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An institutional model for improving student retention and success at the University of Pretoria

Nthabiseng Ogude, Wendy Kilfoil and **Gerhard du Plessis**
University of Pretoria, Pretoria, South Africa

Abstract

A concerted institutional approach to improving student outcomes resulted in a faculty-based, student-focussed model for student success at the University of Pretoria (UP). The student academic development and excellence model (SADEM), developed by a Steering Committee for student success, employs developmental research and systems theory and targets all years of undergraduate study while prioritising the first year. Underpinned by a systemic metric framework and continuous improvement, interventions comprise institutional and faculty–based projects that target high impact modules and diverse students to improve retention, pass, and throughput rates. Though context specific, it offers solutions to international concerns - lack of a systemic approach; initiatives located in peripheral units; initiatives located outside academic disciplines and lack of participation by academic staff and a focus on retention of limited student subgroups instead of retention, pass, graduation and throughput rates of all students. The circumstances that led to its development, its key features and application at the UP, ways it can be adapted to other contexts, as well as its limitations and possible future directions are presented.

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The context

Research on student success, the first year experience and the improvement of student outcomes, notably retention rates, has seen phenomenal growth internationally. Various scholars have proposed ground breaking theories in this area, including the Psychological Model of College Student Retention (Bean & Eaton, 2000); College Readiness Model (Conley, 2007); Student engagement theory (Kuh, Kinsie, Buckley, Bridges & Hayek, 2007), Transition Theory (Schlossberg, Waters & Goodman, 1995); the interactionalist/integration theory (Tinto 1975); the Longitudinal Departure Model (Tinto, 1993); and psychological perspectives, including attribution theory and expectancy theory, highlighting a number of constructs related to student retention.

Despite the increasing focus on student success and notable achievements therein, pervasive problems persist. In an assessment of the status of first year experience initiatives in the United States at the beginning of the 21st Century, Barefoot (2000) identifies the central problem as a "continuous battle for status within the academy" (p. 17). She argues that most initiatives focus on retention rates only, rarely use discipline-based courses and are housed in marginal facilities, with limited budgets. She concludes that effectively, many "do not form part of a central and sustainable part of the institution's fabric" (p. 17). More recently, Kift, Nelson and Clarke (2010) and Tinto (2006/2007) cited similar concerns and specifically the absence of coherent frameworks suitable for systemic management of the multiple projects that institutions initiate.

South African universities have been investigating strategies for improving student success for a long time (Mabizela 1994; Potgieter, 2010; Rollnick, Mphahlele, & Ogude, 1997). However, key factors in the external environment, firstly a culmination of twelve years of poor schooling for the majority; an undifferentiated post-school system and the yet to be established predictive validity of the new National Senior Certificate examinations for university study (Collier-Reed, Wolmarans & Smit, 2010; Klingbeil, Mercer, Rattan, Raymer, & Reynolds, 2004; Mabizela 1994; Scott, Yeld & Hendry, 2007) severely impact on strategies that universities must adopt to bridge the school-university gap. They demand rigorous management of teaching and learning, a focus on high-impact practices, and making clear strategic choices that serve the needs of diverse student subgroups and national priorities. This must be achieved amid multiple institutional demands, a resource constrained environment and an academic context in which under-preparedness is, for historical reasons, a majority phenomenon in most undergraduate degree programs. Furthermore, extended programs that could address the school-university gap are limited to national priority areas of Science, and Engineering and Technology (SET) due to pressure on public funding of universities. Even then, these programs serve a minority of students in SET programs.

Faced with these international and national challenges, a Steering Committee for Student Success—a sub-committee of a Senate Committee for Teaching and Learning at the University of Pretoria (UP) in South Africa—used developmental research (Richey & Klein, 2005; Van den Akker, 1999) to respond to the question:

What model would enable strategic management of student success, enhancement of a quality undergraduate experience, and improve performance indicators? Though the aim was to develop a context-specific model, the Steering Committee simultaneously explored solutions to four concerns in the literature: (i) lack of a systemic approach; (ii) the location of initiatives in peripheral units; (iii) stand alone initiatives that are delinked from academic disciplines and lack of participation by academic staff; (iv) a deficit approach that focuses on retention of limited student subgroups instead of retention, pass, graduation and throughput rates of diverse student populations. This paper reports on the circumstances that led to the development of the model, its key features and how it responds to the four problem areas, its application at the UP and ways it can be adapted to other contexts. It concludes by outlining the limitations of the model and possible future directions.

Circumstances that led to the development of the model

The Department of Student Affairs at UP has pioneered student success initiatives since 2002. Although these initiatives lacked impact in the academic domain, they resulted in increased institutional awareness. In 2009, the Senate Teaching and Learning Committee took over responsibility for student success matters and charged a sub-committee—the Steering Committee for Student Success (hereafter Committee), comprising deputy deans of all nine faculties, directors of academic support departments and student representatives—with developing a concerted approach to improving student success. Based on institutional experience and a survey of the literature, the Committee adopted a two-pronged process. Firstly, a research-informed methodology using a developmental research paradigm (Richey & Klein, 2005) and secondly, systems theory as applied to management (Charlton & Andras, 2003) as a platform for an integrated institution-wide approach that is both comprehensive and comprehensible. The section that follows provides an outline of how the Committee explored solutions to the four weaknesses cited above while seeking a context-specific model.

Problems areas that the model addresses

Problem 1: A systemic approach to first year experience and student success

A developmental research paradigm suited the Committee's intentions as it involves systemic change that includes all stakeholders—in this case, the executive of the university, faculties, support departments, students, high schools, and external experts—in a consultative process of designing a system-wide process to improving the undergraduate (particularly the first-year) experience**.** According to Richey and Klein (2005), Type I research aims to develop theory and Type II to provide solutions within specific contexts. This is Type II research as we worked within established theory and international best practice paradigms to solve the problems identified: context-specific, problem-solving and—extremely important in this type of research—involving practitioners. As Reeves, Herrington and Oliver (2004) explain, "[a] developmental research framework is one

that, among other key characteristics, involves intensive collaboration among researchers and practitioners … [and] maintains a commitment to theory construction and explanation while solving real-world problems" (p. 59). As far as an integrated approach is concerned, Charlton & Andras (2003) indicate that, from a systems theory perspective, "the nature of management may be conceptualised as the process by which an organisation generates a global representation of its own processes" (p. 1). This potential to present a global representation of multiple student success initiatives provides a framework for a cohesive approach.

In adopting these two approaches, the Committee had the opportunity to address what Kift et al. (2010) refer to as a "piecemeal approach" of current efforts in first year experience and suggest that "effort now needs to be directed at moving practice towards more holistic and sustainable institution-wide approaches and enhancements" (p. 2). To this end, a robust evaluation framework was built into the new initiatives for evaluating their success and adapting our practices in future. The formative evaluations by the Committee, baseline data collected from the Faculties, decisions made by Senate and the Executive Management of the University were all captured in notes kept by the Committee. The evaluation frameworks for new initiatives used surveys and focus group interviews, yielding reports as well as raw data. The summative evaluation included (amongst others) a series of workshops that culminated in an institutional teaching and learning symposium facilitated by John Gardner and Betsy Barefoot on the *Foundations of Excellence* model in January 2011 (Gardner & Barefoot, 2011).

The findings from the literature and conferences, the rich data, and the input of experts were consolidated to distil five principles that would underlie the model and a systemic approach. These were:

- endorsement at the highest level;
- institution-wide involvement;
- a data-driven approach;
- implementation and assessment of initiatives; and
- continuous improvement.

The first two were successfully addressed through developmental research and the remaining three through a systems approach. According to Charlton and Andras (2003), a system comprises of the *input dimension* which identifies resources or organisational input required to implement the institutional program; the *process dimension* that identifies the locus of the interventions; the *output dimension* or the desired results in the short term (1- 4 years); the *impact dimension* or the intended or unintended changes determined for example through case studies, surveys and whose results inform continuous improvement; and lastly, the *outcome dimension* or changes in participants' behaviour, knowledge, skills, status and level of functioning in the long term (4-7 years). These five dimensions provide a structure for a sustained and systemic intervention and thus a possible solution to problem 1. The central challenge that remains is to determine the locus of intervention (*process dimension*) and link this to mainstream academic activities, in an attempt to resolve problem 2. Identification of the *process dimension* would, in turn, provide pointers to the nature of the input, outputs, outcomes and impact of the program as outlined below.

Problem area 2: The process dimension and the link to mainstream academic activities

The lack of impact of previous initiatives together with the diversity of academic disciplines at UP ranging from the humanities to science and applied sciences with varying student enrolments, admission and selection criteria as well as pedagogical models, emerged as pivotal in the identification of the locus of intervention by the Committee. For these reasons, a faculty-based approach was considered as the most appropriate locus of intervention It also addressed the challenge Tinto (2006/2007) refers to when he says "though it is true, as we are often reminded, that student retention is everyone's business, it is now evident that it is the business of the faculty in particular" (p. 5). It should be pointed out, however, that Tinto was referring to academic staff only when he used the term "faculty" and not to the organisational unit referred to as a "faculty" in this study. A faculty-based approach also addresses problems cited by Barefoot (2000), Braxton, Milem and Sullivan, (2000) and Umbach and Wawrzynski, (2005) in relation to academic status and housing of initiatives in marginal facilities.

Once initiatives were housed in a faculty, the Committee proposed that student success initiatives should address the entire student life cycle from pre-registration to graduation with a focus on the first year and also align with institutional strategic drivers of excellence, diversity, sustainability and relevance. This would address Barefoot's (2000) concern that these initiatives are not a "central and sustainable part of the institutions fabric" (p. 17). Having reached consensus on the locus of intervention—the *process dimension* of the model—and a possible solution to problem 2, the Committee proceeded to identify a specific focus within the faculty to embed student initiatives and rally the support of academic staff and students.

Problem 3: The link of the model to academic disciplines and involvement of academic staff

Fanghanel (2007) and Marshall, Adams, Cameron and Sullivan (2000) concur that it is at the departmental level that many policies and plans for the enhancement of learning and teaching must be operationalised and enacted. Fanghanel in particular cautions that "institutions ought to be mindful of providing scope for departments to adapt institutional policy for their needs since they are the locus of the enactment of change" (p. 16). In line with this thinking, the Committee concluded that academic disciplines and specific modules should be used as the focus. This decision assumes a conducive faculty environment. With this in mind, and based on historical data, modules that present difficulties for students and impact negatively on pass and throughput rates, were prioritised for intervention.

The term High Impact Modules (HIMs) was coined to signify such modules' potential impact on performance indicators on the one hand, and the strategic intent of the university on the other. HIMs are thus characterised as modules: (i) with large enrolment numbers (>200); (ii) that cater for a number of programs across faculties; (iii) are associated with academic programs of national significance; (iv) have

high dropout rates (>10%); and (iv) high failure rates (>30%). High failure and dropout rates undermine (a) sustainability and (b) excellence. Similarly, high student enrolments in these modules can impact on (c) diversity of graduates as the chances of black students passing would increase. For historical reasons black students are most at risk and likely to fail. Furthermore, if these modules are pre-requisites for SET disciplines, they would undermine (d) relevance if UP fails to deliver graduates in disciplines of national importance. Evidently, the modules potentially have a major influence on the four strategic drivers [(a) to (d)]. To put the significance of the HIMs into perspective, 65% of first year students register for at least one HIM in the Faculty of Natural and Agricultural Sciences (NAS) and most HIMs in NAS typically serve 6 of 9 faculties (Health Sciences, Veterinary Sciences, Engineering and the Built Environment, Education, Economic and Management Sciences) and NAS itself. Owing to their significance, HIMs were identified as a focal point for student success initiatives and a good platform to engage students and the academic staff who teach them.

As regards engagement of academic staff, HIMs receive concerted attention for improvement of curricula, pedagogy and assessment. The Department for Education Innovation has dedicated faculty-based pedagogic specialists who provide assistance with alignment to high school curricula, establishing students' prior knowledge, aligning learning outcomes with program outcomes through curriculum mapping, revising study guides, using technology such as ClickUP (Blackboard-based learning management system) and clickers (Martyn, 2007), and developing resources for teaching large classes among others. Lecturers in HIMs form a community of practice and meet each semester in an action research cycle involving identification of HIMs, workshop to discuss changes, implementation, feedback sessions and preparation for the next cycle.This faculty process is managed by the Deputy Dean, a member of the Steering Committee.

This concerted focus on mainstream academic modules as well as engagement and support of academic staff in these modules, addresses problem 3. Students in HIMs also receive a special focus alongside other student sub-groups thus addressing problem area 4.

Problem 4: Addressing diverse student sub-groups and key performance indicators

As indicated, HIMs cater for large numbers of students of diverse academic abilities. For example, CMY 117, a first year chemistry module, has on average 1,400 students. These students receive comprehensive academic, psychosocial, financial and other support using proven high impact practices including tutoring, Supplemental Instruction (SI), peer mentoring, academic advising, and psychological counselling (Swaner & Brownell, 2009) that are integrated and supervised by Faculty-based Student Advisors (SAs) who are registered Educational Psychologists. The *National Benchmark Test* (NBT) (Yeld, 2009), the *Student Academic Readiness Survey* (STARS) (Lemmens, 2010) and the *Test for Academic Literacy* (TALL) (Weideman, 2003) provide individual "academic readiness profiles" based on a combination of cognitive, meta- and non-cognitive characteristics. The profile is used to

channel students for targeted support into five groups. Group 1 includes students identified as "at risk" and also enrolled in HIMs. They receive proactive and compulsory small group tutoring and peer mentoring. Performance is closely monitored and meetings with the SA are based on a prescribed agreement. Group 2 also contains "at risk" students who are not enrolled in HIMs. They have peer mentors, attend SI sessions and have to consult an SA once per semester. Groups 3 and 4 are "not at risk" but Group 3 students, unlike those in Group 4, are enrolled in HIMs. Group 3, therefore, receives support as for Group 2. Like Group 2, they can be re-classified and channelled into Group 1 if they experience difficulties during the first semester. Group 4 is the lowest risk category of the four. SI is recommended and they can be referred to Group 2 if they are not coping. Group 5 consists of the top 20 performing students per faculty based on high school results. These students are mentored by lecturers and the intention is to involve them in tutoring and to mentor them to become the next generation of academics. Besides Groups 1-5, faculties can identify other sub-groups. For example, black Veterinary Science students and female students in Engineering, because of scarcity, can be prioritised and their performance tracked separately to determine achievement of strategic objectives.

Tutors, mentors and mentees receive ongoing training and the effectiveness of individual initiatives and the support mechanism is evaluated. A First Year Experience Survey (FYES) administered in the second semester, complements the data from STARS. It determines development in individual students. Aggregate results by Faculty, program or module provide a dashboard view of the impact of support initiatives while fields such as campus climate, teaching support and feedback, assessment and satisfaction with the learning experience provide information on student integration over time.

In order to be successful, the concerted faculty based intervention described above, has to be supported by organisational level interventions aimed at providing a conducive environment. (Marshall et al., 2000; Tinto, 2006/2007). In a comprehensive review of student retention efforts, Tinto (p7) suggests that what is needed is

> a model of institutional action that [not only] provides guidelines for the development of effective policies and programs that institutions can reasonably employ to enhance the persistence of all their students ... [but also] connect[s] specific programs and practices for students to institutional actions that provide support for the faculty and staff directing those programs and practices. (p. 7)

These statements point to the need for institutional, student and faculty-focussed organisational interventions as described below.

Organisational level intervention

Three organisational sub-levels and associated projects that would ensure "readiness" at those levels and make UP a true "retentioneering" institution (Simpson & Johnston, 2006) were identified. Referred to as institutional, faculty and student readiness projects, they constitute the *input dimension* of the model. Examples include: a teaching and learning charter, an early warning system, student finance for

needy students as well as contribution of teaching to academic promotions, for an institutional focus – these are interpreted for faculty contexts when implemented; faculty readiness projects include rethinking the educational model, faculty academic culture and student success, resources for large classes; while those of student readiness include collaboration with feeder schools and the design of survey instruments to determine academic readiness as well as effective mentoring and tutorial support. The Committee used the Nominal Group Technique, a proven and effective method appropriate for the purposes of "think tanks" and needs analyses to identify priority projects (Chaple & Murphy, 1996).

The identification of organisational and unit level intervention, and outputs associated with the interventions, provides a platform for an integrated understanding of the interconnectedness of student success initiatives. The outcome is a sustainable, faculty-based and student-centred model—the Student Academic Development and Excellence Model (SADEM) summarised in Figure 1. The inclusion of "Development" and "Excellence" in the title illustrates the inclusiveness and the overarching reason for designing the model. SADEM thus acts as a strategic management tool for modelling student success initiatives institutionally and offers a systematic and systemic approach supported by resourcing and a performance management system. If successful, it will avert the common problem wherein institutions make significant investment in retention and other student success initiatives without a clear indication of whether the initiatives yield expected returns. It was first implemented on a pilot basis in five faculties in 2010 and then institution-wide in 2011. Systematic tracking of performance indicators at the module, departmental, faculty and institutional levels is key to determining the success of the model and to see if interventions are improving student retention and success.

Implementation of the model in UP and in other contexts

Implementation is an on-going and dynamic process wherein the Senate Committee for Teaching and Learning approves institutional priority projects and the Deans supported by the Deputy Deans and Heads of Department decide and implement faculty projects based on the strategic objectives, possible impact and available resources. SADEM, though designed for the UP context, also addresses areas of international concern and can be adapted to other contexts as suggested below.

Three conditions underpin the development of a similar model or its adaptation for use in other contexts. Firstly, support by institutional leadership, especially the deans and the heads of department and oversight by a Senate Committee, foreground student success and the first year experience as a core academic activity. Secondly, collaboration between all stakeholders for collective impact through a steering committee comprising of senior academic staff that are responsible for teaching and learning and passionate about student success, ensures an academic rather than a support focus underpinned by continuous and

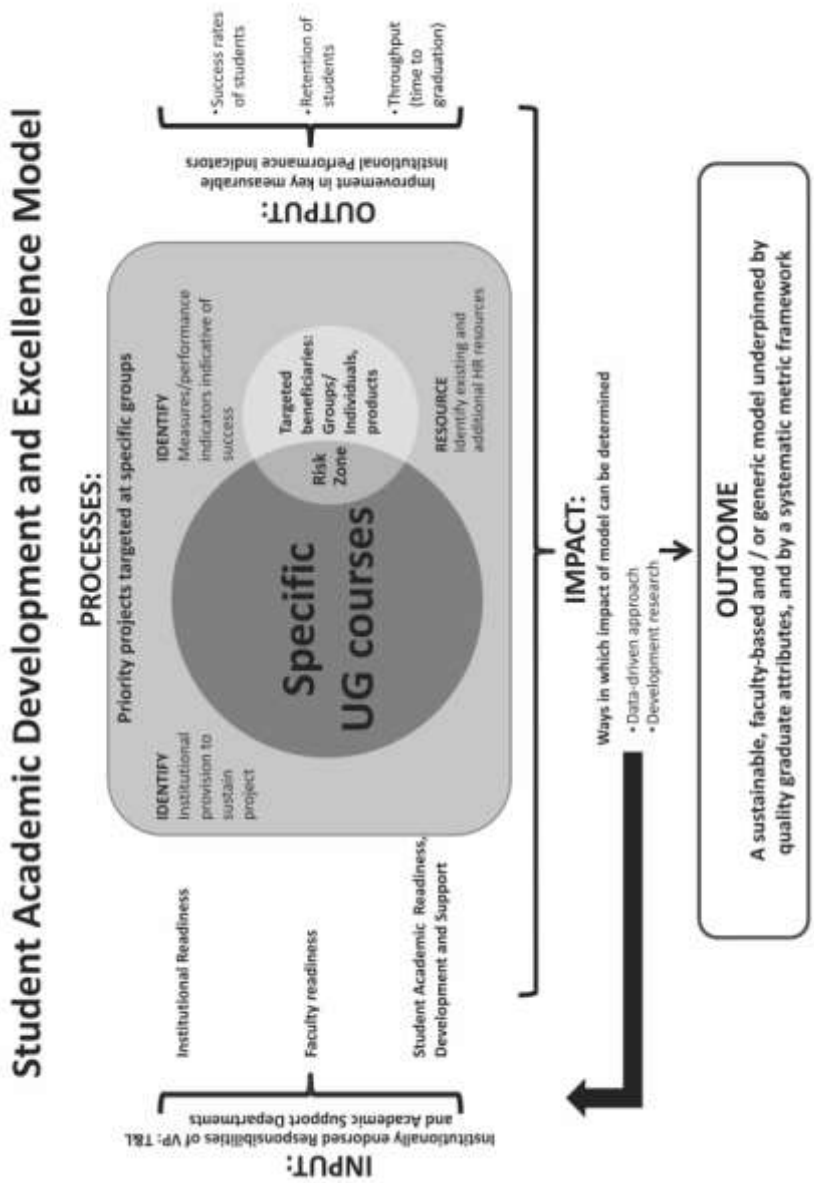

Figure 1 A generalised student academic development and excellence model

robust interrogation of institutional approaches. Lastly, the flexibility of the model to accommodate faculty priorities and the alignment to the strategic intent of the university, facilitates a discussion on allocation of limited resources.

Once these fundamentals are in place, the conceptualisation of effective unit level intervention is the next challenge. The key to success lies in harnessing and aligning existing institutional initiatives on staff development (curriculum and teaching methodologies) and student development (advising, mentoring, tutoring) intentionally around mainstream academic modules or programs. As we discovered, prioritization of projects based on the strategic intent of the university and impact on performance indicators, was a major breakthrough as was the inclusion of diverse student sub-groups and existence of disaggregated historical data on student performance. The inclusion of top performing students shifted thinking about student success as a marginal activity meant for weak students, to an association with development and excellence—a major attraction for both academic staff and student representatives. Furthermore, the primary focus on "problem modules" rather than "problem students" was welcomed by students and staff.

Finally, while the process for developing a UP-specific model may appear uncomplicated, it was demanding and still faces many challenges. For example, uptake within faculties varies depending on faculty leadership support for the approach. It is also fair to acknowledge that the historical context of South Africa, especially the extent of under preparedness among students who are otherwise very talented, challenged UP to cater for a diversity of sub-groups and to foreground development and excellence rather than the predominant deficit approach of retention of "students at risk."

Conclusion, limitations of the model and future directions

A concerted institutional approach to improving student outcomes that is characterised by robust debates on the efficacy of institutional student initiatives and comparison with international trends, led to ideas that could be translated into initiatives within faculties and individual modules and finally an institution-wide model, the SADEM. Solutions to four international concerns namely, a systemic model, linking the model to mainstream academic activities and involvement of academic staff, addressing the needs of diverse student groups as well as retention in addition to pass, graduation and throughput rates are explored through systemic approaches, namely, developmental research and systems theory. The framework developed by the Committee provided a platform for integrating proven high impact practices in relation to staff and student development and the first year experience with a focus on high impact modules. Furthermore, prioritization of projects based on the strategic intent of the University as well as alignment with resourcing and planning is a major strength of the model as is the systemic, data-informed approach and continuous improvement underpinned by the scholarship of teaching and learning.

One of the shortcomings of the model is that it is still evolving. For example, more work is needed to refine the concept of "faculty readiness" as institutional and

student readiness are well established in the literature. The faculty leadership's notion of academic freedom and how it may impact on uptake of the approaches discussed and the extent of involvement of faculty student leadership in student success matters also need further interrogation. There is also a need for cohort studies in which the impact of the initiatives aimed at HIMs are tracked systematically. Though still developing, there are initial indications of its utility for addressing student success (Harding, Engelbrecht & Verwey, 2011). We also believe that a focus on the faculty as an organisational unit will facilitate debates on further developments. To our knowledge, a faculty-based model that integrates existing high impact student success initiatives and theories and at the same time guides institution-wide initiatives has not been reported in the literature. We shall continue to monitor, evaluate and refine our practices, based on the model, and undertake the outcome and impact studies that underlie the student academic development and excellence model as a longitudinal project.

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