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CHANGING SECONDARY STUDENTS' KNOWLEDGE AND PERCEPTION OF AGRICULTURE IN TRINIDAD AND TOBAGO

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ABSTRACT: There have been numerous claims that the negative perception of agriculture among secondary school students may be related to the students' lack of knowledge of the importance of agriculture and the lack of awareness of the range of career opportunities within this sector. The purpose of this study was to determine the knowledge and perception of secondary school students toward agriculture and to determine the influence of an agricultural promotion programme to broaden students' perception. In order to achieve this, a pre-test was administered among 3rd Form students in four randomly selected Secondary schools (n=100) in Trinidad and Tobago, to garner a sense of their knowledge and perception of agriculture, followed by an intervention which sought to inform them of the "New agriculture" and the various career paths in agriculture. A post-survey was done to determine changes in their perception of agriculture. Results show that the majority of students agreed that agriculture was very important but did not agree to make it a career choice. However, significant differences in perceived knowledge levels were found between the pre- and post- survey results; students perceived that most farmers are men and that farmers in Trinidad and Tobago make a lot of money. The authors suggest that future research should include a variety of agricultural knowledge assessment methods, procedures, and settings to better understand the role of increasing one's knowledge of agricultural facts and its possible effects on career decision making processes.

Keywords: secondary school student, perception, agricultural careers.

Introduction

With the ever rising food prices and the decline of production levels due to the increasing population, climate change and the demand for bio-fuels, Nations in today's world have placed great emphasis on becoming more food secure. Many of the world's poorer families have already reduced their consumption of food to one meal a day, for others unfortunately they routinely schedule foodless days each week; days they will not eat at all. A recent survey conducted by Save the Children resulted in 27% of families in Nigeria, 24% of families in India and 16% in Peru having foodless days (Brown, 2012).

Agriculture has, therefore, been brought to the forefront and is seen as the key sector that can assist the World's Nations in achieving food security. Food security is when all people at all times have access to safe, nutritious food to maintain a healthy and active life (FAO, 1996). "Trinidad and Tobago is on a tight rope as far as food security is concerned and if we do not take urgent action today, we might find ourselves in a position where we may have money in our pockets but are unable to purchase food"

according to the previous MFPLMA Minister Honourable Vasant Bharath. Trinidad and Tobago together with other countries are now focusing on the improvement and the expansion of the agriculture sector. Presently in Trinidad and Tobago, domestic food production does not meet the national demand and as such there is a heavy reliance on imported food which in 2010 amounted to 10.06% of total imports.

In order to improve the domestic food supply and to achieve national food and nutrition security and self sufficiency, the Government of Trinidad and Tobago has developed a National Food Production Action Plan premised on a five pronged mandate to transform the sector (i) to reduce the import bill, (ii) to further reduce inflation, primarily driven by food prices, (iii) to create sustainable, long term productive employment, (iv) to contribute to the diversification of the economy and (v) to increase the country's food security (MFPLMA, 2012).

Outlined in this national action plan, are some general strategies for the development of the sector including the Young professionals in Agriculture Development and Mentoring programme. The programme was developed to provide structured, focused, and closely monitored opportunities for the tertiary level graduates to be mentored in agriculture and related studies. According to previous Minister the Honourable Vasant Bharath, "the agriculture sector represents a viable option for our youth population and increased agricultural production means conservation of valuable exchange which can directly impact on our food import bill". The programme outlined by MFPLMA will mentor those individuals already in the field of study. Focus must however be directed at the secondary level in order for students to develop a career interest in agriculture. According to Barrick and Hughes (1993), at early adolescence, students are formulating career interest and goals.

The local agriculture sector is characterized by an ageing population and the number of individuals choosing agriculture at tertiary level has drastically declined. The aged farmers have to be replaced with vibrant and educated youth for food production and employment (Ayanda et al., 2012). According to the Central Statistical Office (CSO), the total labour force for agriculture as a percentage of all industries in Trinidad and Tobago in 2010 was only 3.9%. In order to sustain agriculture, focus must be placed upon the recruitment of individuals and strategies that can be implemented to increase the number of youth choosing the career at tertiary level. The CSO also reported that in 2006-2010 there was a fluctuation in the number of persons actually employed in the agriculture sector in Trinidad and Tobago.

A previous study conducted in Trinidad and Tobago (Ramdwar and Ganpat, 2010) surveyed students at the secondary level ("prestigious" and "non-prestigious" schools) and at tertiary level (The University of the West Indies; UWI and The Eastern Caribbean Institute of Agriculture and forestry; ECIAF). This study intends to focus not only on the perception that secondary school students have to agriculture but intends to de-stigmatize their perception by implementing a promotion programme (Phase II) within the schools and testing the programme (post-survey); whether or not it had a positive effect on students' perception to agriculture. Phase II "New Agriculture" involved

promoting agriculture that is technologically driven; one with mechanized farming (crops and livestock), irrigation and drainage technology, biotechnology (plant and animal breeding) among others and promoting the diversity there is in the agriculture sector and the many successful careers they can have in this field. It is geared towards the destigmatization of students' perception and in so doing re-defining the discipline into one that is considered to be a successful and professional career.

Many studies have been conducted over the years, not only in Trinidad and Tobago but regionally and internationally to determine the knowledge and perception of students to agriculture. According to Fishbein and Ajzen (1975), students' and parents' personal experiences, observations, knowledge, and values about agriculture affect their attitudes about agriculture, which in turn affect their beliefs. Hoover and Scanlon (1991) reported that the image of the agriculture profession and perceived future value of agricultural education were obstacles to student's enrolment in the study area. Thompson and Russell (1993) reported that talented young students are being counselled or attracted into engineering, business and medicine in pursuit of economic security and status. Agriculture remains unattractive to the youth leading to their movement to other sectors of the economy to grab better life (Ayandaet al 2012).

Krueger and Riesenbergr (1991) reported that student's misperception of the agricultural industry and agricultural opportunities may negatively affect recruitment. Timely and accurate information regarding the perception that secondary school students have about agriculture and the factors that prevent them from enrolling in an agriculture class or choosing it as a career are needed to enhance and increase the level of recruitment of individuals (Scott and Lavergne, 2004). To develop effective recruitment strategies, it is necessary to research students' decision making processes and their images of agriculture (Lucas, 1993).

The negative perception of careers in agriculture among high school students are related to the students' lack of awareness of the range of career opportunities in agriculture and the perception of agriculture involving farming alone (Mallory and Sommer, 1986). In schools in Trinidad and Tobago where agriculture is being taught (forms 4 & 5), the present curriculum is structured in such a manner that students spend fairly long periods of time in the hot sun using traditional labour intensive technologies. This is a further disincentive to students changing their perception of agriculture and thus wanting to continue a career in the field (Ramdwar and Ganpat, 2010).

Goecker, Whatley & Gilmore (1999) suggested that "much greater efforts will be required to attract sufficient numbers of outstanding students to prepare for very challenging careers in the world's food, agriculture and natural resource system." According to Chakeredza et al. (2008), it is the development of the human resource which will "get agriculture moving". One potential remedy for the decline in the number of agriculture students is to provide students with more exposure to agricultural programs. These programmes have been shown to increase agricultural understanding and stimulate positive agricultural perceptions (Wagler, Rusk, Blomeke, Talbert, Richert, & Latour, 2007; Pense, Leising, Portillo & Igo, 2005). The more educated an individual,

the fewer negative stereotypes the individual will develop about agriculture. The importance of a college education in the field of agriculture needs to be broadcast to youth. They need to learn about the numerous career options available within the field and how integral these careers are to our present society (Smith 2010).

According to Ramdwar and Ganpat (2010) students throughout the secondary school system had strong positive perceptions about the importance of agriculture to Trinidad. However, there was a low likelihood of the students considering agriculture as a career option. Enhancing the attractiveness of the agriculture sector throughout the establishment of rewarding careers and the modernization of agriculture to be technologically-driven can attempt to diminish the negative perception.

The purpose of this study was to identify secondary schools students' knowledge and perception of agriculture before and after educating them on the importance and benefits of agriculture.

1. Identify the demographic profile of the students.
2. Identify the student's knowledge and perception of agriculture (pre-survey).
3. Implement the agriculture promotion programme (New Agriculture).
4. Identify the students' knowledge and perception of agriculture after implementing the promotion programme (post survey).

Methods

The surveys involved the use of a descriptive survey design. The survey instruments were pre-tested in Tobago with secondary school students during World Food Day 2012 celebrations before being completed in this project.

Four independent samples, a total of four schools in the St George and St Andrew regions in Trinidad were randomly selected. Within the regions the schools were divided into two groups; Group 1- Board (religious-based) and Group 2- Government. One school within each group was then randomly selected, resulting in a total of two schools in each of the regions; one Board and one Government.

A random sample of 25 students (form 3's) was selected within each of the four schools bringing the total sample number to 100 students (ages 12-16 years).

This study was conducted in three (3) phases:

Phase I- Pre-survey

To determine the demographics of the students and their perception of Agriculture. The pre- survey was carried out with the sample size of 25 students in each school. The self-reporting survey questionnaire sought to determine the students' knowledge and perception of agriculture; in terms of its importance to Trinidad and Tobago, their

attitude towards it and the likelihood of them to pursue a career in the profession. Apart from personal and demographic data, a scale was used to assess their attitudes. Students were asked to respond to statements to indicate either

Yes = 1; No = 2 or Agree = 1; Do not agree = 2; Not sure = 3.

Phase II - “New Agriculture” Intervention programme

Implementation of the “New Agriculture” intervention programme featuring the importance of agriculture, the career opportunities that is available in the sector, the technology used and the diversification within the field.

In each region the programme was implemented only in one school, the other acted as the control. In St Andrew it was implemented in the Government school; Government Intervention (GI) and the control was the Board school; Board No Intervention (BNI).

In St George it was implemented in the Board school, Board Intervention (BI) and the control was the Government school, Government No Intervention (GNI). In total, two schools received the intervention; one Board and one Government (BI and GI), while the other two didn't (BNI and GNI).

The intervention programme was conducted with 25 form 3 students in the two schools, total sample size of 50. The form 3 students were selected because presently in the school's curriculum of Trinidad and Tobago, agriculture is not a subject at this level.

Time granted by the school's principal for the execution of the intervention was one hour. The intervention programme was made up of power point presentation featuring the importance of agriculture to the world's nations and to Trinidad and Tobago, the new and improved agriculture made less laborious by the use of technology and the many great career opportunities available within the sector. The programme also featured the agriculture programmes the University of the West Indies is offering and the interactive display of animals (neotropical animals) and green house technology. Free tokens were also distributed to participating students from each school as a show of gratitude.

Phase III - Post-Survey

This was performed to test whether the intervention programme; “New Agriculture” had a positive effect on the students' knowledge and perception to agriculture. The post survey was conducted approximately one week after the implementation of the intervention programme. The 25 form 3 students of each of the two schools were asked to fill out the survey questionnaires. The instrument was made up of questions/statements and the students had to respond either Yes = 1 or No = 2 or Agree = 1, Do not agree = 2, Not sure = 3 to indicate if their knowledge and perception to agriculture has changed.

All data were coded and analyzed using VARSASTAT software. Descriptive statistics, including means and standard deviation were used to identify students' knowledge and perceptions. Relationships were also examined using t test.

Results and Discussion

Student Demographics

The age category of the students interviewed is seen in Table 1. The majority of the students fell between the ages 14-16 (70%), 25% fell between 12-14 and 5% in the age category of >16. Within the four schools, there was one (Religious based/Board), where the student population consisted of all males, while the other three schools consisted of a mixture of both males and females. Sixty-four % (64%) of the student population interviewed was males and the other 36 % were females (Table 4.2). Table 4.3 shows that 45% was East Indians, 20% African, 1% Chinese, 2% Caucasian, 32% Mixed.

Table 1. Demographics of students interviewed in the four schools.

Age	BI	BNI	GI	GNI	Frequency Nx = 25
12 to 14	8	3	6	8	25%
14 to 16	16	22	19	13	70%
>16	1	0	0	4	5%
Gender					
Male	25	13	14	12	64%
Female	0	12	11	13	36%
Ethnicity					
East Indian	23	8	10	4	45%
African	0	7	2	11	20%
Chinese	0	0	0	1	1%
Caucasian	0	0	2	0	2%
Mixed	2	10	10	9	32%

Students Knowledge and Perception of Agriculture

In Phase I, the pre survey results showed that in the four schools, the majority of students (94 %) agreed that agriculture is important, 92 % that food prices are high in Trinidad and Tobago and 70 % agreed that the country has a very high food import bill (Table 2). Although they agreed on its importance they still did not want to or were not sure about choosing to further their education in the field of study. In the four schools, agriculture was not part of the curriculum of the students from forms 1 to 3; the failure to include agriculture as part of the curriculum across the educational system in Trinidad would further highlight the stigma attached to it (Perritt and Morton, 1990). Students who have taken course work in agriculture expressed more favourable beliefs about agriculture careers and are more inclined to consider agriculture as an area of study than those students without such exposure (Thompson and Russell, 1993). Table 2 shows that the majority (70%) of students had family members who are involved in agriculture, while the other 30% did not. Agricultural connections and influences in the students' lives encouraged positive agricultural perceptions and actions (Smith, 2010). Although there was a high percentage (70%) of the students having family members

involved in agriculture it still had no effect on them wanting to pursue a career in agriculture.

Table 2. Students response to pre-test questions.

Question	Response	BI	BNI	GI	GNI
1. Are family members involved in agriculture?	Yes	18	17	17	15
	No	7	8	8	10
2. Do you eat local fruits and vegetables often?	Yes	23	23	21	18
	No	2	2	4	7
3. How often do you eat these fruits and vegetables?	Daily	13	10	13	12
	Once / wk	12	15	12	13
4. Do you prefer to eat fast food items like KFC?	Yes	16	9	13	10
	No	9	16	12	15
5. Do you think agriculture is important in T&T?	Yes	23	24	25	21
	No	0	1	0	3
	Not sure	2	0	0	1
6. Food prices are high in T&T	Agree	22	23	21	24
	Do not agree	0	0	1	0
	Not sure	3	2	3	1
7. T&T has a high food import bill	Agree	17	23	15	14
	Do not agree	6	0	3	1
	Not sure	2	2	6	10

In the four schools, 90% of the student population said they eat local fruits and vegetables often, 46% daily and 54% monthly. Forty-eight percent (48%) of the students interviewed said that they prefer to eat fast food items like KFC, while 52% said they did not. Ninety-four percent (94%) of the students agreed that agriculture is important to the country, while 3% did not and the other 3% was not sure.

The majority of the students (92%) agreed that the food prices in Trinidad and Tobago are high, while 1% did not agree and 7% was not sure. The majority (72%) of the student population agreed that Trinidad and Tobago has a very high food import bill, whilst 10% did not agree and 18% was not sure.

Phase II of the project involved the promotion programme “New Agriculture”. The programme was a 1 hour presentation and career talk geared towards changing the students’ knowledge and perceptions to agriculture. The students’ were very cooperative and enjoyed the interactive session focusing on the agriculture they knew less about, the diverse, growing sector that is technologically driven and entails successful careers (Photo 1).



Photo 1. Intervention: Introducing the “New Agriculture” to students (Greenhouse technology as part of the new agriculture to attract youth in agriculture.

Table 3 shows that there was no significant difference between the overall means in both pre- and post- survey questions, 1 to 5. There were no significant changes in the students’ responses to these questions from the time of the pre-survey to the post survey. However, questions 6 and 7 were significant at α 0.01 in the pre mean and post mean responses.

Table 3. Overall means and standard deviation for both pre-survey and post survey questions based on the students’ knowledge and perception of Agriculture.

Questions/Statements	PRE TEST			POST TEST		
	Means	Significant at α 0.01	SD	Means	SD	Significant at α 0.01
1. Being a farmer is very Difficult	1.52	NS*	0.78	1.57	0.77	NS
2. Would you like to go to University when you graduate?	1.29	NS	0.64	1.26	0.63	NS
3. Would you further your education in agriculture?	2.2	NS	0.79	2.18	0.85	NS
4. Do you believe you can make a good living in agriculture?	1.41	NS	0.77	1.21	0.57	NS
5. The world food supply has increased as a result of improved technology	1.92	NS	0.95	1.82	0.96	NS
6. Farmers in Trinidad and Tobago make a lot of money	1.74	NS	0.94	1.46	0.83	Significant
7. Most farmers are men	1.49	NS	0.72	1.68	0.81	Significant

*Note: N = 25 in pre and post test *Non- significant*

In Phase III of this study, the post survey was conducted to determine if the promotion programme was able to change the students’ perception to agriculture.

The results in the post survey indicated that the difference in means was non-significant in five of the questions that was being compared in the pre and post survey and two were significant at α 0.01 (Table 4). There were low mean responses in both pre (1.52) and post (1.57); students agreed that being a farmer was difficult. Students wanting to attend university after graduating was non-significant; with a pre mean of 1.29 and a post mean of 1.26. According to Smith (2010), many renowned universities have agriculture programmes, and yet students do not believe that a college education in agriculture is necessary for an agriculturally-related career.

Table 4. The post survey mean responses for the statement “farmers in Trinidad and Tobago make a lot of money”.

Schools	Mean	Relationship with the means
Board Intervention (BI)	1.08	a
Government Intervention (GI)	1.16	a
Board No Intervention (BNI)	1.76	b
Government No Intervention (GNI)	1.84	b

Table 5. The post survey mean responses for the statement “most farmers are men”.

Schools	Mean	Relationship with means
Board No Intervention (BNI)	1.44	a
Government No Intervention (GNI)	1.6	a
Government Intervention (GI)	1.52	a
Board Intervention (BI)	2.16	b

For students wanting to pursue their education in agriculture; students were undecided; they either did not agree or were not sure in both pre- (2.2) and post- survey (2.18). The perceived future value of careers and opportunities in agriculture as not rewarding may also be deterrents to the likelihood of the discipline for career pursuits regardless of the students' exposure (Ramdwar and Ganpat, 2010). A pre- mean response of 1.41 and a post mean response of 1.21 indicated that the students' believed they can make a good living in agriculture.

On the question of whether the world food supply has increased as a result of technology, responses were also not significant, with a pre- mean response of 1.92 and post- mean response of 1.82.

However, the pre- mean response for the statement “Farmers in Trinidad and Tobago make a lot of money” was not significant among the schools with a pre mean of 1.74 but was significant at α 0.01 when compared to the post mean of 1.46.

Further analysis was conducted to determine whether there was a significant difference between the pre- and post- survey means. The t calculated was 23.33 compared to t table value of 1.97. Based on this result, it can be concluded that the intervention had a significant effect on the perception of students that farmers make a lot of money in Trinidad and Tobago.

The pre-mean response for the statement “most farmers are men” was not significant with a mean of 1.49 compared to the post mean of 1.68 which was significant at α 0.01. Further analysis was also conducted to determine whether there was a significant difference between the pre- and post- survey means and it resulted in the t calculated 17.95 compared to t table value of 1.97. Consequently, the conclusion is that the intervention had a significant effect on the perception of students that most farmers are men.

A few limitations are apparent in the design of the study. Schools required a formal request before participating in the survey and this delayed the administration of the questionnaire, there were differences in the distribution process and the major limiting factor was time allocated by Secondary Schools Principals for this study. The time permitted by the school for the promotion programme (1 hour) was too short; it was not enough to have a significant impact on the knowledge and perception of the students in pursuing agriculture as a career.

However, the findings of this study is not a representative sample of all secondary school students’ knowledge and perceptions of agriculture in Trinidad and Tobago and therefore the results cannot be generalized.

Conclusions and Recommendations

Agriculture not being part of the schools’ curriculum and the lack of exposure students have to the field of study had a great influence on their willingness in choosing agriculture as a career. Although the promotion programme did not have a great impact on changing the students’ knowledge and perceptions of agriculture as expected, the authors believe that it is an effective means of increasing agricultural perceptions providing that more time is allowed for its execution.

It is recommended that agricultural colleges, universities and other agricultural institutions focus on assisting schools in reintroducing agriculture clubs and developing other programmes to influence students to participate in. Agriculture competitions within school and between schools would also motivate student’s initiative to participate. These programmes, once well established and supported by institutions, will create a larger pool from which recruitment of youth into the field of agriculture can easily occur. These programmes should not only target the students but also the teachers. Students and teachers should also be informed and exposed to modern agriculture practiced in the 21st century and appreciate its international importance. Teachers should also

explore the possibility of how instructional methods and course of studies influence their students' knowledge and perceptions of agriculture.

Apart from the development of programmes within the schools, the students should also be able to attend field trips, lectures, open days and other agriculture oriented programmes out of their school environment.

A recommendation for the University of the West Indies would be that students already involved in agriculture at the tertiary level should be utilized as a resource in encouraging and promoting agriculture as a viable career option. The authors would suggest that part of the curriculum for university students should involve the development of small agricultural projects within schools. These programmes will not only be beneficial for the secondary school students but also to the university students for developing their practical skills and competence within the field. It will also give them a sense of pride knowing that they are not just studying in the field of agriculture but also contributing to its sustainability and its future as a career option.

In general in order to secure agriculture in the future focus must be made on recruiting young individuals into the sector and emphasizing the importance of agriculture and food security to the nation.

References

- Ayanda I.F., Olooto F., Motunrayo A., Abolaji G.T. , Yusuf O. J. , Subair S.K. (2011). Perception of Kwara state university agricultural students on farming as means of future livelihood. *International Academic Journals International Journal of AgriScience Vol. 2(11): 1053-1061.*
- Barrick, R.K., and Huges, M. (1993). Perceptions of state vocational educational administrators relevant to agricultural education in the middle grade. *Proceedings of the Central Regional Research Conference in Agricultural Education.*
- Chakeredza, S., Temu, A.B., Saka, J.D.K., Munthali, D.C., Muir-Leresche, K., Akinnifesi, F.K., Ajayi, O.C. and Sileshi, G.(2008). Tailoring tertiary agricultural education for sustainable development in Sub Saharan Africa: opportunities and challenges. *Journal of Scientific Research and Essay 3(8), 326-332.*
- Donnermeyer, J. F., and Kreps, G.M. (1994). Assesing colleges of agriculture freshman. *NACTA Journal, 38(1), 45-48.*
- Goecker, A.D., Whatley, C.M., and Gilmore, J.L. (1999). *Employment Opportunities for college graduates in food and agricultural science, United States, 2000-2005.* United States Department of Agriculture and Purdue University.
- Hoover, T. S., and Scanlon, D.C. (1991). Enrollment issues in agriculture education programs and FFA membership. *Journal of Agriculture Education, 32 94), 2-10.*
- Krueger, D.E., and Riesenber, L.E. (1991). Careers in agriculture as perceived by high school juniors and seniors. *Proceedings of the Eighteen Annual National Agricultural Education and Research Meetings, 63-69.*

- Mallory, M., and Sommer, R. (1986). Student images of agriculture: Survey highlights and recommendations. *Journal of the American Association of Teacher Educators in Agriculture*, 27(4), 15-17.25.
- Onuekwusi, G.C., and Ijeoma, L. (2008). Attitude of secondary school students in Abia State, towards career in agriculture. *Agricultural Journal* 3(2), 102-106.
- Perritt, D., and Morton, D. (1990). Pre-secondary agriculture: Preparing for the future. *The Agricultural Education Magazine*, 63(1), 14-15.
- Ramdwar, N.A.M., and Ganpat, W.G. (2010). Likelihood of Students in the Formal Education System in Trinidad to pursue Agriculture as a Profession and the Implications for Development. *Journal of Agricultural Education* 51 (4), 28-37.
- Smith, E. (2010). High School Students' Perceptions of Agriculture and Agricultural Careers as Delineated by Presence of an Agriculture Program and Rural/Urban Categorization. *Available at:* <http://hdl.handle.net/1813/15037>.
- Smith, E., Park, T., & Sutton, M. (2009). Effect of location and education on perceptions and knowledge about agriculture. *NACTA Journal*. 53(3), 17-23.
- Thompson J.C., Russel, E.B. (1993). Beliefs and intentions of counselors, parents and students regarding agriculture as a career choice. *Journal of Agricultural Education*, 34(4), 55-63.