A theoretical framework for an access programme encompassing further education training: remedy for educational wastage?

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ABSTRACT

The contemporary challenge facing education in South Africa is finding ways to assist the vast majority of school leavers who do not qualify for direct entry into higher education or the world of work. Aside from the needs of a large number of failed matriculants and other learners who have dropped out of school without completing their secondary school education, there are the special needs of adult learners in the workplace that must be taken into consideration. It is against this backdrop that the country experiences a pressing need for developing skilled graduates. Many educationists have believed all along that the problems facing school education are so complex that the majority of school leavers are underprepared for completing higher education successfully. There is no easy solution to this problem and backlogs may take a considerable period to overcome. Over the years, several higher education institutions (HEIs) have resorted to bridging/access programmes as a quick fix solution to providing an alternative route for learners who could not meet the entry requirements to higher education courses. These programmes were institution based and had very few uniform characteristics in terms of duration and curriculum; moreover, they failed to provide any certificate qualification or mobility. At the same time, statistics show that the numbers of students in need of such access courses have increased considerably over the years because of the steady reduction in the numbers of learners who pass matric well enough to enter HEIs. The introduction of the Further Education and Training (FET) band (previously known as the senior secondary phase) in the education policy is providing an opportunity for, among other things, developing a proper intermediate structure between the school sector and the higher education sector to cater for the lower achievers, as well as those who are underprepared at the school exit point. This is done by way of broadening the scope and value of the access programmes already existing in our HEIs. The current dispensation is such that securing a higher education qualification is considered to be the exit point. However, it is high time to consider providing alternative median exit points with undergraduate certificate qualifications that could serve as a part of a coherent learning pathway for those who may fail to reach the exit point of higher education degrees and diplomas without interruption. Such an action plan may help to address the burning national issues of unemployment and high crime rate. This article outlines the research that resulted in the development of a comprehensive access model encompassing FET, which may provide a threefold exit facility.

INTRODUCTION

Educational wastage arising from shortcomings in the inadequate schooling system poses a major threat to the educational empowerment of the democratic South Africa. This vast wastage is prevalent in three forms:

- The Government loses millions of rands expended on students who fail at technikons, universities and other HEIs.
- After 12 years of schooling, on which the Government also spends millions, the vast majority of matriculants with S passes (ordinary passes with no matriculation exemption) find virtually no opportunity to further their education as they do not possess the necessary entry requirements for higher education. Moreover, they experience severe difficulties in entering into the job market.
- Adult learners in the workplace have very little opportunity for access to further education and higher education.
CAUSES OF EDUCATIONAL WASTAGE

Three major reasons can be identified for the above problem:

- Shortcomings arising from poor schooling that make learners underprepared for successful higher education or for the job market.
- The wide gap between the school system and the higher education system, which acts as a catalyst in the high failure rate in HEIs.
- The lack of facilities for meeting the needs of adult learners despite policies emphasising the importance of FET for adult learners.

These problems were emphasised two years ago by the Minister of Education in his nine point plan aimed at addressing the crisis in education (Asmal, 1999).

MOTIVATING FACTORS FOR RESEARCH

The following factors motivated the research into FET. The many problems facing South Africa’s universities and technikons in their struggle to meet the challenges of a society in transformation were highlighted in a round table discussion arranged by the Centre for Development and Enterprise (CDE) (Graham, 1998), at which top academics, industrialists, business people and human resource managers met to consider the future of higher education.

1. A number of key points highlighted concerns about the deficiencies of the school system, the declining number of school leavers qualifying for university or technikon mainstream entrance, the large number of underprepared students and the need for a national research plan. The issues that were addressed ranged from joblessness and the need to develop entrepreneurial skills, to the importance of opening up the substantial resources of universities and technikons to schools, communities and non higher education learners.

2. Many HEIs, especially some universities, are under increasing pressure because of the decline in student enrolment resulting from poor matric results.

- About a third of the Government’s R3 billion funding to the 21 universities and 15 technikons nationally is spent every year on students who fail a huge national wastage. According to one statistical case study, out of 360 000 higher education students, 100 000 fail annually (Keeton & Bhengu, 1996).
- At least 100 000 students drop out every year, and institutions have poor follow through rates (70% or below) and poor graduation rates (15% or below) (Pretorius, 2000).
- Large numbers of underprepared students often take six or seven years to complete a three year higher education qualification, which is certainly not cost effective (Graham, 1998).
- A comparison of the education system in South Africa with systems elsewhere in the world reveals a lack in the South African system of a formalised intermediate structure between school education and higher education. While different South African HEIs have different forms of intermediate structures, these are neither uniform nor nationally standardised. By contrast, for example:

In the United Kingdom, there is a “matriculation” followed by an advanced level course (A level) before entering the universities, technical universities (polytechnics) and colleges.

In America, there is an international bacca laureate course.

In Asia, there is a two year pre degree course after “matriculation” that is equivalent to the British A level.

In some African countries, there is a two year school of preliminary studies (SPS) or school of basic studies (SBS) before entering the higher or tertiary education institutions.

It is encouraging to note that, after recognising the above shortcomings of our present educational system, the new education policy has resolved to address these shortcomings by introducing the three band system, consisting of:

- the General Education and Training Certificate (GETC) band;
- the Further Education and Training Certificate (FETC) band; and
- the Higher Education (HE) band.

From an educational point of view it is imperative that, among the three bands, the FET band should be the cardinal one because it is the future shaping phase in a learner’s life.

In countries such as the USA and the UK, post secondary institutions registered under a higher education category offering associate degrees and sub degrees are the venues for programmes similar to FET (Venter, 1996 & Thomson, 1999).

Considering that the FET band is in its infancy, the factors outlined above suggest that HEIs could play a role in the development of FET.

International trends indicate that institutions need to make a range of changes with regard to admission policy and the recognition of prior learning, curriculum development and learner support services. Part of
the challenge facing higher education and FET institutions in South Africa is the provision of intermediate levels of education, training and skills development for learners from the formal school sector, and for experienced working adults from industry and other workplaces. This challenge becomes all the more critical in view of the increasing numbers of workers who will begin to gain access to further education opportunities as provided through the Skills Development Act (Act No. 97 of 1998).

The above challenges necessitated this research, which is aimed at developing a theoretical framework for FET options within the HEIs that could broaden the scope, value and outcomes of current access programmes.

RESEARCH CONFIGURATION

A comprehensive strategic analysis had to be carried out to establish the impact that FET might have on an HEI such as the Technikon Witwatersrand (TWR), the opportunities it might present, the responses that other higher education sector organisations might have, and the vision that the Government planners might have for FET.

The strategic analysis was carried out through an elaborate work plan consisting of a situation analysis, a needs analysis, and a resource analysis. This led to the mapping of a potential pilot project that could be launched by the TWR.

RESEARCH METHODOLOGY

The situation analysis was conducted through three case studies to establish the extent of educational wastage already prevalent in our educational system, and through an extensive audit of existing student access initiatives at various further education and higher education institutions that are aimed at reducing the wastage. The vision that Government planners have for FET was also investigated. The findings of these investigations led to a new educational model that was aimed at addressing the shortcomings found in the existing models.

The needs analysis was carried out through pre-surveys conducted among prospective student entrants and their parents who attended the TWR open days in 1999, as well as post surveys conducted in April/May 2000 among various stakeholders in education. The data obtained from the surveys was analysed and interpreted graphically, which provided indications of the impact that FET may have on the TWR and the opportunities that it may present.

The resource analysis was conducted within the TWR, as well as among outside structures to establish the possibility of funders and partners for implementation. These analyses resulted in the outline of a pilot project.

SITUATION ANALYSIS

Three case studies were conducted to establish the gravity of the problems stated above.

Case study 1: An action research on the root causes of dismal matric results

The number of matric passes has fallen from a peak of 287 343 in 1994 to 249 831 in 1999, a drop of 37 512. The decline in the number of learners who pass matric well enough to enter university is even more alarming. Whereas 83 497 learners passed with a matric exemption in 1994, in 1999 only 63 725 earned an exemption—a fall of 24 772 over five years. Experts warned that the declining numbers hold grave implications for the economy, especially for attempts to develop a modern economy in step with world

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of candidates who wrote</th>
<th>Number passed</th>
<th>S-passes</th>
<th>S-pass %</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP</td>
<td>63 691</td>
<td>40 209</td>
<td>26 351</td>
<td>58.6</td>
</tr>
<tr>
<td>KZN</td>
<td>55 000</td>
<td>36 472</td>
<td>21 472</td>
<td>61.0</td>
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<tr>
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<td>45 510</td>
<td>13 099</td>
<td>10 472</td>
<td>77.0</td>
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<td>NP</td>
<td>122 569</td>
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<td>37 853</td>
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<td>19 052</td>
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<td>4 858</td>
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<td>25 550</td>
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<tr>
<td>WC</td>
<td>30 780</td>
<td>25 951</td>
<td>17 122</td>
<td>44.4</td>
</tr>
<tr>
<td>Free State</td>
<td>31 439</td>
<td>16 040</td>
<td>11 234</td>
<td>64.3</td>
</tr>
</tbody>
</table>

Table 1

1997 matric S-passes (pass without matric exemption)
trends. This decline is one of the reasons that HEIs are experiencing a dramatic fall in enrolment each year (Matisonn, 2000).

When the above results (Table 1) were released, the researcher undertook an action research to identify the root cause of the recurrence of dismal matric results and to project them scientifically. This was aimed at making it easier for managers of education to take the necessary action to avert future disaster. Among the provinces, Northern Province became an ideal ground for research as it recorded the lowest pass rate in 1997.

The study was aimed at investigating the following:

- How did the school serve as a learning centre?
- How did the teacher perform as evaluated by the learners?
- How did the school governing body or school committee help the running of the school?
- What are the other factors that contributed to the poor results?
- What are the suggestions from the learners and teachers for producing better results in the coming years?

The target groups were:

- 300 finishing school students (second chance Grade 12s) at Venda College Finishing Centre who came from different secondary schools in the province (forming a heterogeneous group);
- 100 secondary school teachers who taught matric classes during 1997.

The study focused on the following aspects of school education:

**School**

- Type
- Facilities
- Textbooks
- Classroom situation
- Participation of school governing body.

**Students**

- Family background
- Facilities at home
- Role of school as learning centre
- Performance of teachers as evaluated by students
- Textbooks and stationery
- Contributions from school governing body and parent teacher association
- Suggestions to produce better matric results in future
- Other contributory factors such as:
  - absence of school visits by school inspectors;
  - loss of working days due to strikes.

The analysis of the data showed that, among many others, the following factors had a negative impact on the performance of learners:

- 22% had to take classes while sitting under trees.
- 42% disadvantaged by a shortage of permanent classrooms.
- Only 18 25% had class groups in the recommended proportion of 30 40 per class.
- Only 25% had access to functioning science laboratories.
- Only 23% had the benefit of the same teacher (per subject) from Grade 10 to Grade 12.
- 62% believed that the syllabus had never been completed.
- Only 52% received tests and homework regularly.
- 43% never received any progress report of academic performance.
- 20% never received textbooks.
- Only 59% received textbooks at the start of the school year.
- Viewership coverage of learning programmes on TV did not reach 36% of students surveyed, and 49% had watched only a few times.
- 48% believed that the school committees were inactive in school matters.

**Teachers**

- Qualifications and experience.
- Facilities at schools.
- Classroom situation.
- Participation of school governing body and parent teacher association.
- Suggestions for better matric results in future.

The analysis of data showed that, among many others, the following factors had a negative impact on the professional performance of teachers:

- 43% of teachers have only diplomas.
- Only 26% have subject knowledge at third year degree level.
- 22% have never undergone any in service training at all.
- 97% believe that they would be better equipped to teach subjects other than their specialisation.
- 20% were not happy with their job due to lack of facilities.
- 75% of classes were overcrowded with more than 60 learners per class.
- 95% believed that lack of resources caused poor achievement in the natural sciences.
- 44% recommended that “constructive type” in inspections be carried out by inspectors.
- Absence of essential facilities and resources such as libraries and reference materials was a common complaint.
Many teachers suggested that school governing bodies and school committees should play an active role in the running of schools.

**Findings**

The fact that 57% of students who participated in this case study have failed matric twice before is a strong indicator that for many learners the school system is “dysfunctional”.

Not only the failed matriculants, but also those who completed Grade 12 successfully, were subject to the drawbacks in the school system as shown above. Hence, it becomes questionable whether those who made it through Grade 12 under the “all is not well” circumstances were “really well prepared” for higher education. This was evident from the results of a placement test conducted by the Alternative Secondary Education Curriculum for Adults (ASECA) among failed matriculants, as well as students with matric exemptions. Both groups scored low levels of achievement lower than the required Level 4 that exhibited the “underpreparedness” of school leavers for higher education.

The research findings suggested that there is a need to put in place a renovative and reformative programme, catering for the underachievers and drop outs, and preparing an empowerment foundation for those who aim at higher education and career achievement.

There is a need to focus on the competence of teachers too. For this reason, the development of a comprehensive in service training (INSET) programme with an incentive such as a certificate qualification for upgrading and “up skilling” them would be highly desirable. This could increase their self-confidence and familiarisation with new pedagogical techniques, and at the same time stimulate them in their profession. Another issue that is a cause for grave concern is the shortage of about 8 000 high school teachers in Mathematics and the Natural Sciences – the gateway subjects to everything from engineering to accounting. Hence, as a long-term plan, there is a need for a good preparatory-phase programme to produce talented teachers to break the vicious circle.

**Case Study 2: An investigation to determine the first-year performance level of Grade 12s who gained admission to universities and technikons**

This was an attempt at establishing how the learners who came from an “all is not well” system were coping with higher education that demands more applied knowledge and independent study methods. Data was gathered on the examination results of first year students from a university and a technikon (Tables 2 and 3).

The students of University A are predominantly from rural public/township schools, whereas the students of Technikon A are a combination from both rural and urban schools.

| Table 2 |
| Performance of students in first-year courses at University A |
| **Year** | **Overall pass** | **Overall fail (including those who did not qualify to write examinations)** |
| 1995 | 9 843 | 13 242 |
| | 42.60% | 57.40% |
| 1996 | 10 450 | 11 605 |
| | 47.40% | 52.60% |

| Table 3 |
| Performance of students in first-year courses at Technikon A |
| **Block code** | **Year** | **Students registered** | **Students failed** | **Failure %** |
| | | | | |
| Sems 1 & 2 | 1998 | 1 879 | 807 | 42.95 |
| Sems 1 & 2 | 1999 | 1 479 | 545 | 36.85 |

The percentage of failures in both cases is unacceptably high. Considering that many of those who failed were using bursaries for their studies, huge educational wastage becomes evident. It is also necessary to take into account the unnecessary number of years used by many students to complete a degree or diploma because of, among other factors, the underpreparedness acquired through poor schooling. This is evident from the national average of the throughput rate in HEIs as shown below:

| Table 4 |
| Throughput rate at HEIs nationwide |
| **Throughput rate (%) for population groups** |
| African students | 8 |
| White students | 25 |
| **Throughput rate (%) in key subject areas for African students** |
| Engineering | 3 |
| Medicine | 9 |
| Natural Sciences | 12 |
| Source: Frank Meintjies: Deloitte Consulting |
Case Study 3: An investigation to determine the performance level of students in access courses

This was an attempt to establish the performance of students who were obliged to enrol for access courses, as they did not qualify for direct entry into universities and technikons. Data was gathered on the examination results of access programmes at a university and a technikon (Tables 5 and 6).

University B is a well established university whose students are from both urban and rural areas. The two year access programme offered at this institution admits only students who have matric exemption but did not score enough points according to the point system admission criteria for obtaining direct entry. The programme serves as a feeder mainly to the science faculty, but other faculties also benefit moderately.

Technikon A is also well established one whose students are from both urban and rural areas. The six month access programme for engineering offered at this institution admits students who do not have matric exemption, because exemption is not a requirement for direct entry.

In both cases the failure rate is unjustifiable. However, one important inference that can be drawn is that the extension of Technikon A’s programme duration could have led to improved results as is the case for University B. In other words, underprepared school leavers need more recovery time through access programmes of longer duration to achieve the desired results.

Another striking observation from the above two tables is that the number of students in need of access courses increased considerably from 1998 to 1999, both at the university and at the technikon. This is a true reflection of the crisis caused by poor matric results as the national average results remained at around 50% during the period from 1997 to 1999.

To take this investigation further, the researcher also analysed the performance of students in the Access Physics course of six months’ duration at Technikon A and compared it with that of two years’ duration at University B (Table 7).

The percentage of failure once again indicates that the six months’ access course did not provide sufficient recovery time as compared to that of University B. As Physics is the gateway subject to Engineering,
performance in Physics could serve as useful data to determine how students would cope with the applied knowledge demanded in technikon mainstream Engineering courses. For this reason, it was necessary to analyse performance in Access Physics in relation to the background achievement levels (matric symbols) with which students entered the course (Table 8).

**Table 8**
**Performance of students in Access Physics at Technikon A in relation to the background achievement levels (matric symbols) with which they entered the course**

<table>
<thead>
<tr>
<th>No data available</th>
<th>No improved</th>
<th>No unchanged</th>
<th>No descended</th>
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<tbody>
<tr>
<td>72</td>
<td>39 (54%)</td>
<td>18 (25%)</td>
<td>15 (21%)</td>
</tr>
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</table>

The 21% of students who descended indicate that underpreparedness in a key Engineering subject like Physics requires more recovery time so as to cope with the applied knowledge demanded by a technikon course.

The research showed that there was a high failure rate in both the first year courses and the short type access programmes offered in many institutions. Above all, the main concern is the fate of students who fail the access programmes and of those who need more time to become adjusted to higher education courses because of their disadvantaged background. Since there are no readmission possibilities in most cases, provision for alternative routes should be made.

From the situation projected above, there is a clear need for a comprehensive access programme that can address the above problems as well as make FET associate smoothly with higher education. International comparisons also point in the same direction.

The case studies and an audit of existing student access initiatives by further education and higher education sectors indicate the following pattern in most cases:

- The access programmes provide access to the institution concerned, i.e. they are restricted to the individual institution.
- No credit exemption is granted in further courses.
- No alternative route is provided for students who fail.
- There is no certificate qualification for mobility between institutions.
- The exit facility is minimal.

The above state of affairs suggests that there is a need to put in place a renovative and reformative programme, catering for the underachievers and drop outs, and preparing an empowerment ground for those who aim at higher education and career heights. This has become a matter of urgency because of the implementation strategies indicated by Government planners, i.e. the intended institutional landscaping of technical colleges and, most importantly, the probability of instituting four year degrees/diplomas as recommended by the Shape and Size Task Team. This implies that HEIs have to achieve a compromise between their long accepted institutional roles and their obligation to respond to the country’s economic needs through a genuine commitment to FET. It is hoped that the academic model outlined below, which was developed at the Technikon Witwatersrand, might be a solution to some of the problems that have been identified.

**DEVELOPMENT OF A FRAMEWORK FOR FET OPTIONS AT THE TWR**

The need for such a framework can be summarised as having to address the issues of access and equity of
learners from the formal school sector and adults from industry and other workplaces.

The aim of the model is to fill the conceptual gap between the school system and higher education in the NQF structure.

Therefore, to cater for the above need, a two year programme is suggested.

The first year would be a foundation year comprising subjects and/or fields such as Mathematics, Physical Science, Biology, Environmental Education, English, computer literacy, technical subjects, commercial subjects and life skills (eg study skills, time management). At the end of the first year, learners would receive a certificate qualification with some credits toward the second year.

Depending on the first year results, learners may proceed to the second year in which they can choose one of the following routes:

- A second year academic enrichment or career access route with a certificate qualification comprising Advanced Mathematics, Advanced Physics and Chemistry, Engineering courses in various fields, commercial courses in various fields and basic research skills in the form of a project. This would guarantee credits exemption at university, technikon or college.

  Or:

- A second year job-skills training route to qualify learners for obtaining a job, starting their own business or becoming self employed, after which they would obtain a second certificate qualification.

The first year and second year academic components could be comparable to first year university/technikon work. Hence, it is hoped that this could guarantee full exemption for Level 5 at most universities and technikons with recognition arrangements. Therefore the model is in line with the proposed associate degree structure of the Council for Higher Education.

The second year academic component could have different subject combinations or competencies for preparing learners for the Engineering, technological, medical, commercial and teaching fields.

Likewise, the second year skills training component could also have different combinations or competencies such as mechanical, electrical, electronics, information technology, etc.

Figure 2 reflects a schematic diagram of the model with different phases, exit points, the target groups, etc.

The qualification Level 5 is spread over the two phases 5A and 5B, called the Foundation Phase and the Career Preparation Phase respectively.

To start with, Group 1 learners may be granted admission as an immediate priority. Groups 2 and 3 learners may be brought into the programme gradually once an assessment mechanism for recognition of prior learning (RPL) is in place.

A possible formula for carry over credits from Foundation Phase to the Career Preparation Phase is represented in Figure 3.

Phase 5A has more relevance to FET, while 5B has more relevance to higher education and training (HET). The two phases combined should be equivalent to Level 5; hence, successful completion of the

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**Figure 2**

**Structure of programme**

![Diagram of programme structure]
two phases could guarantee entry into NQF Level 6 as shown in Figure 4.

Evidently, the spreading of Level 5 over the two phases does not disadvantage learners. Moreover, if learners have obtained satisfactory results at the end of the Foundation Phase, they can move into the first year of the technikon courses (S1). Those who have obtained even better results could gain admission to first year university courses (Y1), and those with excellent results at the end of the second phase to the second year university courses (Y2) as shown in Figure 5.

**CHARACTERISTIC FEATURES OF THE MODEL**

The model
- provides a comprehensive career access programme of two years’ duration;
- allows for a certificate qualification with 120 credits each year;
- furnishes two optional routes for the second year;
- provides three exit facilities;
- may serve as an access route to success with the provision of the extended recovery time;
- allows mobility among institutions with transferable credits;

**Figure 4**

Where does the model fit in?
promotes affiliation and collaboration among institutions, especially between further education and higher education institutions; and accommodates progressive articulation with flexible entry and exit facilities.

Surveys were carried out among various stakeholders such as further education and higher education institutions, Government education planners, learners at schools and technikons, teachers, principals and parents. Support for the model from these stakeholders varied from 79% to 95%.

The first target group for any intervention in the access direction is the vast majority of students with S passes countrywide (Table 1). The other groups such as adult learners could be introduced gradually.

The problems associated with the school sector are so complex that they may take many years to resolve if it is at all possible to eradicate them entirely. In the meantime, the model may be able to address the decline in student enrolments at HEIs, and to provide greater articulation as well as increased graduation rates and lower throughput time.

ACKNOWLEDGMENTS

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REFERENCES