

# **From Hero to Zero ... and back? The journey of first year access students in mainstream programmes**

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## **Context**

The Sasol Inzalo Foundation was set up to focus on skills development and capacity building for South Africa, in the critical areas of mathematics, science and technology. One of the Foundation's aims is to grow South Africa's pool of talent from diverse backgrounds in the fields of Science, Technology, Engineering and Mathematics. The school-university gap, how to close it in the long term, and how to support students across the gap, is a priority focus area in the Foundation's activities.

At the beginning of 2010 the Foundation awarded 99 bursaries to students; 89 of these were awarded to first year students in mainstream Science or Engineering programmes at eight universities across South Africa. The selection criteria for these bursaries were geared toward providing access. In addition to considering minimum levels of performance and a means test, an aggregate score was calculated which weighed performance according to how resource-poor the environment is from which the student originates (the description "access" students is used to reflect only that these students would have found it difficult to gain access to university if not for this intervention). The profile of the selected student group closely matches the national demographic profile.

The students received comprehensive financial, academic and psycho-social support. This included a two-week residential winter seminar focused on improving their understanding of threshold concepts in mathematics and science, as well as soft skills development. A peer mentoring system was piloted amongst the students and access to a wellness counselling service arranged. The students have been tracked extensively from the time when they applied for the bursaries to the present.

## **Theoretical framework and links to international best practice or trends**

The framework for this study was developed from a review of international (e.g. Parkin 2009), and South African (e.g. Rollnick 2010; Letseka et al 2009) literature on:

- Student throughput
- The first year experience (e.g. Jorgensen-Earp and Staton 1993)
- Departure models (Tinto 1975, 1987 and similar models, Draper 2008)
- Under-preparedness (Brüssow 2007)
- Factors influencing university success, etc.

The notion of success at university was studied in relation to three dimensions, namely:

- Cognitive elements, such as knowledge, conceptual understanding and academic literacy
- Skills, such as language, study methods, approach to learning and time management
- Affective aspects, such as identity, agency, social integration and resilience.

HSRC studies (Letseka et al 2009) have cited lack of funding as a primary cause of departure at South African universities. The Foundation bursaries sought to neutralize this factor by providing full-cost bursaries, thereby allowing the study to focus on the influence of non-financial factors on persistence and performance.

The Foundation uses the precepts of complexity theory and consequently applies integrated qualitative and quantitative approaches (Byrne 2009) in its research. Quantitative assessments of the students' knowledge and academic performance were combined with qualitative indicators of skills and affective aspects gathered from narrative material contributed by the students. The latter measures were designed to test the role of individual agency (Bandura 2006), and resilience concepts such as sense of coherence (Antonovsky, 1998b), thriving (Carver 1998, p. 246) and hardiness (Kobasa 1982), in a successful transition from school to university. Measures were also selected to trace the development of identity (Ghee 2000) and meta-cognition (Case and Gunstone 2006) throughout the students' journey at university and into the workplace.

## Description of the analysis

The data compiled for each bursar included:

- Background variables (family education history, school experience, urban or rural origin, etc);
- Cognitive assessments (matric results, National Benchmark Test results, first term university test results, mid-year examination marks and an independent evaluation of their understanding of key mathematics and science concepts obtained during the winter seminar);
- Narratives and indicators of skills and affective dimensions collected using SenseMaker™ software (SenseMaker™ is a software suite designed to be used as a narrative repository and patterning tool that allows analysis of patterns within the narratives);
- Visual acuity test results. Visual testing was done to test a conjecture that unidentified vision problems could be hampering students' academic success, as it was observed that very few wore glasses.

Explorative analysis of the combined data proceeded in the following stages:

- A profile of the bursar cohort was developed and compared to the profile of a sample of bursars in the Sasol bursary scheme, a typical company bursary scheme which selects high-performing candidates for future employment;
- The correlation between different academic performance measures was investigated;
- Themes and patterns were identified in the data from narratives and SenseMaker™ audits. These narratives provided a vivid picture of their experience of the school-university transition;
- Links between the above mentioned qualitative data and academic performance measures were sought.

Throughout this paper actual narrative fragments gathered from the bursars will be quoted in their raw form to further contextualise and illustrate findings generated in the study. All quotes are anonymous.

## Results

### *Profile of the bursar group*

The profile of the Sasol Inzalo Foundation's bursar group differed from the usual student profile as selected by company bursary schemes. A SenseMaker™ audit with the same set of questions was administered to a representative sample of the Sasol bursary scheme students and yielded the following comparisons:

	<i>Sasol company scheme bursars</i>	<i>Sasol Inzalo Foundation bursars</i>
Two thirds of bursars from	Large town, suburb, city	Township, small town, rural village
Parents deceased	11% one parent, none both	18% one, 8% both parents
Live in private residence or commune	8%	39%
Live with parents or relatives	28%	11%
Family member with degree or post-graduate qualification	78%	44%
Most mentioned achievement wish	Making a difference, closely followed by financial security and skill mastery	Making a difference, by far
First language	Lectures 61%, materials 59%	Lectures 30%, materials 22%
Difficulty with language	Lectures 2%, materials 5%	Lectures 20% , materials 24%

*Table 1: Comparison between background characteristics of samples of company and access bursars*

Both groups were questioned regarding the most significant difficulties they experienced in school, as well as what they perceived others (peers) to have experienced. Both groups viewed themselves as different from their peers, in that they experienced significantly less difficulty at school than others did. This perception of themselves may have become a negative factor for them as they encountered the realities of University, as they were not used to seeing themselves as people who have difficulty in academic situations.

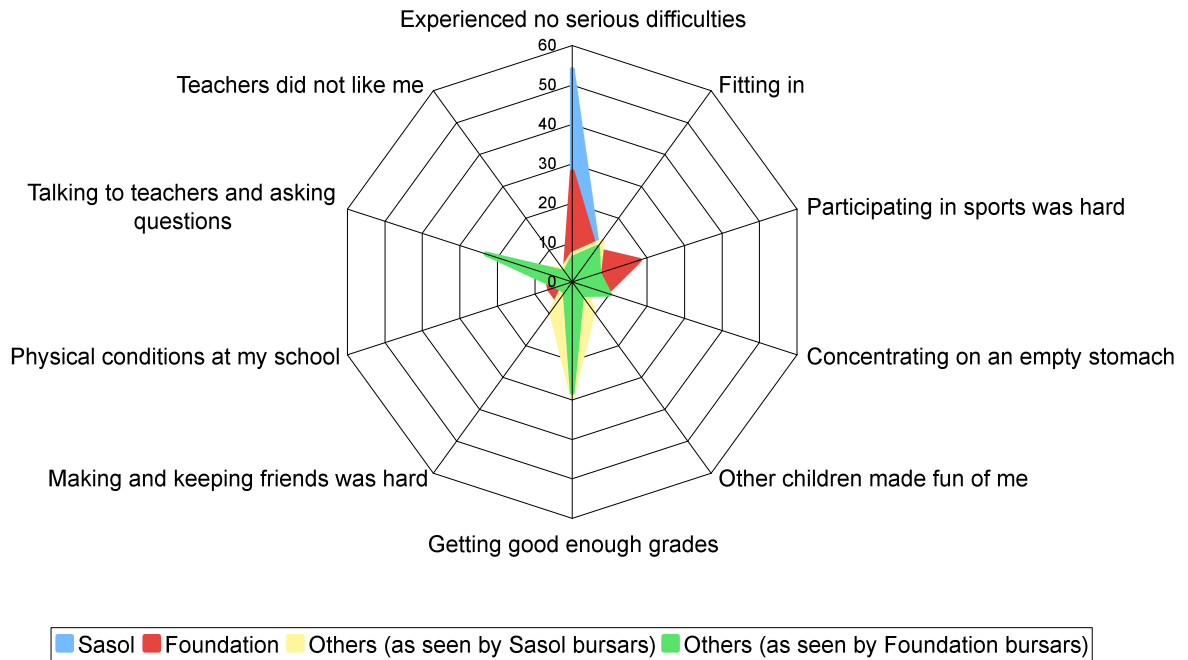


Figure 1: Difficulties experienced in school by company and access bursars

All but three of the Foundation bursars attended some form of supplementary schooling (53% attended a Saturday school and 65% a winter or holiday school). These figures dropped to 29% and 39% respectively for the Sasol bursars. The Foundation acknowledges that supplementary teaching seems to be an important part of preparing students for university in the current reality. Experience with one of the Foundation’s other projects suggests however that out-of-schools programmes are not as effective they could be.

While none of the Sasol bursars indicated that much of their time is spent on medical issues, by the second SenseMaker™ audit in September, three of the Foundation bursars indicated that medical problems consume much of their time, suggesting high levels of stress:

*“ According to doctors, the reason for the decrease in strength of my immune system is stress. So there lies the factor that I seem to have not dealt with at all. Stress seems to motivate me to produce the goods but seems to be having a negative impact on my health.”*

Most of the Foundation students reported feeling like strangers when they went home. Two interpretations seem to be supported by the stories: in one, that the student had entered a new world very different from what they had lived in and experienced before, and so when they went home, their old world seemed strange to them. The second interpretation suggests that the students were so transformed by their experiences at university that they felt different, not because their surroundings had changed, but because they themselves had changed.

*“The last time I went home I thought I was going home just to forget about school & just chill like other kids but the moment I got home I just sat the whole day, just looking at my house just comparing it with the other houses around my home town”*

Although selected on similar academic criteria, the Foundation bursars as a group therefore seem to have more challenges than typical company scheme bursars in terms of finding their feet in a new environment, while having less support in terms of social capital to carry them through the year.

Even within the Foundation group of bursars, the stories fall broadly within two patterns: students who have more resources to rely on, either in the present or the past, experience the transition to university differently, compared to students who have fewer resources. The high-resource group is not necessarily in less need of support, but they need different support: they require help in dealing with new freedoms, adapting to university culture, as well as making plans and choices. Students in the low-resource group need help in coping with heavy burdens, finding self-confidence and faith, as well as transforming in positive ways.

### ***The first semester journey: From Hero to Zero***

*Identity:* Many students experienced an identity crisis during the first term. The narratives in the initial SenseMaker™ audit indicated that they had thought of themselves as being of above average intelligence and had no serious difficulties in school. Many struggled to cope with the workload and grasp the material right from the beginning of the academic year. When they were faced with their first significant failure during the tests or examinations, their whole self-image seemed to be cast into doubt. They reported “feeling stupid” and metaphors such as “going from hero to zero”, “I am a shadow of my former glories” and “I am a small fish in a big ocean” were used in their narratives. Many students experienced a sense of isolation due to a perception that they could not discuss this aspect of their experience with their home support structures; they feared disappointing their families and the high expectations held of them.

*“... my family is really proud of me and they just don't believe me when I tell them about how I'm not coping because to them their little daughter who is so smart who never brought a bad (report) results who always finds a way to be a top student.”*

In addition to this, the fear of losing their bursaries added significant pressure on them.

*“I had expected university life to be great. Everybody was talking about how great the parties are. During orientation week our residence leaders took us to all the party hotspots. Then lectures started and I realised that it was all a lie. Day after day and the work kept on coming. If it was just the killer workload it wouldn't have been that bad, but the intensity and difficulty of work increased tenfold .... Before long I was falling way behind in math. Tutors weren't too much help because in a tutor session there are around 4 or 5 tutors and way over a hundred students in that session. My peers couldn't really help because they were busy struggling with their own workloads. I still can't believe it. At school math was great. I had always attained the highest marks in the grade and had even participated in external math competitions. Now I couldn't even pass. My other courses were suffering because I was spending most of my time trying to figure out what was going on in math. I had no time for those legendary parties that I had heard so much about. School math had in no way prepared me for university math. But now that I know what to expect I know I'll do better next semester. Provided that by some miracle I managed to pass math last semester and get to keep this bursary.”*

Despite the severity of the challenge, only two of the 89 students have deregistered to date; one is planning on returning to university to continue his studies in a different field next year (2011). In both cases a lack of fit with the chosen field of study was cited as the reason for deregistering.

### ***Cognitive gaps as a contributing factor?***

The matric results average of the whole Foundation bursars group was 84% for Mathematics, 69,9% for Physical Science and 74,5% for English. An admissions point score was considered as well. It is then fair to say that the bursars had attained satisfactory matric results. National Benchmark Test (NBT) results were only available for 45 of the 89 students. Of these, only one was judged to have Basic Academic Literacy, while 20 were judged Proficient. The bulk of the group was classified as Intermediate for Mathematics Literacy and Quantitative Literacy (31 and 27 respectively), while five were classified as Basic in both Mathematics and Quantitative Literacy.

However, the group of Foundation bursars was found to be surprisingly diverse in terms of skills, conceptual understanding and dispositions, despite all having performed well in matric. The winter seminar academic programme, presented by Ukuqonda Institute, focused on threshold concepts believed to be necessary for university study. During the seminar, the distribution was so wide within certain classes that it seriously disrupted the learning process, because a single learning trajectory could not be followed by the whole class. Evaluations were conducted with the aim to place the students in different, more homogeneous groups, and resulted in the classification in Table 2.

In geometry, there was a much greater percentage of students who lacked basic skills (e.g. finding the area of a triangle, constructing a perpendicular bisector of a line). All the students lacked the language skills necessary for communicating and reasoning about complicated shapes. About 75% of them lacked a concept of proof (logical argumentation), and 40% of them lacked basic spatial reasoning skills about relationships between 3D and 2D.

Students did not merely lack proof and argumentation skills in geometry, but many of them also did not appreciate the need for such rigour. The lack of logical argumentation also surfaced during the algebra and physics activities, and was often an obstacle to deeper investigation of new learning.

Description	Number of students	Average June results
Group 1 and 2 contained students who have serious shortcomings in their skills and understanding regarding fractions, and who need remedial teaching. <i>Group 1 seemed to make almost no progress when engaged in such remedial teaching.</i>	1: 2	47,1%
	2: 4	49,0%
Groups 3 to 5 possessed the basic skills needed, but lacked the more advanced concepts such as making a formula to model a situation.	3: 28	50,7%
	4: 12	52,0%
Groups 6 and 7 were very proficient in procedures, and they seem to be used to engaging with challenging problems. <i>Some of the students in group 6 seemed to be complacent in their knowledge, and somewhat reluctant to engage in critical thinking. Group 7 was both very proficient and very willing to think critically.</i>	5: 10	56,7%
	6: 7	61,6%
	7: 3	65,2%

Table 2: Classification of students into different groups based on conceptual understanding

As Table 2 shows, the evaluations identified a pattern which agrees well with the students' performance in the June examinations. The assessment was the outcome of a two-week interaction with the students, and hence is not a practical way to predict potential success for large numbers of students. The classification agreed well with the average of the three NBT assessments though. This observation confirms that the NBT results do effectively highlight potential problems in the conceptual understanding of students.

#### **Skills: language, study methods and approach to learning**

The use of language in the stories told by the students varied widely, ranging from eloquent essays to halting phrases; an extreme example of the latter being

*"At varsityn i found many diferent things that bring dificulties for me to cope the university life ...if i can tell you about self indipendet, i am talking about that everything i have to think for your self,i found that at university ther are no people who motivate you or guide you but they just threaten you unlike that our teachers use to do at school so the whole of this created problems to me until istory coping this life late"*

Students who could understand the written study materials performed on average 10 percentage points better than those who had difficulty understanding the written material (June average of 56% as opposed to 45,9%, p-value 0,001). Those who had difficulty understanding the spoken language of lectures were also at a disadvantage, but less severely so (June average of 48,1% as opposed to 52,8% for those who could understand though it was not their home language, and 56,8% for first language students, p-value 0,07).

The language spoken by lecturers was an issue for a few individuals:

*"I would spend hours trying to figure out what the lecturer was saying it was quite difficult to understand my teachers because they were not very clear english speaking teachers."*

An extract from a Sasol bursar on this issue:

*"I expected that the Lecturers at my University could speak english fluently should they be presenting an english class, unfortunately this has not happened. Many students stop attending classes because they find it worthless and a waste of time to attend a class where a proper lesson is not being presented. Although the lecturers are knowledgeable, a few particular lecturers are unable to teach the students what they know resulting in students having to resort to private lessons, at our own expense, or self-study."*

The five students who felt that their old study methods still work for them, had an average in June of 63%, much higher than the rest of the group. However, they had been strong candidates in matric as well and may not have had to stretch their capacity yet. 49 of the students indicated that they had to adapt their study methods; this group achieved an average of 54,6% in June. The 17 students who felt that they do not know what they are doing wrong but that their study methods aren't working, ended up with an average of 45,8%. The approach to learning reported by these three groups was different – the weaker group placed just as much emphasis on practicing procedures as the strongest group, but also relied on remembering facts more, where the stronger group focused more on understanding the concepts.

By midyear, roughly half of the group did not demonstrate confidence as independent learners. Difficulty in understanding the language of written material contributed to this lack of confidence. The students remarked in their narratives that their teachers at school cared about them, while at university the lecturers do not care. During the winter seminar, which was presented using a problem-based, invitational style of teaching, many students switched to critically engaging with thought processes rather than worrying about providing the correct answer; this marked an increase in their confidence.

#### ***Physical contributing factors: visual acuity and living arrangements***

*Visual acuity:* Vision testing was arranged for all the students during July and August; glasses were issued to half of the tested students. Prior to the testing, many students reported problems such as headaches and not being able to read writing on the board during class.

There is a strong correlation between a student's average score in the first test series and in the June exam ( $r = 0,808$ ). Students without vision impairment improved their average scores by 4,7 percentage points from the first tests to mid-year; by contrast, students who needed glasses but only discovered this after midyear, lost ground by 2,6 percentage points in the mid-year exam ( $p$ -value 0,02). This effect was exacerbated by the fact that a higher proportion of students with language difficulties also needed glasses.

This is an easy to implement, practical intervention that can make a difference if implemented early in the academic year.

*Living arrangements:* Students living in private residences, or in communes, performed significantly worse than students living in university residences, with relatives or alone (June average of 48,2% and 45,8% as opposed to 56,6% in all three cases,  $p$ -value 0,009).

#### ***The role of affective factors like agency and social integration***

*Agency:* One of the research questions asked was for students to indicate whom they would least want to disappoint. Options included parents, bursary providers etc. Students whose selection indicated that they did not want to disappoint themselves, thereby indicating a sense of self-motivation, achieved a June average of 61,2%, significantly higher than those who had different motivations (averages of 53,3% and lower,  $p$ -value 0,06).

*Independence:* A very strong theme that emerged from the narrative of both the Foundation and Sasol bursars was the double-edged sword of freedom. Many students expressed great anticipation at being more independent and experiencing the freedom of being away from home for the first time. However, most of these students were surprised by the unexpected responsibility that this freedom brought with it – they were now responsible for their own success.

*“When I got to university, I let myself down, because it did not meet my expectations. Due to this, I learnt some of my life's most valuable lessons. When people say you have freedom, you really do have freedom. But, because this freedom comes with far too much responsible, at times I wish I never had so much. We are thrust into a world, some not willingly, into the real world that school has not readily prepared us for. You have to continuously, sometimes even unknowingly make decisions that will in some way impact upon your future.”*

*“University life is a ‘blast’. You have to choose whether you want to go to lectures or not, study or go for a movie, sit in the front of the class or the back, eat healthy food or not, and the most striking one for me is, do I just pass like everyone else or strive to get the best grades”*

*“I must admit that I have fallen prey to some of universities greatest blood sucking demons. But, I do not regret a thing, because it has all impacted in making me the person that I am.”*

*“I learnt that lecturers do not really care if you attend lectures or not, listen to them or not. They are more than happy with just failing you. In university, you are just a number. You can pull the wool over the eyes of all, by getting people to sign in for you, but in the long run you fool yourself. So, no one is going to threaten you to go to class, do your work and remind you when assignments are due. In situations like this you wish you were back at school... Learning to adjust to the real world (in this case university) was the hardest and most life changing experience. Ultimately, in life, each man is for himself”.*

*Social interaction:* While students, in general, felt overwhelmed by the amount of work, those with the highest averages interacted more than three times per week with others formally and between 3-6 hours per week informally. The Sasol bursars reported much more time spent interacting socially than the Foundation bursars and appeared to be more self-aware; twice as many Foundation bursars than Sasol bursars were unable to indicate how much time they spend in social interaction.

Friends are highlighted by the students as playing a very important role in their first year. The Sasol group especially registered their surprise at how easy it was to make good friends. In June, many of the Foundation bursars were still closer to their families or friends at home than to friends at university. The reported reasons why some Foundation students found it hard to make friends in the first semester are illuminating:

*"I think the reason why I didn't really make friends during the first semester is that I so desperately wanted to cling to my old friends, because it was comforting to have one thing that still was the same."*

*"...In the first semester I didn't enjoy myself that much life was difficult and couldn't communicate with the other students since they speak Zulu. Now I can understand what they are saying which helps a lot."*

### ***The second semester journey: from Zero to ...?***

A second SenseMaker™ audit in September indicated that the Foundation bursars are much more positive in the second semester. The number indicating that their stories make them feel "happy" increased from 5 to 21; while the numbers for "frustrated" decreased from 15 to 4; "like giving up" from 5 to 2; "sad" from 12 to 1 and "disappointed" from 19 to 4.

Some students exhibited a hardy attitude from the start:

*"I saw many of my close friends and classmates deregister or decide to drop everything because they say they can't cope and they say that they'll come back next year and repeat the same course. I mean what's the use of you repeating the whole thing all over again! Things won't change they'll still be the same, rather suck it up, pull your socks up and find a solution because when that thing strikes again in your later life you can't give yourself a year to solve it or to come in terms with it, do it now or forever hold you peace."*

However, it is much more common for students to report some sort of turning point during the year, once they found a way out of their downward spiral, started looking outward, stopped complaining, changed their self-talk, started making friends, began to participate in student committees or even ... learned to play an instrument.

*"I began to wonder how did I come so far off track the path I thought I was on? The next few days I was more than ok because I suddenly remembered what I came to university to do, to excell and transform the nobody mentality to somebody. My eyes were open finally to see opportunities and cease them. I made a choice that instead of sitting and complaining about not fitting in, I would realise my other dreams too. In July I became a guitar private student and hope someday to play with the best guitarist in Stellenbosch."*

*"If anyone could have asked my friends during the first semester about Mr Complains they would have simply point at me, all I mean is that I used to complain about everything but since this semester had began all that have changed"*

*"Majority of the students always complain about time and we are the ones who always misuse 'this little time' we have by sitting around complaining about the accent of that lecturer and I know the lecturing pace of Wits is really fast but I've learnt that complaining about it makes it even faster because I've lost time while I was complaining."*

*"But I told myself that the only thing that is blocking me from getting my degree is 1st year so I decided that I'll do whatever it takes for me pass my first year, you know why? because I have faith in myself and I believe that I will do it no matter what comes in my way, this may sound like a cliché, but its definitely true. I may not know it but many people are dying out there and they depend on me."*

*"I now know we are all capable of doing what we want in life I know I am a Second Year Student now! it's your decision just DO IT! Do It! do it! STOP TRYING AND THINKING ABOUT IT YOU'VE DONE THAT SO MANY TIMES BEFORE!!"*

Although some students point to a specific event, like the winter seminar or the bad results of the first semester, which triggered a positive change, for many it appears to have been a spontaneous awakening of agency. Many stories mention that they used tools such as diaries, weekly plans or written goals to help them through the change. These tools were mentioned in the newsletters sent to them by StudieTrust (the organisation managing the bursaries on behalf of the Foundation), in the time management session at the winter seminar as well as in the peer mentoring programme. Although it cannot be claimed that these interventions were solely responsible for the difference, it is likely that once the students were ready for change, the fact that they had heard about these tools gave them an idea on how to proceed.

The change often coincided with the start of the second semester. While they realized that the workload in the second semester was even higher than in the first, they were better able to cope with it this time round, as they knew what to expect. The discovery that one can make friends at university contributed to many of the

Foundation students “finding their feet”. The social interaction reported by Foundation bursars increased markedly in the second semester.

### ***Effectiveness of the Sasol Inzalo Foundation interventions:***

#### *Psychosocial support*

As it was anticipated that psychosocial support would be required, the bursars and mentors initially were given the contact details of the on-campus services at every university and encouraged to make use of them. However, in the thick of the first semester crisis, the students did not make use of the services; amongst other reasons, because the services were over-extended. Subsequently it was agreed to extend the wellness support service available to Sasol employees to the Foundation bursars. This provides them with a help-line number they can call when needed, and regular contact from the service. Once the bursars have given consent, the bursary programme can also refer students who seem to be in trouble to counsellors. The service is confidential, so that the bursary provider will not be aware who has made use of the service and can not prejudice the student. Indications are that the students are more readily using the new service.

#### *Peer mentoring*

During the first semester all first year bursars were allocated peer mentors; the majority of the peer mentors were StudieTrust bursars studying for non-Engineering degrees and sponsored by other companies or donors. A mentorship workbook, which covered topics like personal planning, goal setting, prioritisation and time management, was developed for their use. While there are teething problems, like mentors struggling with finding suitable meeting times as their programmes mostly differ from the really full engineering programmes, some mentors are doing excellent work and their mentees registered appreciation for the role their mentors have played in their successful transition to a more appropriate approach to their studies.

Bursars living in university residences indicated that they also had peer mentors from the residence allocated to them; this helped provide the structure that contributed to the students adjusting to university life and performing well. The Foundation is considering how to provide, or strengthen, similar peer mentoring and belonging structures for students staying in private residences or communes in view of the results of this study.

#### *Winter seminar*

By far the majority of students related how the new approach to solving problems they learned at the seminar represented a turning point in their approach to their studies. Quite a number said they wished high school teachers could be trained in using the methods of the Ukuqonda Institute, as this will have a significant effect on learning in schools. A refrain of students from one campus was that the seminar constituted a turning point in their self-confidence. They felt that their first semester experience was one of a progressive erosion of academic self-confidence as they were studying as hard as they possibly could and yet failed their tests with the work pressure and pace mounting from week to week, resulting in an increased sense of being lost and confused. At the seminar they were given ample time to solve problems and when they eventually managed to do this in their own way, a sense of achievement returned which became the foundation for their journey back to academic self-confidence.

*“I have learnt to do what engineers are meant to do – THINK; To use your knowledge and apply it in real life experiences”*

*“The Winter Seminar at Evander during the June/July holidays helped me approach my course a bit differently. It is mainly about the method not the answer...”*

*“I don’t depend on other people, as the Sasol Inzalo Seminar kept on showing me that I can do things by myself but when it is time for group work then teamwork is the way forward”*

The seminar had an unexpected positive impact on the identity perceptions of many students. Many of them indicated in their feedback after the seminar, that they have taken on board a new identity. Instead of simply acknowledging that they have acquired new skills, they seemed to view these skills as positive identity attractors that they could latch onto in lieu of their previous identities as top students.

*“I am now an equation maker, not a user. I can make it and give a lazy student to work using it”*

This could present an opportunity to facilitate the formation of positive new identities following the breakdown of existing identities that is an inherent part of the initial first-year experience. If similar interventions are conducted at opportune times during the first semester, it might mitigate against the formation of negative identities linked to failure that may lead to students giving up or never recovering their self worth.



In addition to academic benefits, aspects of the accompanying soft skill programme at the winter seminar were mentioned in the second semester stories:

- One of the evening sessions took the form of a book club, to try and foster a love of reading in the students:  
*“Since the Winter Seminar I’ve read TWO books and I am doing much better academically!”*
- Very few students had experienced any form of self-awareness activity, so we conducted an Enneagram session (the Enneagram is a self-assessment personality profiling framework). This framework provided some self-insight for one student:  
*“As an engineering student team work is sort of important. As a type 5 personality type on the enneagram I have a difficulty working in teams. I like to work alone. It is a learning process for me...”*

Another unintended consequence was that the residential nature of the seminar helped the students to make friends and start building a new support network:

- “The two weeks in Evander helped me realise that making new friends wasn’t all that bad and that you can have new and even better experiences if you were just willing to give it a try.”*
- “One thing that really helped me to look at things differently is sasol winter programme. we were taught so much from those two weeks and I actually made new friends. I don’t see them that often but when I do see them I get motivated, and remember that I am not alone in this.”*

A two-week residential seminar is an expensive undertaking. Given the benefits described above, the Sasol Inzalo Foundation is investigating how to achieve similar results by using a different, less expensive format.

## **Discussion**

### ***Lack of fit with chosen field of study***

Both of the students who deregistered, cited lack of fit with their chosen field of study as the main reason. Students from both the Sasol and Foundation groups have indicated that they were disappointed that the course was not what they expected. On the other hand, a sizable portion of both groups indicated that the experience was better than they had expected. It is clear that prospective students are either not well-informed about their choice of career, or do not appreciate the implications of the information provided to them. Either way, the expectations formulated prior to university seem to influence their integration significantly. Given all the other hurdles to overcome, a mismatch between the student and the course presents a serious obstacle. Advice was offered by one of the Foundation bursars:

- “A list of things what you should tell to prospective engineering students before they decide to go study at a University: (I only did some of it, I wish I did more of these things before I studied Engineering....)*
- *See if engineering is your thing, work for a couple of weeks at a Engineering company. You will know for sure if it is your thing. (Working at xyz Consulting Engineers for 8 months was fun...I really miss it now.)*
- *I you live near at University while still in High school... make use of it, go sneak in a few classes. Nobody is going to notice, there is many students in a class. Stellenbosch University is easy to sneak in as a prospective student, it is part of the town :-). That way you can get a taste of engineering before you study. Lots of students freak out the first time the step in class. (I wish I had the privilege to live near a University when I was still in school.)”*

Offering structured ways in which potential students could sit in on selected classes may mitigate several of the “surprises” that students have found most challenging and give them a sense of what to expect.

### ***Severity of the consequences of struggling in the first semester***

Many students may have seemed ‘intellectually asleep’ during the winter seminar, because they were not able to adapt quickly enough to a social environment where different norms apply than those that they are used to (especially the norm of making sense instead of simply being told what to do). From Ukuqonda Institute’s experience with bridging year students, they feel that it often takes up to 10 months for a student to ‘wake up’ and to start making sense for themselves of what they are learning.

It is also significant that many of the bursars managed a turn for the better at the start of the second semester. However, for some of them the first semester results will force them to have to extend their studies. It seems a harsh penalty to have to extend your studies by a year because of difficulties in the first semester when experience shows that many students find their feet only in the second semester. It would assist access students

to succeed in main stream courses if the courses were structured in a way that would allow them to recover from poor mid-year results in the second semester without having to extend their studies.

*“WELCOME "SECOND SEMESTER"! During this semester I can fully say things are going well, and I have improved a lot from the last semester The only thing that is worrying me now is that will I be able to make it or maybe the damage has already been made by the first the first semester, that is what eats me everyday but with a hope of success. I have never thought I will fail at school or varsity but it happened, believe you me it was not the act of not being serious or what. lucky me I shouted for help, sasol inzalo foundation and study trust helped and heard my shout and I am grateful for that. but that question still remains in my brains every second.”*

### ***Systemic effects of interventions***

The effects of the mentioned interventions were never confined to the aspects they were intended to influence; there were always unintended consequences as a result, some positive and some negative. While the list is endless, some of the more notable effects were:

- Providing full cost bursaries effectively removed the lack of financial means, but created pressure for students to retain their bursaries;
- The winter seminar was focused on conceptual understanding, but contributed to agency, independence and self-confidence and helped students realize the possibility and benefits of making friends;
- Students were assisted to find private accommodation in the belief that it would allow them greater access and facilitate success, only to find that the lack of structure in such a living arrangement would hamper their performance.

It was also noticeable that students reacted to different interventions as triggers of positive change, suggesting that a range of possible support mechanisms is required. It would therefore appear that a balanced support programme must offer a palette of support initiatives and expect to find surprising synergistic effects.

### **Conclusion**

With the increasing number of access students enrolled in mainstream courses, universities have to deal with a much greater diversity in the students in every classroom than before. It is appreciated that teaching to such a diverse student population creates challenges that have to be solved in creative ways if throughput in South African universities is to be improved.

While all students have to make a transition from high school to university, the gap is deeper and wider for most access students than for the traditional students universities are used to. It is possible to use the first year experience to filter out all but the strongest students; however, it will serve the interest of South Africa better if this transition is facilitated to give them the benefit of rising to the challenge without breaking their spirit. The Sasol Inzalo Foundation believes that it is demonstrating that access students can be successful in main stream courses, if they are supported through the “dark night of the soul” they are likely to experience in the first year.

This closing quote is from a (female) Foundation bursar who was not accepted by the Sasol bursary scheme as they could pick among strong candidates, and went on to achieve a June average of 81%:

*“Me and my engineering friends love the engineering building so much. We spend hours in there. We want to sleep on top of the roof one night...we just have to ask permission for that...”*

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