Using Extended Curriculum Programmes to Improve Student Success at Universities

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Abstract
This study presents findings from a larger, mixed methods study that focuses on student success in an Academic Development Programme (ADP) at a South African university. Variables within the demographic, institutional, economic, cognitive, personal needs, and psychological domains of student success were investigated. A sequential triangulation research design was adopted. Data was collected in three phases: a quantitative, secondary analysis of existing, historical demographic data from students (n=5,560) in an Extended Curriculum Programme (ECP) during an 11–year period (2010–2020), a quantitative survey phase (n=161) and an interview phase (n=15). Data was analysed by means of descriptive statistics and theory-driven, inductive coding. The findings revealed that the ECP alleviates the differences in demography and economic status to such an extent that students from deprived areas were equally successful as students from more affluent backgrounds. While all domains are important, the study indicates that the psychological domain and the personal needs domain are most notable in relation to student success. The study recommends that Higher Education Institutions (HEIs) provide students with sufficient help and support especially on students' mental well-being.

Keywords: student success, Extended Curriculum Programme, higher education, access, psychological wellbeing.

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Résumé
Cette étude présente les résultats d'une étude de plus grande envergure, fondée sur des méthodes mixtes, qui se concentre sur la réussite des étudiants dans le cadre d'un programme de développement académique (ADP) dans une université sud-africaine. Les variables relatives aux domaines démographique, institutionnel, économique, cognitif, aux besoins personnels et psychologique de la réussite des étudiants ont été étudiées. Un modèle de recherche par triangulation séquentielle a été adopté. Les données ont été collectées en trois phases : une analyse quantitative secondaire des données démographiques historiques existantes des étudiants (n=5 560) dans un programme de cursus étendu (ECP) pendant une période de 11 ans (2010-2020), une phase d'enquête quantitative (n=161) et une phase d'entretien (n=15). Les données ont été analysées au moyen de statistiques descriptives et d'un codage inductif axé sur la théorie. Les résultats ont révélé que le PEC atténue les différences démographiques et économiques à tel point que les élèves issus de zones défavorisées réussissent aussi bien que les élèves issus de milieux plus aisés. Bien que tous les domaines soient importants, l'étude indique que le domaine psychologique et le domaine des besoins personnels sont les plus remarquables en ce qui concerne la réussite des étudiants. L'étude recommande vivement aux établissements d'enseignement supérieur (EES) de fournir aux étudiants une aide et un soutien suffisants, en mettant l'accent sur le bien-être mental des étudiants.

Mots-clés: Réussite des étudiants, programme d'études élargi, enseignement supérieur, accès, bien-être psychologique.

Introduction

Extended curriculum programmes (ECPs) have been widely used in tertiary institutions to combat the persistent inequities amongst first-time entrant university students (Engelbrecht et al., 2009; Megbowon et al., 2023; Scott, 2016). For example, students who do not meet the minimum admission requirements of the mainstream programmes in the Natural and Agricultural Sciences Faculty (NAS) are considered for admission to the ECP. The programme extends over a period of four years, instead of the normal three years for the mainstream BSc students. The assumption is that allowing more time to complete introductory university courses, may potentially increase student success at the individual level and reduce dropout rates at the institutional level. In the South African context, extended curriculum programmes have been especially prevalent in an emerging democratic context.

Access to Higher Education Institutions (HEIs) is frequently stated as a national priority and an imperative at many research-intensive universities worldwide, including South Africa (Dhunpath & Vithal, 2014; Kelly-Laubscher et al., 2018) Yet, there are various embedded factors that influence access to education, the quality of support during education and the resultant success rates. For instance, student diversity at university has increased significantly worldwide (Barrington, 2004; Bell & Santamaría, 2018) and provides a rich resource to deepen the quality of learning experiences at university. Although often narrowly defined, in terms of race, class, ethnicity, gender, and academic level of preparation (Barrington, 2004; Scott, 2018), student diversity may also include factors such as religious orientation, mental health, personal needs, physical abilities and world views. Alongside increasing student diversity, the increase in student numbers in South Africa is also evident, especially since 1994, with the dawning of the new democracy (Engelbrecht et al., 2009; Matsolo et al., 2018). However, increases in student numbers have not been paralleled by increases in academic staff, thereby compounding the pressures to support student success.

According to Dube et al.(2022) the growing student numbers and enriching diversity at HEIs can partially be attributed to new policy frameworks after 1994, which aimed to enhance access to tertiary education. ECPs have also been implemented in tandem with financial mechanisms such as the establishment of the National Student Financial Aid Scheme (NSFAS) to support students from disadvantaged backgrounds Dube et al. (2022).
However, despite significant expansions of enrolment, including female students , the participation rate in South Africa remains relatively low in comparison with industrialised European countries such as Germany (Scott, 2016). When students enter a tertiary institution, the excitement of university acceptance is often short-lived since the challenges are overwhelming for many of them, resulting in many students dropping out in their first year of study (Moodley & Singh, 2015). According to Scott (2016), students' performance stays alarmingly poor over time, since fewer than 30% of contact students graduate in a regular time. Standard completion time is the minimum time that is required for a student to complete a degree programme and is indicated as n years. About 55% of contact students do graduate within n+2 years. Nearly 50% of the total entrants do not graduate within 10 years (Cloete, 2016). Despite increases in government and associated funding for HE students, high-attrition and unsustainably low graduation rates persist. This reality has distressing consequences for many students, their families and the capacity of HEIs to meet the development needs of South Africa (Mngomezulu et al., 2017).
The attrition of students needs a more innovative and strategic approach

to address the challenge (Moodley & Singh, 2015). According to Bagonza & Kaahwa (2023) another approach to address the challenge of student attrition is high-quality academic programmes. Such programmes need to focus on student retention, graduate destinations and employability after receiving their academic qualification (Bagonza & Kaahwa, 2023).

South African HE is afflicted by the legacies of Apartheid, particularly with regard to throughput and completion rates (Council on Higher Education, 2013). Race, class and gender can be regarded as major issues of social injustices in the global knowledge economy (Wilson-Strydom, 2015). According to Joynt (2023) other significant predictors to student success include prior knowledge, academic aptitude and mathematical ability, as well as personal attributes such as determination and self-efficacy.

Although other stress factors such as financial difficulties and accommodation challenges contribute to student attrition, Gerber (2012) also considers proficiency in the medium of instruction, which in the South African context is mostly English. Since English, in many cases, is the students' second or third language, it challenges their reading and processing skills (Barrett et al., 2012; Gerber, 2012). Even native English speakers have different levels of English proficiency (Beal et al., 2010). Although the challenges of low performance and high attrition are not unique to South Africa, the improvement of success and completion rates must be recognised as essential for the HE landscape and the economic and social well-being of South Africans (Scott, 2016).

In response to these challenges, HEIs in South Africa began introducing Academic Development Programmes (ADPs) to address the challenge of low performance and high attrition. During the early years of democracy, most tertiary institutions started to offer access programmes in science, as part of their academic courses (Engelbrecht & Harding, 2015). Collectively, the access programmes are called ADPs, which can be categorised as either foundation, extended or augmented programmes, or a combination of the three in accordance with the Department of Higher Education and Training (DHET) requirements for its design. According to Engelbrecht et al. (2014), the foundation modules of an ECP of the first academic year of the BSc degree, for instance, are typically distributed over two years. The additional time is used for skill development and academic support. The foundation programme consists of a one-year programme in which students receive academic literacy and science preparation for the BSc programme that begins the following year. For the augmented model, students receive extra tutorials and practical sessions that extend the programme over two year (Engelbrecht et al., 2014).

Unfortunately, the ADPs are costly and labour intensive, requiring input by a specialist teacher. The lecturers must also be experts in their different academic fields (Potgieter et al., 2015). The evolution of ADPs in HEIs became increasingly important in the South African tertiary education over the past three decades. Most South African universities now offer access programmes in some format.

According to Scott (2016), the extended curriculum programmes carry a transformation responsibility. This includes support services to meet the students' performance challenges. The support includes both academic and psychosocial services. The establishment of academic support and later academic development are usually adopted to address racial inequalities and aim to advance equity of access as well as fairness of outcomes for students regardless of their background Scott (2016).

While students have been graduating through extended curriculum programmes, it is, however, challenging to ascertain the factors that contribute to their academic success. There are a multitude and complexity of variables that may impact success.

The institution selected for the current study introduced an ECP in Natural and Agricultural Sciences on one of its campuses. Although the programme was initially called the BSc-four-year-programme, it was later changed to the ECP. The extended programme consists of the following three distinctive streams:

- BSc in Mathematical Sciences (BMAT)
- BSc in Biological and Agricultural Sciences (BBIO)
- BSc in Physical Sciences (BPHY)

After initial implementation, the ECP was later expanded to include Economics and Management Sciences.
This study aims out to investigate student success in the ECP in relation to specific domains. Several historical models were investigated to understand the challenges experienced by HEIs and prospective students through the years. Some of the models included:

- The undergraduate dropout process model (Spady, 1970, 1971)
- The institutional departure model (Tinto, 1975, 1993)
- The student attrition model (Bean, 1980, 1982)
- The student-faculty informal contact model (Pascarella, 1980)
- The non-traditional undergraduate student attrition model (Bean & Metzner, 1985)
- The student retention integrated model (Cabrera et al., 1993)
- The student involvement theory (Astin, 1984)
- Adejo and Connolly's model for predicting student success (Adejo & Connolly, 2017)

For purposes of this study, the Adejo and Connolly model (2017) was chosen for further investigation into the factors for student success. The six domains of the Adejo and Conolly model comprises the majority of the variables that contribute to student success. The six domains are: demographic, economic, cognitive, institutional, personal needs, and psychological. Each domain is interconnected with the other domains, and each domain is regarded as contributing to the performance, success, and graduation of students (Adejo and Connolly, 2017).

In this study, the demographic domain includes variables such as the student's age, gender, ethnic origin, disability, home language, and school. The cognitive domain includes the student's Admission Point Score (APS), as well as the student's final examination (grade 12) marks, with special reference to English and Mathematics. The economic domain includes variables such as income, income distribution status, parental finances and employment status. The institutional domain incorporates the course programme for which the student enrolled, the learning environment, the institutional support, and the course workload. The personal needs domain includes the student's study habits, study time, time management, online activities, and support from academic and administrative staff. The psychological domain includes the student's self-efficacy, self-set goals, commitments and achievements, as well as the student's interests and motivation.

Rationale for the Study

The rationale for the study is to understand the domains which contribute to student success in ECPs in Natural Sciences at a tertiary institution in South Africa. After investigating several historical models concerning student success, the main reasons or factors could be summarised under the Adejo and Connolly model (2017) for predicting student success at HEIs. The current study investigates several variables within the demographic, institutional, economic, cognitive, personal needs, and psychological domains of student success. Within each domain, there may be several factors that lead to students' retention and attrition from HEIs.

Research Questions

Which variables within the demographic, institutional, economic, cognitive, personal needs, and psychological domains are related to student success in extended curriculum programmes in Natural Sciences at tertiary institutions?

Sub-questions include:

1. To what extent do the demographic, cognitive and economic domains play a role in student success?
2. Which domains play the most significant role in students' academic success?

Methods

For this study, a sequential triangulation design was adopted. Data was collected in three distinct phases: firstly, a quantitative analysis of existing data from 5,560 students during an 11–year period (2010–2020) in an ECP; secondly, a quantitative survey using a Likert-scale questionnaire that was completed by 161 students; thirdly, interviews conducted with 15 students. For Phase I, only some of the domains could be investigated from the university data. Information regarding the personal needs domain and the psychological domain could only be explored during Phase II and Phase III of the study. A questionnaire was used to gather information on student success from a larger population of students than what was possible from the interviews. Data was analysed by means of descriptive statistics and theory-driven, inductive coding. The sequential triangulation design in three phases is adopted to provide a deeper understanding of the different domains and the role each played in student success in the ECP.

Data Collection Instruments

For the first phase, a secondary analysis of existing data for each cohort of students between the years 2010 and 2020 (n=5,560) was conducted. Data were obtained from the Department of Institutional Planning (DIP) at the site of the study, where the ECP commenced in 2008. Data were collected from 2010 onwards for 11 consecutive years. Over a period of 11 years enough data could be collected to present thorough and robust information to underscore the findings. Phase 1 included analysis of demographic data such as race, gender, origin, and school background. Phase 1 also included analysis of cognitive domain aspects such as the student's performance in English and Mathematics in school, as well as the student's Admission Point Score (APS) at the point of university entrance. The economical

domain involved the student's financial position and the school quintile. In the South African context, schools are classified in terms of levels of poverty with quintile 1 schools serving the poorest of the poor, and quintile 5 schools serving the least poor students.

For the second phase of the study a Likert scale questionnaire was developed to understand to what extent the different domains contributed to student success. The questionnaire administered (n=161) consisted of 45 items. The questions were developed and revised by the three authors to ensure that the information gathered could answer the research questions. For the target audience, the questionnaires were sent randomly to students via electronic mail. The questionnaire explores the role of economic, institutional, personal needs, and psychological domains in students' performance and success in the ECP.

For the third phase, semi-structured interviews were conducted with students (n=15). The target audience were students in the ECP between the years 2010 and 2020. The students were selected randomly from the large data list. Some were still at university while others had already entered the job market. The interview questions, which were designed and developed by the three authors, were guided by information that was gathered during the two preceding phases. The primary author conducted the interviews. The purpose of the student interviews was to gather personal information which could not be gathered during phases I and II of the study. Table 1 summarises the mixed methods approach, the data collection and the domains investigated in the various phases.

Table 1: The Three Phases of the Research Design

Phase 1 Quantitative approach using historical data Secondary analysis	**Phase 2** Quantitative approach Questionnaire	**Phase 3** Qualitative approach Interviews
Domains investigated: • Demographic • Cognitive • Economic	Domains investigated: • Economic • Institutional • Personal needs • Psychological	The domains were guided by the emergent themes from Phase 2

The personal needs, psychological and institutional domains could only be investigated during Phase II and III of the research because of the nature of the content. Similarly, data from the demographic domain could only be gathered during Phase I of the study.

Data Analysis

The data analysis was done to answer the research sub-questions. The secondary analysis of the data sourced from the Department of Institutional Planning (DIP) in Phase 1 was done by using the Statistical Package for the Social Sciences (SPSS). With the available data from DIP, the demographic, cognitive and economic domains could be investigated to find valuable information to address the secondary research questions. The SPSS statistical analysis served to show patterns and draw connections between different variables. The data for the domains included the students' race, gender, academic plan or stream, school quintile, home language, final school examination (grade 12) marks for English and Mathematics, and showed how the students performed academically at the end of the first academic year in the ECP. Correlations between different variables could be drawn to get a better understanding of how some variables contributed negatively or positively to student success.

According to Rowley (2014), questionnaires are one of the most widely used means of collecting data, while Radhakrishna (2007) states that questionnaires help to gather, among other things, information on knowledge, attitudes, behaviours, facts and opinions. So, administrating a questionnaire would be essential for the study. For purposes of gathering data through the questionnaire, students were selected randomly from the DIP data. The questions predominantly required fixed responses for easier coding of information. The respondents had to answer questions regarding facts, attitudes, behaviours, beliefs, and experiences in the economic, institutional, personal, and psychological domains.

The information gathered from the 45 questions of the questionnaire indicated the degree to which each of the four domains contributed to student success in the ECP. The information gathered from the questionnaire were used for the interviews of Phase 3.

According to Elliott and Higgins (2012), inductive enquiry means generating new theory and new understandings to identify the research problem from the participants' perspectives. So, the inductive approach

was used for the interviews since the participants' perspectives provided valuable information to address some of the research questions.

Findings

In order to understand the ways in which the variables within the demographic, institutional, economic, cognitive, personal needs, and psychological domains are related to student success in ECP in Natural Sciences, the findings are presented in terms of the initial descriptions of the demographic variables of participants in the current study. It is then considered in terms of specific domains.

The Department of Basic Education (DBE) introduced a system to classify schools in South Africa from the poorest and most vulnerable schools (Quintile 1) to the most affluent and privileged schools (Quintile 5). Since the introduction of the school quintile system, all South African public schools are classified within the quintile system (Longueira, 2016). For the purposes of capturing data in the DIP system accurately, apart from the five quintiles, quintiles 6, 7 and 8 were also captured because of the considerable number of students entering the institution from mostly privately operated schools. Quintile 6 schools write the examinations of the Independent Examination Board (IEB); Quintile 7 schools write the Cambridge examinations, and Quintile 8 schools are privately owned schools and students doing home schooling. The findings from the university data show that most students who were active in the programme at the end of the academic year were from Quintile 1 schools, which implies that the purpose of the programme was achieved. The study revealed that the ECP alleviates the differences in demography and economic status to such an extent that students from deprived areas were equally successful as students from more affluent schools. Table 2 presents the School Quintile and Academic Programme Status. The table indicates for each quintile, the number of students who were still active in the ECP at the end of the first academic year, how many discontinued their studies, and how many were dismissed. The numbers and percentages are representative of the total number of students who enrolled for the ECP between the years 2010 to 2020.

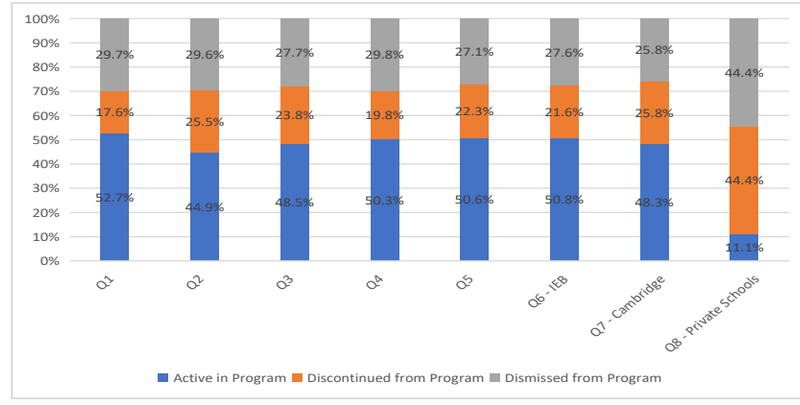
Although not statistically significant, the highest retention rate (52.7%) in the ECP is for students from Quintile 1 schools, which are students from the poorest and most vulnerable communities. Students from Quintile 4, 5 and independent schools also exhibited retention rates above 50%. Students from Quintile 5 schools, the most affluent schools, had a retention rate of 50.6%, Quintile 4 schools had 50.3% and independent schools 50.8%.

Table 2: School Quintile and Academic Programme Status

School Quintile		Active in Programme	Discontinued	Dismissed	Total
Q1	N	147	49	83	279
	% within School quintiles	52.7%	17.6%	29.7%	100.0%
Q2	N	167	95	110	372
	% within School quintiles	44.9%	25.5%	29.6%	100.0%
Q3	N	294	144	168	606
	% within School quintiles	48.5%	23.8%	27.7%	100.0%
Q4	N	312	123	185	620
	% within School quintiles	50.3%	19.8%	29.8%	100.0%
Q5	N	1130	498	604	2232
	% within School quintiles	50.6%	22.3%	27.1%	100.0%
Q6 IEB Schols	N	571	243	310	1124
	% within School quintiles	50.8%	21.6%	27.6%	100.0%
Q7 *Cambridge*	N	43	23	23	89
	% within School quintiles	48.3%	25.8%	25.8%	100.0%
Q8 Private quantiles	N	1	4	4	9
	% withinSchool quintiles	11.1%	44.4%	44.4%	100.0%
Total		**2665**	**1179**	**1487**	
		50.0%	**22.1%**	**27.9%**	

Figure 1 presents the status of the school quintile and academic programme graphically. For all quintiles, except for Quintile 8 schools, most students were active in the ECP after the first academic year.

Figure 1: School Quintile and Academic Programme Status



The university where the study was conducted uses a scoring system to determine if students are eligible for mainstream higher education or if a student must join the ECP. The scoring system is known as the Admission Points Score (APS). For the National Senior Certificate (NSC) attainment at Grade 12, the scoring system is indicated in Table 3.

Table 3: Scoring System for the National Senior Certificate

Percentage Interval for a Grade 12 Subject	Admission Point Score (APS)
80 to 100%	7
70 to 79%	6
60 to 69%	5
50 to 59%	4
40 to 49%	3
30 to 39%	2
0 to 29%	1

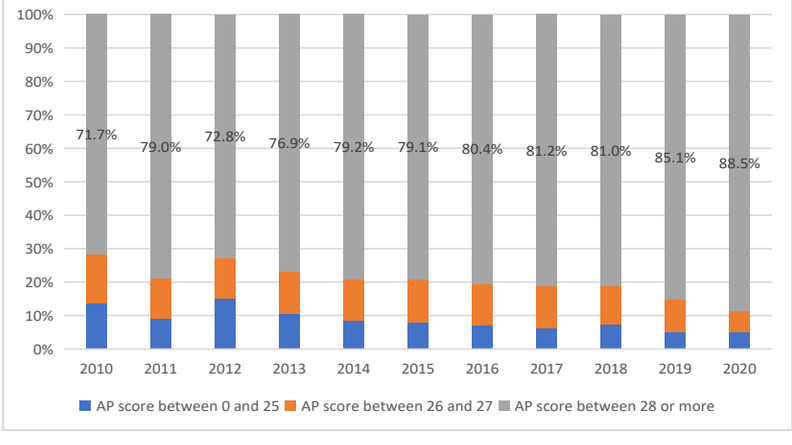
Candidates who do not comply with the minimum admission requirements of programmes in the Natural and Agricultural Sciences may be considered

for admission to the four-year ECP. The minimum admission requirements are:

- A National Senior Certificate
- Mathematics on level 5
- Physical Sciences on level 5
- English or Afrikaans on level 4
- Two other subjects on level 4
- An Admission Points Score (APS) of 32

Figure 2 below indicates that most students entering the ECP had a Grade 12 APS score of more than 28. The pattern of having a Grade 12 APS score of more than 28 increased through the years, from 71.7% in 2010 to 88.5% in 2020. The figure also indicates a decrease in student numbers with an APS lower than 28 towards 2020. It can be hypothesised that the Covid-19 pandemic and national lockdown in South Africa during the year 2020 may have had a considerable influence on matriculation results with students obtaining better Grade 12 final marks, although this notion needs empirical support. In summary, the findings suggest that the higher the student APS, the better the students' performance in the ECP. The GPA mark can be flagged as problematic for most students with a GPA lower than 65%, which was the preferred mark needed to continue successfully. More detailed findings indicate that the higher the students' Grade 12 marks were for Mathematics and English, the better their academic performance and success. In relation to continued studies, the historical data also indicated that there were 183 honours degrees, 82 masters' degrees, and four doctorates completed in subsequent years by students who completed the ECP.

Figure 2: Cohort and Grade 12 AP



Another important aspect from Phase 1 of the study dealt with performance in English and Mathematics in school. There is a strong correlation between Grade 12 Mathematics and performance in HE (Anthony, 2000; Hourigan & O'Donoghue, 2007; Korpershoek et al., 2015; Saha et al., 2024; Tewari, 2014). It can be expected that students would perform better in HE if they obtained better grade 12 marks in Mathematics and English. Table 4 cross- tabulates Grade 12 Mathematics results by percentage categories of performance and student status as being active, discontinued their studies, or having been dismissed after the first year of study in the ECP. Table 4 shows how students' Academic Program Status as active in the ECP increases between a low 29.4% and a high 55.3% as their grade 12 mark in Mathematics increases. Table 4 also shows how the number of dismissed students decreases when the grade 12 Mathematics mark increases. The only different observation is that students with a grade 12 Mathematics mark between 80 and 100% discontinue their studies the most (35.9%). The reason is not clear, but it seems that these students change their study direction before the end of the first academic year or they obtain late admission to a different study direction.

Students with a grade 12 mark between 70 and 79% for Mathematics performed the best with regard to being active in the programme at the end of the first academic year. This tendency corresponds with the number of students who were dismissed at the end of the first academic year.

Since the language of instruction is mainly English (FAL), the marks students receive for grade 12 English plays a significant role in a student's ability to read, to study, to conceptualise and to comprehend academic content (Alt et al., 2014; Barrett et al., 2012; Beal et al., 2010; Korpershoek et al., 2015; Mosqueda, 2010; Saha et al., 2024). Learners from affluent schools may choose between English Home Language (HL) and English First Additional Language (FAL) in secondary school. For many other learners there is no similar option since English is not their mother tongue and they are taught in English FAL. These learners are more likely to be exposed to African languages than to English. English is their second or third language because they speak one of the eleven native languages in South Africa. The argument can be taken further to the fact that perhaps English is poorly taught in some schools, especially the lower quintile schools. These learners lack a solid foundation in the early grades. The failing standard of basic education in South Africa has been highlighted by the Progress in International Reading Literacy Study (PIRLS) across the 2006, 2011, 2016 and 2021 cycles (Mthimkhulu et al., 2024). PIRLS reflects the reading comprehension of Grade 4 learners as tested across all eleven official languages. Table 4 indicates students' Academic Program Status at the end of the first

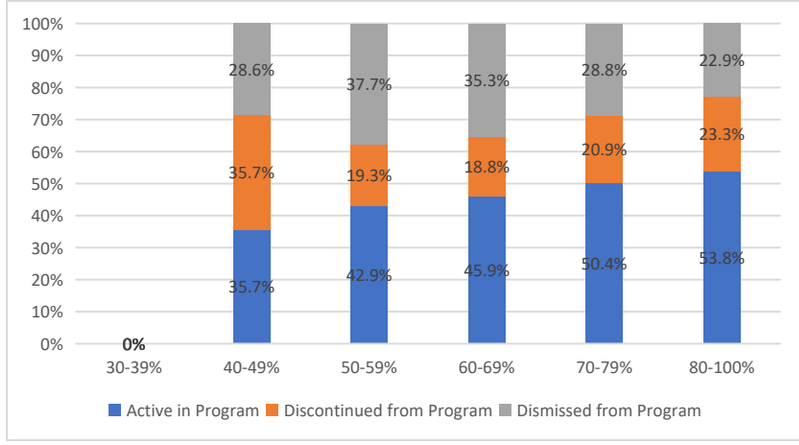
academic year in the ECP and how it corresponds to their Grade 12 marks for Mathematics.

Table 4: Grade 12 Mathematics and Academic Program Status

Grade 12 Mathematics		Academic Program Status		
		Active in Program	Discontinued	Dismissed
0-29%	N	0	0	2
	% within Grade 12 Mathematics	0.0%	0.0%	100.0%
30-39%	N	5	2	10
	% within Grade 12 Mathematics	29.4%	11.8%	58.8%
40-49%	N	73	35	140
	% within Grade 12 Mathematics	29.4%	14.1%	56.5%
50-59%	N	987	361	709
	% within Grade 12 Mathematics	48.0%	17.5%	34.5%
60-69%	N	959	403	465
	% within Grade 12 Mathematics	52.5%	22.1%	25.5%
70-79%	N	508	249	162
	% within Grade 12 Mathematics	55.3%	27.1%	17.6%
80-100%	N	174	124	47
	% within Grade 12 Mathematics	50.4%	35.9%	13.6%

English is also poorly taught in those schools where teachers also do not have English as a home language (Modisaotsile, 2012; Moses, 2023; Saha et al., 2024). Figure 3 presents Grade 12 English FAL and their Academic Program Status at the end of the first academic year and shows how students' performance in Grade 12 English First Additional Language compares to their Academic Program Status at the end of their first academic year in the ECP.

Figure 3: Grade 12 English First Additional Language and Academic Program Status



From Figure 3 it can be seen that the higher the Grade 12 English FAL mark is, the better students perform in the ECP. Students with an English FAL mark between 80% and 100% are the most successful when active in the ECP at the end of the first academic year. The percentage of students who are dismissed at the end of the academic year also decreases respectively as their English FAL mark increases.

Phase 2 focused on gathering questionnaire data on the economic, institutional, personal needs and psychological domains. The economic domain elaborated on the students' financial position when entering HE. A favourable financial position implies that the student could pay university fees and had enough money for accommodation, food, clothes, and transport. Those who did not stay in residences close to the campus needed money for transport. The results show that fewer than half of students' parents (45%) were in a financial position to pay for their children's university studies. Therefore, students relied heavily on study bursaries. Of the students who participated in the questionnaire, 61.8% believed they had enough money for daily necessities such as food, clothes, and transport. From Question 26, it seems that the financial position of students had no significant negative effect on their studies (70.8%). Therefore, it seems that

the financial situation of students was not a determining factor for success of ECP students in this study.

The institutional domain is one of the six domains of Adejo and Connolly's model (2017) that explores the reasons for students' success. The institutional domain comprises factors such as the learning environment, campus facilities, institutional support, course workload, and the structure of the course programme. In most cases, students responded overwhelmingly positively to the questions regarding their experiences of the campus. Students were mostly positive regarding communication via the use of the university online platform, the official means of communication between students, academic staff, and administration staff (96%). Students were also positive regarding the use of study guides for administrative matters and the provision of learning objectives when preparing for formative and summative assessments (96%). Students also had a positive experience regarding their lecturers and effective teaching and learning during lectures (91%). The infrastructure, lecture halls, laboratories, and library were also regarded positively by 88.6% of the students. The overall structure of the ECP on the specific university campus was regarded positively by 83.1% of the students.

The personal needs domain shows that students' accommodation was regarded as an important need, as indicated by 78.1% of the students. The fact that almost 80% of the students indicated that their accommodation fees were paid up to date may be because of the NSFAS government funds they received. Unfortunately, funds for student accommodation were not always enough and many students suffered because of insufficient funds for day-to-day living expenses. Students who did not stay in residences near the university had to travel long distances between home and campus. Only 27.6% of students claimed that their upbringing (home and school) had an undesirable effect on their readiness for HE. Almost a third of the students (30.5%) stated that they did not have enough money for books and stationery. Some students indicated that they had to study in groups with only one textbook shared among them. When preparing for summative assessments, this arrangement could potentially be detrimental to their academic success.

When students enter higher education for the first time, it can be overwhelming. Students need information regarding many aspects of their respective studies. Frequently, it is information they did not gather before entering HE. Question 2 deals with one of the important questions students usually have that relates to subject choices (78.4% of the students). More than two thirds of the students (64.4%) regarded proper study methods

and time management as important and contributing to their academic success. The lower percentage of 64.4% that relates to study methods and time management is indicative that many students had gathered at least some of this information already when they were in school, but subject choices are not well advised.

For the psychological domain, most students attributed their success to self-motivation, hard work, and diligence. Although some students felt they were initially less equipped academically, and therefore doubted their ability, they were of the view that their hard work contributed to their academic success.

In summary, when comparing all the questions of the four parts (domains), the highest average (76.6%) of the students responded positively to the items of the institutional domain. In general, students were mostly satisfied with the ECP format, the infrastructure on the campus, the help and support from lecturers and tutors, and the different forms of communication they received. For the personal needs domain, an average of 73.3% students agreed with the questions related to having enough money for accommodation, food, textbooks and stationery to achieve their goals. For the information support domain, 71.4% of students responded positively to questions related to time management, study methods, motivation, and subject choices. The economic domain seems to have the lowest level of agreement with the questions. Only an average of 59.2% students indicated having home financial support for their studies. Since they rely on study bursaries such as NSFAS, over half of the students had parents who were not in a position to pay their fees. All those students rely on study bursaries from different departments to assist them financially.

The findings from the interviews in phase 3 indicate that the psychological domain and the personal needs domain are most notable in relation to student success. The dominance of these themes was evident both in terms of the frequency with which it was discussed, and the number of sub-themes that emerged. The role of the demographic, cognitive, economic, and institutional domains occurred, but presented as more muted. Table 5 provides a summary of the key themes and sub-themes as captured from the semi-structured interviews.

Table 5: Participants' Responses to discussions on Student Success

Domain	Aspects that Could Lead to Success	Aspects that Could Lead to Being Unsuccessful
Demographic domain	• Learning experience • established in school • Family background	• Being a first-generation • student • Schools do not prepare • students properly for • Higher Education
Cognitive domain	• Hard work • Academic potential • Academic integration	• Erroneous (perceived career options • High course workload
Institutional domain	• Learning environment • Approachable lecturers • Assistance from advisors • Integration with staff and the faculty	• Erroneous (perceived) career options • High course workload
Economic domain	• Financial attitude	• Lack of financial support • Lower school quintile
• Personal needs domain	• Support from home • Consultations • Proper study methods • Study groups • Healthy relationships • Motivation from parents, lecturers, and fellow students • Healthy competition • Online activities	• Procrastination • Ineffective time management • Absenteeism
• Psychological domain	• Self-motivation • Self-efficacy • Goal setting • Self-set achievements • Expectations • Career aspirations	• Anxiety • Stress • Lack of confidence • Continuous health issues

Some students claimed the fact that they were first-generation students contributed to being unsuccessful. Furthermore, participants were of the view that the school did not prepare them well for the university.

Another crucial factor was the language-of-instruction barrier. Participants expressed the views that since English was the language of instruction at the university, and not their home language, they faced learning challenges. Although 71.4% of students reported in the questionnaires adequate time management skills, study methods, motivation, and subject choices, many interview participants indicated that they could not always manage their time effectively, which resulted in their falling behind with their course workload. The assistance from academic staff and student advisors was commendable. Students that performed satisfactorily claimed that joining study groups was helpful (peer-to-peer support); having healthy relationships as well as encouragement by parents, lecturers, and fellow students also made a positive contribution.

On a psychological level, many students experienced anxiety and stress to such an elevated extent that they had to seek professional help and were taking medication. Many successful students attributed their success to self-motivation, goal setting, self-set achievements and career aspirations and expectations.

Discussion

In the study, domains of student success were investigated to explain, student success in an ECP at a South African university. Initially, the assumption was that first-generation students and students from lower quintile schools may potentially be more likely to be academically unsuccessful at the university. This argument is generally assumed in the literature with special reference to academic achievement of first-generation students (Cook, 2024; Moses, 2023; Veldman et al., 2023). The investigation revealed that the ECP alleviates the differences in demography and economic status to such an extent that students from Quintile 1 and 2 schools situated in disadvantaged areas were equally successful as students from Quintile 5 schools originating from more advantaged backgrounds .

According to Mngomezulu et al. (2017) and Van Dyk and White (2019), the economic domain plays a key role when students experience financial challenges, which may lead to discontinuation of studies. However, many students make use of governmental subsidies such as the National Student Financial Aid Scheme (NSFAS). The findings from the study indicate that for those students, the economic domain plays a less vital role in the successful completion of the programme.

Although slightly more muted, the institutional domain also played an important role for students, as it provided an environment conducive

to proper teaching and learning (Megbowon et al., 2023). The findings indicate that the ECP provided students with approachable lecturers and tutors when they needed academic help in the different learning areas. Students also received sufficient assistance from the student advisors when they experienced personal and psychological challenges.

According to Wang et al. (2023) a student's psychological well-being plays an important role when joining an HEI. Data from the interviews demonstrate that the personal needs domain and the psychological domain are the two most notable domains related to student success. The second and third phases of the study indicate that students need adequate, reliable study methods that can be applied to the different study areas. Students also need to know how to apply proper time management to their daily routines so that they do not fall behind with academic work (Ignacio, 2024; MacCann et al., 2012). Many students reported experiencing high levels of stress and anxiety to such an extent that they need professional help. According to participants, the lecturers in collaboration with the student advisors, played a significant role in assisting students with the necessary academic support they needed.

Many students attributed their academic success partly to the joining of study groups where they motivate, assist, and help each other. Peer-to-peer support is acknowledged with specific reference to motivation (Kaakinen et al., 2023). In addition, the support and motivation from parents and family also presented as supportive factors for student success (Bhagwan & Rowkith, 2023; Mohale, 2023; Wang et al., 2023). Participants indicated that self-motivation and goal setting kept students focused and gave them hope for the future when they experienced academic challenges.

Conclusion

The findings from the current study indicate how large numbers of students from across the range of quintile schools have been retained in tertiary education through the implementation of ECPs. Students who may initially be excluded from mainstream higher education are offered opportunities to gain access and complete a tertiary qualification. The findings also indicate that variables within the personal needs domain and the psychological domain may provide fruitful pivot points for support interventions to ensure student success – especially when situated within a supportive campus environment.

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