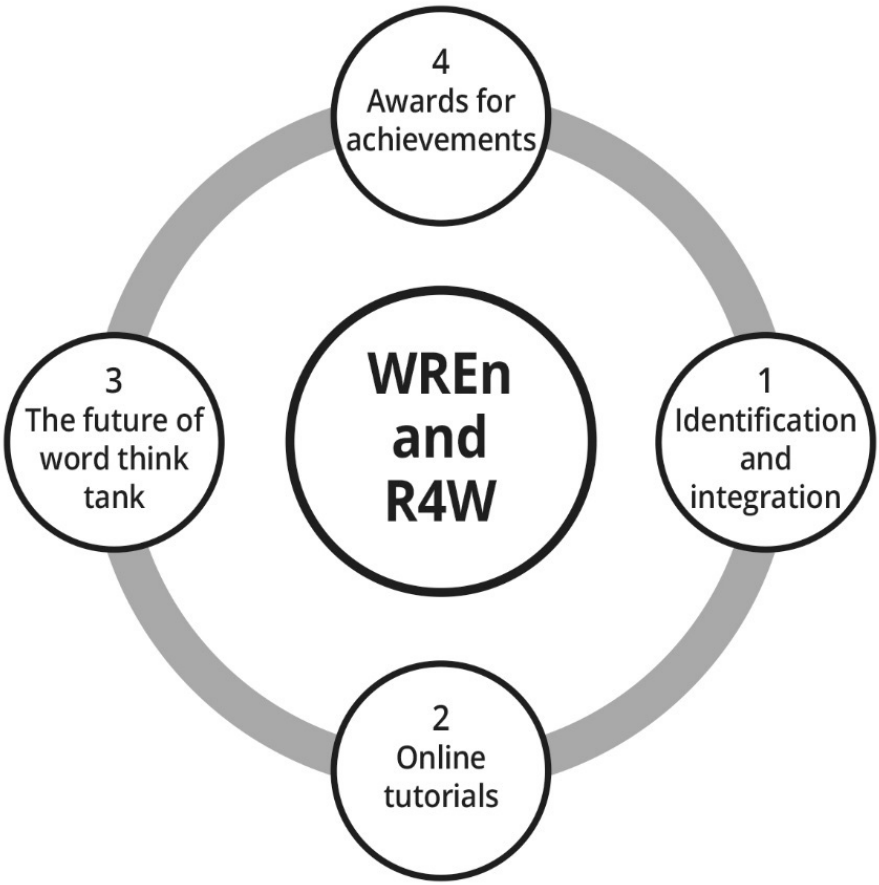


Figure 10.2: A map of the Ready for Work strategy

The research started with mapping of existing ready-for-work opportunities within the University structures. A survey was conducted of work-integrated learning within faculties and a study made of the offerings in Career Services. The entrepreneurship initiative was also explored.

The survey showed that more professional faculties, such as those concerned with health sciences, engineering and education, had compulsory, credit-bearing requirements from professional bodies while in other faculties exposure was limited to shorter practical activities within modules. Responses demonstrated the extent of work-readiness activities across the

various faculties and departments on campus. Some, like those on the left of Fig 10.3, were integrated into the curriculum, while those on the right formed part of extra- and/or co-curricular activities:

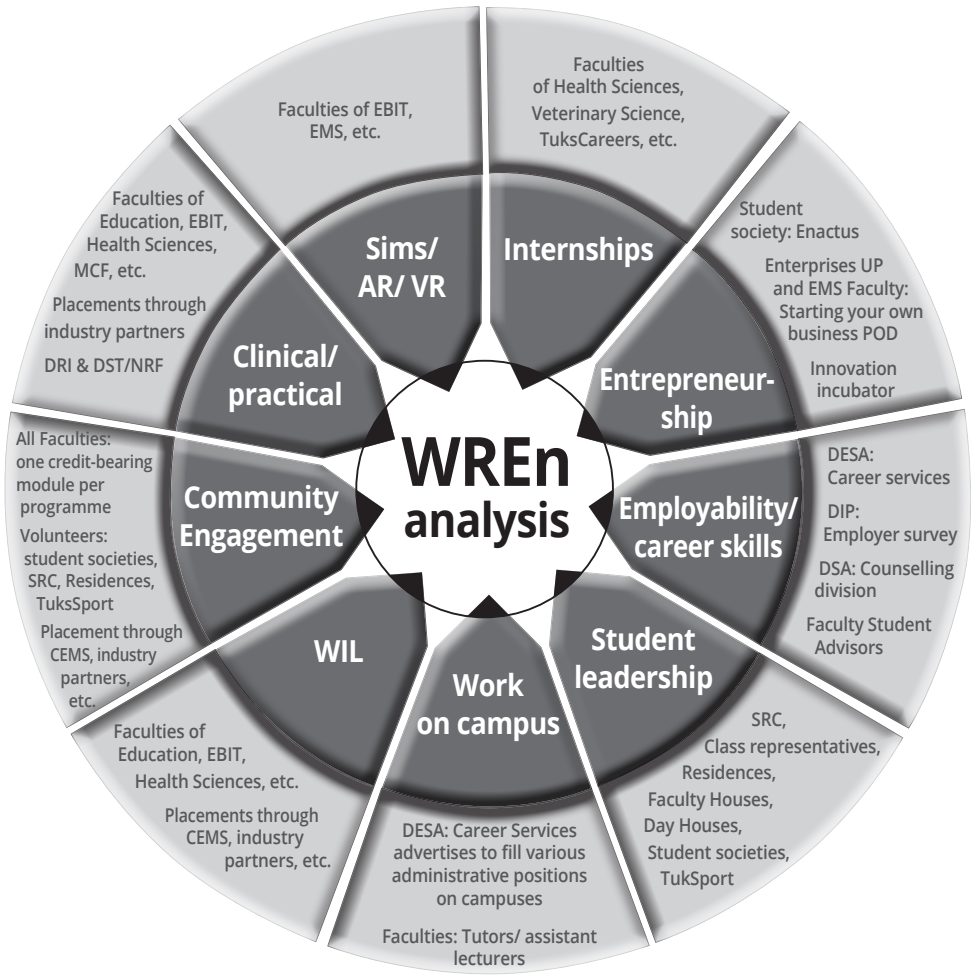


Figure 10.3: Existing workplace skills initiatives on campus in 2015

Some of the activities, such as work-integrated learning, clinical practice and community engagement are credit-bearing and obligatory curriculum requirements, while simulations,

augmented reality and virtual reality could also be incorporated into modules as activities. For the remaining activities, the challenge was how to integrate and expand them into a single brand and make them more accessible to all students, most of whom have heavy lecture schedules and cannot attend additional workshops easily during the semester. Data on the learning management system showed, however, that they were far less active during recess periods, giving them time to engage with the ready-for-work tutorials online. The University also needed to consider how to record and reward participation in career preparation activities.

The Career Services Office already offered students face-to-face workshops and consultations, skills development opportunities, mock interviews, an online TuksCareers site featuring potential employees and opportunities for internships and work, opportunities for work at the University, and a *Start your Career Handbook* (Career Services Office nd). TuksCareers is thus a platform that brings together students and employers through organising events like workshops and career fairs. The Career Services Office maintains a database of active employers with whom they engage and who participate in career fairs and post job opportunities.

UP's dedication to enhancing graduate employability is attested by various local and international ranking systems: for instance, the international Quacquarelli Symonds (QS) university ranking system's Employability Survey.

Table 10.2: Rankings for employability

Organisation	2018	2019	2020
QS Graduate Employability Survey Overall ranking	251–300 band	301–500 band	251–300 band
QS Graduate Employability Survey Alumni Outcomes (defined as "which universities are producing 'world-changing individuals'")	301–500 band 3rd in SA	301–500 band 6th in SA	251–300 band 4th in SA

Entrepreneurship forms part of formal disciplinary offerings in the Faculty of Economic and Management Sciences and is also offered as a short course through Enterprises UP. The high

youth unemployment figures influenced the University to include entrepreneurial skills in the ready-for-work programme. The head of the Department of Business Management in the faculty adapted an existing short course offered through Enterprises UP for wider use. A free professional online development (POD) tutorial at Enterprises UP for the University's own students was the result. The course covers the entire entrepreneurial process in a highly pragmatic and applied way. A compelling business model forms the key outcome of the POD that prepares the potential entrepreneur to start his/ her own business. For a small fee, students could also submit the business models they prepared as part of the POD for evaluation. Social entrepreneurship projects are also an option.

3.2 Exploring the external higher education landscape

3.2.1 DESKTOP RESEARCH

The Director of the Department for Education Innovation conducted desktop research into how other universities were preparing students for the world of work. The University of Kent (nd) and the University of Loughborough (nd) in the United Kingdom provided experiences that UP could identify with and easily incorporate into its existing structures. Between 2015 and 2020, the two dates on which the University site was accessed, Loughborough became more online-orientated with a number of taught modules. The appropriateness of the institutions was further proven by the topics covered that were related to what employers look for and how students could use such information to build their CVs. The advice they offered regarding placements, internships, attendance at career fairs, and more, also showed parallels with UP. UP offered similar advice to students and maintained contact with employers, as well as arranging meetings between them and students. From the research conducted among UP students, the University understood the importance of rewards in getting young people to complete activities offered. The University learnt through the desktop research that the UK universities they offered awards for completing a range of contact and/or online activities through their student services departments.

Though the overlap between UP and the two UK universities was considerable, their practices allowed UP to recognise the gaps in its own offerings. Thus, UP addressed the gaps by including the notion of a reward system and meaningful integration of activities.

3.2.2 ENGAGING WITH EXPERTS ON THE FUTURE OF THE WORLD OF WORK

3.2.2.1 LECTURE SERIES

The Vice-Principal: Academic also initiated a series of engagements with industry leaders on the future of the world of work as part of the ready-for-work project, with particular reference to South Africa. They had a clear influence on the new tutorials developed for the programme.

In 2018, guest lectures were presented to a select group of stakeholders on the following:

- 31 January. "Future of Work". Mr B Vorster, Director at PricewaterhouseCoopers (PWC).
- 16 May. "Future of Work". Mr W Roos, CEO of Rain Mobile and former CEO and founder of OUTsurance.
- 30 May. "The Entrepreneurial University". Prof P Coyle, founder of the Entrepreneurial Mindset Network, London.
- 31 August. "Employability". Mr B Vorster and the PWC team.

The series continued in 2019:

- 6 June. "The World is Changing". Mr B Vorster, Director/Partner: PWC Africa People and Organisation; Leader for HR Technology and Culture
- 28 August. "Disrupting Ourselves". Prof A Antonites, Head: Department of Business Management, Faculty of Economic and Management Sciences, UP.
- 10 October. "The Future and Sustainability of the Traditional University Model". Ms A Uren, Executive Head: Organisational Effectiveness, Nedbank.

Certain principles emerged from these interactions that showed that employers are looking for:

- first-principle thinkers who understand the principles behind their studies and can apply them innovatively in a specific field;
- good communication skills, both oral and written;
- teamwork and collaboration skills;
- agile problem-solving skills;
- handling uncertainty, change and failure;

- capacity for disciplined, focused execution of a task;
- entrepreneurial skill and initiative;
- understanding of the world – social, political and economic – and the need to contribute to society, not just make money;
- good computer, and even programming skills (particularly good Excel skills);
- knowing how to be productive at scale;
- greater numeracy;
- applying statistics to large volumes of unstructured data; and
- the attributes of passion and persistence to succeed in business.

The learning from these experts influenced the content and outcomes of some of the tutorials in the free online programme run through Enterprises UP.

3.2.2.2 FLEXIBLE FUTURES CONFERENCE 2019

In 2019 as well, two keynote presentations at the Flexible Futures V conference organised by the Department for Education Innovation, with the Vice-Principal: Academic as champion, focused on the implications of advances in technology on learning, both at university and in the workplace, and there were several other papers on 4IR. Heather McGowan, of Work to Learn (www.work-to-learn.com), gave her keynote on "The Future of Work is Learning" (McGowan 2019). Her basic message was that in the past people learnt to gain employment; in future, they will learn at work and keep unlearning and relearning. This paper inspired the new ready-for-work tutorial on *Learn Unlearn Relearn for 4IR*. Barry Vorster, of PricewaterhouseCoopers, delivered a keynote address on "Brains and Bots and Us" (Vorster 2019). He discussed the trajectory of how automation and "thinking machines" have been replacing human tasks and jobs, and discussed redefining the skills organisations are looking for in their workers. The Head of the Department of Computer Science in the Faculty of Engineering, Built Environment and Information Technology at the University subsequently undertook to lead the writing of a core ready-for-work tutorial on 4IR and the workplace, as well as one per faculty, contextualising the concept for each.

3.2.3 CREATING A ROADMAP

PWC staff facilitated a ready-for-work workshop with a wide group of stakeholders from the University at the end of August 2018: the Vice-Principal: Academic, the Executive Director: Finance, the Director and some staff of Education Innovation, some staff from Career Services, a representative of Enterprises UP, representatives from the faculties of Humanities, Engineering, Built Environment and Information Technology (for community engagement) and Economic and Management Sciences (for entrepreneurship), as well as the manager of the task team, also from Humanities. The goal of the workshop was to create a roadmap and activities were designed to

> gain an understanding of all the current Ready for Work initiatives, initiate alignment to future needs of students and the future world of work within the constraints and opportunities within the University of Pretoria (PWC 2018).

Questions aimed to lead participants to consider structures, capabilities, leading modes, adequacy of curricula, investment, what skills industry actually needs and measures of success. Some of the most important pointers to emerge were "Integrate existing programmes"; understand what industry needs; raise awareness and collaborate with stakeholders; develop work experience initiatives; "Display soft skills with academic record"; "Track and engage alumni after graduation"; and "Establish strategic partnerships for exposure to potential employers". The University had already seen in desktop research in 2015 that a major problem was the lack of integration of the otherwise comprehensive services offered by Career Services, in particular, and a failure to reward/award students' efforts in gaining skills that enhanced their employability.

The main responsibility for implementing the roadmap fell to Career Services and they included key activities in their 2019 operational plan. As recommended, they also lobbied (successfully) for the appointment of someone to take care of internships. Progress has been made for internships on campus with assistance from the SETAs. The community engagement specialist in the Faculty of Engineering, Built Environment and Information Technology undertook the recommended involvement of alumni as mentors as a pilot project.

The pilot study focused on the School of Engineering. Final-year students were asked to volunteer, and 33 did so. Mentors were sourced with the assistance of the University's Alumni

Office in the Department of Institutional Advancement, among others, and 24 mentors volunteered. The students' information was shared with them and they could choose what looked like a suitable match. Both mentors and mentees were made aware of their roles and responsibilities. The idea was that the mentorship pairings would have two meetings at least, face-to-face or online, and that job shadowing would be part of the experience. The aims of the project were to develop work-related skills and confidence connected with the engineering profession and to build effective career networks. Responses at the end of the period from both mentors and mentees were very positive. The following sums up some of the lessons learnt: mentors want to identify the mentee; some female students wanted female mentors; job shadowing as part of the mentoring was valued; response rate to the opportunity was not 100%, although students joined because they were personally invited or when they saw what their fellow students were doing. In light of the success of this pilot, the programme was extended to the whole Faculty of Engineering, Built Environment and Information Technology in 2020 and could be scaled across the University in future. A key success factor in such an alumni mentorship programme is dedicated management within a faculty.

4 REFRAMING WORK READINESS INTERNALLY

Student work readiness was reimagined as a central part of academic activities for all students. A major challenge lay in either making ready-for-work an integral part of curriculum activities without interfering with discipline requirements, or making co-curricular interventions more coherent and complex and then marketing them better so that more students could benefit, albeit on a voluntary basis. Where practical training was a compulsory, credit-bearing part of disciplinary or programme activities, it was simpler to produce work-ready graduates. However, student work readiness was not part of activities in generic degrees; expertise resided in support departments to provide a service to students seeking development opportunities.

4.1 Out of the starting blocks

4.1.1 PLANNING

4.1.1.1 TASK TEAM FOR EMPLOYABILITY AND ENTREPRENEURSHIP

In 2015, under the leadership of the Vice-Principal: Academic, a Work Readiness and Entrepreneurship (WREn) task team was put together to formalise the University's commitment to producing work-ready graduates without losing its identity as a premier research institution. Executive leadership is extremely important in initiating, driving and sustaining new initiatives, as is including a wide range of stakeholders on the team, who are leaders in their own fields at different levels (see Chapter 2).

The wide variety of stakeholders invited to participate in the Task Team for Employability and Entrepreneurship was necessary to maintain a whole-system approach. For the entrepreneurship aspect, the academic leader of a degree programme and a short learning programme on entrepreneurship in the Faculty of Economic and Management Sciences and the chairperson of Enactus (a student society centrally concerned with entrepreneurship) were present. Representatives from a selection of faculties were included: the Faculty of Humanities; the Faculty of Engineering, Built Environment and Information Technology; the head of the Department of Mining Engineering in that faculty as they had transformed their mining curriculum very successfully to increase graduates' work readiness; and the person in the Faculty of Education, responsible for teaching practice placements. In addition, there were some members of support and professional departments: the Director: Student Affairs, the Director: Enrolment and Student Administration and the head of the Career Services Office in that directorate; the Director: Education Innovation as well as the head of the Community Engagement Office in that directorate, and the head of the Quality Assurance unit in Institutional Planning.

At the first meeting in late 2015, the rationale for the committee, its brief and the timeframes were discussed in addition to the desktop research. The committee subsequently met three times in 2016. The committee needed a guiding document and reasons to carry out its brief. The team was acutely aware of reasons for treating this project as urgent. At the first meeting

in March, it was decided to launch a 100-day project to conceptualise the project, to be led for work readiness by the academic representative from the Faculty of Humanities, where many generic programmes reside, and the head of Business Management (for entrepreneurship). The project was conceptualised in relation to various national policy initiatives demonstrating a concern about youth development and employment:

- the *National Development Plan 2030* (National Planning Commission 2012), South Africa's economic roadmap to 2030;
- the *National Youth Commission Act* (Republic of South Africa 1996);
- the *National Youth Development Policy Framework 2002/2007* (Republic of South Africa 2002) and successive national youth policies; and
- the *White Paper for Post-School Education and Training* (Department of Higher Education and Training 2013).

If the March meeting helped to establish the larger purpose of the Work Readiness and Entrepreneurship (WREn) Programme, the June meeting centred on employer expectations and requirements. This task began with examining of existing data obtained from surveys conducted by the University since 2014. It was also quite clear that the Career Services Office and the department responsible for marketing and branding, Institutional Advancement, were key to taking the enterprise further. Already, the idea was present that the programme could be fully online, have generic as well as faculty-specific elements, and be focused on pragmatic workplace considerations rather than academic theorising.

Also in June, a proposal was prepared for submission to the University Executive: "Request for approval of the Work Readiness and Entrepreneurship (WREn) Programme for UP students as a co-curricular activity" (University of Pretoria 2014). It did not actually serve at the Executive, but it achieved a specific local purpose. The initial idea was to establish an office to deal with work readiness. The WREn team that brought together different professional, support and academic members also brought into relief the existence of structures that could be used. Hence, work readiness could be located within an already existing structure that had various levels of experience in promoting work-readiness strategies. In the problem statement in the proposal, the approved graduate attributes were cited, as were ways in which additional input for students on being prepared for the workplace could help to achieve those attributes. It mentioned the many activities in which students were already involved – from community

engagement to leadership positions to participation in student societies and sporting activities – as contributing towards these attributes but not being acknowledged explicitly as contributing valuable workplace skills. So it was

> a proposal for setting up a framework for students to record co-curricular and extra-curricular activities and reflect on how they contribute to their employability and self-employability, thus earning points towards a certificate of recognition. The framework will also assist students to identify skills gaps and how they can be addressed through existing or new activities on campus (Vally 2016).

Many of the elements of the proposal were not implemented, such as the appointment of a manager for three years, and some elements were prioritised, such as the online components over the award for skills gained through a variety of activities. In many ways, the Career Services Office already fulfilled many of the functions proposed for the manager, so an additional structure was not necessary. However, Career Services had a small staff component and they were busy with their own work, so perhaps the dedicated attention that the project needed was not available.

At the August meeting, feedback was given by the two sub-project leaders. Examples of existing activities in community engagement, work-integrated learning, Career Services, entrepreneurship and internships were given. The various needs were discussed for online functionality, infrastructure and resources, and marketing and communication.

4.1.2 IMPLEMENTING READY-FOR-WORK AND ENTREPRENEURSHIP FREE ONLINE TUTORIALS

On 10 February 2017, the office of the Vice-Principal: Academic announced that the University of Pretoria would embark on a renewed and sharpened focus on improving graduates' work readiness through the ready-for-work programme. The goal was to extend student experience and learning to include power skills and attributes applicable in the workplace and/or obtaining entrepreneurial know-how. Also in 2017, a WREn Think Tank was established. To begin with, the academic from the Faculty of Humanities, who had been leading the conceptualisation of ready-for-work, was nominated to drive the process in collaboration with the head of Career Services and other stakeholders, especially Enterprises UP.

4.1.2.1 PROFESSIONAL ONLINE DEVELOPMENT TUTORIALS

The first-phase implementation strategy was to develop a number of professional online development (POD) tutorials, fully online, on aspects of work readiness and give students free access on *clickUP*. This was a collaboration between Career Services and the short learning programme entity of the University, Enterprises UP.

The initial content was adapted from the contact courses offered by Career Services and later expanded. During the course of the following year, Enterprises UP also sourced additional tutorials relevant to skills not yet covered, for implementation in 2018/2019. A small seed fund was made available from the Careers Office and Enterprises UP to commission the additional material. Where there were gaps in the existing packages, tutorials were written. Once the project had been conceptualised and operationalised, the implementation became the responsibility of these two entities.

Initially students could take three free core packages comprising four to five tutorials each, mainly based on input prepared by Career Services for their contact workshops. The packages were fully online and standalone with no lecturer presence.

The new offerings were marketed through TuksCareers, banners and posters with the assistance of the then Department for University Relations (now the Department for Institutional Advancement – the term will be used in the rest of the chapter) and on the University's radio station, Tuks FM. The marketing slogan for the new offering was: "You need more than a degree." Another message was "How work-ready are you?" Marketing was done online (through the learning management system and TuksCareers), through banners and posters on campus, on social media, and through the student newspaper, *Perdeby*.

4.1.2.2 MONITORING AND EVALUATION

New tutorials were influenced by student feedback from surveys. Student surveys in 2018 showed predominantly positive responses, as did the 2019 survey results. For the 2019 group, 95.19% agreed or strongly agreed that they found the packages useful, and 97.51% said they would recommend them to a friend. Sometimes students asked for topics already covered in the 2019 package, such as writing a CV (the tutorial has been revised and expanded for 2020), or they asked for entrepreneurship, which is a separate but also free POD.

Many of the additional tutorials requested are catered for in the new 2020 packages: the Fourth Industrial Revolution (4IR), public speaking, conflict management, finances, and so on. There were several requests for management and leadership skills, perhaps not suitable entry-level skills for undergraduates but data show that there were students from honours to doctoral levels who completed the packages, although these made up a small percentage. There were several requests for input on emotional intelligence, stress management, and mental health. One of the new tutorials deals with emotional intelligence.

One negative response by one student was that some PODs were "really difficult and not fun to go through". The revised packages are much more engaging and make use of videos and activities to provide variety.

Registration in the free tutorials is growing annually and hopefully the new, more interactive pedagogical approach will increase numbers further.

Table 10.3: Enrolments in Ready for Work PODs	
Year	Active students
2017	2 180
2018	2 018
2019	3 566

Institutional and international research into employers' expectations of graduate attributes also guided the revision of the initial tutorials and the addition of further tutorials. The designers of the programme will continue to analyse student feedback and changing market trends to determine any new tutorials that need to be developed.

4.1.2.3 REVISION AND IMPLEMENTATION

Revision was undertaken in 2019, entailing the pedagogical re-orientation of existing material, writing of new material related to current or developing skills or work situations and some faculty-specific modules, as well as a new instructional design. More use was made of material freely available online, such as articles and YouTube videos.

Rossiter and Tynan (2019) consider ways of developing microcredentials. One decision

> is whether to build, to curate (e.g., using open educational resources — OER) or to license content. The latter two options may offer a fast and pragmatic approach

to course development. OER also provide flexibility in that they can be edited, repurposed or generated as 'mashups', which are blends of purpose-built and open-licence content (Rossiter and Tynan 2019:6).

The strategy for the revised R4W programme was the "mashup" route with some purpose-built elements and some OERs. The structure was put in place so that each tutorial includes a purpose and outcomes, which must be achievable in a standalone online course.

The first revised package was launched in March 2020. For 2020 there were four packages, each comprising seven or eight tutorials (see Table 10.4 below). A fifth package with faculty-specific tutorials and a package on artificial intelligence were designed and development began. Package 1 started the first-year students off with an introduction to career planning, CV writing and creating an online identity; package 2 aimed at personal development of power skills; package 3 at searching for a job and attending interviews or preparing to work in the gig economy; and package 4 at important knowledge and skills once in the workplace. Each tutorial takes about an hour to complete and includes multimedia activities to engage students as well as a short final quiz to signal completion.

Table 10.4: 2020 Ready for Work POD packages

Package 1: The starting line: Career planning	Package 3: Job preparation
1. Introduction to career planning	1. Researching potential employers
2. Your first CV	2. Job searches
3. Your digital profile	3. Job applications
4. Researching careers	4. Writing a CV and cover letter
5. Computational thinking	5. Job interview skills
6. Presentation skills	6. The gig economy
7. Conversational intelligence	7. Basic financial literacy

Package 2: Power skills	Package 4: The finish line: your career
1. Emotional intelligence	1. Learn Unlearn Relearn for 4IR
2. Stress management	2. Workplace ethics
3. Assertiveness	3. Organisational structures
4. Critical thinking	4. Report writing
5. Creative problem solving	5. E-mail etiquette
6. Ethical reasoning skills	6. Office protocol
7. Time management	7. Basic conditions of employment
8. Goals	8. Global citizenship

Once students unlock a package-level achievement, they gain access to a link on the Records of Completion page on the course website, through which they can digitally generate a printable record of completion for the package they have completed, which they can add to their CVs. These packages include automated certification when assessments are successfully completed. All student work on campus facilitated through Career Services is also certified. The idea of digital badging was discussed but not implemented.

4.1.2.4 ENTREPRENEURSHIP TUTORIAL

The entrepreneurship tutorial can be taken in addition to the ready-for-work packages. Entrepreneurship is an applied science and the tutorial has been developed accordingly. It is packaged to offer, firstly, significant awareness of the benefits and hard realm of self-employment and, secondly, all the elements necessary to compile a feasible entrepreneurial plan for start-up readiness. The course includes a personal trait requirement perspective, opportunity finding and assessment as well as a clear understanding of business start-up functional areas (eg marketing, finance and operations). The final outcome of the tutorial entails the compilation of a business model that could be translated into a bankable business plan for real starting-up purposes. While the tutorial is free, students may pay a small fee to have the business plan evaluated. Between its inception in 2017 and mid-2020, close to 5 000 students enrolled for the entrepreneurship tutorial.

4.1.3 PLANNING RECOGNITION FOR WORK-READINESS SKILLS

Since 2017, the Career Services Office has worked with various stakeholders, including Community Engagement and Information Technology Services, to identify desirable workplace skills developed by working in communities, at the University, etc, that could be acknowledged or rewarded by an additional record or award. In late 2019, there was a breakthrough when Information Technology Services offered to amend its CV software to accommodate the need. Since then, work has been done with a variety of stakeholders, including Community Engagement, the Department of Student Affairs, the residences, TuksSport and the library to draw up a list of courses or positions and their relationship to a set of work-related skills desired by employers, identified by research in the Department for Institutional Planning as well as international bodies such as Forbes. The idea is that once the master lists have been captured, students will be able to go online, enter their information using drop-down menus and print out the record that they can add to their CV.

4.1.4 EVALUATION AND REPLANNING

At a planning meeting in February, a decision was made to establish a slightly broader stakeholder committee, the members of which would lead various task teams. The proposed task teams related to the capturing of achievement; the tutorials; new faculty-based tutorials; employer relationship management; internships and partnerships; alumni mentoring; app development (which proved unnecessary); and marketing ready-for-work on campus as well as to the external market as a selling point.

A steering committee to take the ready-for-work initiative forward was thus convened in May 2019 by the former Director: Education Innovation following concerns that the energy was lagging. It did not meet very often (May, July and August). Little operational work can be achieved by a committee, but at least the field and latest development could be discussed, as well as the implementation of the roadmap developed by the workshop in late 2018, discussed in the next section. The committee comprised one deputy dean, nominated by the other deputy deans to represent them and report; an academic responsible for community engagement in her faculty and the pilot alumni mentoring programme (Jordaan 2020); representatives from various support departments – Student Affairs, Enrolment and Student

Administration, Institutional Planning, Education Innovation, ITS, and University Relations; and a representative of Enterprises UP. At the first meeting, the terms of reference were decided. The Vice-Principal: Academic's ideas on what would constitute success for the ready-for-work programme were discussed:

- In the short term, it would mean a significant increase in the University's graduate employability rate and feedback from employers that graduates were coping well in the workplace in all critical spheres. Furthermore, a 251–300 position on the Quacquarelli Symonds (QS) rankings for graduate employability (2019 baseline = 301–500) (Quacquarelli Symonds 2020) was targetted.
- In the longer term, it would mean an employability rate of more than 95% within six months after graduation and in the graduate's field of specialisation OR 95% of graduates with a first degree either in postgraduate studies or in employment AND 95% of graduates with a postgraduate qualification and not pursuing further studies in employment. It would also mean increased visibility of the University's graduates as leaders of industry. Additionally, a target of 201–250 on the QS rankings for graduate employability would be an indicator.

A decision was taken to study the employability criteria used by the QS rankings. They were delineated at the July meeting as follows:

- Employer reputation (30%)
- Alumni outcomes (25%)
- Partnerships with employers per faculty (25%) (partly based on Elsevier research collaborations)
- Employer/student connections (10%)
- Graduate employment rate (10%) (within 12 months of graduating)

Other decisions related to the following:

- seeking benchmarks for mentorships, work-integrated learning, etc;
- sharing with the committee input on work-integrated learning from the faculties;
- establishing task teams such as one led by Career Services and including Information Technology Services to work on identifying existing data repositories on various activities to contribute to the award/record of achievement, and collating relevant outcomes

achieved by students as part of various structures, societies and leadership programmes run by UP;

- creating a common employer database with a matrix of opportunities from databases already in existence in Institutional Advancement and Career Services (in July expanded to include databases in Institutional Planning and faculty/academic departments, although the latter proved reluctant to share); and
- investigating how to involve student leaders in the initiatives as a reference group.

New software for TuksCareers would also be investigated and the affordances of the current system clarified for the committee. The current software was subsequently demonstrated at the July meeting of the steering committee.

Also at the July meeting, a representative from the Department for Institutional Advancement explained how an external company had been employed to clean up the alumni database and populate it with correct data, such as email addresses. They had consulted on the information they were entitled to access and use under the Protection of Private Information (POPI) Act. Institutional Advancement had subsequently introduced the Alumni Connect platform, rolled out in 2019 to new graduates only, and approximately 4 000 of the 11 000 had registered. They could use LinkedIn or Facebook to register. It is possible on LinkedIn to identify all alumni of a particular institution and compile a university-specific group, so it is easy for any university to use this facility. It was decided to investigate whether the functionality would allow the University to extract employer information locally and internationally, both alumni who are employers and the employers of alumni in formal employment. Employers could be contacted to join QS and participate in the rankings. At the August meeting some of the necessary details were added: employer, contact details of the human resources' person, CEO's contact details, etc, as well as opportunities for work-integrated learning, internships, career fair attendance, and sponsorships. A pilot could be undertaken focusing on the University's graduates in human resources or similar management positions. Alumni Connect also asks when they register if they want to be a mentor/mentee, which could bolster the alumni mentoring and internship programme.

In August the Director: Education Innovation analysed the roadmap and pointed out what had been achieved and what still needed to be done. His presentation demonstrated that

models of teaching and learning were being built into teaching plans going forward and that a 4IR think tank had been formed. However, distinct gaps remain. No hub was formed, but Career Services continued to do excellent work in carrying most of the work forward. No benefits or partnership model was developed. Collaboration with industry that existed was still decentralised in academic departments and often closely guarded. No research focus area was added. No funding model was developed. It was not clear to the committee how to address the gaps.

At this stage formal meetings were discontinued although materials continued to be shared with the committee. Career Services continued to interact with ITS, Enterprises and Education Innovation on the capturing of achievements, and progress was made with the identification of a suitable software package. The employability knowledge and skills developed through a variety of co- and extra-curricular activity on campus were solicited from the relevant department. The PODs were completely revised by the end of 2019 and eight new tutorials were written. Some new faculty-based tutorials were created. Employer relationship management continued under the leadership of Institutional Advancement, Institutional Planning and Career Services, as well as some individual academic departments. A person was appointed in Career Services to manage internships and partnerships. The pilot alumni mentoring project was successful and was scaled to the entire Faculty of Engineering, Built Environment and IT and the Faculty of Theology and Religion. Marketing ready-for-work on campus and to the external market as a selling point was ably coordinated by Institutional Advancement, Career Services and Enterprises UP. Career Services continued with their implementation of the roadmap as far as they could. Discussions are ongoing about a hub, possibly through the relocation of Career Services.

5 TOWARDS THE FINISH LINE

The underlying theory of change for the ready-for-work initiative is the following:

> If students voluntarily participate in a range of career readiness interventions in the course of their degree at UP, they will have the edge over other applicants when it comes to securing and keeping a job they desire or starting up their own enterprises and in continuing to be meaningfully employed thereafter.

The following are the desired outcomes of ready-for-work that should be evidenced, but it would take at least three years for them to become visible:

- Students access products and services that develop skills valued in the workplace and that will enable them to gain an interview and be employed in their field of expertise in their first job and any job for which they apply thereafter.
- Students are able to reflect on learning from experience.
- Students who complete various face-to-face or online interventions are better prepared to secure and retain their first job.
- Students who make use of TuksCareers have access to initial assessments, career fairs, interviews, job opportunities, employers, alumni, lecturers, peers and are guided along a pathway to attainment of work-readiness skills.
- Students who start as professionals, work in the gig economy or are entrepreneurs have the basics they need to start work.

Another outcome of what has already been implemented should be an improvement in the percentage of students employed within six months of graduation.

The University offers many professional qualifications that have intensive work-based learning requirements and so students learn many of the skills that are lacking in graduates of more generic degrees. The ready-for-work programme might not be necessary for students in professional programmes, except possibly a selection of the tutorials across packages. The Enterprises UP system therefore needs to be adapted to allow for a printout of tutorials completed as well as packages completed.

Work experience has becoming increasingly important for graduates to secure jobs. Thus, the University has to find avenues to expose students to job environments, such as internships, mentorship programmes and job shadowing. The new appointment in Career Services ought to facilitate this end. Investigating, planning, implementing, reviewing, and re-planning will be the way forward with this project to ensure the success of the University's graduates entering the fast-changing workplace, whether as employers, professionals or entrepreneurs.

This case study is not put forward as a generalisable guideline for any other institution but some elements could be adapted for other contexts. First, both executive and inclusive leadership as well as wide stakeholder involvement are vital to have sufficient drive and a

whole-system approach. Second, mapping what one's own institution is doing as well as its enabling policies, structures and people is a consideration. Third, it is essential to discover what employers value and what the emerging workplace needs – this can be done inexpensively through desktop research or working with existing industry partners. Fourth, institutions need not wait until every aspect of their emerging, integrated system is in place: they can design, implement, monitor and evaluate the more easily achievable elements and then improve that aspect while developing other ideas.

References

Career Services Office. nd. *Start your Career Handbook*. University of Pretoria.

Carnegie Foundation for the Advancement of Teaching. nd. "The Six Core Principles of Improvement." Accessed 29 April 2019. https://www.carnegiefoundation.org/our-ideas/six-core-principles-improvement/.

Department of Higher Education and Training (DHET). 2013. *White Paper for Post-School Education and Training. Government Gazette* of 15 January 2014, number 37229. https://www.gov.za/documents/white-paper-post-school-education-and-training-building-expanded-effective-and-integrated.

Hart Research. 2018. *Fulfilling the American Dream: Liberal Education and the Future of Work. Selected Findings from Online Surveys of Business Executives and Hiring Managers*. Washington: Hart Research Associates.

Jordaan, M. 2020. *UP Career Mentorship Programme 2019*. University of Pretoria. Unpublished report.

Lipka, S. (ed) 2019. "Roundtable Report: Preparing Students for 21st-Century Careers." Washington: The Chronicle of Higher Education, Inc.

McGowan, H. 2019. "The Future of Work is Learning". Keynote address, Flexible Futures V Conference: *Impactful Teaching Between Clicks and Bricks*. Pretoria.

National Planning Commission. 2012. *National Development Plan 2030: Our Future – Make It Work*. ISBN: 978-0-621-41180-5. https://www.gov.za/documents/national-development-plan-2030-our-future-make-it-work.

Nell, C. 2018. *Graduate Destination Survey: 2017 UP Graduates*. Department of Institutional Planning. University of Pretoria. Unpublished report.

Nell, C. 2019. *Employer Satisfaction with UP Graduate Skills, 2018*. Department of Institutional Planning. University of Pretoria. Unpublished report.

PricewaterhouseCoopers (PWC). 2018. *University of Pretoria: Discovery Day – Ready4Work*. Unpublished report.

Quacquarelli Symonds (QS). 2020. QS *Graduate Employability Rankings*. Accessed 30 June. https://www.topuniversities.com/university-rankings/employability-rankings/2019.

Republic of South Africa. 1996. *National Youth Commission Act* [No 19 of 1996]. G 17130. https://www.gov.za/sites/default/files/gcis_document/201409/a19-96.pdf.

Republic of South Africa. 2002. *National Youth Development Policy Framework 2002/2007. Towards Integrated National Youth Development Initiatives and Programmes*. https://www.youthpolicy.org/library/wp-content/uploads/library/2002_National_Youth_Development_Policy_Framework_South_Africa_Eng.pdf.

Rossiter, D and B Tynan. 2019. *Designing and Implementing Knowledge Credentials: A Guide for Practitioners*. Canada:

Commonwealth of Learning, Knowledge Series.

The South African Qualifications Authority. 2004. *Criteria and Guidelines for Short Courses and Skills Programmes*. Pretoria: The South African Qualifications Authority.

University of Kent. nd. Accessed 21 April 2020. https://www.kent.ac.uk/employability/.

University of Loughborough. nd. Accessed 21 April 2020. https://www.lboro.ac.uk/services/careers/students-and-graduates/.

University of Pretoria. 2014. "Request for Approval of the Work Readiness and Entrepreneurship (WREn) Programme for UP Students as a Co-Curricular Activity." Unpublished Executive Proposal.

Vally, R. 2016. "A Proposal to Support the Introduction of Work-Readiness and Entrepreneurship Skills." University of Pretoria. Unpublished.

Vorster, B. 2019. "Brains and Bots and Us". Keynote address, Flexible Futures V Conference: Impactful *Teaching between Clicks and Bricks*. Pretoria.

Authors

Professor Norman Duncan has been Vice-Principal: Academic at the University of Pretoria since 2014 and student success resorts in his portfolio. He has provided leadership for taking student success initiatives to the next level of integration and effectiveness, underpinned by data analytics.

Professor Wendy Kilfoil was Director: Department for Education Innovation from 2008-2018. Leadership in holistic and integrated student academic integration, development and support came from this department during the period 2009-2019, the focus of this publication.

Professor Ana Naidoo was Deputy Director: Academic Development in the Department for Education Innovation from 2012-2019. Student success initiatives such as first-year orientation in person and online, the formation of a community of practice for Faculty Student Advisors, tutor training and the FLY@UP campaign fell into her portfolio.

Mr Dolf Jordaan is Deputy Director: E-learning and Media Development in the Department for Education Innovation, a position he has held since 2014 although he has worked in the department since 2000 in e-education. He was one of the leaders in learning analytics and predictive analytics at the University.

Dr Juan-Claude Lemmens is the head of the Higher Education Research and Innovation unit in the Department for Education Innovation, a position he has held since 2012, although he worked in the unit since 2006 as a research analyst in student success. He is the chair of the institutional Tshebi data analytics committee.

Dr Hestie Byles was brought on board in the Department for Education Innovation in 2016 to drive the FLY@UP initiative because of her prior experience in the Faculty of Humanities working on student support. She is currently working more intensively with the Faculty Student Advisors.

Mr Hugo Mouton was head of the Institutional Research and Analytics unit in the Department for Institutional Planning for more than a decade. He has worked to build capacity for members of Tshebi in the use of data in HEDA dashboards.

Professor Irma Eloff is a Professor of Educational Psychology and was Dean of the Faculty of Education for two terms. She has worked with Tshebi on investigating student wellbeing.

Professor Marietjie Potgieter was Deputy Dean: Teaching and Learning in the Faculty of Natural and Agricultural Sciences from 2013 and thus on student success and data committees. She drove the student success initiatives in her faculty and FLY@NAS.

Dr Ina Louw was an education consultant in the Department for Education Innovation from 2014, allocated to work with the Faculty of Natural and Agricultural Sciences. She was most involved with the professional development of academic staff and FLY@NAS.

Professor Alex Antonites is Head of the Department of Business Management in the Faculty of Economic and Management Sciences. He is a leader in entrepreneurship and designed one of the Professional Online Development tutorials offered free to the University's students as part of the ready-for-work programme.

Dr Elmarie Liebenberg headed the Career Services office in the Department of Enrolment and Student Administration. A range of face-to-face work readiness programmes resorted under her leadership. She also contributed to the development of the ready-for-work online programme.

Professor Rehana Vally, a Professor of Anthropology in the Faculty of Humanities, worked with a number of stakeholders across the University to conceptualise and implement the initial ready-for-work online programme.

Acknowledgements

Editor

University of Pretoria

Design of infographs

Glenda Brits

Graphic Designer

Department for Education Innovation

University of Pretoria

Design of publication

Rita Dave

Graphic Designer

Department for Education Innovation

University of Pretoria

Language editing

Nathan Lowe

Language Unit

University of Pretoria