The Effect of Setting Academic and Behavioural Goals on the Performance of Students in Mathematics at the University of Namibia Science Foundation Programme

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Abstract

This study intended to find the effect of setting academic and behavioural goals in the Science Foundation Programme (SFP) of the University of Namibia. In this study foundation students had to set academic and behavioural goals they intended to maintain in order to improve their mathematics performance but the reference was test 1 which was written without set goals. The study sort to find out the effects of setting academic and behavioural goals, classroom factors that need to be fulfilled in the setting of goals so as to improve the mathematics performance of students in the Science Foundation Programme at Oshakati UNAM Campus. This study used the quantitative research design. In order to assess the students' current academic level in mathematics, all students did not set goals for assessment Test 1, but started from assessment test 2 until assessment test 4 for the 2013 academic year. A quasi-experimental design was adopted in this study where the control group had 46 participants and the experimental group had 80 participants. At the end of the goals setting process the experimental group completed a questionnaire with open-ended and closed ended questions to add to the information collected from the goal sheets. Findings of this research study showed that the use of academic and behavioural goals significantly improved the mathematics performance of the students. The alternative hypothesis which stated that the experimental group would perform significantly better than the control group was accepted at 95% level of significance. This study also established that some factors such as students' level of competence should be taken into consideration and that specific teaching methods should be used in order to get maximum results in a goal-oriented classroom environment. It was concluded that the setting of academic and behavioural goals significantly improved the performance of the Science Foundation Programme students at the Oshakati UNAM Campus. Therefore, it is important for teachers of mathematics in the same educational settings to implement the setting of academic and behavioural goals among their students as a way of improving the students' performance of students in mathematics' mathematics performance.

Keywords: Academic goals, Behavioural goals, Oshakati Campus, Mathematics

INTRODUCTION

Namibia need more qualified staff in science and science related fields to drive the anticipated economic development. The Science Foundation Programme was established in 2005 by the University of Namibia Senate after the realization that there were fewer graduates in science related professions in Namibia. The

Directorate of National Examinations and Assessment (DNEA) (2010) noted that learner performance in mathematics has been poor in Oshana Region over the 2005-2009 academic years for both Grade 10 and Grade 12 learners. The University of Namibia developed all the necessary materials through curriculum specialists in mathematics and science came up with the Science Foundation Programme which has been offered at the Oshakati Campus since 2005 (Ngololo & Kapenda, 2012). The Science Foundation Programme aims at increasing access to the science related faculties at the University of Namibia. The programme further aims at broadening access to higher education to previously disadvantaged and marginalized groups and afford them opportunities to enroll in the Science related degree programmes at the University. Many of the few students who gain direct access to the university do so without the critical knowledge and skills required to competently understand the subject matter in Sciences and Mathematics in the first year (Naukushu, 2012). According to Naukushu, (2012) this is due to the fact that learners graduating from these schools do not attain the same level of understanding and educational achievement as the ones that attend well-resourced schools. With regards to the academic year 2009, Naukushu (2012) noted that 30% of the Science Foundation Mathematics students did not pass their Mathematics with 60% or better and in 2010, 32% did not pass their Mathematics with 60% or better.

Finally, Naukushu & Chirimbana (2011) concluded that Mathematics performance in the UNAM Science Foundation Programme is very low, and requires a lot of attention hence the justification for this research study. The studies by Shiweda (2009), Naukushu (2012) and Aipanda (2008) focused on the Mathematics learners number sense capabilities at Grade 12 level. A study by Pintrich (2000), which was undertaken on goal oriented learning, was done on some American High School students and Pintrich's study mainly focused on small numbers of learners, less than 15. Pintrich further noted that goal oriented learning tended to improve the performance of students if the goal tracking protocols are properly followed. The setting of academic and behavioural goals is a new phenomenon in SFP therefore; this study specifically sort to answer the following research question: What effect does the setting of academic goals have on the Mathematics performance of the Science Foundation Programme students of the University of Namibia? This paper sought to find out whether there was a significant difference in the performance of students who set academic and behavioural goals to those who did not.

LITERATURE REVIEW

Different studies were reviewed in order understand the effectiveness of setting goals in the learning or mathematics. On this aspect, Burrow (2009) documented that the goal setting process should be characterized by teacher guidance at the beginning through shared guidance of both the student and the teacher to more

student independence at the end. A teacher should orientate there teaching towards the students' learning process. The teacher knows when and how to intervene in the setting of academic and behavioural goals and has the students' learning as his/her top priority. A good teacher should also have the ability to measure students' perceptions of their receptivity to learning new information, their attitudes and interest in class, their diligence, self-discipline, and willingness to put the effort necessary to successfully achieve their pre-set academic and behavioural goals, and the degree to which they worry about their academic performance (Volet, 1997). Fuente (2009, p. 8-9) advised during the setting of academic and behavioural goals, that the teacher should be able to assess the will component of strategic learning by following attributes of a student in the following aspects: (1) Attitude—the student's perceived motivation and interest to succeed in their goal attainment, and willingness to perform the tasks necessary for their overall academic success; (2) Motivation—the extent to which the student accepts responsibility for performing those tasks by using self-discipline and hard work; and (3) Anxiety—the degree of willingness perceived by the student when approaching academic tasks. Youngcourt and Beauben (2007) stated that the goal setting learning theory explains how a student judges his or her own ability to manage, or self-regulate and control, the whole learning process through using their time effectively, focusing their attention and maintaining their concentration over time, checking to see if they have met the learning demands for a class, an assignment or a test, and using study supports such as review sessions, tutorials or special features of a textbook.

Fuente (2009, p. 19-20) noted that self-regulation component of strategic learning are: (1) Concentration—the student's perceived ability to focus his or her attention, and avoid distractions, while working on school-related tasks like studying; (2) Time management—the student's perception of the extent to which they create and use schedules to manage their responsibilities effectively; (3) Self-testing—the student's awareness of the importance of self-reflecting and reviewing when learning material, and use of those practices; and (4) Study aids—the student's perceived ability to use or develop materials that assist with the learning process for the attainment of the pre-set academic and behavioural goals (pp.19-20).

Fuente (2000) stated that classroom dynamics can moderate goal effects among students. He further argued that classrooms with competitive ability goals or failure avoidance goals encourage students not to pay attention or value the importance of learning or mastery in order to focus attention and effort on doing better than others. Classrooms with learning goals promote a number of gratifications, getting students involved in their learning, recognizing students' efforts in learning, promoting learning from recognizing ones mistakes or clarifying goals. Schunk (1996, p. 34) established some defining elements of learning situations that promote learning goals and these are, (1) Possibility of task of choice; (2)

Choice of individual academic and behavioural goals; and (3) Autonomy in the school action. The students' perceptions of the classroom goal structure have been considered more decisive than the classrooms actual structure in determining students' performance when the goal oriented theory is being employed. Pintrich (2000) stated that using learning and achievement contexts, with both implicating and non-implicating self-evaluation, show the effects of these situations on students' expectations of self-efficacy, persistence in effort and tendencies toward self- evaluation. Johnson (2002) also stated that competitive goal environments can cause damage to low performers in some classroom environments. Therefore, it is important for teachers to understand variations in academic performance among students. This will help the students in not setting which do not conform with their academic performances.

Elliot (1997) advised that behavioural goals which students should set are classroom norms or rules which the students wish to observe, obey and comply with, for them to meet their academic goal target, e.g. coming to the Mathematics class on time or doing all the assigned class work and homework. Covington (2000) also argued that teachers who want their students to give off their best should work together with their students through setting achievable performance or academic goals which the student can improve step by step.

Winnie (1997) suggested that the two dimensions of academic and behavioural goals need to be used jointly in order to obtain good academic performance. Dembo (2011) noted that educational interventions directed towards improvement of students' motivation should be multi-dimensional if goals are used. The academic and behavioural goals setting process should be a continuous process done at regular intervals preferably after every two weeks so that students do not set goals and forget about them. Students need to be kept closer to their goals all the time so that they remain motivated, and dedicated towards working hard to achieve their goals. Pintrich (2000, p. 33) advised that students should adopt both behavioural and academic goals at different moments; reaching good academic attainment through a phenomenon he called "journey metaphor". He added that students with learning goals may use various motivational, affective and learning strategies over time; when these have resulted in good attainment, it leads them to adopt achievement goals in the end. Wentzel (2000) also emphasized the importance and complimentary role of academic and behavioural goals in improving the students' performance if used together. Wentzel further argued that learning goals correlated positively with family cohesion, perception of support from the teacher, interest in academically related activities, social or behavioural goals, goals of social responsibility, and interest in classroom activities. Therefore, if goal-oriented learning is to be implemented in an educational setting all the stakeholders in the educational fraternity need to collaborate together for maximum results. Parents need to complement the teachers' effort in goal tracking and help their children in the goal setting and goal tracking process. In addition, the teachers' classroom

activities should also be set at the proper cognitive level that will enhance students' goal attainment process at the end. Elliot (1997) argued that the greatest challenge when it comes to conceptualising the types of goals is their diversity of taxonomies. He suggested that goals should be categorised according to what they do for a student. He categorised these goals into two main categories: those goals pertaining to behaviours and those pertaining to academic achievement.

Achievement oriented goals are described as a student's wish to achieve highly on external indicators of success, such as grades. The students' sense of satisfaction is highly influenced by their grades, and so it is associated with discouragement in the face of low marks (Fuente, 2009).

Pintrich (2000) opine that goal-oriented learning theory should be characterized by more teacher guidance at the beginning through shared guidance of both the student and the teacher to more student guidance (students guiding themselves) at the end if self-efficacy is to be attained. A good teacher should orient students' goals with their performances. He/she should know when and how to intervene in the goal setting process, and should also allow students to self-reflect on their own academic and behavioural goals.

METHODOLOGY

This study adopted a quasi-pre-test control group experimental design. This design was suitable for the study because the researchers had to make comparisons of the pre-set goal and the attained goal in order to see if there was a difference in performance between the two. Christensen, Johnson and Turner (2010) stated that quasi-pre-test control group experimental design is suitable for all topics where the researcher seeks to establish a causal relationship and where it is possible to introduce and control the stimulus (i.e. manipulate the independent variable which is the set goal) at a specific time or to the specific groups of participants. The study applied the quasi-trait goal approach. Specifically, this study employed collectively exhaustive stratified random sampling technique since no population element was excluded. There were three mathematics classes in the Science Foundation Programme of the University of Namibia with 38 students in Class 1, 44 students in Class 2, and 48 students in Class 3. All the students in the first two Classes formed the experimental group (Strata 1) for the study and all students in the third Class formed the control group (Strata 2). Thus, the experimental group for this study consisted of 80 students because two of the students dropped out of school (one student dropped out of the Science Foundation Programme and the other passed away) during the course of this study, while the control group consisted of 48 students. The data for this study was collected through a pre and posttest together with a closed ended questionnaire which was administered to the students for foundation programme mathematics at the University of Namibia. The collected data was analyzed using the SPSS software and the Microsoft excel.

RESULTS AND DISCUSSIONS

Table 1 provides information regarding the experimental and control groups' performance on a mathematics test.

Table 1: Comparison of the performance of the experimental and control group on a pre-intervention mathematics test

Test 1	*Number(N)*	*Range*	*Mean*	*Std. Deviation*
Control Group	46	28	34.28	6.292
Experimental Group	80	26	34.85	5.408
Total	**126**			

Table 1 shows that the mean performance for the experimental group was 34.85 with a standard deviation of 5.408, while that of the control group was 34.28 with a standard deviation of 6.292. The experimental group had a range mark of 26 while that of the control group was 28. From Table 1 it can be seen that the experimental group had 0.57 points slightly higher mean than that of the control group. However, a z test for the differences of two population means gave ($z = 1.289$ at $\alpha = 0.05$). Since the calculated z value of 1.289 is less than the standard value of 1.645 we accept the null hypothesis. That is there is no significant difference in the performances of the two groups before the goal setting exercise was undertaken (i.e., $\mu_E = \mu_C$). This is further confirmed by the 95% confidence interval of the mean differences (-0.0338; 1.181) that includes zero, showing that there was no significant difference in performance between the experimental and control groups before goals were set.

Students' academic goal achievement levels in Test 1

After establishing that the initial performance between the two groups was the same, the experimental group was asked to set academic and behavioural goals which they intended to achieve in Test 2 while the control group continued with classes without setting academic and behavioral goals Table 2 shows the achievement of academic goals by the experimental group.

Table 2: Academic goal achievement after Test 2 by the experimental group (N= 80)

	Frequency	*Per cent*
Achieved	19	23.8
Not Achieved	61	76.2
Total	**80**	**100.0**

It is evident from Table 2 that out of the 80 students who set academic goals, which they intended to achieve on Test 2, only 19 (23.8%) of the students managed to

achieve their set academic goals and 61 (76.2%) of the students did not achieve their set academic goals.

This finding seems to suggest that the set academic goals might have been too high for those students who did not manage to achieve them. Their goals needed to be moderated downwards for them to be achievable. This finding conforms with what Wentzel (1998) indicated when he said that teachers should allow students to set goals which are within their ability, and they can improve on them with time so that as students work towards achieving these goals they become motivated to perform even better. These results further suggest the possibility that those students who did not achieve their academic goals might not have aligned them properly with the necessary behavioural goals for the two to complement each other. This finding further suggests that the students might not have conformed to Fuentes' (2009) components for self-regulation which are concentration, time management and self-testing for them to achieve their pre-set academic goals. Even though the greater percentage of students did not manage to achieve their academic goals, their performances improved (see Table 3).

Students' performance after Test 2

Table 3 presents the students' result on Test 2 for both the experimental and control groups after Test 2.

Table 3: Experimental and control groups performance after Test 2

Group	Scores				
	N	**Range**	**Mean**	**Std. Deviation**	**Variance**
Control Group	46	34	28.96	7.444	55.420
Experimental group	80	38	32.46	7.916	62.657
Total	**126**				

The range for the experimental group was 38 and 34 for the control group. The means of the two groups differed by 3.5 percent points with the experimental group having a higher mean of 32.46 with a standard deviation of 7.916, while the control group had a mean of 28.96 with a standard deviation of 7.444.

A z test of the differences between the two groups based on the results in table 3 gave $z = 2.837$, $\alpha = 0.05$ with a z standard value of 1.645 which resulted in the rejection of the null hypothesis in favour of the alternative confirming that the experimental group performed significantly better than the control group (i.e., $\mu_E > \mu_C$). Nonetheless, it can be seen that the control group also slightly improved as compared to their performance on the pre-test, test 1.

Goal tracking was done and followed by proper goal adjustments for test 3.The findings above tally with the findings of Wentzel (1998) who stated that academic and behavioural goals are important because they function as a mechanism that

activates a certain type of information processing that will lead to a strategic-deeper level of understanding, guaranteeing academic success for a student.

The students' academic goal achievement on test 3

The experimental group students continued to set their academic and behavioural goals for test 3 and the necessary goal adjustments and moderation was done based on whether the student had achieved the previous goal or not. Table 4 shows the level of academic goal achievement made by the experimental group.

Table 4: Academic goal achievement on test 3

	Frequency	**Percent**
Achieved	31	38.8
Not Achieved	49	61.2
Total	**80**	**100.0**

Table 4 shows that 31 (38.8%) of the students who set academic goals after test 3 managed to achieve them, whereas 49 (61.2%) of the students did not achieve their goals. Though these results show an improvement in terms of numbers of students who managed to achieve their academic goals as compared to the level of goal achievement for test 2, still more needed to be done to have the number of students who achieved their goals to out-number those who did not.

These results reflect that there might still be some behavioural attributes that needed to be amended in order to have a large number of students achieving their academic goal targets. It can be seen in Table 5 that less than 50% of the students managed to achieve their set academic goals. These results further suggest that the students might have failed to orient their performance with their behaviours. These findings concur with what Fuente (2009) stated that students' attitudes; motivation and anxiety levels determine the extent to which they attain their academic and behavioural goals. The students' attitudes might have been negative during the setting of goals and hence failed to achieve them or they might have failed to get the motivational aspect of the goals they set, which resulted in them not achieving the academic goal.

Students performance for Test 3

After test two students continued to set academic and behavioural goals. Table 5 below show a summary of students' performances.

Table 5: The performance of the experimental and control groups on Test 6

Test 3	*Scores*				
	N	*Range*	*Mean*	*Std. Deviation*	*Variance*
Control Group	46	42	27.54	9.779	95.631
Experimental group	80	48	28.95	9.553	91.263
Total	**126**				

Table 6 shows that the experimental group had a minimum score of (zero) 0 and a maximum score of 48 out of 50, while the control group had a minimum test score of 8 and a maximum of 50 out of 50. Although more students achieved their academic goals than in test 2 in test 3, the means for both groups decreased with the experimental group having a higher mean of 28.95 with a standard deviation of 9.553 and the control group having a mean of 27.54 and a standard deviation of 9.779.

At a glance, the results in table 6 seem to show a slight effectiveness of academic goal setting. A z-test of the differences between the two groups based on the results in table 6 gave ($z = 0.353$, $\alpha = 0.05$) which resulted in the acceptance of the null hypothesis disregarding the claim that the experimental group performed better than the control group i.e. ($\mu_E < \mu_C$). The general decline in performance between the groups suggests the possibility that the test items were slightly harder than before. These findings concur with what Covington (2000) called the four components of goal setting. He stated that the value a student assigns to a set goal, the perceptions the student has on the competencies, some casual attributions and emotional reactions or cognitive change in behaviour are important components that determine the level of goal achievement by a student. The students might not have assigned a great value to the goals they were setting and might have had negative perceptions during the time of studying to achieve these goals and this ended up affecting their emotional attributes i.e. change in behaviour towards the negative direction.

Students performance in test 4

Table 7 shows the performance of the experimental and control groups after test 4.

Table 7: Experimental and control groups performance on test 4

Test 4	*Scores*				
	N	*Range*	*Mean*	*Std. Deviation*	*Variance*
Control Group	46	28	31.93	7.154	51.173
Experimental Group	80	34	32.96	6.874	47.252
Total	**126**				

The results in table 7 show that the highest mark of 49 out of 50 was recorded in the experimental group whereas 46 out of 50 was recorded in the control group. The lowest mark of 15 out of 50 was recorded in the experimental group. It can be seen that the mean for the experimental group, of 32.96 with a standard deviation of 6.874, was slightly higher than that of the control group of 31.93 with a standard deviation of 7.154. A mean difference of 1.03 was recorded between the experimental group and the control group.

These results suggest the possibility of students setting higher goals which did not tally with their performance and as such ended up failing to achieve them. Another explanation is that probably students failed to adhere to their behavioural goals which have a positive impact on performance if maintained. The results in table 6 concur with what Fuente (2009) alluded to, when he stated that some teachers face the problem of aligning students' ability with their academic goals. This may end up forcing students to set goals which are far beyond their reach and may cause discouragement and make them become less committed to work hard.

A z test of the differences between the two groups based on the results in table 7 gave ($z = 0.789$; $\alpha = 0.05$) which resulted in the acceptance of the null hypothesis disregarding the claim that the experimental group performed better than the control group on test 4, i.e. ($\mu_E < \mu_C$).

The students' performance on test 4

The academic and behavioural goals setting exercise continued after test 3, setting for test 4. Table 7 shows the achievement levels of the academic goals by students after test 4.

Table 8: Achievement levels of the set academic goals after test 4

	Frequency	*Percent*
Achieved	15	18.2
Not Achieved	65	81.8
Total	**80**	**100.0**

The results of the level of achievement of the academic goals set after test 4 for the experimental group showed that out of the 80 students who set academic goals, 15 (18.2%) managed to achieve their academic goals while 65 (81.8%) did not manage to achieve their goals for test 4. The results in table 7 suggest that students might have set goals which were far beyond their reach and ended up being discouraged in the process. These results further suggest that the test items might have been too difficult for the students to achieve their set academic goals or the lecturer might have failed to align students' performance to their goals.

Student's achievement levels of behavioural goals during the four tests.
One of the objectives of this study was to find out how students controlled certain non-academic behaviours that might have a negative effect on academic performance. After the first test, students set behavioural goals which they felt were important for them to improve their academic performance. The students evaluated their own level of goal attainment at the end of test 2, and the process continued until test 4 as was done for academic goals. Table 8 shows the results of the goals attainment level by the 80 students in the experimental group.

Behavioral Goal	**Test 2**		**Test 3**		**Test 4**		**Test (2-4)**
	Achieved	*Not achieved*	*Achieved*	*Not achieved*	*Achieved*	*Not achieved*	*Overall achievement*
To complete homework and hand in on time	23(28.8%)	57(72.2%)	21(26.3%)	59(73.8%)	19(23.8%)	61(76.3%)	63(26.3%)
To listen Carefully and respond to questions	31(38.8%)	49(61.2%)	34(42.3%)	46(57.5%)	23(28.8%)	57(71.3%)	88(36.7%)
Write neatly and legibly	35(43.3%)	45(56.3%)	32(40.0%)	48(60.0%)	32(40.0%)	48(60.0%)	99(41.3%)
Asking for help when something is not understood	21(26.3%)	59(73.7%)	23(28.8%)	57(71.3%)	43(58.8%)	37(46.3%)	87(36.3%)
To be punctual for all mathematics lessons	33(41.3%)	47(58.7%)	35(43.8%)	45(56.3%)	34(42.5%)	46(57.5%)	102(42.5%)
Avoidance of noise	32(40.0%)	48(60.0%)	21(26.3%)	59(53.8%)	34(42.5%)	46(57.5%)	87(36.3%)

Table 9: Students' performance on behavioural goals (N = 80)

According to table 8 after writing test 1, all the 80 students felt that completing homework and handing them in on time was an important behavioural goal which could improve their academic performance. However, only 23 (28.8%) of the students managed to achieve this goal and the other 67 (71.3%) of the students failed to achieve this goal. For test 3, only 21 (26.3%) of the students managed to achieve this behavioural goal whereas 59 (73.8%) of the students failed to achieve the goal of completing and submitting work on time for marking. After test 4 it can be seen that only 19 (23.8%) of the students managed to achieve this goal and the other 59 (76.3%) of the students did not manage to achieve this goal. Dembo (2011) emphasized that educational interventions directed towards improvement of students' motivation if goals are used, should be multi-dimensional and the academic and behavioural goals setting process should be a continuous process done at regular intervals. The failure by most students to achieve their behavioural goals might be the reason for their failure to attain their pre-set academic goal target since behavioural and academic goals complement each other in learning.

The other behavioural goal which students had to adhere to in order to help them meet their academic targets was the goal of listening carefully and responding to questions during the mathematics classes. With regards to this goal table 8 shows that 31 (38.8%) of the students managed to achieve this behavioural goal but after

test 2, 49 (61.2%) of the students did not manage to achieve this goal. After test 3, 34 (42.5%) of the students managed to achieve this goal and 46 (57.5%) of the students did not achieve this goal. After test 4 only 19 (23.2%) of the students managed to achieve this goal but 61 (76.8%) of the students did not achieve this goal. It can be seen that the trend of this behavioural goal achievement fluctuated between 38.8% and 42.5%. This suggests that students found it hard to listen carefully and respond to questions and as a result their academic goal achievement was also affected negatively.

Another behavioural goal which the students had to achieve was the goal of writing neatly and legibly all the time. After test 2, 35 (43.8%) of the students managed to achieve this goal but 45 (56.2%) of the students did not achieve it. After test 3, 32 (40.0%) of the students managed to attain the goal of writing neatly and legibly but 48 (60.0%) of the students did not manage to achieve it and maintain the goal of writing neatly and legibly. For test 4 results the behavioural goal of writing neatly and legibly remained the same as test 3 (see table 9).

Students are not readily willing to ask questions when they do not understand when something has been taught. Therefore, one of the behavioural goals which the researchers felt was important to improve on the students' attainment of academic goals was the failure to ask questions whenever something was not clear during the lessons. From table 8 it can be seen that this goal was achieved by 23 (28.8%) of the students whereas 57 (71.2%) did not after test 2. After test 3, 23 (26.3%) of the students managed to achieve it whereas 59 (73.7%) did not. The same behavioural goal was set again prior to test 4. After test 4 it can be seen from table 9 that 43 (53.8%) of the students managed to achieve it whereas 37 (46.2%) of the students did not. The attainment of this behavioural goal by more than 50% of the students might have been the one that led to the experimental group performing significantly better than the control group (see table 4).

High levels of academic excellence come as a result of one's ability to know what to do at the right time. In most cases students mix up activities and may end up ranking low what has to be issues of first priority. Coming to class on time is an important behavioural attribute that has to be observed by all students who are hoping to be successful in their academic endeavours. The researchers made students assess their own punctuality by setting it as one of the behavioural goal target to be achieved (see table 9). It can be seen that 33 (41.3%) of the students managed to achieve this goal whereas 47 (57.7%) did not after Test 2. Then after Test 3, 35 (43.8%) of the students managed to achieve this goal but 45 (56.3%) did not. After Test 4 Table 9 shows that only 23 (28.8%) of the students managed to achieve it whereas 57 (71.2%) did not. Poor attainment of this goal by most students might have been the reason for poor students' academic goal attainment on Test 4 (see Table 8).

This study included the students' ability to maintain low noise levels in the learning environment through using it as a behavioural goal to be maintained at

all times by the students. It can be seen from table 8 that after test 2, 32 (40.0%) of the students managed to achieve this goal whereas 48 (60.0%) did not. The same goal was set again to be achieved after test 3. It can be seen that after test 3 only 21 (26.3%) of the students managed to achieve this goal whereas 59 (73.7%) did not. After test 4, 32 (40.0%) of the students managed to achieve it, whereas 48 (60.0%) did not. These results show that there was a fluctuation in terms of attainment of this behavioural goal by the students on the three tests (i.e. between 26.3% and 40.0%).

Overall, it can be concluded that from test 2 to test 4 the attainment of the pre-set behavioural goals was very low with the behavioural goal completion of homework being ranked the lowest with an overall achievement rate of 26.3% by the 80 students and the goal of being punctual for all mathematics lessons being the highest achieved with 42.5% overall rate. These results show the inability of students to control their own academically oriented behaviours.

CONCLUSIONS AND RECOMMENDATIONS

This study concluded that the setting of academic and behavioural goals can positively improve the performance of students in the Science Foundation Programme. The findings from this study further suggest that if students are let to set goals they intend to achieve they will become responsible for their own learning and this gives them the autonomy to control the entire learning process that takes place in the classroom since they are accountable for every result they obtain. If they set academic goals they can always reflect on their behaviours and check if they are in line with their pre-set academic goal targets, or if the behaviours they portray will make them achieve their academic goals since the two types of goals (behavioural and academic), complement each other and should always be used together in order to improve academic performance. Apart from that, it can be concluded that lack of academic and behavioural goals in a learning environment does not help improve their performance since the students are not given total responsibility for their own learning. Academic and behavioural goals should only be set after a standard test item upon which the lecturers base the performance of the students. Based on the findings of this study the following recommendations are made:

To the foundation programme lecturers

1. Lecturers should allow students to self-reflect and self-evaluate after every test item so that they can make necessary adjustments to their behaviours rather than setting one goal for a term or a semester; students tend to forget what they have set to achieve if the time spun is too long. The aspect of being motivated by set goals tends to decrease as time elapses.
2. The lecturer should keep checking the students' set academic and behavioural goals so that he/she keeps on reminding them if their behaviours are deviating from the intended behaviours which might enhance academic goal attainment.

3. The lecturer should create a platform for goal discussion with each student so that students understand the entire process of goal setting, and that it is not something being done on them as a routine, but 'it is something they are doing to benefit them in the long run. Once students have an understanding of the goal setting process they might become independent students who bear the overall responsibility for their own learning.

Teacher training institutions

1. The setting of academic and behavioural goals is a new phenomenon in the Namibian educational system. Therefore, teacher training institutions, who may wish to exercise the setting of academic and behavioural goals, should include goal setting in the courses they offer.
2. The Ministry of Education should hold in-service training on the setting of academic and behavioural goals for teachers who are already in the teaching service and give them the support needed in the setting of academic and behavioural goals if they want to make the setting of academic and behavioural goals part of the school curriculum.
3. The setting of academic and behavioural goals, goals tracking and goal moderation require a lot of time. As a result more trained teachers will be required so that the teacher/student ratio which is currently standing at 55 is lowed and manageable for effective goal tracking and moderation.

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