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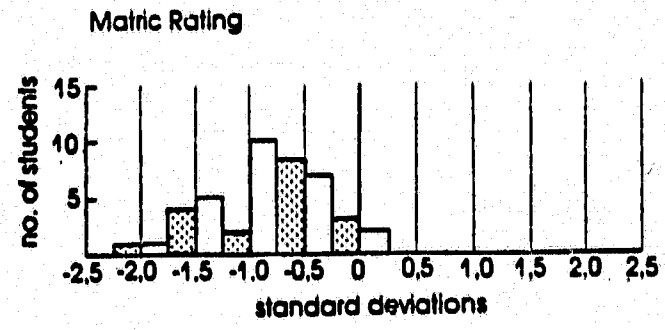
An evaluation of the zoology 1 academic support programme at the University of the Witwatersrand

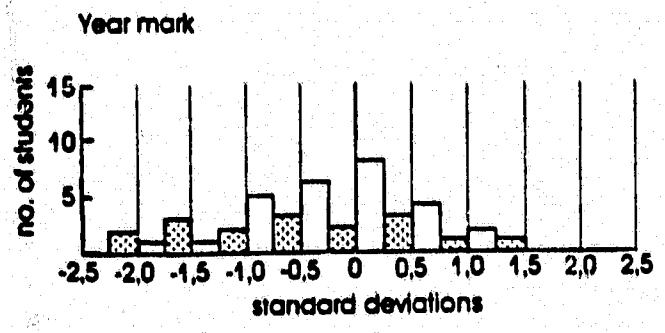
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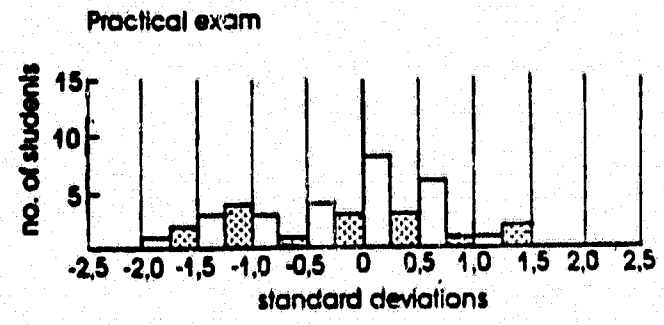
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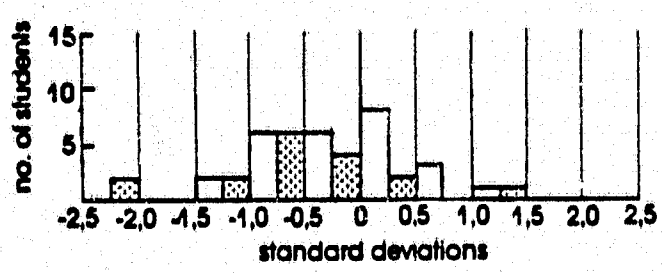
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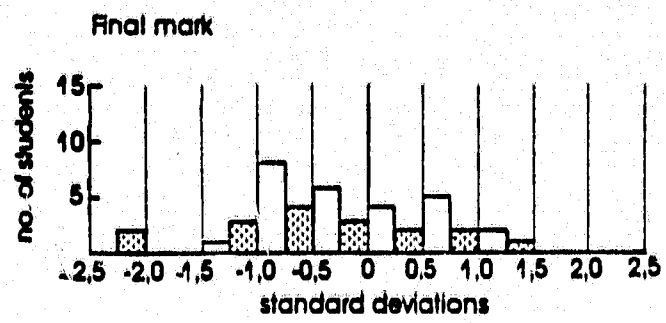
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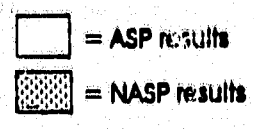
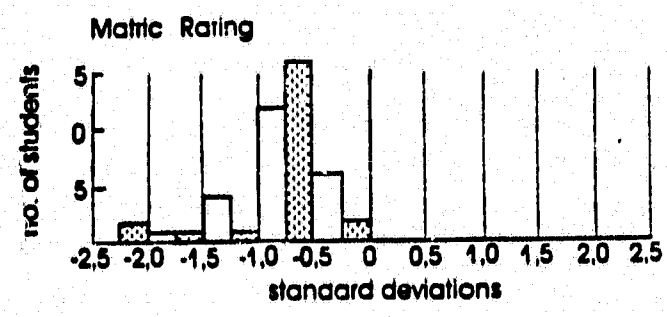
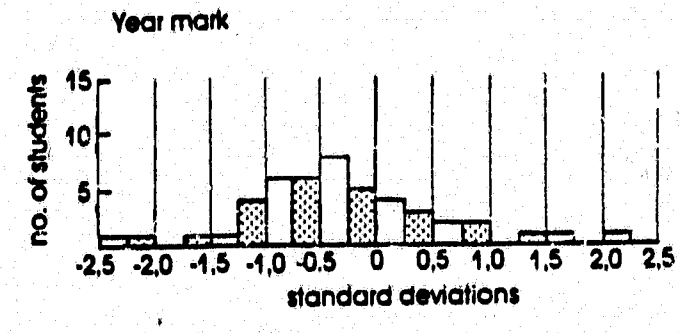
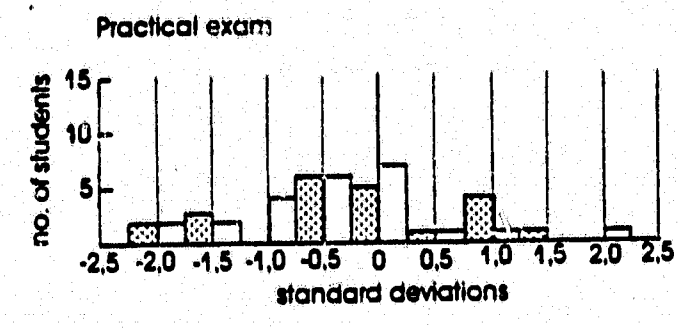


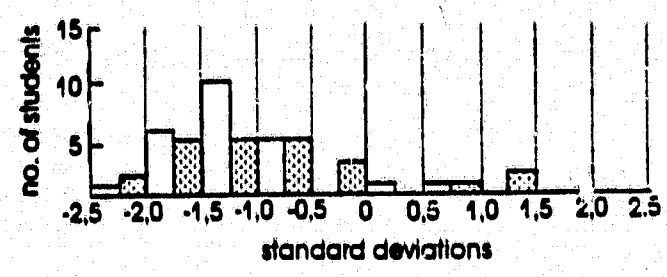
Figure 3: Histograms of the Standard Scores for ASP and NASP students for 1983 and 1984.

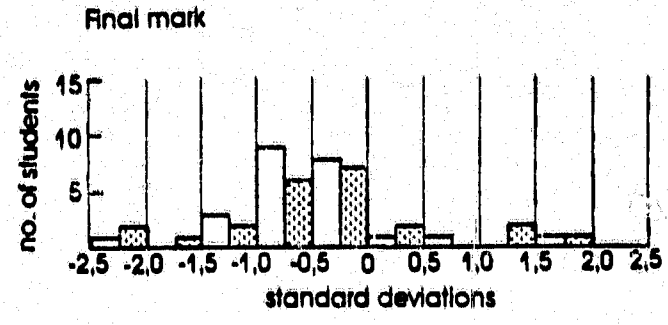
1984

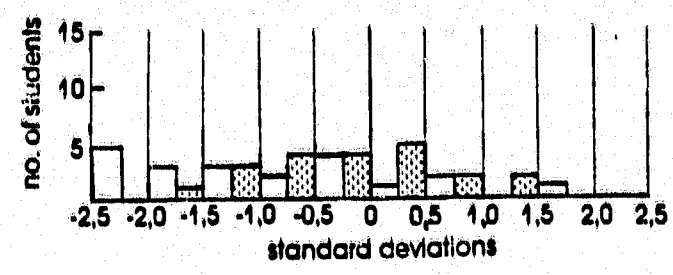












The 1983 NASP group had several individuals with Matric Ratings lower than those of the majority of the ASP students, and two of the ASP students had ratings above the class mean. These were two black students who were selected because of language difficulties. The 1983 academic results demonstrate a distinct shift to the right by the majority of ASP students if compared with the majority of the NASP students, showing better achievement by the ASP students on the whole.

The 1984 results indicate similar Matric Ratings for the two groups except for two NASP students with considerably lower Ratings. However, note the difference in the spread of results for the pre-diagnostic test, where the NASP students have, on the whole, achieved much higher scores. This suggests that this group is better equipped with some of the skills considered necessary for academic survival at university. For the year mark most of the students show a similar spread of marks for the two groups, although more NASP students have scores of less than -1 standard deviation below and two ASP students have scores more than 1,5 standard deviations above the class mean. The results for the theory exam show the majority of both the ASP and the NASP students bunched together well below the class mean. The distribution of marks for the two groups is fairly similar for the majority of the students in the two groups for the final mark.

What is interesting to note is a comparison of the 1983 and 1984 results. In 1983 many scores for both groups lie above the class mean, while in 1984 only a few students have scores above the class mean, except for the NASP students pre-test scores. This suggests that during 1984 both ASP and NASP students fared worse relative to the class as a whole, than the 1983 ASP and NASP students.

A further way of comparing the results of INDIVIDUALS is to see how the students with various Matric Ratings have achieved. There is much controversy about the use of the Matric Rating for selection procedures for university students. In the

Science Faculty the Matric Rating is used to select students for the three- or the four-year curriculum, and it is used to advise students whether or not they require ASP. Is the Matric Rating linked in any way to the class of pass or to the failures?

Table 7 gives the Pearson correlation co-efficients indicating the degree of correlation between the Matric Rating and the final mark achieved by the class as a whole, the ASP and the NASP groups in 1983 and 1984.

TABLE 7: Pearson correlation coefficients for Matric Rating and final mark

	CLASS	ASP	NASP
1983	0,48 (N=133)	0,21 (N=25)	0,18 (N=18)
1984	0,52 (N=160)	0,19 (N=25)	0,33 (N=23)

This appears to indicate that while a fair (but not good) correlation exists between the Matric Rating and the final mark for the class as a whole (explaining about twenty-five percent of the variance), the correlation is very low for the ASP and NASP groups (explaining about five per cent of the variance on average). It should be remembered that it is the Matric Rating which was used to identify these students as high-risk when it comes to passing. It seems unfair and unwise to use the Matric Rating as a predictor of success for students with low Matric Ratings, if Ratings of below forty-two show such a poor correlation with success.

Tables 8 and 9 categorise the final marks of the 1983 and 1984 students respectively, in both ASP and non-ASP groups, to indicate the number of students failing, and the number passing in each category of pass and the Matric Ratings of the students in each of these categories.

TABLE 9: Relationship between Matric Rating and class of pass or failure for the 1983 ASP and NASP students

FAIL = less than 50%, THIRD = 50 - 59%, SECOND = 60 - 69%, UPPER SECOND = 70 - 74%, FIRST = 75% and above

Numbers in brackets indicate the number of students with that particular Rating
? = Rating unknown

THOSE STUDENTS WHO DROPPED OUT OF ASP DURING THE YEAR (N=8)

CLASS OF PASS	NUMBER OF STUDENTS	MATRIC RATINGS
FAIL	7 (87,5%)	34 35(2) 39(2) 41
THIRD	1 (12,5%)	Repeat student (rating unknown)

ASP STUDENTS WHO COMPLETED THE YEAR (N=27)

CLASS OF PASS	NUMBER OF STUDENTS	MATRIC RATINGS
FAIL	11 (40,7%)	35 36 37 38(2) 39 41 42 46 ?(2)
THIRD	12 (44,4%)	34 35 36 38(2) 39(2) 40 41(4)
SECOND	4 (14,8%)	38(2) 41 45

NON-ASP STUDENTS (N=18)

CLASS OF PASS	NUMBER OF STUDENTS	MATRIC RATINGS
FAIL	13 (72,7%)	31 33 34(2) 35 36 38(2) 39(3) 41(2)
THIRD	3 (16,7%)	38 39(2)
SECOND	2 (11,1%)	33 41

TABLE 9: Relationship between the Matric Rating and class of pass or failure for the 1984 ASP and NASP students

THOSE STUDENTS WHO DROPPED OUT OF ASP DURING THE YEAR (N=14)

CLASS OF PASS	NUMBER OF STUDENTS	MATRIC RATINGS
FAIL	14 (100%)	36 37 38(4) 39(5) 41 42 43

ASP STUDENTS WHO COMPLETED THE YEAR (N=26)

CLASS OF PASS	NUMBER OF STUDENTS	MATRIC RATINGS
FAIL	17 (65,4%)	27 31 35 36(2) 37 38 39(4) 40 41(3) 42 ?(1)
THIRD	7 (26,9%)	36 37 39(4) 41
SECOND	1 (3,8%)	41
UPPER 2ND	1 (3,8%)	39

NON-ASP STUDENTS (N= 23)

CLASS OF PASS	NUMBER OF STUDENTS	MATRIC RATINGS
FAIL	12 (52,2%)	23 33 36 38(7) 39 40
THIRD	8 (34,8%)	20 38 39(2) 40(3) 41
SECOND	2 (8,7%)	40(2)
UPPER 2ND	1 (4,3%)	41

In the case of students who dropped out of ASP, failure appears to have been almost inevitable (100% failing in 1984, and the only pass in 1983 being a repeating student).

There appears to be little connection between the class of pass and the Matric Rating of the students. Students with ratings as low as thirty-three have achieved a second class pass, while many with Ratings in the forties failed. This seems to be true for both those students doing ASP and those who did not. None of the students in either group achieved a first class pass.

5.4 THE COMPARISON OF DIAGNOSTIC PRE- AND POST-TEST SCORES

In an effort to find a better selection criterion, diagnostic tests are being developed by the School of Biology. If used as pre- and post-tests, these serve as a useful tool to detect improvements in learning skills, and perceptual and conceptual abilities. Diagnostic tests were run at the beginning and end of the 1984 academic year. The significance of the differences between the means for the pre- and post-test scores of the whole class, the ASP and the NASP groups were determined using a two-tailed t-test, and are recorded in table 10. Results for each skill tested have been indicated.

All three groups showed a significant improvement of the post- over the pre-test means in the total diagnostic test score as well as the totals for tests 1, 2 and 3 (at $p<0,01$).

The class as a whole showed significant improvement ($p<0,01$) in most questions, but no significant improvement in remembering answers from a passage they had just read, constructing a graph, the concept of experiment and control, and the question on compounds and energy.

TABLE 10: Significance of the difference between the means of the pre- and post-test scores

	CLASS N=146	ASP N=23	NASP N=20
Answers from passage	NS	NS	NS
Information from ads	p<0,01	NS	p<0,01
Using index	p<0,01	p<0,01	p<0,05
Gist of passage	p<0,01	NS	NS
TOTAL TEST 1	p<0,01	p<0,01	p<0,01
Concept of symmetry	p<0,01	NS	p<0,05
Experiment and control	NS	p<0,01	NS
Compounds and energy	NS	NS	p<0,01
Constructing a graph	NS	p<0,05	NS
Interpreting histogram	p<0,01	p<0,01	p<0,01
Interpreting graph	p<0,01	NS	p<0,05
TOTAL TEST 2	p<0,01	p<0,01	p<0,01
Cross-section of shapes	p<0,01	p<0,01	NS
Cross-section of plant	p<0,01	p<0,01	p<0,01
X.S. flatworm (draw)	p<0,01	p<0,01	p<0,01
Classification concept	p<0,01	p<0,01	p<0,05
TOTAL TEST 3	p<0,01	p<0,01	p<0,01
DIAGNOSTIC TEST TOTAL	p<0,01	p<0,01	p<0,01

Both ASP and NASP groups showed significant improvements ($p<0,01$) in the questions on the cross-section through a plant, drawing a worm in cross-section and interpreting a histogram. It is interesting to note that the NASP group showed improvements, but the ASP group none, in the questions on obtaining information from advertisments ($p<0,01$), the question on compounds and energy ($p,0<01$), the concept of symmetry ($p<0,05$), and interpreting a graph ($p<0,05$), although neither group had specifically been taught these concepts.

The ASP group showed improvements, and the NASP group none, in the questions on the concept of experiment and control ($p<0,01$) constructing a graph ($p<0,05$) and the cross-sections of shapes ($p<0,01$). These results are gratifying as these concepts had been specifically dealt with in tutorials, and the ASP group was the only one to show significant improvement in the first two of these three questions.

RELATIONSHIPS BETWEEN MATRIC RATING, DIAGNOSTIC TEST SCORES AND THE FINAL MARK

Pearson correlation co-efficients were calculated to estimate the degree of correlation between the diagnostic test scores and the final marks for 1982 and 1984, when two different versions of the diagnostic test were used. A correlation of 0,56 was obtained for the class as a whole in 1982. This correlation was fair, accounting for about thirty-one percent of the variance, and it was better than the 0,48 correlation between Matric Rating and the final mark.

In 1984 the correlation for the whole class had dropped to 0,35 and was now lower than the 0,52 correlation obtained between the Matric Ratings and the final marks. While the NASP students had a very low correlation of 0,17 the ASP students showed a better correlation between their diagnostic test scores and their final marks (0,50), accounting for about

twenty-five percent of the variance.

The inconsistency of the results thus far makes it difficult to use the diagnostic test scores as predictors of success for any of the groups.

For the two years for which diagnostic tests were run (1982 and 1984) scattergrams of pre- diagnostic test score versus Matric Rating have been plotted. ASP students and NASP students have been distinguished from the rest of the class, and all failing students have been indicated. These results appear in Figures 4 and 5 for 1982 and 1984 respectively.

In 1982 it is significant that in the quadrant indicating low Matric Rating and low diagnostic test scores, the only students to pass had attended ASP. Students with high Matric Ratings seem to have passed in spite of low diagnostic test scores. Numerous students who were diagnosed to have many of the skills needed at university, and a higher cognitive and perceptual abitity (i.e. high diagnostic test scores), passed in spite of their low Matric Ratings.

In 1984 many students with Ratings of less than 45 failed, especially if they had low diagnostic test scores. The Matric Rating of 41 and the diagnostic score of 55 appear to be critical levels. Of the students with both their scores below these levels, those who passed were either in ASP or were repeating Zoology 1. In the quadrant with low Matric Ratings and high diagnostic test scores (indicating that they did have the skills they needed to succeed) six of the thirteen NASP students passed. The five ASP students in this category were all white. Only two of them passed, but one obtained a second and the other an upper second.

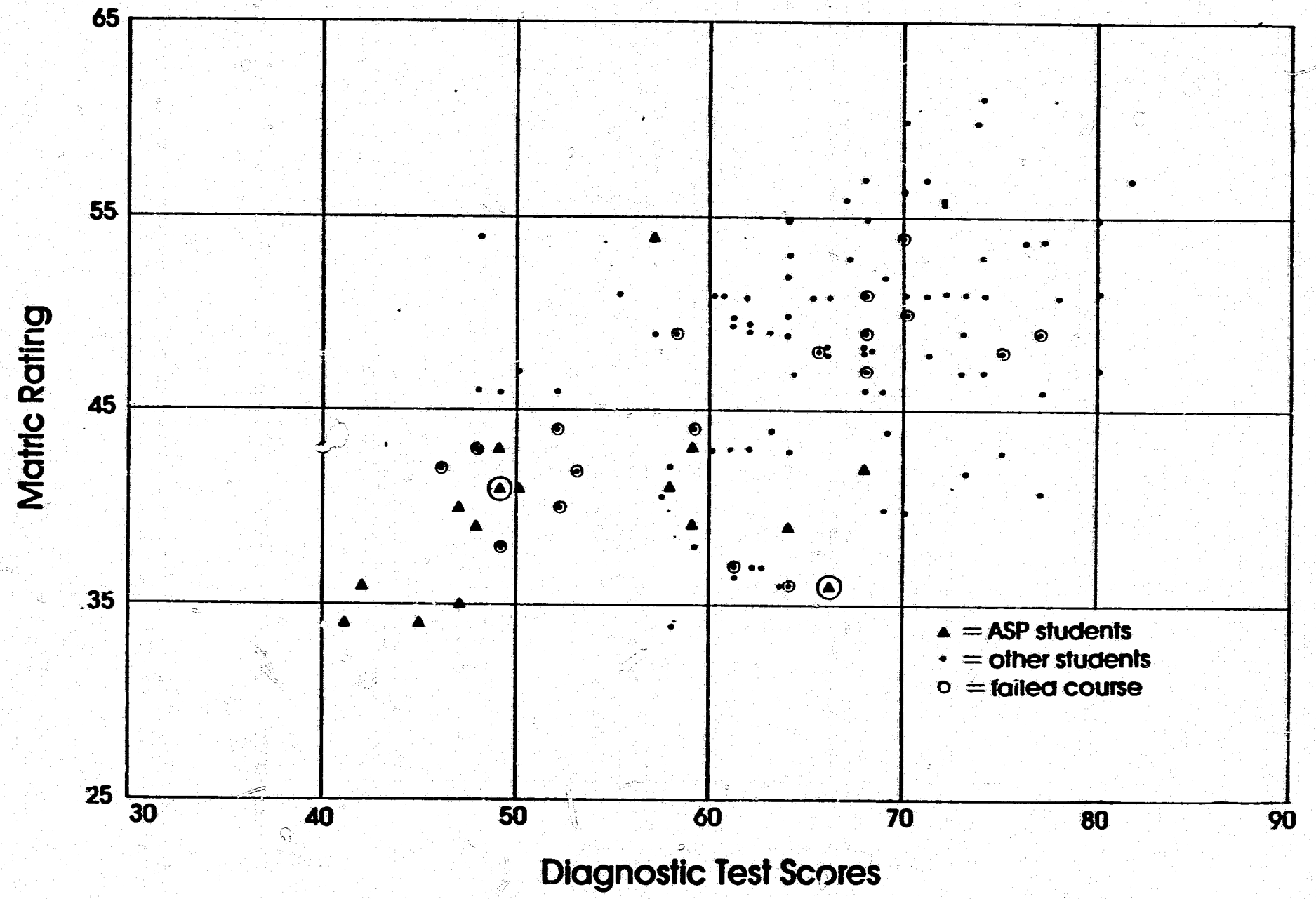


Figure 4: The relationship between Matric Ratings, Diagnostic Test Scores and Failures in 1982.

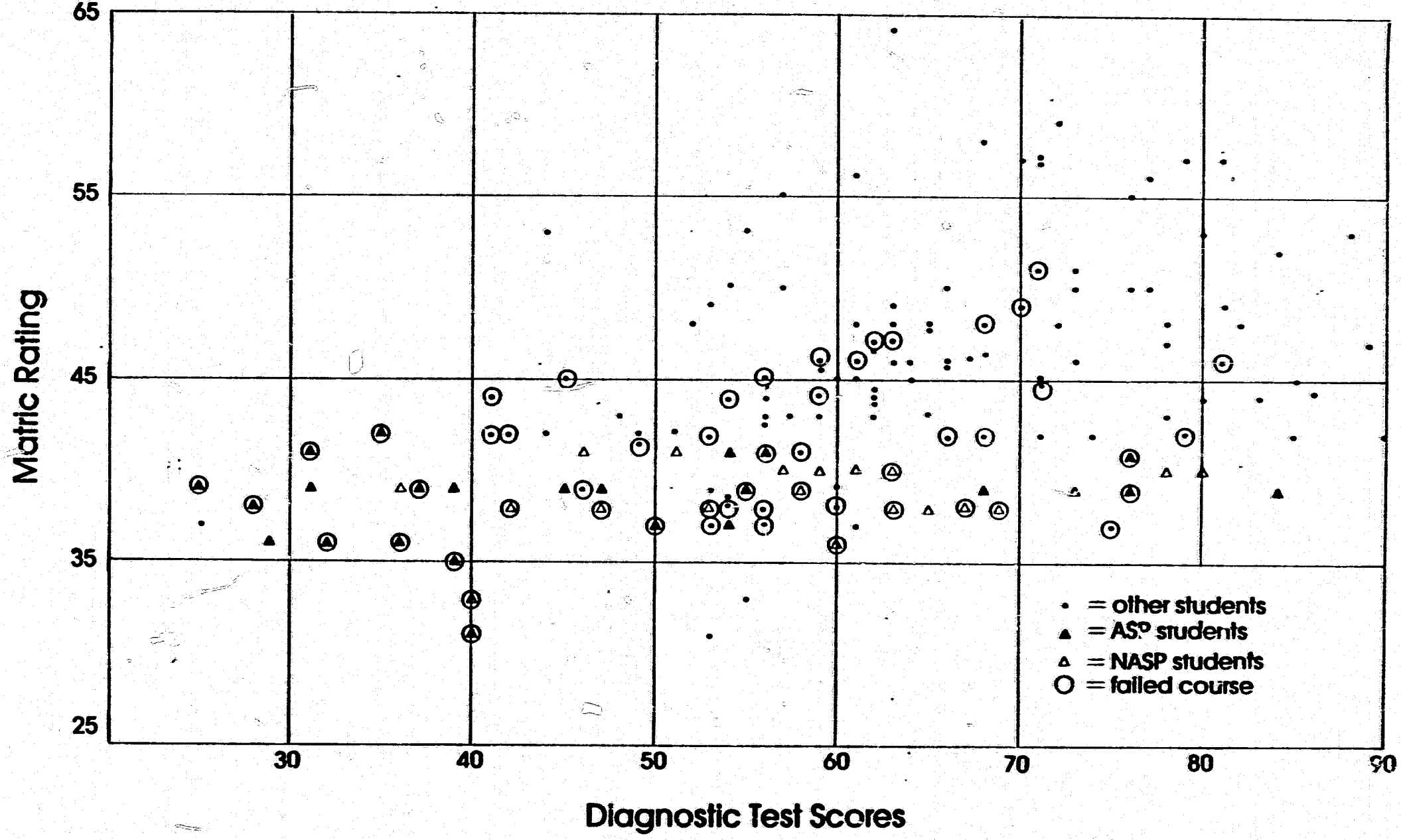


Figure 5: The relationship between Matric Ratings, Diagnostic Test Scores and Failures in 1984.

5.5 THE FATES OF THE ASP STUDENTS, THOSE WHO DROPPED OUT OF ASP, AND STUDENTS IN THE COMPARABLE GROUPS

A further criterion which could be used to judge the success of ASP is to consider the fates of students who have passed through the support programme, and compare them with the fates of those in the comparable group. The fates of ASP students who registered for Zoology 1 between 1981 and 1984, and NASP students for 1983 and 1984, have been traced, and are indicated in tables 11 - 15.

The following symbols have been used to represent the fates of the students.

U = untraced students
C = course cancelled
FAL = absent for the exam, failed, left the course
FEL = failed, was excluded, and left
FER = failed, was excluded, appealed, and was readmitted
FL = failed and left
PL = passed but left
P = passed
G = graduated

The fate of students in each category can be traced by following the figures horizontally across the page to see what happened to those students each year until they graduated or left. The current status of students registered in 1986 has also been recorded. (HDE = Postgraduate Diploma in Higher Education; HED = Undergraduate Diploma in Higher Education (done at JCE); BPrim = Bachelor of Primary Education (JCE); Med = Medical student; Hons =Honours Degree; Physio = Physiotherapy degreee).

TABLE 11: Fates of the 1981-entry students

STUDENTS WHO DROPPED OUT OF ASP (N=21)

1981	1982	1983	1984	1985	1986
C = 1					
FEL = 8					
FER = 8	C = 1				
	FL = 2				
	FEL = 3				
	FER = 1	P = 1	P = 1	G = 1	HDE = 1
	P = 1	FEL = 1			
P = 4	P = 4	C = 1			
		P = 3	G = 2		
			P = 1	G = 1 + HDE	

ASP GROUP (N=15)

1981	1982	1983	1984	1985	1986
U = 2					
FEL = 1					
FER = 6	FEL = 1				
	FER = 3	FER = 1	FEL = 1		
		G = 1			
		P = 1	P = 1	G = 1	Hons = 1
	P = 2	FEL = 1			
		P = 1	C = 1		
P = 6	PL = 1				
	FER = 1	P = 1	P = 1	C = 1	
	P = 4	FER = 1	P = 1	G = 1	HDE = 1
		G = 1	Hons = 1		
		P = 2	PL = 1		
			P = 1	P = 1	Med6 = 1

In 1981 twenty-seven students attended ASP in the first term. Nine of these were high-risk, irregular attenders. During the second term eleven students who had passed well were advised to drop ASP. Several students joined ASP late. Twenty-one students dropped out of the ASP programme during the year, mainly because they were thought to be good enough not to need ASP, yet their attrition rate was eighty-one per cent after five years. However, nineteen per cent had graduated, one with a post-graduate teaching diploma (HED), and one was registered for post-graduate studies in 1986.

After five years the ASP group had a sixty-seven per cent attrition rate. Four students (twenty-seven per cent of the group) had graduated, one with an honours degree. Three students (twenty per cent) were still studying in 1986. One was registered for honours, one for a post-graduate teaching diploma, and one was a sixth-year medical student.

The fates of the 1982 students appear in table 12. During that year twenty-three students joined ASP initially, five joined later and eight dropped out.

In 1982 the fate of one of the students who dropped out of the ASP programmme was untraced. After three years all the others had dropped out, a definite attrition rate of eighty-eight per cent, and a possible attrition of one hundred per cent.

After four years the attrition rate for the ASP group was forty-five per cent. Seven students (thirty-five per cent) had graduated, although one could not have been in first year when he did ASP. Six students (thirty per cent) were still studying in 1986. One was a fifth- and one a fourth-year Medical student, and two were registered for Honours courses. However, two had only reached second year status.

TABLE 12: The fate of the 1982-entry students

STUDENTS WHO DROPPED OUT (N=8)

1982	1983	1984	1985	1986
U = 1				
C = 1				
FAL = 1				
FEL = 2				
FER = 2	FEL = 2			
P = 1	FER = 1	FL = 1		

ASP STUDENTS (N=20)

1982	1983	1984	1985	1986
FEL = 2				
PL = 1				
P = 17	F = 1	FL = 1		
	FER = 3	FL = 3		
	G = 1			
	P = 12	FEL = 1		
		F = 1	P = 1	2nd y = 1
		P = 10	C = 1	
			G = 6	Hons = 2
			P = 3	Med5 = 1
				Med4 = 1
				2nd y = 1

The fates of the 1983 students appear in table 13. During 1983 twenty-eight students joined ASP initially, seven joined later, and eight dropped out of ASP. Those students who left ASP showed one hundred per cent attrition after three years.

TABLE 13: The fate of the 1983-entry students

STUDENTS WHO LEFT ASP (N=8)

1983	1984	1985	1986
C = 1			
FEL = 3			
FER = 3	C = 2		
	FL = 1		
P = 1	P = 1	C = 1	

ASP STUDENTS (N=27)

1983	1984	1985	1986
FEL = 5			
FER = 2	FEL = 1		
	FER = 1	P = 1	HED 2 = 1
PL = 1			
P = 19	FL = 1		
	FEL = 1		
	P = 17	FEL = 2	
		FER = 2	2nd y = 2
		G = 2	
		P = 11	4th y = 1 B.Sc.(Ed)
			3rd y = 8
			2nd y = 2

COMPARABLE NON-ASP GROUP (N=18)

1983	1984	1985	1986
FEL = 7			
FER = 5	C = 1		
	P = 4	C = 1	
		FEL = 1	
		P = 2	2nd y = 1
			3rd y = 1
PL = 1			
P = 5	C = 1		
	FEL = 1		
	P = 3	G = 1	
		PL = 1	
		P = 1	3rd y = 1

For the ASP group attrition after three years was forty-one per cent. Two students (seven per cent) had graduated, and fourteen students (fifty-two per cent) were still studying in 1986. Five were registered as second years, eight as third years, and one as a fourth year B.Sc.(Ed).

It was noticed here for the first time that students who were described as FE (failed and excluded) were not necessarily excluded because of poor performance. Several had done very well. The exclusions were a result of various Faculty rules. For example, a student completing second year must pass at least one subject at second year level to avoid exclusion. Such students are, however, virtually assured a place if they apply for readmission. It is hoped that they are aware of this! One student with five credits towards his degree after three years was excluded as none of these was at second year level.

The comparable NASP group had a seventy-eight per cent attrition rate. One student (six per cent of the group) had graduated. Three students (seventeen per cent) were still studying in 1986. Two were third years, and one a second year.

In 1984 forty students initially joined ASP, fourteen of whom dropped out.

The attrition rate of students who left ASP was one hundred per cent after one year. Eight of the fourteen students wrote the exam, but the others left before then.

TABLE 14: The fate of the 1984-entry students

THOSE LEAVING ASP (N=14)

1984	1985	1986
C = 6		
FL = 4		
FEL = 4		

ASP GROUP (N=26)

1984	1985	1986
FL = 1		
FEL = 8		
FER = 8	FEL = 4	
	FER = 1	2nd y = 1
	P = 3	BPrim 2 = 1
		2nd y = 2
P = 9	FEL = 2	
	PL = 2	
	P = 5	2nd y = 2
		1st y = 1
		BPrim1 = 1
		Physio 1 = 1

COMPARABLE GROUP OF NON-ASP STUDENTS (N=23)

1984	1985	1986
U = 1		
FL = 2		
FEL = 7		
FER = 4	Deceased = 1	
	FEL = 3	
P = 9	FEL = 4	
	P = 5	Medic1 = 1
		Medic2 = 1
		2nd y = 2
		3rd y = 1

The ASP group showed a sixty-five per cent attrition rate after two years. It should be noted, however, that two of these (making up eight per cent of the original group) left in spite of having passed all their courses (both with very high marks). One of these has been guaranteed a place at three British universities. Nine students (thirty-five per cent) were still studying in 1986. Six were second years (one a B.Prim.Ed), and three first years (one B.Prim.Ed and one Physiotherapy student).

The fate of one of the NASP students (no longer registered) was untraced. Excluding one student who had died, there was a seventy-four per cent attrition rate after two years. Twenty-two per cent of the original group was still studying in 1986, one third year, three second years (one Medical student), and one first year Medical student.

As the ASP and NASP groups were identified at the beginning of the year in 1984, it was possible to look at the attrition rate of these groups BEFORE the exam was written. Six of the forty ASP students (fifteen per cent) cancelled their course during the year, while eleven of the thirty-four NASP students (thirty-two per cent) cancelled their courses. Thus it would appear that ASP students are less likely to drop out before the end of the first year than students not receiving support. It is hoped that ASP is not giving the ASP students a false sense of security, as sixty-five per cent of those ASP students who wrote the exam failed Zoology 1.

TABLE 15: A summary of the fates of ASP and NASP students doing Zoology 1 from 1981 - 1984.

GROUP	NO. OF YEARS LATER	ATTRITION	GRADUATED	STILL STUDYING	POSTGRAD/ MEDICINE
1981	5	67%	27%	20%	4(27%)
1982	4	45%	35% +	30%	4(20%)
1983 ASP	3	41%	7%	52%	1(4%)*
1983 NASP	3	78%	6%	17%	-
1984 ASP	2	65%	-	35%	-
1984 NASP	2	74% ++	-	22%	-

\+ = one student was not in first year when he did ASP.
* = working with HDE students, although fourth year B.Sc.(Ed).
++ = one student deceased (excluded from calculation).

Percentages of students from different years should NOT be compared, as they have not been followed up over the same length of time. However, comparisons can be made between ASP and NASP groups in the same year. It appears that ASP students are more likely to persist with their studies than NASP students. It is also interesting to note the number of students from the 1981 and 1982 groups who have registered for post-graduate studies. Although the 1984 students have only been followed up over a period of two years, the ASP students already show a higher attrition rate than any of the preceding ASP groups (who have had a longer period during which they could have left). Possible reasons for this are discussed in chapter 7.

5.6 PARTICIPANTS' VIEWS ON THE SUCCESS OF ASP

Further evidence which could help in judging the success of ASP includes the perceptions of those involved in the ASP programme. The views of several of the staff and students involved in ASP have been solicited.

The Co-ordinator of ASP feels that the programme "is, in general, working, although there are some problems after first year." He emphasises, however, that evaluation is not just number crunching, and that these students gain in ways that cannot be measured in terms of academic achievement. His criterion for judging the success of the programme is to see if the ASP students can perform as well as a group with comparable Matric Ratings, but who are "advantaged". The assumption here is that disadvantaged students are black, and advantaged students are white. This would require a study involving a black ASP and a white NASP group.

When asked if he felt that ASP was working, the Head of the Zoology Department answered "Yes and no. It works for some individuals." He feels that the way to judge success should be to compare the ASP group with a control group, both at the end of first year and later in their academic careers, and that a ten per cent better achievement by the ASP group should be taken as success. He later changed his mind about this figure and ammended it to thirty per cent.

The three Zoology ASP tutors involved in this evaluation agree that ASP works for some individuals but not for others, but use different criteria for judging success. The 1981/1982 tutor uses the pass rate as her criterion for judging ASP, but points out that ASP students are affected in ways which cannot be measured but which are vitally important. The 1983/1984 tutor looks at the range of criteria used in this evaluation, but is not sure of the degree of improvement which should delimit success from failure. The 1985 tutor would look at the progress of the ASP students during the year, as well as a comparison of

the results of the ASP group and a comparable group at the end of the year and in later years. She is not sure of the difference which would be required to show the success of the programme.

The comments obtained in response to open-ended questions in the questionnaire given to the 1984 ASP students provide an insight into their opinions of the programme. Please note that these are exact quotes, so the wording and spelling are as they were given by the students. It is felt that it is important to give their exact responses as they do indicate the linguistic ability of these students, which is one important factor affecting their success. Furthermore, it does give the reader an insight into the problems facing participants involved in ASP. The wording of the answers in many cases gives an insight into the perceptions and attitudes of the students.

Several of the comments indicate that the students felt that ASP had helped them in a broader way than just with their Zoology course.

"ASP has been helpful to teach me how I should work, not only in Zoology but other subjects."

"As a 1st year student, I think it has been ASP that help me adjust to varsity life, and not only Zoology, but other subjects have benefitted."

Other comments show that ASP had helped students in their Zoology course. Some answers indicate reasons why the students felt this way. These include help with the course content, the teaching of certain necessary skills, and the sort of moral support they experienced.

"The ASP course has really helped me to understand and do better in Zoology. If it wasn't for this ASP course I don't think I would have got the courage to continue

with Zoology until the end of the year. Most of the lectures are too fast and it is very difficult to take notes and listen at the same time."

"ASP gives perception of Zoology at its best. I therefore feel that the word 'good' can't explain the benefit that I aquired." "I am really impressed by the way we tackled essays and I am looking forward to cracking the nut. I hope to tackle them with armourments (of skills) you gave me during the course of this year."

"The way it was arranged is relative good because it does not clash with other lectures." "The matter was presented well at ASP because you can understand everying compare lectures notes."

"I feel that ASP is very helpful. I went bad on my results because I did not attend the revision ASP classes. I regret therefore that I missed. I have confidence of passing Zoology at the end of the year because of the ASP classes which help me in any kinds of problem in what was done in class which I did not understand. I would not like to miss ASP classes for any invalid reason, I'd rather come late than never at all."

"If it were not for the ASP I don't think I would pass Zoo 1 not because of not doing my work, but because I couldn't take down correct or relevent information in lectures."

"ASP course, in its own capacity is PERFECT." "The arrangement of the programme is thumbs up, it needs no rectification."

"Work presentation, clarity of explanation and many others were absolutely indispensable, in a true sense of the word because they were and are very helpful to me."

"ASP is useful because there are many books to use concerning the section you are doing."

"ASP is good because when one doesn't understand certain things in lecture, they are well explain in ASP."

"ASP classes are as vital as the lecture period
-also learning process is much simplified
-important points are made much more clearly than during a lecture
-the pace at which work is done in ASP is manageable".

"explanations were at times different from the lecturer's but made my understanding a lot more easier."

"ASP is arranged orderly and excellently because the mostly explained work is the essential and difficult work which is made understandable."

"ASP was definitely not wasted time - I always felt I gained something after every session."

"ASP was well planned in the beginning. Not so interesting towards the end" ..."the course was not very helpful

"Excellent visual equipment was used" "the time I spent in ASP classes has been well worth while."

Some of the students seemed to have thought slightly further than just what they were getting out of the course, and made comments on the aims of the programme and the methods being used.

One student felt that the aims of ASP were

"to make the student work on his own, helping him to cope with small problems. Motivate to keep up to date, study all the time and do a lot of extra reading."

However, another student said

"I feel ASP students are spoonfed. As it is now people go home and do no studying expecting the ASP tutor to do everything." She suggests "students be given some work to prepare and present in class so as to improve studying" and that "extra tests and essays - whether marked in class (test) or by the tutor."

Yet this student seldom participated in ASP and wrote only two of the seven revision tests, though she claims she wrote most. Her answer also indicates her attitude to work, and her perceptions of her role and that of ASP in the success of her studies.

One comment from another student seems to support her claim

that the ASP students rely too much on the ASP tutor.

"at times I did not do any revision - I relyed on ASP."

Many of the students indicated that they felt there should be more than two ASP tutorials a week, and several commented on the timetabling of the tutorials. Some of the comments are included here as the wording gives an insight into the perceptions and attitudes of the students.

"I think ASP was very well organised but I find the time spent on it each week little as this can't allow coverage of all the lecture classes."

"I think we had a little for ASP because we had so many questions but the time was short. I think if it was arranged that we should a least meat 3 times a week I would have been more beneficial."

"I feel that the time was not enough"

"I think the time spent in ASP might be improved by say, maybe we attend ASP for 3 or 4 days."

"time spent on it is not enough at least 4 days a week."

"timetabling poor. I would prefare it to come eg Tues and Thursday ie skip a day inbetween."

"the ASP periods should be directly after a lecture session so that the points made by the lecturer may be revised during this session."

"sometimes there was no co-ordinance of lectures with ASP."

"should try to revise a lecture or session before it is dealt with in class by the lecturer - e.g. when we did countercurrent in fish I found taking notes in the lecture itself far easier."

"Need a permanent tutor who will sit in the room so we can find him/her whenever you are free."

Some of these remarks reveal that the students are too dependant on ASP and are not merely relying on it to show them what to do to cope, but to help them with the content of the lectures too.

It can be seen that judging the success of the programme is not as easy as it sounds. Depending on which of the six criteria given in this chapter is used to make the judgment, it would be possible to judge the worth of the programme quite differently. Furthermore, success one year does not necessarily guarantee success every year. It can be seen that the results of annual evaluations may have low replicability.

CHAPTER 6: THE ZOOLOGY 1 ASP: A WIDER PERSPECTIVE

Judging the success of a programme is not the sole purpose of an illuminative, holistic evaluation. If the programme is to be improved, it is essential to gain an insight into and an understanding of the reasons for the success or failure of the programme as a whole, or of the individuals involved in it. This chapter contains data which could assist those involved in the ASP programme, and the audience of this evaluation, to understand the complex ASP situation.

6.1. MOTIVATION OF THE ASP STUDENTS

Two of the questions in the questionnaire had a bearing on how motivated the students were to get their degrees.

Seventeen of the twenty-six ASP students indicated that they were doing this course as their second option as they had not been accepted into the course of their choice. Eleven of these had tried to get into the Faculty of Medicine. Two of the possible effects this could have had on the students are; the students concerned could be determined to get into the course of their choice by this route, and therefore be motivated and hardworking, or these students could feel despair about not getting into the course of their choice, and therefore lack commitment to their work and as a result they might not work very well in this course.

Asked how keen they were to get their degree,

two indicated they wanted it but would not be upset if they did not get it,
two wanted it but were not prepared to work any harder than they were doing to get it, and
nineteen said they wanted it so much they were prepared to work themselves into the ground to get it.

One student said "I WILL work hard but I am not so sure about working myself to the ground". This provides a word of caution about using colloquial English in the questionnaire.

6.2 HOW HARD DO THE ASP STUDENTS WORK?

In trying to decide whether or not the ASP students were working sufficiently hard to pass, the tutors disagreed. The 1981/1982 tutor felt that the students were dedicated and hardworking, although the political activities of some of the students interfered with their work. During the 1983/1984 period the tutor felt that some individuals worked very well, but the majority were not pulling their weight. They often missed lectures or practicals, and many did not participate in the exercises suggested for "homework" to improve various necessary skills or assist with the learning of content. The 1985 tutor said her students had worked exceptionally well, except for three who were heavily involved in political issues or campus.

The questionnaire answered by the 1984 ASP students contained several questions pertaining to the amount of work they had done. These questions and the responses obtained are presented below. The number of students responding to each answer is given in brackets. Alternatives which elicited no response have been omitted. Note that some of the students selected more than one response to some of the questions, so the total number of responses does not necessarily equal the twenty-six one might expect from this number of respondents. Some of the open-ended responses are presented later.

Q: AFTER LECTURES, HOW MUCH REVISION OF NOTES OR EXTRA BACKGROUND READING DO YOU DO?

A:
* A lot (8)
* Some (9)
* Enough to get by (5)
* Not enough (6)

Q: HOW WELL DO YOU PREPARE PRACTICALS?
A:
* I try to answer some of the questions and set out some of the work before the practical (20)
* I read the prac notes, and the relevant lecture notes and textbooks (10)
* I read the notes and look for a relevant textbook to bring to the prac (7)
* I read the prac notes before I go to the lab (18)
* I don't prepare beforehand (1)

Q: HOW MUCH TIME DO YOU SPEND ON ZOOLOGY EACH WEEK (EXCLUDING LECTURE AND PRAC TIMES)?
A:
* More than 2 hours (on a regular basis) (11)
* 1 -2 hours a week (2)
* 1 hour (1)
* No regular time each week (11)
* Only before a test (1)

Q: HOW LONG BEFORE A MAJOR TEST (LIKE THE JUNE TEST OR THE FINAL EXAM) DO YOU START TO PREPARE FOR IT?
A:
* More than a week before (15)
* A week before (6)
* 4 - 6 days before (2)
* 2 - 3 days before (2)

Q: HOW MUCH TIME DO YOU SPEND ON ZOOLOGY IN THE STUDY WEEK?
A:
* More than 2 hours a day (14 hours a week) (11)
* About 2 hours a day (14 hours a week) (5)
* About 1 hour a day (4)
* Less than an hour a day (3)

Q: HOW HARD DO YOU THINK YOU WORK?
A:
* I work so hard that it would be impossible to find the time to work any harder (0)
* I work very hard (6)
* I work hard (10)
* I work just hard enough to get by (9)
* I work when I need to but I know it is not enough to allow me to pass (4)
* I don't do much work (3)

(What happened to the nineteen students who stated earlier in the same questionnaire that they were prepared to work themselves into the ground?)

Q: TO WHAT EXTENT DID YOU PARTICIPATE IN ASP?
A: The data on this question are presented in table 20 in the section on perceptions and reality.

It appears that the majority of the students do not do sufficient work to allow them to succeed. Particularly alarming, especially if one considers the slow reading speed of most of the ASP students, is the fact that thirteen of the students only do one hour of Zoology a week, or less, on a regular basis. While many may not realise the importance of preparatory work, of the need to constantly improve and update their lecture notes, and the importance of regular work in the subject, many of them do seem to realize that they are not doing sufficient work. None of them claim to be working to full capacity, and seven of the twenty-six don't do much work, or know they are not doing enough work to pass. Of the nine who claimed to be working hard enough to get by, six failed.

6.3 THE PERCEPTIONS AND ATTITUDES OF THE ASP STUDENTS

Several of the open-ended questions elicited answers which were very revealing about how these students perceived themselves, their course and their work, and provide some evidence about these students' attitudes. Some of these questions and replies are listed below.

Q: TO WHAT EXTENT DID YOU PARTICIPATE IN ASP?
A: "I participated to the extent that it would benefit me"

(This came from a very weak student who often missed tutorials and seldom participated in the ASP exercises. How well is she able to judge the extent of the benefit?)

Q: HOW MUCH REVISION OF NOTES OR EXTRA BACKGROUND READING DO YOU DO AFTER LECTURES?
A: "Most of the time I try to get hold of textbooks for extra reading, I either can't find it because someone has already booked it or I find a not so good textbook which leads to getting insufficient information."

Q: HOW WELL DO YOU PREPARE PRACTICALS?
A: "Like I said in question 11, most of the time I can't find the relevent textbooks in the library, normally because they were taken out earlier on."

(Both these answers indicate that the student does not realise that if he was quicker off the mark he could obtain the books. He appears not to have made use of the books made accessable to the ASP students, which were almost always available. Furthermore, he appears not to perceive that perhaps it is his inability to get information from a book that is at fault rather than the quality of the book).

The following answers from other students indicate that the problem is fairly common.

"Sometimes I had problems when I studied Zoology because there were so many referrences and you would find that these referrences were not suffiecient."

"Sometimes I tried to look for information, but I couldn't get sufficient information from these books."

"Some of the books were irrelevent because we didn't get the relevent matter from them."

Q: HOW LONG BEFORE A MAJOR TEST (LIKE THE JUNE TEST OR THE FINAL EXAM) DO YOU START TO PREPARE FOR IT?
A: "2 1/2 weeks before. This is because I normally don't have enough time before this 2 weeks period."

(He does not seem to realise that he is in control of planning his own time.)

"I dedicate the day to learning with long breaks."

(This answer speaks for itself).

Q: HOW STRONGLY MOTIVATED ARE YOU TO GET A DEGREE?
A: "I am prepared to work myself into the ground to get it but I do not have the motivation. It is a problem & I am concerned. What do I do about it 'cause I don't want to fail?"

"I want my degree very badly & I am preposed to give up much of my free time & leisure time to work enough to get my degree."

(This gives an indication of how this student perceives his time while he is studying. He actually did little work, although he attended ASP regularly, and failed very badly).

It is interesting to note that of the nineteen students who had said that they would work themselves into the ground (in response to an earlier question) answers to questions later in the questionnaire indicated that

eight of them did no regular work each week,
two did not work much,
three worked when needed, but not enough to pass, and
nine worked enough to get by (six of these failed).

One sad cry in response to the open-ended question about how hard they worked was "but I do no't pass after a hard work." This leads one to wonder if the students are doing the right sort of work when they do work, or if their energies are misdirected.

Are the perceptions of these students realistic? In order to obtain other evidence to check whether their perceptions were realistic, a form of triangulation has been used. The evidence was checked using different questions in the same questionnaire to cross-check the student's own responses later in the questionnaire. Data from other sources were also used to check how others perceived the situation. The results seem to show that students are often not realistic in their perceptions.

6.3.1 ATTENDANCE

Their answers to the question on their attendance at ASP, when correlated with the actual attendance record, indicates that most are fairly realistic about their attendance.

TABLE 16: ASP students' perception of their attendance and the reality

	STUDENT RESPONSES	REALITY
Never missed any	1	1
Missed 1 or 2	13	14
Missed 3 or more	12	11

However, none of the eleven who missed more than three lectures thought that their attendance was irregular (erratic), although six of these missed more than six lectures out of about forty.

6.3.2 ANTICIPATED MARKS AND THE REALITY

What marks do the students expect at the end of the year, and what do they actually achieve? The following table shows the marks anticipated by the students two weeks before the final exam, by both the ASP students and the NASP group, and indicates the number of students actually obtaining various classes of pass or fail.

TABLE 17: Expected results of ASP and NASP students, and the reality of their final marks

CLASS OF PASS	ASP (N=26)		NASP (N=21)	
	EXPECTED	REALITY	EXPECTED	REALITY
Fail	1	18	0	17
Third	8	6	17	2
Second	15	1	4	1
Upper second	2	1	0	1

It appears that while most students in both groups expected to pass and did not, the ASP students anticipated results were so unrealistic that most of those who failed had actually expected a second class pass. The situation in the black schools where the DET adjusts raw scores so that many students who must believe they have failed matric actually pass, may influence the expectations of some of the ASP students. Was it also possible that their anticipated marks were also influenced by the marks that they had actually achieved thus far, and they did not realise that they would not achieve the same standard in the exam?

The following table shows the number of students obtaining the various classes of pass for their year mark compared with their anticipated results.

TABLE 18: Expected results of the ASP and NASP students and their actual year marks

CLASS OF PASS	ASP (N=26)		NASP (N=21)	
	EXPECTED	REALITY	EXPECTED	REALITY
Fail	1	10	0	12
Third	8	13	17	8
Second	15	1	4	1
Upper second	2	2	0	0

Thus it appears that most of the students (in both groups) were expecting a mark higher than that which they had actually achieved during the year. Are their expectations realistic?

When the ASP students were asked how they were doing in their other subjects (doing well/coping/not coping) the following responses were received (the data represent the number of student responses for all their subjects). The reality of the situation, based on their marks up until that stage of the year, is also shown. (The reality of ten cases could not be traced).

TABLE 19: ASP students' perceptions of how they were doing in their other subjects, and the reality

	STUDENTS RESPONDING	REALITY
DOING WELL (above 60%)	11	11
COPING (50 - 59%)	35	11
NOT COPING (less than 50%)	5	19

It appears that those doing well realise it. However, many students who were not passing their courses said that they were coping. Whether they were embarrassed about admitting their difficulties, or whether they just do not perceive the reality of the situation, is not certain.

6.3.4 PARTICIPATION IN ASP

When they were asked to what degree they had participated in the ASP class exercises, how much of the advice they were given in ASP they actually took, and how many of the revision tests they had written, the ASP students replied as follows.

TABLE 20: ASP students' perceptions of their participation in ASP activities

The first figure indicates the responses of the twenty-six ASP students, while the figure in brackets indicates the responses of the nineteen students who were going to work so hard to get their degree.

	PARTICIPATION	ADVICE TAKEN	REVISION TESTS
ALL	6(4)	12(11)	1(1)
MOST	1(0)	0(0)	13(10)
SOME	16(13)	8(5)	8(6)
NONE	0(0)	0(0)	0(0)

An analysis of the actual participation in the revision tests revealed that of the seven revision tests written, students had participated as follows (no record for one student).

TABLE 21: ASP student participation in revision tests

NO. OF TESTS WRITTEN	NO. OF STUDENTS WRITING
7 (ALL)	1 — 1 (ALL)
6, 5, 4 (MOST)	1, 0, 2 — 3 (MOST)
3, 2, 1 (SOME)	3, 11, 7 — 21 (SOME)

Thus one student wrote all the tests, only three wrote most, and twenty-one wrote some. Once again the discrepency between reality and the students' perceptions of what they had done (see table 20), looking back after a period of some months, is noticeable.

All the ASP tutors agree with the ASP co-ordinator who believes it to be vitally important that the students are "aquainted with reality". While being told the odds that face them could be very discouraging for them, students who do not realize the reality of the situation are likely to be poorly equipped to try and fight these odds. Furthermore, if the students were able to comprehend each of the "realities" discussed above, and acted appropriately, their performance would probably improve.

6.4 LANGUAGE PROBLEMS

It is generally accepted that tuition in a second language is a major obstacle to learning and success in academic studies. In South Africa this is certainly a problem with many high-risk students (Jardine, 1986). As the majority of the 1984 group do not speak English as their home language, both the tutors and the pupils were asked about this matter.

All three tutors agreed that language difficulties did present major problems to these students. The following issues were evident, especially among the black students.

1. Most ASP students are very slow readers. This means that they take far longer than the average student to do any task involving reading. This is an added handicap to a weak student who has to work far longer hours to complete the same quantity of work.
2. Grammar, punctuation, spelling and vocabulary tend to be poor.
3. Many ASP students find difficulty in expressing themselves, and they often try to solve this problem by rote-learning the work so they do not have to put the answer in their own words. They also use this strategy to bypass the problem of work they do not understand. In many cases this will enable them to pass, even at first year university level, as the exams (such as the Zoology 1 paper) test their knowledge of facts rather than their understanding or ability to analyse, apply, synthesise or evaluate information.
4. The black students have difficulty in "hearing" and "interpreting" what the lecturers say.

How significant did the students perceive these language problems to be? In response to the question "Have you had any problems with the use of English as a medium of instruction?" in the questionnaire, the following answers were obtained from twenty-six replies:-

Eleven students selected "No, English is my home language".
Nine said "English is my second/third language but I had no problems".
Seven said they "had trouble hearing and understanding what the lecturer said because he was using English. (NB this does not refer to understanding the content of the lecture)".
None of the students claimed to have problems understanding the English textbooks.
None of them thought their language problems were so great that these could result in their failing their exam, or that their problem was so severe that it might have prevented them entering this university.

It is interesting to note that only six students indicated that while they understood the books, they read very slowly in English. The reading speeds of these six (in words per minute) were 105, 125, 140, 185 for two of the students and 225. Other students with scores of 75, 125, 130, 150, 160, 175 and 185 did not consider themselves to be slow readers. Perhaps it is understandable that such students consider university to be very hard work, if they believe that all students work at this rate for such long hours.

The pre- and post-tests on the reading speed indicate that among the white ASP students there was a slight deterioration in the reading scores. This could well indicate that the scores themselves were not reliable. This result was influenced by the apparently invalid results of two students, (who claimed increases of two hundred words per minute). Most of them showed no improvement, or very little. The average improvement among the blacks in the ASP group was thirty-one words per minute. As no effort had been made to improve their reading speed in ASP, it is presumed that this improvement was the result of practice. The ASP "study-skills" facilities are not formally offered to the Science students. This is because of an offer not being taken up by certain Science tutors some time in the last five years.

On the whole the ASP students do seem able to express themselves so that they are understood, although poorly in many cases. It is also often apparent from their work that English is not their home language, as these examples of some of the answers to open-ended questions in the questionnaire indicate.

"My main worry is that I do not confide in myself" (has no confidence in himself).

"To motivate a student by enlightnening him/her in lessons, hence it facilitatee the coping up with a course even at its most complicated parts."

"Fatigueness also takes its course during the swotting."

"The arrangement of the programme is thumbs up, it needs no rectification."

"But lectures where bad for me because it was hard form me to take notes".

"I even forget the other course becaus
e of Zoology is giving me some problems even practicals."

"My language is not good, but I can express myself so that the reader can understand what I was trying to say." Later she answers, in response to what she thought the academic support programme did; "I even registered my name and did not attend for the first 4 weeks of ASP but I was told about it and somebody explained to me but I did not understand."

In an exam paper where forty per cent of the marks came from multiple choice questions language problems are not insurmountable. However, they do make the task of learning for English second language students longer and more difficult, and probably very frustrating.

6.5 LACK OF LEARNING AND STUDY SKILLS

The three tutors agree that this is probably one of the major problems with ASP students. Particular deficiencies they identified as evident in the students they had worked with were:-

1. Difficulties in making notes that were suitable to learn from. Most students cannot do this in the lecture. Few of them make the effort to do so after the lectures (eight of the the twenty-six) and even then most cannot produce notes which are satisfactory to swot from. This means they are already at a disadvantage even before they begin to try and learn the work.
2. Problems experienced in locating information, both in finding suitable references, and in locating relevant information in these.
3. The inability to process the information once they have found it. They have trouble summarizing information, collating facts from different sources, selecting what is relevant to them, and identifying the gist of a passage, and in analysing, applying or synthesising information.
4. Difficulties in planning their work so that they make the best use of the time available to them. With some it is ignorance of how this should be done, but with many it is a motivation problem.
5. An inability to read and follow instructions, so that they often do not do what an exercise or test reqires of them.

The students themselves realise that they do not possess many of the necessary skills, but they do not seem to perceive the gravity of their situation, or the degree to which this influences their success or failure.

6.6 THE STUDENTS' RESPONSE TO THE METHODS USED IN ASP

The following answers were obtained in response to the question on how useful the ASP students found various

content areas and exercises of the ASP course to be. Responses to the options "I don't remember doing this" and "I know I was absent for this" acted as a double check on certain students, but have been excluded from the following analysis. All twenty-six students responded to the questionnaire.

TABLE 22: ASP students' opinions on how helpful various aspects of the ASP course were to them.

A = absolutely indispensable
B = very helpful
C = helpful
D = helped a little
E = no help at all

		A	B	C	D	E
1	The textbooks in the ASP room	5	11	9	0	0
2	Photocopies from scarce textbooks	6	17	1	1	0
3	Information in wall displays	3	17	6	0	0
4	Biosets and bioviewers	2	8	7	4	0
5	Filmstrips and commentaries	2	9	7	4	1
6	Class discussions	7	12	5	0	0
7	Exercises done in class	9	10	5	1	0
8	Preparing work before it was lectured on..	8	13	3	0	1
9	Tutorial work explaining lectures	12	10	3	0	0
10	Preparation of practical work	4	9	9	0	0
11	Going over practicals afterwards	2	13	8	1	0
12	Extra sessions to complete prac work	6	10	5	0	0
13	Advice on using the microscope	1	7	8	4	2
14	Advice on observing and drawing accurately	0	10	10	1	2
15	Advice on how to take lecture notes	6	8	9	1	0
16	Planning study time	1	8	11	3	1
17	Revising for tests	8	14	1	0	0
18	Writing revision tests for practice	5	16	2	2	0
19	Help with how to plan and write essays ...	10	12	3	0	0
20	Identifying and preparing possible essays.	9	12	4	0	0
21	Help with using the library	4	8	9	3	0
22	Using library catalogues to find data	3	7	9	2	1
23	Help in practicals	3	9	10	1	0
24	Support from others in the group	2	2	8	10	0
25	The use of a room to work in in free time.	9	13	2	0	0
26	Photocopies of electron micrographs	10	11	2	0	2
27	Copies of physiology transparencies	15	8	2	0	0

This data can be quantified by allocating points to the responses, as follows; A = 5, B = 4, C = 3, D = 2, E = 1. The various aspects may then be ranked according to how useful the students found them to be. Exercises the students found most helpful were; copies of certain work for lectures (113) and practicals (100); tutorial work on lecture content (109); preparing possible exam essays (105); help planning and writing essays (104); the use of a room to work in in their free time (103); photocopies of chapters from scarce books (103); class exercises (102); prelecture tutorials (102); and information given in the form of displays (101). Exercises which they found very helpful included; revision work before tests (99); writing revision tests (99); class discussions (98); the use of ASP textbooks (96); checking practical work afterwards (88); and extra opportunities to complete work not completed during practicals (85). Aspects which they did not seem to find useful include; films (76); advice on observing and drawing accurately (74); biosets (71); advice on how to use the microscope (67); and support from their peers (62).

This information is an essential part of a formative evaluation, as it allows for the identification of strong and weak areas in the programme, so that these can be modified and improved.

It is interesting to note the students' responses to the small group methods that were used . While one student noted that "ASP gave us the opportunity to work in a group", and another that " group activity, like the prac, helps the students learn a lot easier than sitting in front of the books", ten students said that they did not find the support of others in the group helpful. Only eight said it helped them, while two found it to have been very helpful, and only two indispensable.

The students were also asked what they felt about the role of ASP, and whether it should be involved in more than just academic matters. The following responses were obtained in answer to one of the questions in the questionnaire.

Q: DO YOU THINK ASP SHOULD GIVE ADVICE ON:-

	NO. OF RESPONSES	
* Personal problems (student counselling)	Yes (10)	No (8)
* Coping with finances	Yes (5)	No (9)
* Coing with transport problems	Yes (5)	No (10)
* Helping the student know him/herself, to make realistic goals in life and to try and achieve these goals	Yes (16)	No (3)

Two of the students emphasised that this was an ACADEMIC support programme, and as such should restrict itself to academic matters. One pointed out that there were other facilities on campus to deal with these other problems. Both students were white.

6.7 ASP STAFF: CONDITIONS OF SERVICE, TRAINING AND SUPPORT

As ASP is such a new field in South Africa it is virtually impossible to appoint tutors with experience in the area of academic support. The three ASP tutors all agreed that they did not know enough about ASP when they started the job, and one said that she felt inadequately prepared for her task. All agreed that they would have liked help and advice, but had not received it. The ASP lunch-time seminars were held too seldom, were often cancelled, and seemed to deal with identifying problems rather than solving them. The latter trend was also apparent at the annual ASP conferences. Furthermore it seemed as though most discussions were concerned with matters that were not really relevant to the sciences - many of the presenters being involved in linguistics

or communication studies. However, in one American study Rakes (1982) reports that interdisciplinary staff-development seminars can be beneficial to staff from different faculties. It is very difficult for staff not involved in the teaching of science to perceive the particular problems that the science tutors experience.

The lack of support extended to matters beyond teaching issues. The tutors felt isolated from the ASP centre, not only because of the physical distance but also because of the lack of regular communication which is essential between staff working on the same new project. In the home department ASP was considered to be an inferior aspect of university education. Ideas which were suggested by the ASP tutors to try and improve the first-year teaching and laboratory work were often rejected, both at a formal and at an informal level. Certainly no approach was made to the tutors with any suggestions to try and improve the situation, either in terms of teaching, facilities, or finance.

The conditons of service for the tutors are the direct cause of the rapid turnover of staff in the Zoology 1 Academic Support Programme since its inception. Conditions leading to staff dissatisfaction include:-

1. The temporary nature of the appointments, with posts only being reconfirmed in November or December for the following year.
2. Ineligibility of the tutors for the staff housing subsidy.
3. The lack of prospects for promotion.
4. Ineligibility of the staff for a pension scheme.
5. The relatively low salaries compared with those of lecturers.

Two extremely keen tutors left the post for permanent lecturing posts where the five points mentioned above were no longer applicable. A further restriction which lost the programme an outstanding tutor was the upper age restriction of university staff members.

6.8 FINANCES AND FACILITIES

The temporary nature of ASP has had a very detrimental effect on the facilities allocated to the Zoology ASP. The 1982 facilities, with a large laboratory and adjoining office for the tutor, were ideal. The move to the new premises in April 1983 was a retrogressive step as far as facilities were concerned. Firstly, the staff office was on a different floor, so that "on tap" help was no longer as easily accessible to students working in the ASP room in their spare time. Furthermore, it was no longer possible to keep firm control over the library of books left in the ASP room for the students' use, and several expensive books were lost.

The ASP room itself was extremely small. It was difficult to accommodate the larger groups at all, let alone with any degree of comfort. Furthermore, the laboratory arrangement of the benches made seating for informal discussions in a group impossible. Requests made to the Zoology department to include ASP in their planning for the future were summarily turned down on the grounds that ASP had accommodation and nothing further would be done about the matter. Two years after this request the Head of Department of Zoology deplores the ad hoc planning which currently exists for ASP, but is confident that if the old Education Building is given to the School of Biology, adequate facilities will be made available to ASP.

Finances for the Zoology 1 ASP are handled in a most unsatisfactory manner. The tutor was allocated a sum of money each year for 1981, 1982 and 1983. The whole of the 1983 allocation was spent on books before the 1983 tutor took up her post. In 1984 and 1985 the tutors had to purchase anything they required and then apply to the university for their money to be refunded to them. This practice was deemed to be extremely unsatisfactory by the two tutors involved, as it discouraged the purchase of necessary items. Discussions with both the ASP co-ordinator and the Zoology Head of Department failed to lead to a solution to

this problem. In a recent discussion with the Head of Department of Zoology, he indicated that he was willing to allocate funds to ASP, but that he felt that it was really a university administration issue. He believes it is up to them to allocate finances to each department offering ASP, so that the department does not lose out financially by having to allocate funds from their own resources. He claims that the university administration does not confront the issue and take it seriously.

A further important matter, identified by all three tutors, is the lack of co-ordination between the ASP department and the Zoology department in administrative matters.

6.9 RECRUITMENT FOR ASP

Why is it that although all students with a Matric Rating of less than forty-two were approached at registration by means of a letter and personal contact, that many students who needed ASP did not join the programme? Is the programme sufficiently widely advertised, so that all potential candidates know exactly what it offers? Is the recruitment of students sufficiently "active"? The twenty-six ASP students in 1984 were asked what they thought (at the time they registered for it) the programme offered.

Six said they did not know.
Eight said they thought it would provide the background work which should have been done at school.
Six thought it explained work not understood in lectures.
Fifteen thought it would help students cope by showing them how to take notes, use the library, prepare work, and study.
One thought it was an entertainment club.
One did not know but had an idea it would help her understand what was expected of her, and in a way help her to "get into" university.

Twenty-four students who were eligible for ASP, but who did not join, responded as follows to the same question.

Four did not know.
Three thought it would provide the background work which was not done at school.
Four thought it explained the work not done in lectures.
Fourteen thought it would help students cope by showing them how to take notes, use the library, prepare work, and study.
Two thought it provided a type of Zoology club.

Most of the students in this group seemed to know what ASP offered, but they elected not to attend. When asked why they did not join

Three said they did not know about it, did not remember being given an explanatory letter at registration, and being invited to join.
Eleven did not think they needed help, and that they could cope alone.
One thought ASP would not be able to help him.
Six did not have the time to fit it into their schedule.

It is interesting to note that none of the students said they thought the others would look down on them if they joined ASP, as the literature does record that a certain stigma is attached to academic support programmes (Gering and Zietsman, 1983).

Several students joined ASP late. Twelve of them said they had not known about ASP at the start of the academic year.

It would appear that in spite of the informative letter and personal explanations at registration, many people were still unaware of what ASP offered, and who it would benefit. Although one student commented "I didn't come late to ASP

because I knew it was going to help me. I was well informed", another said "I did not know anything about ASP untill I asked my lecturer about how I could improve my understanding since I did not do Biology in matric". She advocates that "it must be well advertised so that we can enroll early enough and to be sure of doing well".

An informative, eye-catching pamphlet was therefore prepared for the 1985 registration. It stated briefly and simply what ASP was about and who would benefit from attending it. The 1985 tutor still found that many students were uninformed about ASP, and suggests that the pamphlet be sent to all individuals with a Matric Rating of less than forty-two, by post, as soon as possible after their applications are received.

Some of the information presented in this chapter raises some very interesting questions about the students attending ASP, about the programme itself, and the w y it is administered. It is clear that some of the issues require further investigation, if they are to be better understood. Once they are understood more fully, it may be possible to take actions that would improve the effectiveness of the programme.

CHAPTER 7: DISCUSSION AND RECOMMENDATIONS

The role of evaluator as judge is being increasingly questioned by evaluators themselves (Stufflebeam et al, 1971; McLaughlin et al, 1977). It is now more commonly accepted that the task of the evaluator is merely to gather, analyse, and present the data. This should be done in such a way that the audience can comprehend the report easily. Furthermore it should be reported in such a way that it helps them to make an informed decision about the programme's worth. Thus part of the evaluator's task should be to enlighten the audience about some of the problems involved in making this decision, but it is not to declare what this decision should be.

7.1 THE SUMMATIVE NATURE OF THIS EVALUATION

7.1.1 FACTORS AFFECTING THE JUDGEMENT OF WORTH

From the data presented it can be seen that judging the effectiveness of the programme is not as easy as it sounds. The first problem is that of deciding what criteria should be used to make the judgment. This study has shown that there is no agreement about what exactly the Zoology ASP is trying to achieve, or who the programme is aimed at, let alone how to judge its value. The ASP co-ordinator, the head of the Zoology department, the tutors, and students in the programme all have different views on these matters.

Their opinions on who the target population should be include:-

i) the educationally disadvantaged only (inferring black students);
ii) any student who is at risk (identified by a low Matric Rating);
iii) any student who is struggling with the course.

Their perceptions of the aims of the programme include a spectrum of goals. Those identified by staff and students involved in ASP include:-

i) assisting students with academic problems only;
ii) the teaching of learning and study skills;
iii) assisting students to cope with financial, transport and social problems;
iv) some sort of effort to compensate for social and educational inequalities experienced in the past.

Making the decision about how one is to judge success when there is no agreement about what the programme is trying to achieve is no easy task. This illustrates why absolute comparisons, which compare outcomes with the programme goals to judge whether needs were met, are not often used when evaluating compensatory education programmes.

The views of those concerned with ASP on the criteria to be used when judging the programme show little agreement. It is interesting to note that, although most of the staff mentioned the importance of not relying solely on measurements of academic achievement, they nevertheless do resort to such measurements when evaluating ASP. Most of those interviewed realised that some sort of comparison was essential. The variety of opinions given included:-

i) comparisons between the achievements of the ASP group and those of the class as a whole;
ii) comparisons between ASP achievements and those of a control group;
iii) the progress of individual students during the year (i.e. a comparison of their achievements prior to entering the programme, and after having attended ASP).

One of the problems in compensatory education studies is that of selecting a comparison group which could be considered as a "control" in the experimental sense. This study illustrates the problem of matching students when the groups are very small. The groups could only be matched on Matric Rating, and not on

race, sex, whether this was their first year at university, if they were registered for a three- or four-year curriculum, or any other factor which could have had a confounding effect. A further difference became apparent during the course of this study, when the diagagnostic pre-test scores for 1984 were examined. Those of the NASP group were much higher than those of the ASP group. This suggests that the "comparison" group started the year with more of the skills and abilities considered necessary for success in academic work in the biological sciences. It would be interesting to try and ascertain if they were somehow aware of this, and if this was why many of them elected not to attend ASP.

Measurements which people involved in ASP identified as important for making these comparisons in achievement included:-

i) group averages;
ii) percentage pass rates of the groups;
iii) improvement in academic test results of individuals;
iv) improvements in diagnostic post-test over pre-test scores.

Opinions on the length of time over which achievements should be followed up varied. Some felt it should only include the period that the student attended ASP (one year in this case). Others felt the fate of each ASP student should be followed until (s)he graduated.

The fact is that none of those consulted was entirely sure about what evidence they required to judge the programme's worth. Furthermore, even those who mentioned some criterion they considered important in making this judgement could not state the level which separated success from failure. (For example, during one interview the interviewee changed his mind about the level of improvement of the ASP over the NASP group from ten per cent to a thirty per cent better pass rate). Each of the factors discussed above could affect the decision eventually made on the worth of the programme. In particular the result of the evaluation would depend

on what criteria were used to make the judgement.

A further problem encountered in judging the worth of the Zoology 1 ASP is clearly illustrated in this study. This is the fact that the results of evaluations conducted from year to year are not replicable. The results of an evaluation based on one year of student results cannot be generalised to a judgement of the worth of this programme as a whole. Furthermore the degree of success of this programme cannot be generalised into a statement about the worth of ASP at this university.

7.1.2 THE EFFECTIVENESS OF THE ZOOLOGY 1 ASP

However, the summative role of this evaluation is to assist the reader to decide on the worth of the programme. In order to do so quantitative data concerning the achievements of ASP students, as well as some qualitative, subjective data have been provided.

1. Comparison of group means

The comparison of ASP and NASP group means has proved disappointing. It is acknowledged that a statistically significant difference between the means of these two groups would provide very convincing proof of the efficacy of ASP. However, in reality educational research faces the problem of NSD (no significant difference) results. This issue was discussed in chapter 3. This study indicates that even a difference as large as 10,4% in the group means (test [illegible], 1983) can be NOT statistically significant. This is probably because of the large standard error, influenced by the large deviations from the group mean of some of the individuals in small groups. This raises again the question of whether NSD results mean there is no difference between the groups, or merely that the instruments used are unable to detect the difference.

What has been encouraging is that significant differences were detected in the 1983 practical test and the 1984 practical exam. Much effort had gone into trying to improve the skills required for practical work. Furthermore, the mean of the final mark for the 1983 ASP group was significantly better than that of the NASP group. Perhaps the very fact that such pains were taken with this work has influenced the success of the students.

2. Comparison of percentage pass rates

The comparison of percentage passes showed that the ASP group had a better pass rate in all but four of the tests. In one the ASP and NASP pass rates were equal. The pass rate of the NASP group in the final mark in 1984 was only higher because of their much higher pass rate in the theory exam where, unaccountably, only seven per cent of the ASP group passed. While the generally better pass rates of the ASP group is encouraging, it is not possible to determine if these differences are significant.

3. Achievements of individuals

One of the problems with examining the results of groups of students is seen if the results of individual students are examined. Several ASP (and some NASP) students have achieved seconds and upper seconds. This is no mean achievement for a student with a Matric Rating of below forty-two. Other students (in both groups) have obtained very low marks. If the groups are small, individual's scores can significantly affect the group score. Thus the large number of weak students in the 1984 ASP group could have had a very damaging effect on the group mean and percentage pass rates of the ASP group.

4. Comparison of the diagnostic pre- and post-test scores

It is interesting to note that merely exposing students to the university academic life-style appears to have

resulted in significant improvements in many of the skills and abilities measured in the diagnostic tests. Two interesting results were found. The first, the higher pre-test scores of the NASP students when compared with those of the ASP students, has been discussed earlier. The second is the pleasing results of the ASP students in the questions involving the concept of experiment and control, construction of a graph, and cross-sections of shapes. These skills and concepts had specifically been dealt with in ASP.In the first two of these questions they were the only group to have made significant improvements. Once again the effect of the specific attention paid to developing these skills should be considered.

5. The fates of individual students

An examination of the fates of ASP and NASP students indicated that ASP students are more likely to persist with their studies than NASP students. While this may sound encouraging, it could also be a cause for concern. It is possible that ASP is engendering a false sense of security in some of the ASP students, who may never succeed no matter how much help they are given. More consideration needs to be given to the question of the role ASP should play in informing students about their abilities, their limitations, and what will be required of them if they are to succeed. Furthermore, it should be decided whether ASP has a moral obligation to inform students who are unlikely to succeed that this is the case, before they waste their money, or experience the trauma of failure.

In some cases the number of ASP students graduating may appear small, and the period of time taken for them to do so, long. For example, only twenty per cent of the 1981 group had graduated after five years. However, thirty-five per cent of the 1982 group had graduated. after only four years. And while some students have only reached second year status in their fifth year of study, the high proportion of 1981 and 1982 students who pursued post- graduate studies is encouraging.

It is important that the fate of individuals, rather than just the achievement of groups, is examined. It must be realised that human behaviour is not predictable, and it it unreasonable to expect whole groups to conform to a proposed theory or model. To judge the value of ASP only on the achievement of the whole group is certainly unwise. Some individuals achieve very well, while others fare poorly. What should be done is to try and ascertain why some students succeed and others fail, and to use this understanding to improve the success of the Academic Support Programme.

6. Opinions of the programme participants

The data provided show that many of the students feel that ASP has taught them to cope at university. During informal discussions with three students two or three years after they attended ASP, they stated that their success was due entirely to what they had learned in ASP. All three had achieved seconds or upper seconds in Zoology and had done well in their other subjects. It is interesting to note that all three discounted their hard work as the major reason for their success, insisting that it was ASP that had shown them how to work and cope.

One disturbing finding of this study is the alarming tendency found in some ASP students to depend on ASP rather than on their own efforts. The ASP tutors should be made aware of this and should try, at all costs, to avoid students developing this attitude.

7.2 THE FORMATIVE ROLE OF THIS EVALUATION

Further data were provided in an attempt to try and understand factors affecting the successes and failures found among ASP students. It is hoped that these can be used to try and improve the short-comings and enhance

the good features of the programme.

7.2.1 THE LOW REPLICABILITY OF EVALUATION RESULTS

This study has shown definite differences in the results of the 1983 and 1984 students. It is important to try and ascertain reasons for these differences. An understanding of such factors might allow for certain modifications in the course in order to improve its efficacy. Possible factors include:-

1. Changing racial composition of the groups

In 1984 far more of the students, from both ASP and NASP groups, came from a background which could be described as educationally, politically and socio-economically deprived. The number of blacks in ASP had almost doubled (from thirty-three per cent in 1983 to fifty-eight per cent in 1984). The numbers of blacks in the NASP group had increased from seventeen per cent in 1983 to twenty-six per cent in 1984. It should be noted that in both years the percentage of blacks in ASP was about double that in the NASP group. This certainly casts doubts on the validity of the NASP group as a true control group. However, the results of table 6, which gives the percentage pass rates of the two groups by race, suggest that the poorer achievements of the ASP group in 1984 was not a result of the increased percentage of blacks in that group.

2. Dropping of the "ministerial consent" requirement

In 1984 the requirement that non-white students obtain ministerial consent to register at the university was removed. As a result these students did not have to fight for a place at the university and many more black students were admitted to the Zoology 1 course. During 1983 the tutor noticed the determination with which many of the black students fought to enter and then retain their position at university. In 1984 this determination was not apparent among the black students. This seems to support the observations of Bard (1975) that automatic

admissions in America undercut student motivation.

3. Political unrest

1984 saw an upsurge in political unrest, and several organised class boycotts occurred. The ASP students indicated that peer pressure had ensured that black students did stay away from class on those days. Thus not only those black students who were politically active, but also those who would have liked to have continued with their academic work, were affected. This evidence seems to support the observation of Potter et al (1984) who investigated the attitudes and study habits of black engineering students at this university. They found that group cohesion and social pressures among the blacks conflicted with their academic interests.

4. Student attitudes to their work

The 1983 ASP group strongly supported extra tutorials given in the study week before the June test. The response of the 1984 group to such tutorials was apathetic and only one individual sought help during this period. The 1983 group participated enthusiastically during several sessions on the technique of answering questions and writing essays. This exercise involved the students identifying possible essay topics, planning well structured essay skeletons, and presenting them to their peers. The 1984 group was indifferent in their response and the exercise eventually fell through from lack of support. The 1984 group appeared to be far less prepared to make any effort to ensure their own success than the 1983 group.

5. Teaching changes

Kulik et al (1983) observed that established programmes were less successful than new ones. The tutor for the 1983/1984 period tried to decide if her teaching had changed at all as the programme became more established.

In 1983 the determination to succeed, reading in a new field, and trying out of new ideas could have been more positive than in 1984. In 1984 many of the exercises used were those that had been drawn up the previous year. Furthermore, the urgent drive to succeed was perhaps not as great. This was affected by the very promising results of the 1983 ASP students, which almost certainly led to an attitude of resting on the laurels of this earlier achievement. In 1983 the ASP tutor personally demonstrated to all the ASP students. In 1984 this was not possible, and the ASP students had "normal" class demonstrators. Those who needed extra help were assisted the following week only if they requested it.

7.2.2 FACTORS AFFECTING THE SUCCESS OF THE PROGRAMME

STUDENT MATTERS

1. Students' perceptions

This is an area which requires further research if it is to be better understood. From this study it is apparent that the ASP students perceive matters differently to the way the staff do. It is not merely a matter of differing opinions, as records of actual student attendance and participation confirmed that the students' perceptions did not match reality. Furthermore, answers given by the students themselves in one questionnaire show contradictions in how hard they claim to work, and the amount of work they actually do. It would appear that many are unaware of what hard work actually comprises, and the type of work they have to do to succeed in their academic studies. This supports the findings of Potter et al (1984) in their study on black engineering students at this university.

Many students who claimed to be coping with their studies, or even doing well, were actually not. It might be worthwhile finding out if they really do not perceive

the reality, or if they are just too embarrassed to admit they are not coping.

Their perceptions of their abilities and deficiencies are also disturbing to note. Further investigation is needed to see if students would cope better if they were acquainted with the reality of their deficiencies, and what is required to remedy them.

2. How hard the students work

Information given by the students on their study habits suggest they are doing too little work, and perhaps the wrong type of work, to ensure success. Two black students missed several weeks of physiology lectures (a section which even the average student finds difficult). When asked why they were not attending, both said it was because they did not understand the work. One was therefore working on his own, using a set of notes from a friend who had done the course the previous year. The other was getting notes from a friend attending the lectures. The idea that work can be rote-learned to ensure success is very common among the black students.

It should be noted that many ASP students, because of their slow reading speeds, have to spend far more time on their work than the average student. This places them under a very heavy workload. The problem is aggravated by the fact that many of them have poor study habits, and cannot plan and control their learning time effectively.

3. Language difficulties

The tutors identified several serious language-based problems among students for whom English is a second language. What is alarming is that the students themselves do not consider these to be a problem. They do not seem to realise the way in which these factors affect their academic performance, or increase the

amount of work they have to do.

It is felt that the "normal" lecturers should be made aware that the blacks often experience difficulty "hearing" and "interpreting" what they say in the first few weeks after they enter university. The lecturers should make a special effort to alleviate this problem for these students.

4. Student attitudes

The attitudes of some of the ASP students to their work gives cause for concern. Many do not perceive that it is their inabilities which make some of the work seem difficult. Furthermore, they must realise that their success depends on their efforts, and not what ASP does for them, or how good the notes from which they learn are. Further research is required in this area to ascertain if there is a link between the success of the student and his attitude to his work.

STAFF PROBLEMS

Two basic issues concerning the ASP staff were identified as important; the conditions of service of the staff, and the lack of experience of the staff in the field of ASP. The former is directly responsible for the high turnover of staff in the Zoology 1 ASP. For the sake of stability and continuity in the programme this should be considered a priority issue. The latter problem also requires attention. The staff themselves would appreciate assistance from the university in acquainting themselves with ASP issues and findings. Furthermore, it is felt that the staff should be encouraged to study further, and do research in the field, as well as attending seminars and conferences on relevant topics. This is an excellent chance to improve our understanding of ASP issues, and it is not being exploited to its full at the moment.

A further staff matter is felt to be of importance. It

is felt that all the staff involved with the first-year students should be aware of the problems experienced by high-risk students, and ways in which staff can help alleviate these. The efforts of the ASP tutor alone are insufficient.

ADMINISTRATION PROBLEMS

It is felt that the lack of coordination between ASP and the home department in matters of finance, facilities, planning, administration, and research, is having a detrimental effect on the programme. It is recommended that there be greater coordination between the two units on these matters. It is important that home departments take ASP seriously. If they accept high-risk students into their courses, knowing their small chance of success, they should make every effort to assist them to succeed. Furthermore, it is felt that it is the role of the department to ensure that all lecturers involved with teaching the first-years be incorporated in the efforts to assist the high-risk students.

The problem of the facilities available for the Zoology 1 ASP is a matter of urgency. It is vital that the facilities offered ASP be improved, as they have a tremendous effect on the quality of teaching and learning in ASP. If a home department offers ASP to its students, it should be prepared to take ASP seriously, and raise it from the low-priority position it currently occupies in the department.

7.3 A SECOND LOOK AT THE RESEARCH QUESTIONS

These research questions were listed on page eight in chapter one. The first concerned the identification and recruitment procedures for ASP students. The predictions of which students have the potential to succeed is not easy. The correlations found between Matric Rating and the final Zoology mark for

both ASP and NASP groups is extremely low, and does not justify its use for selection of students with low Ratings. Furthermore, to make accurate predictions it is necessary that the students conform to some hypothesis or generalization. And while human beings are involved this will never be possible. It seems important that the students realise the effort required to ensure success, and that they be sufficiently motivated to make the effort themselves. It is felt that we would benefit from more research in the areas of student perceptions and motivation. Unless student attitudes to the course and their work change, it appears that we will not be able to persuade many of the students who we believe could benefit from the course to commit themselves to it.

This study has shown that ASP is not sufficiently well advertised and marketed. Many high-risk students are unaware of what it offers. Some do know, but still do not attend. It is interesting to note the number of these students who nevertheless passed in 1984. Further investigations into identification of certain skills and abilities, and the possibility that these students are somehow aware ASP would not help them, could prove valuable.

The second research question concerned the issue of what ASP should teach. Data were presented on what teaching and learning techniques the students found most helpful. One matter of interest is the large percentage of students (sixteen of the twenty-six students questioned) who felt that ASP should help the student know him/herself, to assist them make realistic goals, and to aid them in achieving these goals. Other evidence in this study suggests that this matter forms a priority area for research. While counselling facilities do exist at this university, the biological science support programmes do not have a close link with them. It is recommended that this matter be given further attention, and that the possibility of assisting ASP subject tutors to

learn more about this field be investigated. While no concrete evidence was given to support the use of subject-based skills courses, the evaluator's experiences in teaching have indicated that this too is important.

The third research question concerned administrative matters. There are several problems in this area, which need to be addressed. This is particularly important in view of the fact that in the literature one of the most consistently listed features of successful support programmes is the full backing of the institution and administrators.

The final research question "Does the programme work" was probably the least satisfactorily resolved issue. Many of the difficulties restricting evaluations of such programmes have been discussed already. But an important problem facing evaluators of ASP is "knowing if they have got there, when they don't yet know where they are going". Glennie (1980, 3) stated, as ASP was initiated at the University of the Witwatersrand, that at this stage "we aren't and won't be in a position to establish dogmatically what we are aimimg at in this programme". The reasons given for this were that they had as yet no knowledge of their potential students or the impact that the programme would have on the university. Yet six years later there still appears to be no policy statement on the goals of the programme. It is recommended that those involved in ASP identify and state who the programme is aimed at and what it is trying to achieve. If this matter was clarified it would greatly assist in trying to decide whether the programme works.

Furthermore, this study illustrates clearly that measuring the effectiveness of the programme is a complex and difficult problem. Together with the evaluators, participants in ASP, administrators and funders should perhaps try to decide what criteria should be used to judge the programme. This

would greatly facilitate the evaluation process.

7.4 CONCLUDING REMARKS

The literature review for this study concluded with a list of the five features most consistently listed as being associated with successful support programmes. It is felt that this programme conforms with only one of these; it assists the students for at least a year. The type of support offered by the Zoology ASP tends to be compensatory rather than developmental. There are several matters concerning the staff which are far from satisfactory. The programme is not receiving the type of backing it requires to provide optimum conditions for success. And there does not appear to be an articulated ASP policy or a continuing reliable allocation of funds.

It would be a great pity if we were to be unable or unwilling to make use of the accumulated findings of three decades of American research in the field of high-risk students. And while efforts are being made to research the field in this country, we should take care to avoid re-inventing the wheel.

It is hoped that some of the findings of this study have illuminated some of the complex issues involved in ASP, and that they have gone some way to helping us understand how we can improve the efficacy of ASP.

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