FACTORS INFLUENCING THE CHOICE OF AGRICULTURAL SCIENCE AS A SCHOOL SUBJECT

by

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DEDICATION

This work is specially dedicated to my only son Karabo and nephew Kgothatso

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I would like to acknowledge the assistance and guidance received from my promoter Prof. G. H. Düvel whose patience and knowledge made the completion of this study possible.

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Lastly my appreciation to the Almighty God for His grace.

ABSTRACT

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Agriculture plays an important role as the basis of economic development of many countries. One of the ingredients for accelerating agricultural development is the provision of adequate knowledge through education. Schools where agricultural science is taught play an important role, but the problem that gave rise to this study is the lacking interest and poor performance in agricultural science

The main aim of this study was to investigate factors that may influence the choice of agricultural science as a school subject. In order to attain this aim, six high schools in the Temba District were sampled to represent urban, semi-urban and rural schools. All agricultural science pupils and, for purposes of comparison, forty five pupils doing physical science and twenty seven from home economics were interviewed.

The overall image of agriculture appeared quite positive in that 62 percent of the students rated it as high or very high, and only the medical practitioner received a higher average status rating than the agricultural professional.

The findings indicated that non-agriculture students had the most intensive association with a farming background, which seems to indicate that a close association with agriculture is a deterrent rather than an incentive to choose agriculture as a school subject. Exposure to agricultural science as a school subject appeared to increase the interest in the study of agriculture at tertiary level, although the possibility that the interest in tertiary studies in agriculture stimulated the choice of agriculture science as a school subject, cannot be ruled out. Amongst agricultural science pupils there is general agreement that agriculture provides good access to tertiary education, although physical science was rated much higher.

The assessment of teachers does not favour agricultural science. Agricultural science teachers were assessed significantly lower as far as personality, teaching quality, accessibility and knowledge is concerned. However, the less the influence and assessment of the teacher, the bigger the influence of parents appeared to be. Somewhat alarming is the finding that about 20 percent of respondents claimed to have been forced to study agricultural science at school. Those that received counselling did not have a better image of agriculture, which seems to indicate that agriculture is not a field of study recommended by teachers during counselling.

SAMEVATTING

FAKTORE WAT DIE KEUSE VAN LANDBOU AS 'N SKOOLVAK BEINVLOED

deur

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SAMEVATTING

Landbou speel 'n belangrike rol as basisvan ekonomiese ontwikkeling in baie lande. Een van die bestanddele vir versnelde landbou-ontwikkeling is die voorsiening van genoegsame kennis deur opleiding. Skole wat landbou aanbied, speel in hierdie verband ,'n belangrike rol, maar die probleem wat tot hierdie studie aanleiding gegee het is die gebrekkige belangstelling en swak prestasie in landbou wetenskap as skoolvak.

Die hoofdoel van hierdie studie was die ondersoek van faktore wat die keuse van landbou as skoolvak beinvloed. Met die oog op die doel is ,n steekproef van ses skole gekies waat landelike, stedelike en half stedelike gebiede verteenwoordig in die Temba Distrik. Alle landbou skoliere is in die ondersoek betrek en, vir doeleindes van vergelyking, is ook 45 natuur- en skeikunde studente en 27 huishoudkunde studente by die opmane ingesluit.

Die algemene beeld van landbou blyk heel positief te wees in die sin dat 62 persent van die skoliere dit as hoog of baie hoog aangeslaan het, en slegs die mediese

praktisyn n hoër gemiddelde statusaanslag ontvang het as die professionele landboukundige.

Die bevindings dui daarop dat nie-landbou skoliere 'n baie sterker boerdery agtergrond het, wat daarop mag dui dat 'n sterk boerdery agtergrond nie 'n aansporing of insentief is om landbou as skoolvak te kies nie. Blootstelling aan landboukunde as 'n skoolvak neig egter om die belangstelling in landbou, veral as 'n tersiêre studierigting, te verhoog, hoewel die moontlikheid nie uitgesluit kan word nie dat die belangstelling in en moontlikhede van tersiêre studies in landbou die keuse van landbou as skoolvak tot gevolg gehad het. Landbouskoliere is dit oor die algemeen eens dat landbou as vak goeie toegang bied tot tersiêre studies, maar natuur- en skeikunde is aansienlik hoër aangeslaan deur natur- en skeikunde skoliere.

Die aanslag wat landbou onderwysers ontvang het is nie tot voordeel van landbou nie. Hulle is betekenisvol laer aangeslaan ten opsigte van persoonlikheid, kwaliteit van onderwys, toeganklikheid en kennis, maar hoe geringer die aansien en invloed van die onderwyser, hoe groter blyk die invloed van ouers te wees. Kommerwekkend is die bevinding dat soveel as 20 persent van die landbou skoliere gedwing is om landbou te neem. Die wat voorligting ontvang het, het nie noodwendig 'n beter beeld van die landbou gehad nie, wat daarop mag dui dat landbou nie 'n rigiting is wat tydens voorligting aanbeveel word nie.

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CHAPTER 1

INTRODUCTION

The agricultural potential represents the primary resource of most countries. It is therefore vital to put agriculture on a sound footing by providing adequate support services of which relevant and appropriate education and training are probably one of the most effective ways of improving the production efficiency.

Evidence from the World Bank (Meyer, 1990, 5) suggests that most agricultural programs set up to prepare farmers in developing areas throughout the third world – have had disappointing results. Meyer (1990, 5) stresses that a separate need exists for vocational agriculture. Properly run agricultural schools can contribute in a modest way by improving the standard of agricultural science in schools.

Burger (1990, 2) concludes that something seems to have gone wrong with the teaching of agricultural science. As evidence he refers to the high failure rate in agricultural education. Graven & Steyn's (1983, 4) findings from interviews with education authorities support these findings, namely that a failure rate of up to 90 percent for higher grade in matric agricultural science is not uncommon. Included in these percentages are good students who have the potential of at least a matric exemption. In spite of these high failure rates, pupils are still studying agricultural science at school. The main aim of this study is to investigate factors that may influence the choice of agricultural science as a subject at school.

CHAPTER 2

BACKGROUND

2.1 INTRODUCTION

Education is defined by van Aardweg & van Aardweg (1988, 71) as the process whereby a responsible adult leads, helps, supports and accompanies a child to self actualisation and ultimate adulthood. It is a purposeful, conscious intervention by an adult in the life of a non-adult with the specific purpose of bringing the non-adult successfully to adulthood. To achieve this, there should be a meaningful association between educator and child.

Fourie, Griessel & Verster (1991, 16) classify education as being formal, informal and non formal. This means that it is not only restricted to the school or home, but that it takes shape also in actions of various other institutions such as the church and youth organisations. However, formal education is associated with the school, whereby the school focuses on the child's perceptual and mental abilities without ignoring the other demands of adulthood. Because of its formal structure, the school has its own unique and essential character and task, namely one of educative instruction in which developing children are instructed and educated by well trained teacher-educators employing differentiated subject matter in a methodically planned way. This includes thorough planning of curriculum and subject matter.

The curriculum, according to Gunther (1986, 136), is composed of a number of subjects of which agricultural science can be one. Agricultural science is important as agriculture represents the leading economic activity in most African countries. These countries rely on agriculture to feed their population. Against this background, Elliot, Stout, Dejardin & Sithole (1987, 2) argue that young people need to be given the knowledge and skills to meet the food requirements of the future, thereby presenting a

strong case for making agriculture part of every school curriculum. This chapter presents as background an overview of the levels of formal agricultural science education and the structure of agricultural science in different levels.

2.2 AGRICULTURAL SCIENCE: AIMS AND OBJECTIVES

Since agriculture is a primary industry and enterprise without which mankind cannot survive (Department of Education, Sports and Recreation, 1987b), agricultural science is an important subject, which should be taken seriously by both teachers and pupils. In order to enhance the enthusiasm for and interest in agriculture and to achieve the aim of agriculture, there should be good communication amongst those involved with agriculture namely, teachers, inspectors, farmers, top officials in government departments.

2.2.1 Aim and objective

The aim of agricultural education is to promote agriculture through the teaching of agricultural science to scholars in a positive and interesting manner. According to Mazengera (1990, 15), it is important that the syllabi should be relevant to the prevailing conditions. He also goes further to state that there are some people who do not admit the importance of agriculture. These people maintain that agriculture makes a minimal contribution to the economy and that emphasis should rather be on mineral resources.

All this, according to Mazengera (1990, 15), should be discarded, as most African countries have gone through poverty since agricultural production was deliberately neglected or not encouraged. These countries are currently spending huge amounts of money on the importation of food, while they have rich agricultural soils. It should dawn upon people that the government is pumping a lot of money into the development of agriculture and this should serve as a clear indication that agriculture is of significant economic importance, and that there is a necessity for effective teaching of agriculture.

Agricultural science is one of the subjects at school that can contribute towards the general education of pupils. The study of agricultural science can make pupils conscious of their natural environment, as well as the human being's importance as part of the environment and how best he can make of the environment. It also stresses his dependency on the environment. Pupils are made aware that humans' actions have an influence on the environment. This can make them aware that they too are responsible for the conservation of natural resources, and that their actions will have a direct impact on the ultimate state of the environment (Subject Guidance, Agricultural Science, 1982, 4).

The aim of agricultural education in the North West province is to promote agriculture through the teaching of agricultural science to scholars in a positive and interesting manner. Scholars should know and be able to apply the theory and concepts of agriculture through practical skills learnt in the subject of agricultural science (Department of Education, Sports and Recreation, 1987b).

The objectives of agricultural syllabus according to Kuun, Bezuidenhout, Classens & Oberem(1987, 2) are

- to bring the pupil in close contact with the orderliness of the creation through the study of the science of agriculture and the development of his powers of observation,

- to expand the pupil's knowledge and to stimulate his desire to learn about agriculture, soil, water, animals and plants,

- to inculcate in the pupil a positive attitude towards farming and the rural way of life,

- to equip the pupil for further study in agricultural science and to enable him/her to make a contribution towards placing the agricultural industry on a more scientific footing,

- to enable the pupil to assist in promoting optimum utilisation of the country's natural resources through the agricultural industry and to develop in him/her as part of a way of life, the habit of conserving these resources.

Goody, as cited by Mndebele & Dlamini (1990, 2) conclude that the overall objective of the teaching of agricultural science at school is to encourage pupils to regard farming as an enjoyable and profitable way of life when properly practised, and to stimulate positive attitudes to development and conservation.

Rogues, as cited by Tshatsinde (1990), also emphasises that in the context of rural development a formal agricultural educational programme in schools can play a crucial role. He identifies as the most significant impedients to rural development the resistance to change, a reluctance to recognise major agricultural problems and a negative attitude towards agriculture. According to him, formal agricultural programmes in schools should be aimed at changing the negative attitudes towards agriculture, so that agricultural science will be viewed in a positive light and seen as a profitable, worthwhile and enjoyable way of life. He (Rogues) emphasises that the main purpose of agricultural science at schools is not to train farmers, as this cannot be achieved in the limited time available at school, though there is a spin-off benefit. Those who have been through an agricultural education instruction school, should be better equipped to farm and will understand the many problems which face farmers in the production of agricultural products. These pupils can become practically involved in the conservation of natural resources. They will also be in a position to utilise the space in their home gardens more effectively for food production.

Agricultural science should create awareness of career opportunities in agriculture and related technologies by laying a sound foundation for further academic pursuits in agriculture. In turn, agricultural science students are likely to acquaint themselves with the activities of development agencies so that they may take advantage of their services. Thus it is imperative to have agricultural science as part of the school curriculum and it should be treated as a very important subject.

2.3 LEVELS OF AGRICULTURAL TRAINING

Agricultural education can be classified into three levels, viz. primary, secondary and tertiary levels.

2.3.1 Primary Level

This is the initial level at which agriculture is introduced as a subject. In primary schools agriculture is taught as an optional subject up to Standard four (Department of Education, Sports and Recreation, 1987a). At this primary level emphasis is put on environmental awareness.

2.3.2 Secondary level

This is the middle and high school level where the teaching aims at preparing students for careers in different fields. Middle school is from Std 5 to Std 7, while high school extends from Std 8 to Std 10.

At middle school level agricultural science is not compulsory and is a non-examination subject (Department of Education, Sports and Recreation, 1987a). At high school level it is an optional subject and is examined like all other subjects at that level. Students contemplating a career in agriculture or related fields should be made aware of what opportunities lie ahead of them. The following are some of the fields or careers into which, according to Mazengera (1989, 15), such students could enter upon completion of the secondary education:

- Veterinary Science
- Animal Scientists
- Agriculturalists
- Farm managers
- Credit officers
- Extension officers
- Research officers
- Agricultural scientists
- Food processors

- Animal Health Officers
- Livestock inspectors
- Veterinary technicians
- Veterinary nurses
- Meat inspectors
- Livestock auctioneers
- Agricultural teachers at
- Primary level
- Middle/High school level
- College/University level
- Self employed
- Farmers
- Agricultural produce sellers

2.3.3 Tertiary level

In the North-West different institutions exist at this level, at which post matric students undergo a career orientated education that aims at making them effective agriculturalists. These include teacher training colleges, agricultural colleges and universities. At teacher training colleges students can specialise in agricultural science and can obtain a diploma in agricultural science. At agricultural colleges students can follow a non-university diploma curriculum in agriculture under the Department of Agriculture. Universities offer graduate courses in general agriculture on specialised disciplines. Upon completion of the course, these students are expected to be involved in farming activities.

Universities mainly offer:

- University diploma (3 years)
- B.SC Agriculture (4 years)
- B.Agric. (general) (3 years)
- B.Agric. (Education) (3 years)

CHAPTER 3

METHODOLOGY

3.1 CHOICE OF STUDY AREA

For practical reasons the Temba District of the North-West Province, which is one of the nine provinces found in the Republic of South Africa, was chosen. This province is land-locked, with Mpumalanga Province in the east, Northern Province in the north, Gauteng Province in the south and the Republic of Botswana in the west. Temba District was chosen as a study area because of its accessibility for the researcher and its closeness to the Pretoria Metropolitan area, thus ensuring a good mix of urban, semi-urban and rural schools.

3.2 SAMPLING PROCEDURE

Seventeen high schools offering agricultural science are found in the Temba District. Nine are rural, six are semi-urban and two are urban. From the rural areas, three high schools were sampled, two from semi-urban areas while one of the two urban schools was included in the survey. An overview of the number of schools, the number of schools offering agricultural science as a subject and the sample sizes is given in Table 3.1.

Table 3.1 : Categorisation and sample size of schools in the Temba District

Environment	Number of Schools	No. of schools offering Agriculture	Sample size (schools)	Percentage Sample
Rural	14	9	3	33.3
Semi-urban	8	6	2	33.3
Urban	3	2	1	50.0

The six randomly sampled and visited schools in the District were Nchaupe, Loalane, Hendrick Makapan. P.H.L.Moraka, Ntwane and Gaseitsewe. Table 3.2 shows the number of pupils interviewed within the various selected high schools.

Table 3.2 : An overview of high schools and samples of pupils included in the survey

School	Circuit	Environ-ment.	Number of Pupils	Percentage of Sample
P H L Moraka	Majaneng	Urban	28	10.6
Ntswane	Golaganang	Semi-urban	44	16.6
Nchaupe	Makapanstad Centr.	Semi-urban	25	9.4
Loalane	Makapanstad Centr.	Rural	74	27.9
Hendrick Makapan	Makapanstad West	Rural	27	10.2
Gaseitsewe	Makapanstad North	Rural	67	25.3

All final year agricultural science pupils in the sampled schools were interviewed except those that took part in the testing of the questionnaire. For purpose of comparison, forty five physical science pupils were also included in the survey. They were sampled from the five high schools that offered physical science, randomly selecting 9 pupils from every school, three each out of the most intelligent, average intelligent and low intelligent groups respectively.

Using a similar procedure as in physical science, a sample of 27 home economics pupils was also sampled from the three high schools that offered home economics as subject.

The questionnaire was tested with nine standard ten pupils selected out of intelligent, average intelligent and low intelligent groups from one of the schools. From the testing it emerged that respondents experienced no problem of difficulties in answering the questionnaire.

3.3 INTERVIEWING PROCEDURE

The survey was carried out by the writer making use of group interviews of pupils. These were carried out in the classrooms during study periods i.e. in the afternoons so as not to interfere with school programs. At the beginning of the interview, respondents were given a thorough explanation of the purpose of the interview. At first some pupils were reluctant to answer the questionnaire as they feared victimisation. This was overcome by assuring them that all information would be treated confidentially and anonymously. A questionnaire was handed out to each pupil and every question explained in detail before they were requested to fill in the required information. Questions and remarks relating to the clarity or understanding of questions were allowed but otherwise no interaction was permitted between students.

CHAPTER 4

SUBJECT CHOICE

4.1 INTRODUCTION

The correct choice of subjects depends on the knowledge of possible occupations. According to the Department of Manpower (1992, 20), one good way to obtain information about careers is to talk to people about their work. Even more precise information can be obtained when various places of work are visited.

`Important considerations concerning a choice of subjects are likely to be the reconcilability with the pupils' specific interests. Gore (1993, 23) states that it could, therefore, be expected that a pupil who has a passionate interest in natural science would probably choose biology over history. Another related factor that could influence the choice of subjects is the individual's perception of career opportunities. In the wake of the increasing unemployment, choices with more options of work opportunities may become increasingly more important. This chapter discusses the choice of subjects by pupils and the relationship between subject choice and performance. l

4.2 CURRICULUM CHOICE

According to the Department of Education (1997, 10), a curriculum is everything planned by educators which will help to develop the learner. It involves parents, teachers, education authorities and learners. This means that it will vary from place to place and will respond to the very specific community needs and wants, thus it is unlimited and also varies between schools. In this study curriculum is focused on the narrower meaning which implies a number of subjects or areas of knowledge , each with its own prescribed and simplified contents appropriate to every standard, together with time to be spent on each every week. Some of the subject combinations (curriculum) pertaining to the pupils involved in the survey are summarised in Table 4.1.

Table 4.1 : Frequency distribution of respondents according to subject combinations chosen

Subject combinations	No of schools	No of pupils	Percentage
Agric Science & History	3	96	31.2
Agric Science & Bibs[(1)]	1	44	16.6
Agric Science & Geography	1	28	10.4
Agric Science & Maths	1	25	9.4
Home Economics	3	27	10.2
Maths & Physical Science	5	45	17.0
Total	14	265	100.0

[(1)]Biblical Studies

The variation of subject combinations is largely school specific. In three schools, namely Loalane, Ntswane and P.H.L,Moraka, Agricultural Science is paired with History. Ninety-six pupils (36.2%) chose Agricultural Science and History. In one school , namely Hendrick Makapan, Agricultural Science is grouped with Biblical Studies. Forty-four pupils (16.6%) made this choice. In one school, Gaseitsene, Agricultural Science is grouped with Geography, and 10.46% were following this stream. In only one school, Nchaupe, Agricultural Science is paired with Mathematics. In this case 0.4 of respondents are in this group.

The grouping or subjects implies that the choice of subjects with Agricultural Science is limited. It appears that only in exceptional cases the choice of Agricultural Science also includes important subjects like Mathematics and Physical Science.

4.3 CHOICE OF PROFESSION

Professions are usually characterised by education of an advanced nature at tertiary institutions like colleges, technikons and universities and by relatively high status and salary (Sonn, 1994, 22). It is the functions of schools to provide a sound educational basis for entry into such institutions for pupils who wish to choose professional careers. The attractiveness of various types of professional careers can be expected to

influence the individual selection of subjects at school level. The image or status of agricultural scientists as rated by pupils is given in Table 4.2.

Table 4.2 : Frequency distribution of the respondents according to the perceived image of agricultural scientists as perceived by pupils (N = 263)

Rating of image (scale point)	Scale point	No. of pupils	Percentage
No response	0	3	1.1
Low	1 – 5	38	14.4
Medium high	6	60	22.8
High	7	45	17.1
Very high	>7	117	44.5
Total		263	100

These findings reflect a high overall rating in the sense that 61.6 percent of the respondents rated agricultural scientists higher than six (6) out of a maximum scale point of 9.

A more valid indication of the image of the agricultural scientists would be a comparison with other professions. This comparison is given in Table 4.3.

Table 4.3 : The rating by respondents of different profession according to status (N = 263)

Profession	Mean	s.d.
Medical Practitioner	8.1	1062
Agricultural Scientist	7.45	2.03
Lawyer	7.16	2.32
Engineer	6.96	2.24
Priest	6.52	2.46
Teacher	6.09	2.54
Accountant	5.50	2.36

From the above data it appears that the medical practitioner has the highest status with an average rating of 8.1, followed by the agricultural scientist (average rating of 7.4). There is consequently no reason why the consideration of professional careers should not favour the choice of agricultural science as a school subject..

4.4 PREFERENCE OF UNIVERSITY DEGREE

Pupils were also asked to indicate (in rank order) their preference of different degrees that they would choose if they were sponsored for further education. The choice consisted of the following degrees: : MB ChB, B.A., B.Sc., B.Agric., Social Science, B.Proc. and Theology. Figure 4.1 shows the rating of an agricultural science degree.

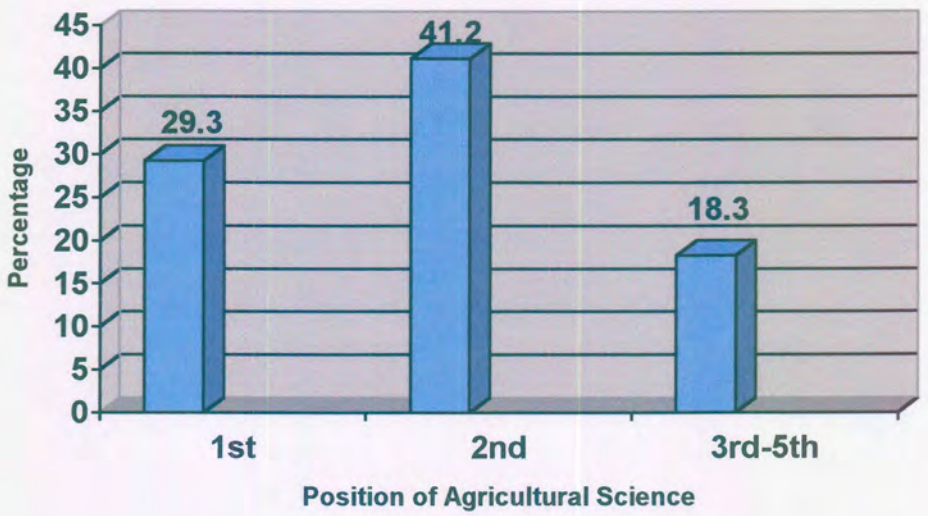

Fig. 4.1 : The position of agricultural science in pupils' preference (rank order) of different university degrees

Fig. 4.1 indicates that 29.3 percent of pupils would study for an agricultural science degree (as first choice) if opportunities availed themselves. 41.2 percent mentioned agricultural science as their second choice. This possibly means that they will follow an agricultural programme if admission to that first choice degree is refused. Only 18.3 percent of pupils placed an agricultural science degree below position two. This group is less likely to follow an agricultural programme even if opportunities availed themselves.

From these findings it does not appear as if the perception of future study and professional career opportunities has a negative influence on the choice of agricultural science as a school subject.

CHAPTER 5

BACKGROUND AND CHARACTERISTICS OF PUPILS

5.1 INTRODUCTION

Since human behaviour is generally accepted to be a function of the person and his environment (Lewin, 1951, 24), it is assumed that the background and characteristics of pupils are bound to influence their choice of agriculture as a school subject. The personal and environmental factors investigated in this chapter are agricultural background, age of pupils, number of children in the family and number of children of the family currently at school.

4.2 AGRICULTURAL BACKGROUND

A factor expected to have an influence on the choice of agriculture as a school subject and also the achievements in that subject, is the agricultural background. Fig. 5.1 summarises the respondents' agricultural background.

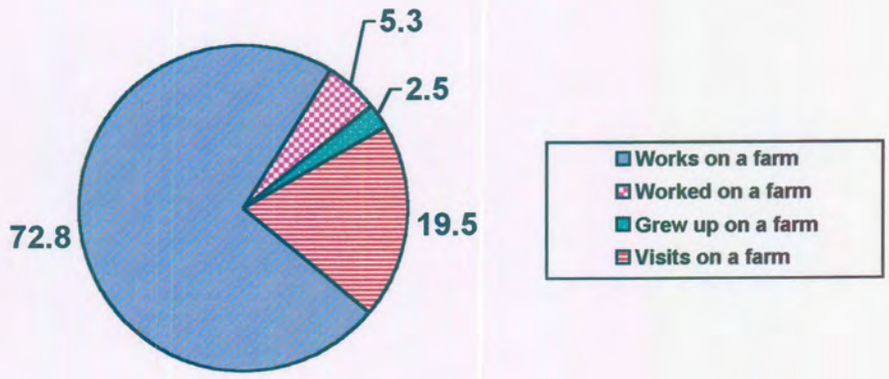

Fig. 5.1 Frequency distribution of respondents according to their agricultural background

The results show that all respondents in one way or another have an agricultural background. The large majority of them (72.8%) still work on a farm during school holidays or weekends while another 5.3 percent claim to have once worked on a farm. 2.5 percent of the respondents grew up on a farm, while 19.5 percent have relatives working there. It can thus be concluded that even the latter group has significant farming background based on the fact that they from time to time visit their relatives.

The relationship between agricultural background and subject choice is illustrated in Fig. 5.2

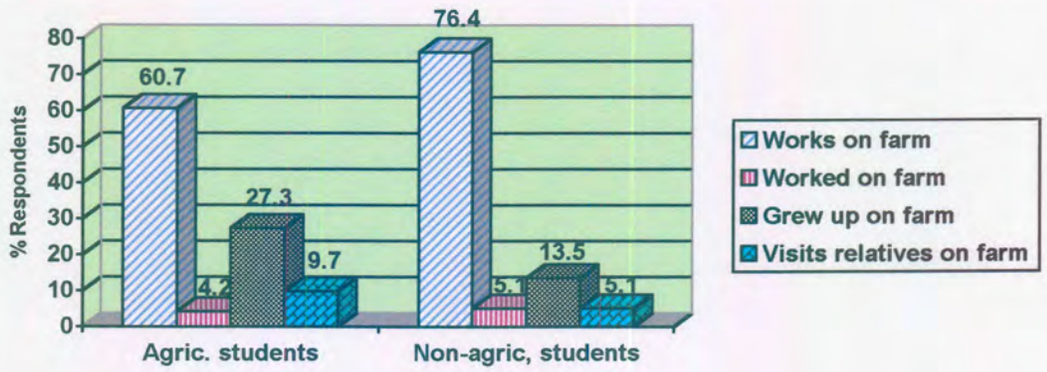

Fig. 5.2 Frequency distribution of respondents according to agricultural background and subject choice

The findings suggest a significant difference between agricultural pupils and non-agricultural pupils regarding their agricultural background ($chi^2 = 20.048$, d.f. = 3, f. = 0.000). This difference is most conspicuous in the categories with the most intensive rural or farm association namely those who work or worked on a farm. The fact that the percentage of non-agricultural pupils dominate in both cases seems to suggest that a close association with agriculture is a deterrent rather that an incentive to choose agriculture as a school subject.

In Table 5.1 the agricultural background is related to the interest in tertiary agricultural education, but judging from the non-significant chi-square ($chi^2 = 3,975$, d.f. = 4 , p = 0,409), it appears to have no influence.

Table 5.1 Frequency distribution of respondents according to their interest in tertiary agricultural education and their agricultural background(N=257)

Agricultural Background	**Respondents per interest group**						**Total**	
	High interest		Average interest		Low interest			
	n	%	n	%	n	%	N	%
Work on farm	73	70.9	77	72.6	35	72.9	185	72
Worked and grew up on farm	9	8.7	11	10.4	1	2.1	21	8.2
Visits relatives on a farm	21	20.4	18	17.0	12	25.0	51	19.8
Total	103	100	106	100	48	100	257	100

$Chi^2 = 3,95$; d.f. = 4; p = 0,5)

A comparison between pupils with different subjects combinations and their interest in agriculture at tertiary level is given in Table 5.2

Table 5.2 Frequency distribution of respondents according to interest in tertiary agricultural education and the choice of subject combinations (N = 259)

Choice of subjects in matric	**Position of agricultural science at tertiary level**						**Total**	
	1 – 3		**4 - 6**		**7 – 9**			
	n	**%**	**n**	**%**	**n**	**%**	**N**	**%**
Agric. Science &History	43	45.7	35	37.2	16	17.0	94	36.3
Agric. Science & Biblical Studies	21	47.7	18	40.9	5	11.4	44	17.0
Agric. Science & Geography	17	65.4	5	19.2	4	15.4	26	10.0
Agric. Science & Mathematics	9	37.5	12	50.0	3	12.5	24	9.3
Home Economics	10	37.0	13	48.1	4	14.8	27	10.4
Mathematics & Physical Science	3	6.8	25	56.8	16	36.4	44	17.0
Total	103		108		48		259	100

$Chi^2 = 34.307$, d.f. = 10, p = 0.000

Of the non-agricultural pupils only 6.82 percent rated agriculture amongst the highest three priority choices, while in the case of agricultural pupils this percentage varies from 37.5 to 65.38 percent. It is noteworthy that the agriculture students taking mathematics are somewhat more critical than the other agriculture pupils, which may be due to the fact that mathematics gives them a wider job opportunity. This would seem to indicate that the interest in tertiary agricultural education is a result rather than a cause of choosing agriculture as a school subject.

The environment, whether rural or urban, can be expected to have an influence on the agricultural background, in the sense that pupils in urban schools are expected to have less of an agricultural background. Table 5.3 investigates this relationship.

Table 5.3 : Frequency distribution of respondents according to their agricultural background in relation to their environment (urban, semi-urban and rural) (N = 265)

Agricultural background	**Respondents per environment category**						**Total**	
	Urban		Semi-urban		Rural			
	n	%	n	%	n	%	N	%
Work or worked on a farm	10	37.0	39	56.5	141	84.9	190	72.5
Grew up on a farm	17	63.0	18	26.1	16	9.7	51	19.5
Visit family on a farm	0	0.0	12	17.4	9	5.4	21	8.0
TOTAL	27	100	69	100	166	100	262	100

$Chi^2 = 57.812$; d.f. = 4; p = 0.001

The findings indicate significant differences between rural and urban schools as far as agricultural background is concerned ($Chi^2 = 57.812$, d.f. = 4, p = 0.001). The difference lies especially in the fact that a much larger percentage of pupils in rural schools have worked or are working on a farm. The percentage is as high as 84.9 in the case of rural schools, 56.5 in semi-urban schools and only 37.0 percent in the case

of urban schools. This justifies the conclusion that pupils in rural schools tend to be more closely associated with the farming situation, which, according to Fig. 4.2, appears to have a negative rather than a positive influence on the subject choice of agriculture.

5.3 AGE OF PUPILS

Smith & Zopf , as cited by Bembridge (1987:34), maintain that an individual's age is one of the most important factors pertaining to his personality make-up, since his/her needs and the way in which he/she thinks and behaves are all closely related to the number of years he has lived. Fig. 5.3 shows the distribution of respondents according to age (years).

Accepting an admission age of 6 years for Grade 1 (Department of Education, undated), pupils in Standard 10 should be between 17 and 18 years of age. The findings in Fig. 5.3, however, reveal that close to three quarters (73%) of the pupils are above 18 years of age. Only 11 percent of pupils can therefore be regarded to be well placed and not too
old.

Fig. 5.3 Frequency distribution of pupils according to age

The age distribution is similar for both agricultural and non-agricultural pupils. This is shown in Table 5.4 and the non-significant chi-square ($chi^2 = 2,7$; d.f. = 4; p = 0.69)

Table 5.4 : Frequency distribution of respondents according to age and choice of agricultural science as a school subject (N = 263)

Age	Frequency distribution per student category				Total	
	Agricultural pupils		Non-agricultural pupils			
	n	%	n	%	N	%
<18	19	9.9	9	12.5	28	10.6
18	28	14.7	15	20.9	43	16.3
19	41	21.5	11	15.3	52	19.3
20	39	20.4	13	18.0	52	19.3
>20	67	33.5	24	33.3	88	33.5
Total	191	100	72	100	263	100

$Chi^2 = 2,7$; d.f. = 4; p = 0.69

When comparing the age distribution of agriculture and non-agriculture pupils, the latter group appears to be slightly younger, but the difference is, as indicated by the chi-square test, non-significant, thereby providing no basis for a conclusion that the choice of school subjects is age related. It might well be that future generations of students may find agriculture relatively less attractive compared to other alternatives.

As far as the influence of age on the interest in agricultural science is concerned, there is no significant difference between the groups as shown by the Chi-square ($chi^2 = 6.194$; d.f. = 8; p = 0.626) and consequently no indication of a relationship. Evidence of this appears in Table 5.5.

Table 5.5 : Frequency distribution according to the age of pupils and their interest in agricultural science at tertiary level (N = 258)

Age category (years)	Frequency distribution per interest category in tertiary agriculture						Total	
	High interest		Average interest		Low interest			
	N	%	n	%	N	%	N	%
<17	13	12.8	11	10.2	3	6.3	27	10.5
17 – 18	14	13.7	23	21.3	6	12.5	43	16.7
19	20	19.6	22	20.4	10	20.8	52	20.2
20	20	19.6	21	19.4	8	16.7	49	19.4
>21	35	34.3	31	28.7	21	43.8	87	33.2
Total	102	100	108	100	48	100	258	100

$Chi^2 = 6.194$, d.f. = 8, p = 0.626

Table5.6 shows the age distribution of respondents in relation to the respondents' environment.

Table 5.6 : Distribution of respondents according to age and school environment

Age of pupils	Respondents per environment category						Total	
	Urban		Semi-urban		Rural			
	n	%	n	%	n	%	N	%
<18	0	0.0	0	0.0	4	2.5	4	1.5
18	5	18.5	19	27.5	42	25.0	66	25.0
19	9	33.3	10	14.5	32	19.0	51	19.3
20	5	18.5	14	21.7	32	19.0	52	19.7
>20	8	29.7	26	36.2	58	34.5	91	34.5
Total	27	100	69	100	168	100	264	100

$Chi^2 = 6.947$, d.f. = 8, p = 0.542

According to the above findings there is no evidence suggesting that pupils from urban and rural schools differ significantly in terms of age. In all cases the percentage students above 18 years of age is above 70 percent.

5.4 NUMBER OF CHILDREN IN THE FAMILY

It is assumed that the number of children , either directly or indirectly may have an influence on the choice of subjects. Table 5.7 investigates the number of children in the families in relation to the choice of subjects.

Table 5.7 : Frequency distribution of pupils according to the number of children in the family and the choice of subjects at school (N = 264)

Number of children in the family	Respondents per subject choice category				Total	
	Agriculture		Non-Agriculture.			
	n	%	n	%	N	%
1	5	2.6	4	5.6	9	3.4
2	21	10.9	10	13.9	31	11.6
3	31	16.1	8	11.1	39	14.8
4	34	17.7	14	19.4	48	18.2
5	29	15.1	10	13.9	39	14.8
6	32	16.7	16	22.2	48	18.2
7	25	13.0	5	6.9	30	11.4
8	8	4.2	2	2.8	10	3.8
9	3	1.6	2	2.8	5	1.9
10	3	1.6	1	1.4	4	1.5
12	1	0.5	0	0.0	1	0.4
Total	192	100	72	100	264	100
Average		4.8		4.57		4.73

Family size refers to number of children in the family

$Chi^2 = 6.145$, d.f. = 10, p = 0.729

It seems from Table 5.7 that the majority of families have between 4 and 6 children. The average family size, from which pupils doing agricultural science and those not doing agricultural science come, is 4.8 and 4.57 respectively with the overall average being 4.73. Pupils choosing agricultural science, therefore, seem to be from slightly bigger families, but this difference is not big enough to be significant ($Chi^2 = 6.145$, d.f. = 10, p = 0.779).

The influence of the shool environment (whether rural or urban) is investigated in Table 5.8

Table 5.8 : Frequency distribution of respondents according to the number of children in the family and the school environment (N = 264)

No. of children per family	**Respondents per environment category**						**Total**	
	Urban		Semi-urban		Rural			
	n=27	%	n=69	%	n=168	%	N	%
1	1	3.8	8	11.6	31	18.5	40	15.2
2	6	22.2	14	20.3	19	11.2	39	14.8
3	6	22.2	8	11.6	34	20.2	48	18.2
4	4	14.8	8	11.6	27	16.1	39	14.8
5	5	18.5	13	18.8	30	17.9	48	18.2
>5	5	18.5	18	26.1	27	16.1	50	18.8
Total	27	100	69	100	168	100	264	100.0

$Chi^2 = 13.485$, d.f. = 10, p = 0.198

Again the non-significant Chi–square value ($Chi^2 = 13.485$, d.f. = 10, p = 0.198) represents evidence that the number of children or family size is not dependent on the rural or urban environment. A possible explanation for this is that there is still little difference between rural and urban families regarding their association with agriculture. As reflected in Table 4.3, 37 percent of the urban pupils worked or are still working on a farm, while a further 63 percent grew up on a farm.

Having established that family size (number of children in the family) has no apparent influence on the choice of agriculture as a school subject (Table 5.7), it is somewhat surprising that family size appears to have an influence on pupils' interest in tertiary agricultural education. Evidence of this is provided in Table 5.9.

Table 5.9 Frequency distribution of pupils according to family size and interest in tertiary agricultural education.

Family size	Respondents per interest category						Total	
	High interest		Medium interest		Low interest			
	n	%	n	%	n	%	N	Weighted average
<3	13	12.6	16	14.8	11	22.8	40	2.1
3	13	12.6	18	16.7	7	14.6	38	2.2
4	12	11.7	27	25.1	9	18.8	48	2.1
5	16	15.5	13	12.0	9	18.8	38	2.2
6	22	21.4	21	19.4	3	6.2	46	2.4
>6	27	26.2	13	12.0	9	18.8	49	2.4
Total	103	100	108	100	48	100	264	

$Chi^2 = 19.167$, d.f. = 10, p = 0.038

These findings show a statistically significant relationship between the number of children in the family and the interest in agricultural science at tertiary level ($Ch^2 = 19.167$, d.f. = 10, p = 0.038). In this case it is the pupils from bigger families, especially those with more than five children, that tend to show a higher interest in agricultural science at tertiary level.

There is no obvious explanation for this relationship. It could be attributed to the effects of multi-collinearity implying that differences in interest in agricultural science at tertiary level are due to other factors rather than the family size. The position of the respondent in the family could have provided more information, but this was not determined during the survey.

5.5 NUMBER OF CHILDREN AT SCHOOL

It is generally accepted (Badenhorst, 1995, 12) that in the traditional cultures, all members of the extended family, i.e. parents, siblings, grandparents and other relatives are responsible for the bringing up of the child. In modern societies the informal instructions are supplemented by the formal instruction of the school in the sense that the school is the extension of the family and hence the societal relationships of family and school are interwoven. Against this background, it can be expected that the number of children at school can be expected to influence the parents' involvement in the education of their children and consequently also in the choice of school subjects.

Fig 5.4 gives an overview of the present situation regarding the number of children per family who are at school.

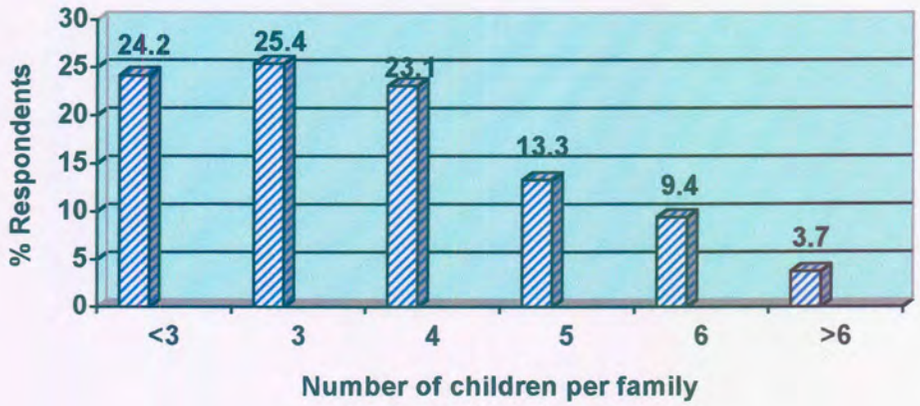

Fig. 5.4 Frequency distribution of the number of pupils per family currently attending school

It seems from Fig. 5.4 that the majority of families i.e. more than 75 percent , have either three or more children at school. This limits the potential time that can be devoted to a child and also reflects the significant financial burden, especially for the 27 percent of the families who have five or more children at school.

The likelihood that the number of children per family at school is related to the urban or rural environment of the school is investigated in Table 5.10

Table 5.10 : Frequency distribution of respondents according to number of children from their families currently attending school and the school environment (N = 264)

Number of children at school	Environment of respondents						Total	
	Urban		Semi-urban		Rural			
	n	%	n	%	n	%	N	%
1	6	22.2	16	23.2	43	25.6	65	24.6
2	7	26.0	17	24.6	43	25.6	67	25.4
3	4	14.8	18	26.1	39	23.2	61	23.1
4	4	14.8	7	10.2	24	14.3	35	13.3
>5	6	22.2	11	15.9	19	11.3	36	13.6
Total	27	100	69	100	168	100	264	100

$Chi^2 = 4.359$, d.f. = 8, p = 0.823

There seems to be no relationship between the number of children from respondents' families who are at school and the school environment, i.e. whether rural or urban. This is supported by the non-significant Chi-square ($Chi^2 = 4.359$, d.f. = 8, p = 0.823) and does correspond with previous findings that family sizes do not significantly differ between the urban and rural setting.

The relationship between number of children at school and the choice of subjects is shown in Table 5.11.

According to Chi-square results, ($Chi^2 = 12.093$, d.f. = 7.8, p = 0.098), the number of children at school has no statistically significant influence on the choice of subjects. The Chi-square suggests differences with a 10 percent probability, but without any clear tendency.

Table 5.11 : Frequency distribution of pupils according to the number of children in the family at school and choice of subjects (N = 264)

No. of children at school	Respondents per subject choice category				Total	
	Pupils with Agriculture		Pupils without agriculture			
	n	%	n	%	N	%
1	48	25.0	17	23.6	65	24.6
2	53	27.6	14	19.4	67	25.4
3	39	20.3	22	30.6	61	23.1
4	24	12.5	11	15.3	35	13.3
5	20	10.4	6	8.3	26	9.8
6	7	3.7	0	0.0	7	2.7
7	1	0.5	2	2.8	3	1.1
Total	192	100	72	100	264	100.0

$Chi^2 = 12.093$, d.f. = 7, p = 0.098)

Table 5.12 investigates the influence of the number of pupils per family simultaneously at school on the interest in tertiary agricultural education.

Table 5.12 : Frequency distribution of respondents on the basis of the number of children in the family and interest in tertiary education (N = 259)

No. of children at school	Interest in tertiary agricultural education						Total	
	High interest		Av. interest.		Low interest			
	n	%	n	%	n	%	N	%
1	27	42.2	22	34.4	15	23.4	64	24.7
2	25	37.9	29	43.9	12	18.2	66	25.5
3	22	36.7	28	46.6	10	16.7	60	23.2
4	11	32.4	16	47.0	7	20.6	34	13.1
5	18	51.4	13	37.2	4	11.4	35	13.5
Total	103	100	108	100	48	100	259	100

$Chi^2 = 5.610$, d.f. = 8, p = 0.691

The number of children per family at school seems to have an even smaller influence on the interest in tertiary agricultural education ($Chi^2 = 5.610$, d.f. = 8, $p = 0.691$) than on the choice of agriculture as school subject. This means that whether a family has one or five children at school, is unlikely to have an influence on pupils' interest in agricultural education at tertiary level.

CHAPTER 6

FUTURE OPPORTUNITIES

6.1 INTRODUCTION

According to Mndebele & Dlamini (1990, 10) it is generally accepted that the overall mission of higher education is to provide the opportunity for the acquisition of knowledge and skill. The acquired skills will lead to the improvement of the quality of life by making available the acquired knowledge to the public.

This chapter discusses perceived future opportunities in agricultural science, which include job opportunities, access to higher education and study possibilities in agricultural science and their influences on subject choice at school.

6.2 JOB OPPORTUNITIES

It is assumed that job opportunities are likely to influence pupils' choice of subjects , especially in the current South Africa characterised by large scale unemployment. Pupils were asked whether job opportunities in agricultural science had an influence on their choice of agricultural science at school. The response is shown in Table 6.1.

Table 6.1 Frequency distribution of respondents[(1)] according to the expressed influence of job opportunities on the choice of agricultural science as a school subject

Influence	**N**	**%**
No influence	13	7.3
Fair influence	27	15.1
Very decisive influence	139	77.6
Total	179	100.0

[(1)]Table includes only agricultural science pupils.

Table 6.1 illustrates that an overwhelming majority of agricultural science pupils (77.6%) expressed the view that their perception of job opportunities in agricultural science had a decisive influence on their choice of studying agricultural science at school. Only 7.3 percent were of the opinion that job opportunities had no influence on their choice of subjects. This shows that the perceived job opportunities in agriculture is an important factor determining the choice of agricultural science as a school subject.

It can be expected that the degree of influence will also be manifested in the interest in tertiary agricultural education. If this were the case, pupils exposed to more influence would tend to rank agricultural science relatively higher as a favoured choice of study in tertiary education. This indirect influence is supported by the frequency distribution in Table 6.2 and the highly significant ($Chi^2 = 35.918$, d.f. = 4, $p = 0.000$)

Table 6.2 : Frequency distribution of respondents according to the rank order of agriculture as choice of tertiary study and the degree of influence obtained in the choice of agricultural science as a school subject (N = 259)

Degree of influence	**Respondents per rank order position of agric.science**						**Total**	
	1 – 3 (High)		4 – 6 (Medium)		7 – 9 (Low)			
	N	%	n	%	n	%	N	%
None	19	18.5	50	46.3	28	58.3	97	37.5
Small	9	8.7	16	14.8	2	4.2	27	10.4
Decisive	75	72.8	42	38.9	18	37.5	135	52.1
Total	103		108		48		259	100

$Chi^2 = 35.928$, d.f. = 4, $p = 0.000$

The findings show a close relationship between the preference of agricultural science as tertiary field of study and the expressed influence of job opportunities on the

choice of agriculture as a school subject (Chi^2 = 35.928, d.f. = 4, p = 0.000). Whereas 72.8 percent of the pupils who were decisively influenced by job opportunities, ranked tertiary agricultural education amongst the first three choices, only 18.5 percent of those whose subject choice was not influenced by job opportunity, ranked tertiary agricultural education among their first three choices. Whether or not the degree to which job opportunity influences subject choice also depends on the environment , is investigated in Table 6.3. Evidence of such influence is found by the frequency distribution in Table 6.3 and the significant Chi-square (Chi^2 = 44.042, d.f. = 4, p = 0.001).

Table 6.3 Frequency distribution according to respondents' environment and the perceived degree of job opportunities influencing their subject choice

Influence of job opportunities	**Environment of pupils**						**Total**	
	Urban		Semi-urban		Rural			
	N	%	n	%	n	%	N	%
Small	9	33.3	5	7.30	84	50.0	98	37.1
Medium	1	3.7	7	10.1	19	11.3	27	10.2
Decisive	17	63.0	57	82.6	65	38.7	139	52.7
Total	27		69		168		264	

Chi^2 = 44.042, d.f. = 4, p = 0.001

These findings indicate that the decision of pupils in urban schools regarding this subject choice (agriculture) tends to be more decisively influenced by perceived job opportunities than of those in rural schools. Significant differences (Chi^2 = 44.04, d.f. = 4, p = 0.001) occur between the categories. For example, 63.0 percent of urban pupils maintained that job opportunities had a decisive influence on their choice of agriculture as a school subject, as opposed to only 38.7 percent of the rural pupils.

6.3 ACCESS TO HIGHER EDUCATION

Access to higher education is bound to be an important consideration for many pupils and also likely to influence their subject choice. Pupils were asked to rate the various school subjects according to the access they provide to higher education. The responses are summarised in Table 6.4

Table 6.4 Frequency distribution of respondents according to their rating of different subjects in providing access to higher education

Access(Scale points)	**Agriculture**		**Biology**		**Physical Science**	
	n	%	n	%	N	%
No access (0)	6	3.2	10	3.8	0	0.0
Small (1 – 4)	34	18.5	47	17.7	5	10.9
Good (5 – 9)	135	73.4	200	74.8	41	89.1
No response	9	4.9	7	2.7	0	0.0
Total	184	100.0	264	100.0	46	100.0

In general, these subjects agricultural science, science, biology and physical science are perceived to provide good access to higher education, as is shown by the respective 73.4, 74.8 and 89.1 percent respondents that share this opinion. This means that agriculture is perceived to provide as good an access as biology, but both are clearly surpassed by physical science (89.1%).

Whether and to what degree the perceived access provided by agriculture to higher education is dependent on the environment, is analysed in Table 6.5

These findings indicate significant differences between the environmental categories ($Chi^2 = 14.137$, d.f. = 4, p = 0.007) regarding the perceived access given by agriculture as a subject to tertiary education. On closer investigation, it appears that urban pupils tend to be more convinced about the accessibility provided by agriculture than the pupils from rural schools. For example, 72.7 and 82.6 percent of the urban and semi-urban pupils respectively assessed the accessibility to be high while only 66.7 percent of the rural pupils shared this view.

Table 6.5 Frequency distribution of respondents[1] according to the influence the environment may have on access to higher education (N = 184)

Access (Scale points)	**Environment of pupils**						**Total**	
	Urban		Semi-urban		Rural			
	n	%	n	%	n	%	N	%
Small (1-3)	4	18.2	6	8.7	5	5.4	15	8.2
Medium (4-6)	2	9.1	6	8.7	26	28.0	34	18.5
High (7-9)	16	72.7	57	82.6	62	66.7	135	73.4
Total	22		69		93		184	

[1]Agricultural pupils only

$Chi^2 = 14.137$, d.f. = 4, p = 0.007

The perceived access provided by agriculture as a school subject to higher education and the degree to which agriculture is favoured as a field of tertiary study is expected to be related. This relationship is shown in Table 6.6.

Table 6.6 Frequency distribution of respondents (agricultural science pupils) according to the expressed influence of agricultural science in providing access to tertiary education and the rank position of agriculture as a favoured field of study in tertiary education (N = 181)

Access	**Position of agric. science in tertiary education**						**Total**	
	Low (1 – 3)		Med. (4 – 6)		High (7 – 9)			
	n	%	n	%	n	%	N	%
Low access	2	2.3	9	13.4	3	11.1	14	7.7
18.8	15	17.2	14	20.9	5	18.5	34	18.8
High access	70	80.4	44	65.7	19	70.4	133	73.5
Total	87		67		27		181	100.0

$Chi^2 = 7.973$, d.f. = 4, p = 0.093

Although there are respondents who ranked agricultural science as their most favoured field of study on a tertiary level, and also tend to rate the access that agriculture as a school subject provides for higher education somewhat higher, the difference between the categories is not significant ($Chi^2 = 7.973$, d.f. = 4, $p = 0.093$)

Against expectations, there does not appear to be a relationship between the expressed access that agriculture provides to tertiary education and the interest in tertiary agricultural education ($Chi^2 = 7.973$, d.f. = 4, $p = 0.093$). This may be an indication of unreliable responses regarding the access provision arising from an impression to have to answer affirmatively.

6.4 STUDY POSSIBILITIES

Agricultural education is provided at several levels in educational institutions. These levels, as stated by Mazengera (1990, 11), include adult education, primary education, secondary education and tertiary level. According to Mazengera (1990, 11), most subjects taken at matric level by black students are not in the sciences, and, consequently, these students are rather unsure at the end of their matric training to decide clearly what they want to and can study at a tertiary institution in preparation for a future career. Respondents were asked whether future study possibilities have an influence on this decision to choose agriculture as a school subject. The findings are summarised in Table 6.7.

Table 6.7 Frequency distribution of respondents(1) according to the expressed influence that future study possibilities may have on the choice of agricultural science as a school subject (N = 181)

Influence	**No**	**%**
Low influence	11	6.1
Fair influence	32	17.7
Decisive influence	138	76.2
Total	181	100.0

(1) Agricultural science pupils only

It seems that future study possibilities had a decisive influence on choice of agriculture as school subject with more than 76.2 percent of all agricultural science pupils . This is significant . However, it is possible that the affirmative replies referred to their perception of the importance of study possibilities when choosing subjects.

Whatever the case may be, a close relationship is expected between the expressed influence of perceived study possibilities and the rank order of agriculture as favoured tertiary education.

Table 6.8 Frequency distribution of respondents according to the expressed influence of study possibilities on subject choice and the interest in tertiary agricultural education (N = 259)

Study possibilities influence	**Position of agric. science at tertiary level**						**Total**	
	1		2		3			
	n	%	n	%	n	%	N	%
Low influence	18	17.5	49	45.4	26	54.2	93	35.9
Fair influence	11	10.7	17	15.7	3	6.3	31	12.0
Decisive infl.	74	71.8	42	38.9	19	39.6	135	52.1
Total	103		108		48		259	100.0

$Chi^2 = 32.396$, d.f. = 4, p = 0.001

This assumption is supported by the findings in Table 6.8 showing a close relationship between perceived study possibilities and interest in tertiary agricultural education. Of those pupils showed a high interest in tertiary agricultural education, 71.8 percent acknowledge a decisive influence of study possibilities on subject choice, whilst only 17.5 percent claimed this influence to be low. Table 6.9 investigates whether this influence or tendency of study possibilities having an influence on subject choice is environment related.

Table 6.9 : Frequency distribution of respondents according to the expressed influence of study possibilities on subject choice and the environmental background

Study possibilities influence	**Environment**						**Total**	
	Urban		Semi-urban		Rural			
	n	%	n	%	N	%	N	%
Low influence	8	29.6	3	4.4	83	49.4	94	35.6
Fair influence	3	11.1	7	10.1	22	13.1	32	12.1
Decisive infl.	16	59.3	59	85.5	63	37.5	138	52.3
Total	27		69		168		264	100.0

$Chi^2 = 50.412$, d.f. = 4, p = 0.001

Table 6.9 shows a highly significant relationship between study possibilities and the environment. It seems that study possibilities are highly rated by pupils from a semi-urban environment (85.51%) as compared to 59.26 and 37.50 percent of urban and rural environments respectively. Almost half of rural environment respondents (49.40%) maintained that study possibilities have a low influence as compared to 29.63 and only 4.35 percent of urban and semi-urban environments respectively. The significant differences ($Chi^2 = 50.4$, d.f. = 4, p = 0.001) between the environmental categories emphasise the environmental variation. The indication is that urban and semi-urban pupils are more inclined to consider study possibilities when choosing a school subject (agriculture). For example, 59.3 and 85.5 percent of the urban and semi-urban pupils respectively maintained that study possibilities had a decisive influence on their subject choice, while among pupils from rural schools this percentage is only 37.5 percent.

CHAPTER 7

TEACHERS' QUALITY AND REPUTATION

7.1 INTRODUCTION

According to Gunther (1986, 132) a teacher performs a very valuable function and occupies a very important place in education. In most cases, pupils regard teachers as role models and some may be influenced by their teachers and in turn emulate them.

This chapter discuses the role of the teacher and potential influence which is assumed to be influenced by inter alia, knowledge of his subject, his quality as a teacher, his accessibility and his personality, as perceived by pupils.

7.2 PERSONALITY

The teacher's influence as role model for pupils is largely determined by his personality, which indirectly may have a bearing effect on the subject choice of pupils. The influence of teachers' personality on the subject choice of pupils is shown in Table 7.1.

Table 7.1 : Frequency distribution of respondents according to their subject choice and assessments of their teacher's personality (N = 232)

Subject Choice	**Frequency per assessment category**				**al**	
	Weak		Good			
	n	%	n	%		
Agric. Science	66	39.5	101	60.5		)
Physical Science	7	16.3	36	83.7		5
Home Economics	10	45.5	12	54.6		
Total	83		149		232	100.0

$Chi^2 = 10.034$, d.f. = 4, p = 0.004

The above Table shows highly significant differences (Chi^2 = 10.034, d.f. = 4, p = 0.004) between the different groups of pupils concerning the assessment of their teachers' personality. Physical Science teachers are held in much higher esteem as is evident from the fact that 83.72 percent of the Physical Science students rated their teachers' personality as good in comparison to 60.48 percent and 54.55 of the agricultural science and home economics students respectively.

This is an indication of a bigger potential influence and thus the probability that the physical science students were more influenced by their teachers regarding subject choice than the agricultural science students.

It seems there is no relationship between the environment and the personality of teachers as perceived by respondents. This is supported by the non-significant Chi-square (Ch^2 = 1.494, d.f. = 4, p = 0.828). Table 7.2 shows the non-significant Chi=square.

Table 7.2 : Frequency distribution of respondents according to the environment and the assessment of their teacher's personality

Personality assessment	**Environment of pupils**						**Total**	
	urban		semi-urban		rural			
	n	%	n	%	n	%	N	%
Weak	20	90.9	65	94.2	89	95.7	174	94.5
Average	1	4.6	3	4.4	2	2.2	6	3.3
Good	1	4.6	1	1.5	2	2.2	4	2.2
	22		69		93		184	100.0

Chi^2 = 1.494, d.f. = 4, p = 0.828

Even though there seems to be no significant relationship between environment and personality of teachers, as perceived by respondents, it is a point of concern that almost all teachers' personalities have been rated as low (weak)(90.91% urban, 94.24% semi-urban and 95.70% rural). Even though the survey does not cover the

reasons behind the low rating,, it seems in general the behaviour of some teachers is not good.

7.3 KNOWLEDGE

The teacher as a teaching leader of children must possess knowledge, especially of his subject, as well as the art of teaching it to his pupils. This knowledge is bound to have an influence on the respect pupils have for their teachers and, consequently, on his potential influence on them. The relationship between the teachers' knowledge and subject choice is shown in Table 7.3.

Table 7.3 : Frequency distribution of respondents according to their subject choice and

Assessment of their teachers' knowledge of their subjects (N = 227)

Subject Choice	**Frequency per assessment category**						**Total**	
	poor		average		good			
	n	%	n	%	n	%	N	%
Agric.Science	26	16.3	42	26.3	92	57.5	160	70.5
Home Econ.	5	20.8	10	41.7	9	37.5	24	10.6
Physical Sc.	0	0.0	1	2.3	42	97.7	43	19.0
Total	31		53		143		227	

$Chi^2 = 31.184$, d.f. = 4, p = 0.000

There is a highly significant difference between groups taking agricultural science, home economics or physical science in terms of knowledge assessment of their teachers ($Chi^2 = 31.184$, d.f. = 4, p = 0.000). The physical science pupils have, compared to those taking agricultural science and home economics a much higher regard of their teachers' knowledge. This could be attributed to the fact that it would be too difficult for teachers not trained in physical science to offer the subject, hence it seems that all teachers in this subject are well trained. 97.67 percent of physical science pupils have rated their teachers' knowledge as good. This is an indication that the knowledge of agricultural science teachers leaves a lot to be desired, which supports the findings by the Agricultural Science Guidance (1982, 6) that the

knowledge of the agricultural science teachers is generally at a low level. This inadequate knowledge of teachers may contribute towards a negative attitude among pupils towards the subject, which in turn may cause pupils to be hesitant in following the subject.

The environment of pupils might play a role in the knowledge of teachers. The relationship between the environment and the knowledge of teachers as perceived by respondents is shown in Table 7.4.

Table 7.4 : Frequency distribution of respondents according to the environment and the assessment of their teachers' knowledge (N = 162)

Knowledge assessment	**Environment of pupils**						**Total**	
	Urban		Semi-urban		Rural			
	n	%	N	%	n	%	N	%
Low	1	4.6	24	48.0	2	2.2	27	16.7
Average	5	22.7	20	40.0	18	20.0	43	26.5
Good	16	72.7	6	12.0	70	77.8	92	56.8
Total	22		50		90		162	

$Chi^2 = 73.270$, d.f. = 4, p = 0.001

There seems to be a relationship between the environment and knowledge of teachers as supported by the significant Chi-square ($Chi^2 = 73.270$, d.f. = 4, p = 0.001). It seems that respondents from both urban (72.73 percent) and rural (77.78 percent) environments have a regard for their teachers' knowledge, as they rated their teachers' knowledge as good, as compared to only 12.00 percent of semi-rural environment. In contrast, more semi-rural respondents (48.00%) have rated their teachers' knowledge low, as compared to 4.55 percent urban and 2.22 percent of respondents from a rural environment. Thus teachers from a semi-rural environment seem to have a low knowledge of their subject matter, as compared to urban and rural environments.

7.4 QUALITY OF TEACHERS

According to Van Niekerk (1989, 66), the quality of the school depends on the quality of teachers. This reasoning is probably based on the impact an influence of the quality of teachers may have on pupils. One form of influence could be that on subject choice. This is investigated in Table 7.5.

Table 7.5 : Frequency distribution of respondents according to their subject choice and assessment of their teachers' quality (N = 235)

Subject Choice	**Teacher assessment category**						**Total**	
	Poor		Average		Good			
	n	%	n	%	n	%	N	%
Agric.Science	22	13.3	51	30.7	93	56.0	166	71.0
Home Econ.	7	26.9	13	50.0	.6	23.1	26	11.1
Physical Sc.	0	0.00	1	2.3	42	97.7	43	18.3
Total	29		65		141		235	

$Chi^2 = 41.648$, d.f. = 4, p = 0.000

The above table shows highly significant differences ($Chi^2 = 10.034$, d.f. = 4, p = 0.000) between different groups of pupils concerning the assessment of their teachers' quality. Physical science teachers are held in much esteem, as is evident from the fact that 97.67 percent of the physical science students rated their teachers' quality as good, in comparison to only 56.02 percent and 23.08 percent of the agricultural science and home economics pupils respectively.

This is a clear indication of a bigger potential influence and thus the probability that the physical science pupils were more influenced by their teachers regarding subject choice than the agricultural science and home economics pupils.

The relationship between the environment and the quality of teachers is shown in Table 7.6.

There is a significant relationship between the environment and the quality of teachers as perceived by pupils. The relationship is supported by a highly significant Chi-square ($Chi^2 = 50.708$, d.f. = 4, p = 0.001). It seems once more, as with

knowledge of teachers, that in urban and rural environments respondents have rated their teachers' quality as good,. (76.19 and 74.44 percent respectively) as compared to only 19.30

Table 7.6 : Frequency distribution of respondents according to their environment and the assessment of their teachers' quality (N = 168)

Quality assessment	**Environment of pupils**						**Total**	
	urban		semi-urban		rural			
	n	%	n	%	n	%	N	%
Weak	0	0.0	17	29.8	5	5.6	22	13.1
Average	5	23.8	29	50.9	18	20.0	52	31.0
Good	16	76.2	11	19.3	67	74.4	94	56.0
Total	24		57		90		168	

$Chi^2 = 5o.7o8$, d.f. = 4, p = 0.001

percent of respondents from a semi-rural environment. Even though the quality of urban and rural teachers as perceived by pupils, seems to be good, urban teachers seem to be better rated, as no teachers' quality is rated low, compared to that of teachers from a rural environment where 5.56 percent of respondents have rated their teachers' quality as low.

7.5 ACCESSIBILITY OF TEACHERS

For teachers to have an influence on pupils, especially on a personal and individual level, it is essential that teachers are perceived to be accessible. Table 7.7 compares the perceived accessibility of teachers teaching various subjects.

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The findings in Table 7.7 show a similar tendency as that observed in the case of personality and quality, except that the differences are even more pronounced (Chi^2 = 12.580, d.f. = 2, p = 0.002). Whereas 88.37 percent of the physical science pupils rate their teachers ' accessibility as good, only 16.6 percent of the agricultural science pupils regard their teachers as accessible. The low accessibility of agricultural

Table 7.7 : Frequency distribution of respondents according to their subject choice assessments of their teachers' accessibility (N = 232)

Subject Choice	**Frequency per assessment category**				**Total**	
	poor		good			
	n	%	n	%	N	%
Agric.Science	57	83.8	11	16.6	168	72.4
Home Economics	11	52.4	10	47.6	21	9.1
Physical Science	5	11.7	38	88.4	43	18.5
Total	73		159		232	

$Chi^2 = 12.580$, d.f. = 2, p = 0.002

science teachers may be directly related to their inadequate knowledge and the consequent unwillingness to help pupils. Whatever the reason, the findings suggest that agricultural science pupils are less likely to receive help from their teachers also as far as subject choice is concerned.

The relationship between accessibility of teachers as perceived by respondents and environment is investigated in Table 7.8 .

Table 7.8 : Frequency distribution of respondents according to their environment and assessments of their teachers' accessibility (N = 172)

Assessment category	**Environment of pupils**						**Total**	
	urban		semi-urban		rural			
	n	%	n	%	n	%	N	%
Weak	0	0.0	10	16.4	4	4.6	14	8.2
Average	3	13.6	19	31.2	24	27.3	46	26.9
Good	19	86.4	32	52.5	60	68.2	111	64.9
Total	22		61		88		171	100.0

$Chi^2 = 13.258$, d.f. = 4, p = 0.010

According to the Chi-square ($Chi^2 = 13.258$, d.f. = 4, p = 0.010), there seems to be a highly significant relationship between the environment and the accessibility of teachers as perceived by respondents. It seems that teachers from urban environment

(86.36%) are better rated as far as accessibility is concerned than teachers from both semi-urban (52.46%) and rural (68.18%) environments. Concerning weak accessibility, no teacher's accessibility from urban environment has been rated low as compared to 16.39 and 4.55 percent from semi-urban and rural environments respectively. Thus it seems that teachers from urban environments are better accessible than teachers from both semi-urban and rural environments.

CHAPTER 8

INFLUENCE OF OTHER PEOPLE

8.1 INTRODUCTION

The influence that other people have in most decision-making is bound to be significant. According to Baron & Byrne (1991, 313) this should be particularly the case where the influence comes from groups that are important for the individual and to which he wants to belong.

This chapter investigates the influence of fellow pupils and parents on the subject choice of pupils.

8.2 Parents' recommendations

Parents, according to Dekker & Lemmer (1913, 154) include the entire community of a specific school. Their involvement in their children's education will help them to play a role in recommending the type of subjects their children should study at school. This recommendation of parents may have an influence on subject choice. This is shown in Table 8.1.

Table 8.1 Frequency distribution of pupils according to the reported influence of their parents on their studies (N = 264)

Degree of influence	Number	Percentage
No influence	128	48.4
Mild influence	63	23.9
Very decisive influence	73	27.7
Total	264	100.0

It seems from Table 8.1 that parents in general have little influence on their children regarding the choice of their subjects. Almost half the respondents (48.4%) maintained that their parents had no influence on their subject choice. Only 27.7 percent claimed that the influence of their parents has been very decisive.

Table 8.2 investigates whether this influence is related to the importance of agriculture as a field of tertiary education.

Table 8.2 Frequency distribution of the respondents according to parents' influence on subject choice and the importance (rank order) of agriculture as a field of tertiary education (N = 259)

Parents' recommendations	**Position of agric. at tertiary level**						**Total**	
	1st		2nd		3rd			
	n	%	n	%	n	%	N	%
No influence	45	31.9	65	46.1	31	22	141	54.4
Mild	17	46	14	37.8	6	16.2	37	14.3
Very decisive	41	50.6	29	35.8	11	13.6	81	31.3
Total	103		108		48		259	100.0

$Chi^2 = 8.488$, d.f. = 4, p = 0.075

Although not very significant (p = 0.075) the Chi-square of 8.488 (d.f. = 4) gives an indication of differences between the various categories indicating a slight tendency for pupils having been influenced by their parents in the subject choice to assign a higher position to agriculture as an important field of tertiary study.

Parents' influence may somehow be influenced by the environment. This is investigated in Table 8.3.

It seems from Table 8.3 that environment has a very significant influence on parents' recommendations, as supported by a highly significant Chi-square ($Chi^2 = 50.2$, d = 4, p = 0.001). Even though the Chi – square is significant, it seems that the influence of environment on parents' recommendations is very low, as in urban environment 70.4

Table 8.3 : Frequency distribution of respondents according to the influence of their parents on their studies and their environment (N = 168)

Parents' recom-mendations	**Respondents per environment category**						**Total**	
	Urban		Semi-urban		Rural			
	n	%	n	%	n	%	N	%
No influence	19	70.4	13	18.8	113	67.26	145	55.0
Mild influence	2	7.4	16	23.2	20	11.9	38	14.4
Very decisive	6	22.2	40	58.0	35	20.8	81	30.7
Total	27		69		168		264	100.0

$Chi^2 = 50.2$, d.f. = 4, p = 0.001

percent and in rural environment 67.3 percent stated that there is no influence as compared to the very low percentage of respondents in the two categories (urban – 22.2 and rural = 20.8) concerning very decisive influence. It can be assumed that parents in the two environments have a very limited interest in their children's subjects.

8.3 COUNSELLING

Counselling, as stated by Lindhard, Dlamini & Barnard (1984, 6) can be defined as a personal assistance and guidance given to a pupil in an interview. It can be described as a conversation in which the teacher helps the pupil who has a problem. Often counselling is concerned with helping the pupil to make a choice or come to a decision. This can be important in the correct choice of subjects at school.

Pupils were asked whether they had been counselled before choosing the s subjects they were studying at school. Fig 8.1 summarises the response.

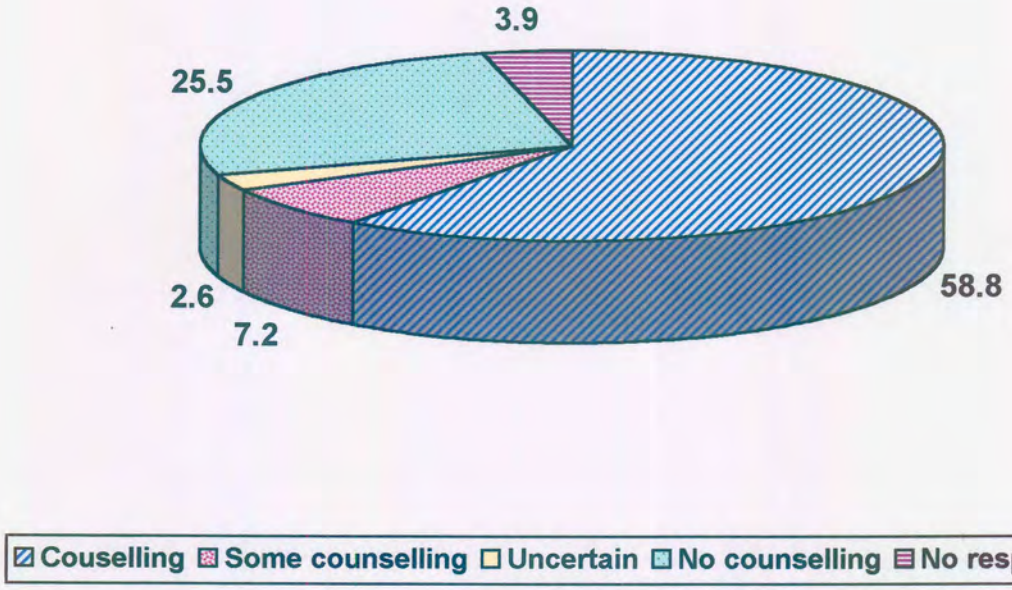


Fig 8.1 : Percentage distribution of agricultural science students according to the degree of counselling received (N = 147)

It is illustrated by Fig. 8.1 that of a total of 147 respondents 27.5 percent claimed not to have received counselling before choosing the subjects they are presently studying. A further 7.2 percent received only limited counselling. This means that less than 60 percent were properly counselled, while the rest may have followed wrong subjects because of no or insufficient assistance.

It is essential that pupils should study those subjects at school that will be of assistance in tertiary education. Pupils were asked whether counselling they have received at school would have any influence on the choice of study at tertiary level. The response is shown in Table 8.4

Table 8.4 illustrates that there is no significant relationship between the degree of counselling received and the preference of agriculture as a possible profession in future ($Chi^2 = 5.294$, d.f. = 8, $p = 0.325$). A possible explanation for this is that agriculture is not a field of study recommended by teachers during counselling.

Table 8.4 : Frequency distribution of respondents (agricultural science pupils) according to the degree of subject counselling received and the preference rank order of agricultural science at tertiary level (N = 152)

Rank order of Agric.	**Respondents according to degree of counselling**							
	No response		No counselling		Somewhat		Uncertain	
	N	%	n	%	n	%	n	%
1	2	2.6	21	21.6	6	7.9	0	0.0
2	4	7.7	12	23.1	3	5.8	3	5.8
3	0	0.0	9	37.5	2	8.3	1	4.2
Total	6		42		11		4	

$Chi^2 = 9.212$, d.f. – 8, $p = 0.325$

As far as the influence of environment on counselling is concerned, there seems to be no significant relationship between counselling and the environment, as supported by the Chi-square ($Chi^2 = 5.294$, d.f. = 8, $p = 0.726$), and, consequently, no indication of a relationship. Evidence of this appears in Table 8.5.

Table 8.5 : Frequency distribution of respondents (1) according to the degree of counselling received and their environment (N = 153)

Degree of counselling	**Respondents per environment category**						**Total**	
	Urban		Semi-urban		Rural			
	n	%	n	%	n	%	N	%
No response	2	0.0	1	1.7	3	4.1	5	3.9
No counsel.	5	25.0	18	30.5	19	25.7	42	27.5
Somewhat	2	10.0	5	8.5	4	5.4	11	7.2
Uncertain	1	5.0	2	3.4	1	1.4	4	2.6
Yes	10	50.0	33	55.93	47	63.5	90	58.8
Total	20	100	59	100	74	100	153	100.0

$Chi^2 = 5294$, d.f. = 8, $p = 726$

(1) Agric. science pupils only

8.4 FELLOW PUPILS' INFLUENCE IN RELATION TO CHOICE OF SUBJECTS

According to Sandrock (1995, 317), children take up a new role when they become pupils. They interact and develop relationships with others, adopt new reference groups and develop new standards. These new groups, according to Baron & Byrne (1994, 441) may exert a powerful influence on their fellow pupils, which in turn may affect subject choice. The relationship between this influence by fellow pupils and subject choice is shown in Table 8.6.

Table 8.6 : Frequency distribution of respondents according their subject choice and the degree of influence by fellow pupils on their choice of subjects (N = 249)

Choice of Subjects	**Respondents per influence category**						**Total**	
	No influence		Mild influence		Strong infl.			
	n	%	n	%	n	%	N	%
Agric. Sc.	49	27.2	60	33.3	71	39.4	180	72.3
Home Econ.	24	92.3	1	3.9	1	3.9	26	16.4
Physical Sc.	43	100.0	0	0.0	0	0.0	43	17.3
Total	116		61		72		249	100.0

$Chi^2 = 98.271$, d.f. = 4, p = 0.000

There seems to be a significant difference between the groups, in the sense that the influence of fellow pupils is very significant in the case of agricultural science, but almost absent in the case of Home Economics and Physical Science. For example, no Physical Science pupil had been influenced by fellow pupils to follow physical science as a school subject, whilst only one pupil from home economics claimed to have been influenced by fellow pupils to study home economics as a subject at school.

8.5 Influence of fellow pupils in relation to tertiary education

The influence of fellow pupils in the choice of agricultural science as a subject is shown in Table 8.7.

Table 8.7 : Frequency distribution of respondents according their rank-order rating of agriculture as a study possibility at tertiary level and the degree of fellow pupils on subject choice (N = 259)

Degree of Influence	**Position of Agric. at tertiary level**						**Total**	
	1st		2nd		3rd			
	n	%	n	%	n	%	N	%
No influence	32	25.6	62	49.6	31	24.8	125	48.3
Mild influence	32	51.6	24	38.7	6	9.7	62	23.9
Decisive infl.	39	54.2	22	30.6	11	15.3	72	27.8
Total	103		108		48		259	100.0

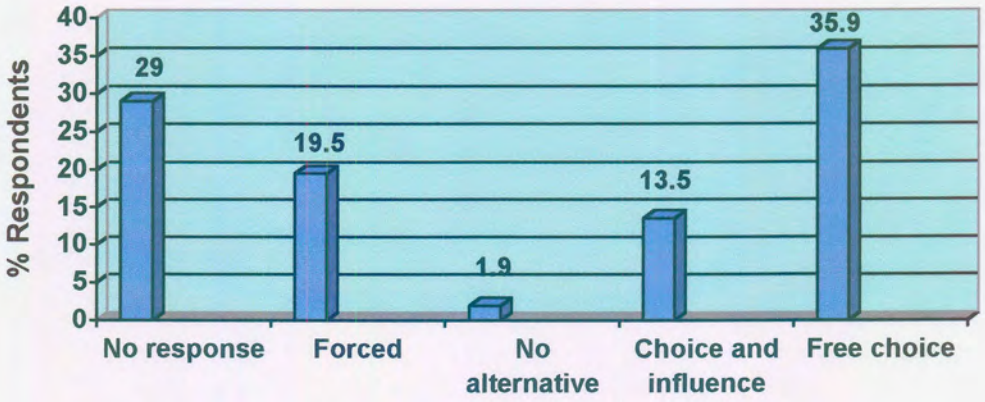
$Chi^2 = 22.083$, d.f. = 4, p = 0.001

According to the Chi-square ($Chi^2 = 22.083$, d.f. = 4, p = 0.001), the categories in Table 8.7 differ significantly, indicating a clear tendency of higher preference for agricultural science at tertiary level , being associated with a higher influence of fellow pupils on the choice of agricultural science as a school subject. For example, 25.60 percent of the pupils rating agricultural science as their first choice at tertiary level, reported no influence of fellow pupils on their choice of agricultural science as school subject, whereas 24.08 percent of the pupils rating agricultural science as their third choice reported no influence. It can thus be concluded that the influence of fellow pupils on the choice of agricultural science as a school subject tends to have an effect on preference of tertiary education.

8.6 CHOICE OF AGRICULTURAL SCIENCE

It is important that pupils should have an idea of subjects that they want to study at school. Hence counselling is important and very necessary. Even though the final choice of subject at school should be made by the pupil, there might be some reasons

that might influence the decision. Some of these reasons and percentages of pupils that opted for agricultural science are shown in Fig. 8.2.



Fi.g. 8.2 : Frequency distribution of respondents according to influences that led to the choice of agricultural science as a school subject (N = 262)

It can also be expected that there could be a relationship between environment and the influence of fellow pupils. This is shown in Table 8.8.

Table 8.8 : Frequency distribution of respondents in different environments and the degree of influence by fellow pupils on subject choice (N = 264)

Influence on Subject Choice	**Respondents per environment category**						**Total**	
	Urban		Semi-urban		Rural			
	n	%	n	%	n	%	N	%
No influence	21	77.8	13	18.8	94	56.0	128	48.52
Mild influence	1	307	26	37.7	36	21.4	63	23.9
Very decisive	5	18.5	30	43.5	38	22.6	73	27.7
Total	27	100.0	69		168		264	100.0 0

$Chi^2 = 38.357$, d.f. = 4, p = 0.001

There seems to be a significant relationship between the environment and the influence of fellow pupils in the sense that the influence of fellow pupils is minimal in

the urban and rural environments as compared to the semi-urban environment. For example, 77.78 and 55.95 percent of urban and rural pupils respectively maintained that environment had no influence whatsoever on influence of fellow pupils. In contrast, only 18,52 and 22, 62 percent of urban and rural pupils respectively stated that the influence of fellow pupils was very decisive.

Even though a large percentage of respondents (35.9%) claimed that they chose agricultural science at school on their own accord, it is still alarming to note that 19.5 percent of respondents claimed to have been forced to study agricultural science at school. This may consequently create serious problems, as the group may view agricultural science negatively. The group may be associated with lack of counselling and lack of diversity in subject choice. Th physical science and home economics groups did not respond, as they did not study agricultural science.

8.7 Choice of agricultural science in relation to tertiary education

The manner in which pupils choose or are forced to choose agricultural science at

Table 8.9 : Frequency distribution of respondents according to the manner in which agricultural science was chosen and the rank-order position of agriculture as a field of study at tertiary level (N = 257)

Reasons for choosing Agricultural Scieces	**Rank-order of Agric. Science at tertiary level**						**Total**	
	1st Position		2nd Position		3rd Position			
	n	%	n	%	n	%	N	%
No response	15	14.6	39	35.5	20	42.5	74	28.8
Forced	23	22.3	22	20.6	5	10.6	50	19.5
No alternative	1	0.9	2	1.9	2	4.3	5	1.9
Own choice – but guided	12	11.7	14	13.1	10	21.3	36	14.0
Own accord	52	50.5	30	28.0	10	21.3	92	35.8
TOTAL	103	100	107	100	47	100	257	100

school may be influenced by their perceived attractiveness of agricultural science studies at tertiary level. The response is shown in Table 8.9.

From Table 8.9 it appears that, whether pupils are forced to take agricultural science at school or whether they can choose on own accord, has no influence on the preference of agricultural science as a subject at tertiary level. Exposure to agricultural science as a subject seems to be more critical. This is supported by the fact that only 14.56 percent of the non-response group (which are predominantly the physical science and home economics pupils), rated agricultural science as their first preference at tertiary level, as opposed to 22.33 percent and 50.49 percent respectively in the group forced to take agricultural science and those left to make their own choice. The environment may have an influence in the manner in which pupils choose their subjects at school. This is investigated in Table 8.10.

Table 8.10 : Frequency distribution of respondents in different environments and the manner in which agricultural science was chosen at school as a school subject (N = 262)

Reasons for choosing Agriculture	**Respondents per environment category**						**Total**	
	Urban		Semi-urban		Rural			
	n	%	n	%	n	%	N	%
No response	1	3.7	0	0.0	75	44.6	76	29.0
Forced	14	51.9	9	13.4	28	16.7	51	19.5
No altern.	2	7.4	0	0.0	3	1.8	5	1.9
Guid. Choice	3	11.1	17	25.4	16	9.5	36	13.7
Own accord	7	26.0	41	61.2	46	27.4	94	35.9
Total	27		67		168		262	100.0

$Chi^2 = 86.603$, d.f. = 8, p = 0.001

The response shows a close relationship between the environment and the reasons for choosing agricultural science as a school subject ($Chi^2 = 86.603$, d.f. = 8, p = 0.001). More than half of the respondents, 51.85 percent, of urban environment stated that they had been forced to study agricultural science, against only 16.67 percent of rural

respondents. On the other side almost the same percentage of both urban and rural respondents maintained to have chosen agricultural science voluntarily.

It is a point of concern that such a large percentage of respondents should state that they had been forced to study agricultural science. This can be a contributory factor towards the general poor performance of pupils in agricultural science and also explain why their perception towards the study of agriculture at tertiary level is not more positive.

CHAPTER 9

SUMMARY AND CONCLUSIONS

Agricultural science is one of the subjects at school that can contribute towards the general education of pupils. But something seems to have gone wrong with the teaching of agricultural science at school. Evidence of this is the high failure rate , which sometimes reaches more than 90 percent. But in spite of this high failure rate , pupils are still studying agricultural science at school.

The main aim of this study was to investigate factors that may influence the choice of agricultural science as a school subject. In order to attain this aim, six high schools in the Temba District were sampled to represent urban, semi-urban and rural schools. All agricultural science pupils and, for purposes of comparison, forty five pupils doing physical science and twenty seven from home economics were interviewed. Factors assumed to have an influence on subject choice and investigated included the agricultural family and household background of pupils, future study and career opportunities, the influence of parents, teachers and peers, etc.

As far as the agricultural background of pupils is concerned, the lack of variation allowed limited conclusions. The large majority had an agricultural background varying from regular visits to relatives on a farm, living or growing up on a farm to having worked or still working on a farm. The fact that non-agriculture students had the most intensive association with a farming background, seems to indicate that a close association with agriculture is a deterrent rather than an incentive to choose agriculture as a school subject.

Agricultural science pupils have a significantly higher interest in studying agriculture at tertiary level than the non-agriculture pupils. This could be a consequence rather than the cause of the choice of agricultural science at school level. However the latter cannot be ruled out, since 76.2 percent of the agricultural science pupils admitted that

future study possibilities in agricultural science had a decisive influence on their choice of agricultural science as a school subject. This influence was significantly stronger in semi-urban and urban schools. Amongst agricultural science pupils there is also general agreement that agriculture provides good access to tertiary education. Agriculture was rated at least as high as Biology in this regard, but this is significantly lower than the assessment of physical science by the physical science pupils.

The perceived attractiveness of various types of professional careers in general favours agriculture. Only one profession, namely that of the medical practitioner, is assessed to have a higher status or recognition.

The assessment of teachers does not favour agricultural science, although the situation regarding home economics tends to be as bad, if not worse. Physical science teachers were assessed significantly higher as far as personality, teaching quality, accessibility and knowledge is concerned. For example, as far as the latter is concerned, 98 percent of the physical science pupils assessed their teachers as having a "good" knowledge, whereas this percentage is only 58 percent in the case of agricultural science and 38 percent in the case of home economics. It is noteworthy that all these assessments have been significantly lower in the semi-urban than in the urban or rural schools.

An alarming finding is that as many as 19.5 percent of the respondents claimed to have been forced to study agricultural science at school, which does not auger well for the image of agriculture. Parents were found to have a decisive influence on 28 percent of the agricultural science students, but this influence seemed to be inversely related to the assessment of teachers. The lower the assessment of teachers in terms of knowledge, personality and accessibility, the bigger the influence of parents appears to be.

59 percent of the pupils recalled that they had received counselling before choosing their subjects, but this did not contribute towards a better image of agriculture as far as its attractiveness as a field of study at tertiary level is concerned. This may be an indication that agriculture is not a field of study recommended by teachers during counselling. The influence of fellow pupils was found to be quite significant in the

sense that 27.6 percent reported a decisive influence, while only 48.5 percent maintained that they had not been influenced at all. Again it appears as if the influence is more pronounced in the semi-urban schools where teachers tend to be respected less.

To overcome the low knowledge level of agricultural science teachers, it is essential to conduct in-service training courses on a regular basis. Follow-up visits to schools by subject advisors to evaluate the application of the in-service training are essential. Furthermore it is important that the department heads of agricultural science have a good general knowledge of the main components of the various syllabi. They should study the depth and scope of the relevant syllabi very carefully, in order to form a clear picture of appropriate methods to be used in reaching the desired aims.

In order to improve the image of agricultural science at schools, teachers should ensure that agricultural science classes are not used for regular cleaning of school grounds as part of their practical work. Neatness of the school is the responsibility of all teachers and pupils.

It is also imperative that weekly subject meetings be held in order to stimulate subject teachers. This could serve the purpose of discussing problem areas, new developments in agriculture and new materials and aids for teaching. Educational tours to nearby agricultural institutions could contribute towards stimulating teachers' interest and widening their knowledge on the subject.

The findings that parents' influence is more significant where teachers are not held in high esteem, emphasises the need for parents becoming partners in the education of their children. The co-operation of parents is important and can contribute to the overall education impact, particularly while the competency level of agricultural science teachers is still low.

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APPENDIX A

QUESTIONNAIRE

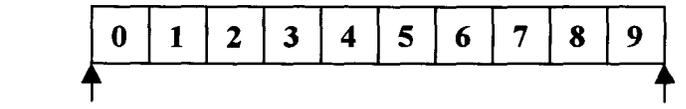
Name: ..... | | | |

School: ..... | | |

1. Place your subjects in rank order according to how interesting they are presented over the radio.

2. Using the following 9-point scale, assess them according to

   (a) enjoyment in class
   (b) enjoyment when studying at home



Totally no Enjoyment — Optimum enjoyment

3. How do you rate the quality of your middle school teachers you had in Std 7 in the various subjects?

Very good	(5)
Good	(4)
Average	(3)
Poor	(2)
Very poor	(1)
N/a	(0)

4. On average, how much time (minutes per week) would you estimate is lost through unpunctuality, absenteeism, etc. of the subject teachers in the various subjects?

5. Indicate how much study time (hours per week) do you devote to the different subjects using the following codes (answer to the nearest whole hour):

Less than 1 hour	(1)
1-2 hours	(2)
2-4 hours	(3)
4-6 hours	(4)
6-8 hours	(5)
> 8 hours	(6)

6. (a) Rate your subjects according to the degree to which you were forced (or had the choice) to take them using the following codes:

   (1) Was forced
   (2) No alternative choice available
   (3) Own choice but strongly guided and influenced
   (4) Choose on own accord

   (b) Give a percentage mark that you expect in each of your subjects at the end of the year.

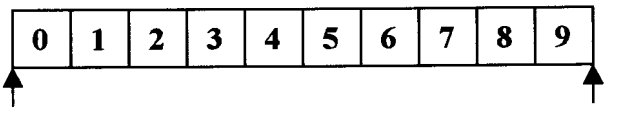
7. Indicate:

   (a) How much written work is given in your various subjects per week?

   (b) How much written work do you regard as optimal per week?

8. Based on the 9-point scale below, how do you rate the various subjects that you are doing in terms of

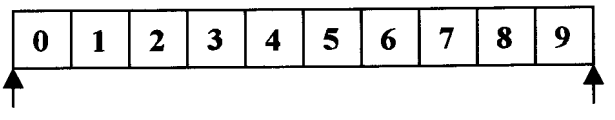
   (a) Amount of practical work
   (b) Quality of practical work
   (c) Availability of text books
   (d) Availability of reference materials



Extremely poor Excellent

9. How would you rate your teachers in the various subjects, using the following 9 point scale in terms of the following

   (a) Knowledge
   (b) Quality of teaching
   (c) Accessibility
   (d) Personality



Absolutely not good Excellent and efficient

10. How do you rate tests in the different subjects that you are doing

    (a) Actual number of tests per month

    (b) Optimum number of tests per month

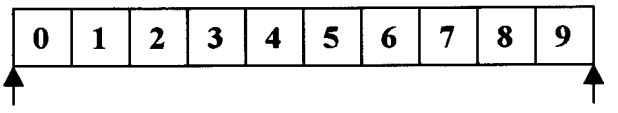
11. How do you rate assignments in the different subjects that you are doing

    (a) Actual number of assignments per month

    (b) Optimum number of assignments per year

12. How would you rate the various subjects, using the following 9 point scale, in terms of the following:

    (a) Access to higher education
    (b) Work opportunities after leaving school
    (c) Work opportunities after completing higher qualifications



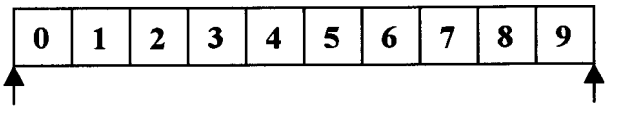
Very poor Excellent

13. Were you ever counselled about the prospects of various subjects before making a choice in Std 8?

    (1) No
    (2) Uncertain
    (3) Somewhat
    (4) Yes (intensively)

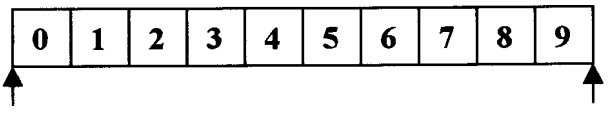
☐

14. How do you rate the difficulty of your subjects based on the 9 point scale below:



Very easy Very difficult

15. How do you rate work opportunities of Agricultural Science as compared to other subjects that you do, using the following 9 point scale:



No work opportunities Optimal work opportunities

17. How old are you Years ☐☐

    (1) < 17 years
    (2) 18 years
    (3) 19 years
    (4) 20 year
    (5) 21 years
    (6) > 21 years

☐

☐☐

18. How many children do your parents have? .....

19. How many are at school? ..... ☐☐

20. How did you come to take Agricultural Science as a subject at school? (Choose the most appropriate alternative)

(1) Was forced
(2) No alternative choice available
(3) Own choice but strongly guided or influenced
(4) Choose on own accord

☐

21. If not forced, who or what motivated you to follow agricultural science? (If more than one indicate rank order)

(1)	Teacher	(6)	TV
(2)	Parents	(7)	Printed media
(3)	Friends	(8)	No one
(4)	Farmer	(0)	n/a
(5)	Radio		

(a) Most important ☐

(b) Second most important ☐

(c) Third most important ☐

22. Who or what had the biggest influence concerning your choice of subjects?

(1)	Teacher	(6)	TV
(2)	Parents	(7)	Printed media
(3)	Friends	(8)	No one
(4)	Farmer	(0)	n/a
(5)	Radio		

(a) Most important ☐

(b) Second most important ☐

(c) Third most important ☐

23. Indicate the study time distribution between the following (Hours per week)

(a) Weekday morning at school ☐☐

(b) Weekday afternoon at school ☐☐

(c) Weekday at home ☐☐

(d) Weekends at school

(e) Weekends at home

24. How many periods have you got per week

Periods per week

25. What do you regard as the ideal number of periods per week for Std 10?

Periods per week

26. What type of punishment (for whatever reasons) have you been given during the past 3 years? (% comparison)

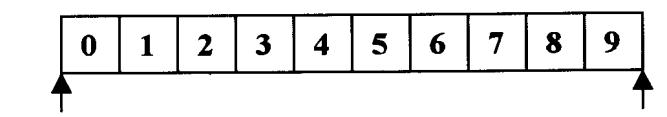
(a) Corporal punishment

(b) Agriculture related work

(c) Learning

(d) Other

27. Rate the following as it applies to you, using the following 9 point scale:



Very poor Very good

(a) Availability of libraries

(b) Usefulness of libraries

(c) Access of libraries

(d) Availability of research stations

(e) Usefulness of research stations

(f) Access of research stations

28. How often do you visit experment stations? Frequency/month

29. How often do you visit experimental stations Times per year ☐☐

30. If the Department were to sponsor you for tertiary education in what rank/order of preference would you take the following programmes (fields)?

(a) MB ChB ☐

(b) B.A. ☐

(c) B. Com ☐

(d) B. Sc. ☐

(e) B. Agric. ☐

(f) B. A.(Social Science) ☐

(g) B. Proc. ☐

(h) B. Theology ☐

(i) Other (specify) ..... ☐

31. How many educational tours (days) did you undertake last year (in Std 9) in the following subject:

(1) Biology ☐

(2) Agriculture ☐

(3) Geography ☐

32. Based on the points below, how do you rate the above tours you undertook?

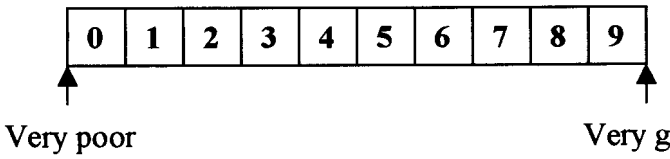
(1) A waist of time i.e. no educational value
(2) Reasonable educational value
(3) Highly educational and relevant

Biology ☐

Agric. Science ☐

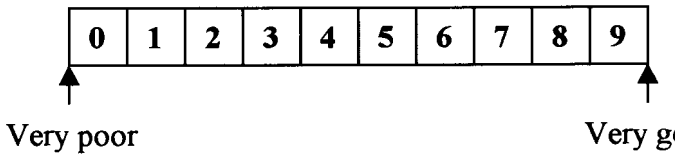
Geography ☐

33. To what degree did the following contribute to your choice for or against agriculture?



(1) Amount of work necessary to pass successfully ☐
(2) The image or status of the subject ☐
(3) The quality of the teacher giving the subject ☐
(4) The influence of fellow students ☐
(5) Job opportunities ☐
(6) Study opportunities ☐
(7) Parents recommendation or advice ☐
(8) Other ☐

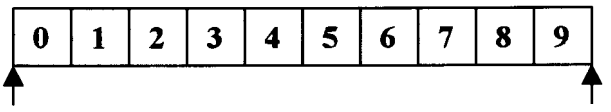
34. How would you rate the various subjects using the following scale:



35. How would you rate the image or status of the following in your society?

(1) Agricultural Scientist ☐
(2) Engineer ☐
(3) Lawyer ☐
(4) Medical practitioner ☐
(5) Teacher ☐
(6) Accountant ☐
(7) Priest ☐

36. To what degree or extent do the following in your view, contribute towards the image or status of a profession? (Indicate your view on the basis of the following 9 point scale:)



Absolutely unimportant — Extremely important

(1) Salary ☐

(2) Behaviour of professionals ☐

(3) Difficulty of studies ☐

(4) Length of studies ☐

(5) Other (specify) ..... ☐

37. Which of the following apply to your background? (Mark the applicable)

(1) Worked on a farm ☐

(2) Frequently visits relatives on a farm ☐

(3) Grew up on a farm ☐

(4) Works on a farm ☐

(5) N/a ☐