

## **Problems of Special Education Needs Students Participation in Secondary Agricultural Education Projects: Challenges for the Vocational Agricultural Education Profession in Botswana.**

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**Abstract:** The study was a descriptive survey designed to identify the problems Special Education Needs (SEN) students face when carrying out agricultural projects in secondary schools in Botswana. Closed and open-ended instruments were used to collect data. The findings showed that SEN students and agriculture teachers respectively face many challenges and problems in teaching and participating in agricultural projects. The study also described the demographic characteristics of the respondents, brought into focus some suggestions SEN students made to education authorities that will enhance their participation in agriculture projects, and identified the challenges agriculture teachers face in teaching SEN students in junior secondary schools. Based on the findings the researchers recommended that: (1) School authorities provide special services to meet the learning needs of SEN students (2) An Individualized Education Program (IEP) should be developed for each SEN student, with input from the students and students' parents, and (3) All who come into contact with the SEN children will need some kind of training prepares them to meet the SEN students' learning and other needs.

**Key words:** Special education, needs students, participation, secondary agricultural education Projects, problems and Challenges.

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### **INTRODUCTION**

Special Education is the individually planned and systematically monitored arrangement of teaching procedures, adapted equipment and materials, accessible settings, and other interventions designed to help learners with special needs to achieve the greatest possible personal self-reliance and success in school and community (Woodward, (1998), <http://www.adapts.gatech.edu/faculty-guide/teach.htm> (2009).

In the Botswana context, a child has special education needs if he/she has a learning difficulty that calls for special educational provision to be made available to her/him. Such children are characterized by significantly greater difference in learning than the majority of children of the same age and by a disability that either prevents or hinders the child from making use of educational facilities of a kind provided for children of the same age in schools within the area of the local educational authority. Various types of disabilities found among school going children or learners in Botswana include: (a) moving difficulties, (b) seeing difficulties, (c) hearing and or speech difficulties, (d) learning difficulties/disabilities, (e) emotional and behavioral difficulties and (e) epileptic fits (Ministry of Education Education, 2006).

The Special Education Division in the Ministry of Education provides an opportunity for SEN children to attend schools along with normal children. The Division however operates under severe handicaps such as the use of old equipment, insufficient funds, lack of rewards to motivate trained SE teachers who believe that they could be more productive teaching the normal child and regard teaching SEN students as a waste of time <http://www.Fao.org/waicent/faoinfo/sustdev/ppdirect/ppre0041.htm> (2008), Ministry of Finance and Development Planning (2003) and the Report of the National commission on Education (1993).

In addition, agriculture teachers do not have the knowledge, skills and the right types of attitudes to respond positively to the needs and concerns of SEN students in secondary schools as such training is lacking in their teacher preparation programs (Botswana College of Agriculture Students Prospectus, (2007).

According to Ross (1995), unhelpful teachers do not provide the enabling environment to enhance the participation of SEN students in projects. Such teachers are often inevitably influenced to give precedence in their work to the skills and facts which would be tested, and to pace their teaching to ensure that particular sections of their school syllabus were completed. Special Education students who lag behind in their projects receive assistance of limited value from uncommitted teachers.

Some teachers have very limited professional education and few are not trained in special education. Almost all teachers have scanty teaching resources, not intended for SEN children.

## **MATERIALS AND METHODS**

**Purpose and Objectives:** The purpose of the study was to identify the problems encountered by SEN students in agricultural science practical projects in junior secondary schools in Botswana. The result of the study may provide useful information to authorities in Special Education Division, Examination, Research and Testing Unit, the Department of Curriculum and Evaluation, school authorities and SEN teachers to make informed decisions regarding the development of improved agricultural education programs for the SEN students. The specific objectives were to: (1) Identify the problems SEN students face in carrying out agricultural science projects, (2) Determine possible solutions to the problems SEN students encounter in carrying out agricultural science projects, (3) Describe the demographic characteristics of SEN agricultural science students, and (4) Determine the challenges agriculture teachers face in teaching SEN students.

**Study Design:** A descriptive survey research design was employed in conducting this study. The researchers used structured and open-ended instruments to collect data from 53 SEN students and 14 agriculture teachers.

**Study Population:** A census study of 53 SEN students and 14 agriculture teachers was conducted in the three designated junior secondary schools in Botswana where both SEN and “normal students” receive instruction in agricultural science and other subjects. The researchers checked an up to- date list of names of SEN and agriculture teachers in each school from the school register and teacher employment records respectively so as to control for frame and selection errors.

**Instrumentation:** The researchers developed the instrument for this study based on the related literature reviewed. The instrument which consisted of close and open ended questions had three sections. Section 1 had three subsections, each with a five point Likert-type scale and response items. A Likert –type scale is a scale that presents a set of attitude statements in which subjects are asked to express agreement or disagreement on a five/six-point scale. Each degree of agreement is given a numerical value from one to five or from one to six. Thus a total numerical value can be calculated from all the responses (<http://www.cultsock.ndirect.co.uk/MUHome/cshtml/psy/likert.html>, 2008). Section 2 had questions that sought to determine the demographic characteristics of the SEN students. Section 3 had open ended question which solicited information from the SEN students about how the education authorities could provide help to meet their educational needs. A separate instrument with open-ended

questions requested the agriculture teachers to give their opinions about the challenges they face in teaching SEN students. The validity of the questionnaire was established by a panel of experts in the Department of Agricultural Economics, Education and Extension (AEE) in the Botswana College of Agriculture. The experts’ suggestions and comments were used to review the questionnaire. As there were no SEN students identified in other schools, the instrument was not field tested to establish its reliability. This could have caused measurement errors which may have affected the reliability of the instrument used to collect the study data.

**Data Collection:** A carefully planned method was used to collect data for the study from the 53 students in the three schools as there were groups of students in each school with different special education needs. For the deaf students, sign language teachers translated the questionnaire into sign language; for students with physical disability, the questionnaire was self administered, and for the totally blind students, their questionnaire was translated into Braille and then self-administered. Their responses were then translated into the original questionnaire format by the SEN specialists. For the students who were partially blind or with low vision, the researchers read the questionnaire to each of them for their oral responses which were recorded. All 14 agriculture teachers in the three schools responded to an open-ended question that sought their opinion about the challenges they faced in teaching the SEN students.

**Data Analysis and interpretation:** Data collected from the closed-ended questions in this study were analyzed using the Statistical Program for Social Sciences (SPSSpc+). In Tables 1, 2 and 3, a median value of 3.0 would separate agreement from disagreement. Frequencies and percentages were used to report the data in Table 4 and for data analyzed for the open-ended questions.

## **RESULTS AND DISCUSSION**

**SEN Students’ Attitudes Toward Selected Crop Production Activities:** According to the findings in Table 1, all the respondents agreed that they faced difficulties in carrying out all crop production projects in junior secondary schools (Means 4.40– 3.75). The findings suggest that the respondents have special education needs which call for special educational provision to be made available to them (Ministry of Education, 2006).

**SEN Students’ Attitudes Toward Selected Animal Production Activities:** Table 2, indicates that all the SEN respondents agreed that they faced difficult problems in participating in animal production projects in junior secondary schools (Means = 4.47– 3.83). Animal production projects, like crop production projects make a great demand on children’s manipulative skills. As the

Table 1: Likert Attitude Scale Measuring the SEN Students' Attitudes Toward Selected Animal Production Activities (N= 53)

Response Items	Mean,	St.D
Working with tools (Shovels,- digging forks, spades, etc.)	4.40	1.08
Clearing the land for Planting	4.28	1.406
Cultivating crops in the school garden	4.23	1.250
Plowing with draught animals- (Donkeys, Cattle)	4.21	1.335
Working with farm equipment- (Wheel barrows, ploughs, etc.)	4.19	1.345
Preparing the land by ridging	4.17	1.172
Making compost	4.17	1.326
Writing a crop production project report	4.17	1.236
Watering Crops in the school garden	4.15	1.231
Weeding crops in the school garden	4.13	1.387
Working alone on a crop production project	4.13	1.161
Hearing the teacher's crop - production instructions	4.13	1.345
Preparing crops for market	4.11	1.251
Plowing with farm machinery and- equipment (Tractors)	4.11	1.368
Keeping records of all cropping operations	4.09	1.431
Seeing all crop production operations	4.08	1.371
Controlling pests of crops	4.04	1.270
Working on a crop production - project under the teacher's supervision	4.04	1.441
Working in a group on a crop- production project	4.02	1.434
Applying manures and fertilizers	4.00	1.494
Working on a crop production - project under no teacher's supervision	4.00	1.387
Marketing crops	3.98	1.382
Planting crops using the correct- planting distances and depths	3.94	1.499
Harvesting crops	3.94	1.524
Preparing the land by digging	3.92	1.238
Controlling diseases of crops	3.92	1.579
Preparing the land by leveling	3.91	1.362
Applying artificial fertilizers	3.89	1.489
Walking to the garden	3.75	1.640

Likert- Type Scale: 1= Not Difficult, 2= Slightly Difficult, 3= Undecided, 4= Difficult and 5=Very difficult.

literature suggests uncommitted agriculture teachers, lack of appropriate tools and equipment pose a lot of problems in enhancing SEN students' full participation in learning activities (<http://www.Fao.org/waicent/faoinfo/sustdev/ppdirect/ppre0041.htm>, 2008).

**SEN Students' Attitudes Toward Selected Learning Variables:** In Table 3, the respondents tended to agree with that all 24 agriculture learning variables in the table posed difficult problems for their full participation in agriculture projects (Mean = 4.47-3.98). According to Woodward (1998), individually planned and systematically monitored arrangement of teaching procedures, adapted equipment and materials, accessible settings, and other interventions should be designed to help learners with special needs to achieve the greatest possible personal self-reliance and success in school and community. However such provisions are still lacking in the teaching of agricultural science and as such all respondents have very difficult problems with the selected learning variables studied in the table (Ministry of Education, 2006).

Table 2: Likert Attitude Scale Measuring the SEN Students' Attitudes Toward Selected Animal Production Activities (N= 53)

Response Items	Mean	St.D
Cleaning animal pens/houses	4.47	1.030
Taking care of fish in the fish pond	4.42	.865
Marketing animal products	4.42	1.117
Taking care of rabbits	4.30	1.119
Keeping records of all animal production - operations	4.25	1.159
Constructing fish pond	4.23	1.219
Working on an animal production projects- under teacher's supervision	4.21	1.364
Working on an animal production project- under no teacher's supervision	4.21	1.276
Seeing all animal production operations	4.21	1.291
Castrating animals (Goats, pigs,- sheep and cattle)	4.19	1.194
Working alone on an animal production- project	4.19	1.272
Writing a production project report	4.19	1.272
Deworming animals	4.15	1.081
Working in a group on an animal production- project	4.15	1.262
Slaughtering animals	4.13	1.287
Milking goat and cows	4.11	1.354
Taking care of Bees	4.11	1.354
Processing animals for market	4.11	1.311
Working with animal production tools	4.11	1.251
Cleaning animals especially pigs	4.11	1.311
Caponizing cocks	4.09	1.148
Feeding rabbits	4.08	1.385
Working with animal production equipment - (Wheel barrows, etc.)	4.06	1.379
Feeding cattle	4.04	1.285
Feeding goats and sheep	4.00	1.286
Walking to the animal production facility	3.91	1.522
Hearing the teacher's animal - production instructions	3.89	1.450
Disinfecting animals against external- parasites (Ticks, fleas, etc)	3.87	1.331
Feeding chickens	4.47	3.83
		1.369

Likert-Type Scale: 1= Not Difficult, 2= Slightly Difficult, 3= Undecided, 4= Difficult and 5=Very Difficult

**Demographic Characteristics of the Respondents:**

According to data in Table 4, 54.7% of the respondents were female, 94% between ages of 15 and 21 years, 100% were citizens of Botswana, 60.4% were Form three students, 54.7% were from rural area schools, and a plurality, 43.4% wanted to take up teaching as their career goal in agriculture. The table further shows that, 73.6% of their fathers never attended school, 50.1% of Mothers had attended school, 71.7% of their Fathers and 60.4% of mothers were employed. With regards the SEN students' career aspirations, The SEN students' parental background with the majority of their fathers having had no formal education and the school setting could both be obstacles to their learning. Therefore, only the school and teachers can provide the enabling environment to enhance the participation of SEN students in their learning. According to Ross (1995), <http://www.Fao.org/waicent/faoinfo/sustdev/ppdirect/ppre0041.htm>, (2008) and Ministry of education (2006), such an enabling environment is lacking in schools.

Table 3: Likert Attitude Scale Measuring the SEN Students' Attitudes Toward Selected Learning Variables (N=53).

Response Item	Mean	Std.D
The type of tests/Examinations teachers-administer to your class	4.47	1.015
The way the agriculture teachers treat you	4.43	1.065
Hearing instruction from the headmaster-and the teachers	4.40	.987
Ventilation in the classrooms	4.40	.884
Reading materials provided by the school	4.30	1.102
School health facilities	4.28	.948
The height of the chalkboard from the floor	4.25	.998
Teachers' writing on the chalkboard	4.23	1.068
The teaching aids (Materials used) to teach	4.23	1.235
Sitting arrangements in the classroom	4.21	1.261
Reading information on bill boards	4.19	1.093
The type of tools you use in the school garden	4.19	1.226
The gender of teachers that teach you (Male)	4.17	1.267
The teaching methods used to teach	4.15	1.336
Dining Facilities	4.11	1.281
Lighting facilities	4.11	1.138
The type of equipment used in the school garden	4.11	1.354
Moving from one class to the other	4.09	1.290
The school head master's attitudes toward you	4.08	1.207
The gender of teachers that teach you (Female)	4.04	1.344
The way your peers treat you	4.02	1.152
The teachers' attitudes towards you	4.02	1.248
The amount of assistance the school provides for you	3.98	1.293
Sports facilities	3.98	1.323

Likert-Type Scale: 1= Not Difficult, 2= Slightly Difficult, 3= Undecided, 4= Difficult and 5=Very Difficult.

**Some Suggestions Made by SEN Students (N=53):**

In response an open ended questionnaire, the SEN students recommended to education authorities in Botswana that: (1) Special agriculture teaching and learning materials be provided in schools (45/85%); (2) SEN students be exempted from agriculture practical projects (53/100%); (3) Specially trained agriculture teachers be employed in SEN schools (36/68%); (4) Teachers and "normal students" participate in SEN students' sensitization workshops (48/91%); (5) Agriculture books be written in Braille for those with vision impairment (30/57%); and (6) Sign language and brail be used to teach and examine the SEN with poor vision (47/89%). The SEN Students' recommendations which are supported by Ross (1995), <http://www.Fao.org/waicent/faoinfo/sustdev/ppdirect/ppre0041.htm>, (2008) and the Ministry of education (2006), the Sen students believed, would enhance their learning in agricultural science in secondary schools.

**Some Challenges Agriculture Teachers Face in Teaching SEN students (N=14):**

All 14 agriculture teachers in the SEN schools indicated that they face challenges in teaching SEN as follows: (1) The hearing impaired students have defects in language skills (14/100%); (2) Nearly all SEN students have short memory (13/93%); (3) A number of SEN students have multiple disabilities (8/57%) (4) Students with vision impairment require constant assistance from teachers in their learning (10/71%), (5) Classes start late due to SEN students with physical disabilities (11/76%); and (6) Agriculture teachers lack training required for teaching SEN students (14/100%); These findings are in concert

Table 4: Demographic Characteristics of the Respondents (N = 53)

Characteristics	Frequency	Percentages
<b>GENDER</b>		
Male		244.5
Female	29	55
<b>Age(years)</b>		
Under 15	2	3.8
15-21	50	94.3
Above 21	1	1.9
<b>Nationality</b>		
Botswana Citizens	53	100
<b>Level od Education</b>		
Form 2	21	39.6
Form 3	32	60.4
<b>CURRENT SCHOOL SETTING</b>		
Rural		2954.7
Urban	24	45.3
<b>Career goals in Agriculture</b>		
Gardner	20	37.7
Teacher	23	43.4
Farmer	5	9.4
Demonstrator	3	5.7
Veterinary Assistant	2	3.8
<b>Educational level of Father</b>		
Never attended School	39	73.6
Attended School	14	26.4
<b>Educational Level of mother</b>		
Never attended	26	49.1
Attended School	27	50.1
<b>Employment status of Father</b>		
Employed	38	71.7
Unemployed	15	28.3
<b>Employment status of Mother</b>		
Employed	32	60.4
Unemployed	21	39.6

with the findings in the Botswana College of Agriculture Students Prospectus, (2007), where there are no SEN courses provided for training agriculture teachers.

**CONCLUSION**

Based on the findings of the study, it was concluded that the SEN students and agriculture teachers have difficult problems and challenges in learning and teaching agricultural science, respectively.

**RECOMMENDATIONS**

The study therefore recommended that:

- School authorities provide special services to meet the learning needs of SEN students
- An Individualized Education Program (IEP) should be developed for each SEN student, with input from the students and students' parents.
- All who come into contact with the SEN children will need some kind of training.

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