

Pursuing Studies in Agricultural Science: Persistence Based on Student Engagement

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Abstract: The world's population by 2050 is expected to rise to nearly 10 billion and boosting agricultural demand. Therefore, it increases the challenge to offer skilled and semi-skilled workers in the agriculture sector. Unfortunately, the percentage of students choose this sector as a career and further the study to a higher level is still low. Hence, this study aims to evaluate the persistence to pursue studies in agricultural science based on student engagement. This research used a survey study. Questionnaires were distributed to 159 respondents who were selected from three Vocational Colleges by using random sampling techniques. Research findings showed that the level of student persistence in pursuing their studies in agricultural science was high based on the level of student perception towards student engagement. It can be concluded that student engagement affects the level of student persistence in pursuing their studies in agricultural science based on academic, out-of-class engagement and emotion. In addition to enhancing knowledge, the contribution of this research can also serve as a benchmark for all parties such as teachers, administration and parents in helping students to increase their persistence in pursuit of agricultural science. In the future, research on the other factors that can improve student persistence in the quest of agricultural science can be taken into consideration.

Keywords: Skilled workers, semi-skilled workers, Agricultural Education, Technical and Vocational Education and Training (TVET), academic, out-of-class engagement and emotion.

1 INTRODUCTION

Agriculture has become one of the key evolutions in the ascent of human civilization and farming a domesticated species created food surpluses that enabled people to dwell in urban centres. Thus, it increases the demand for skilled and semi-skilled workers to work in the agriculture sector. The agriculture sector is the second highest sector after the manufacturing sector and almost 21 % still have void to be filled for labour in this sector (Malaysia Statistic Department, 2016). Thus, agricultural education at the secondary level and tertiary level is important as the basis for exposure to careers in the agriculture sector (Thieman et al., 2016). Agricultural science introduced at the secondary school level is an elective subject in Malaysia. These subjects are responsible for providing students with the interest and ready to be directly involved in agriculture. It is one of the strategies to provide the supply of skilled and semi-skilled workers that has strong knowledge at the based level in general. The main objective of agricultural science is to provide students with knowledge, skills and a positive attitude towards agriculture. However, in Malaysia, the Malaysian Higher School Certificate level (STPM) in 2015 recorded a 31% decline for the intake of the subjects as compared to the year 2013 (Malaysian Science, Technology & Innovation (STI) Indicators Report, 2016). There are several studies found that lack of enrolment of agriculture

students are caused by the negative perception, assuming this job does not make a profit and not promising high income. Meanwhile, students at the secondary level are not exposed to various agricultural fields due to lack of exposure to agricultural field conducted by a secondary school teacher and the TVET institutions (Razzaq et al., 2009). TVET institutions in both developing and non-developed countries have become one of the major producers of skilled and semi-skilled employees (Omar et al., 2018). Thus, TVET institutions should take the responsibility to prepare the future workforce with skills, knowledge and be a good citizen (Mansor and Rashid, 2013). Although, the students get the learning instruction and experience in the workplace more, they also learn it at the training institutions (Saari and Rashid, 2013). The application for student admission to the vocational education program is as much as 86,527 applications, but only 69% are accepted as it is limited in place. Enrolment in 2017 continued to increase from 6.3% (25,947 people) in 2016 to 7.2% (27,886 students) (Blueprint, 2016). However, enrolment of students in agricultural-related subjects is not listed in programs with high enrolments like automotive technology, culinary arts, electrical technology, bakery and pastry and welding technology. Thus, to increase the enrolment of students in agriculture, student engagement is seen as one of the factors that can contribute to student persistence to continue their studies in agriculture. Student engagement is also one of the contributors contributing to individual excellence in particular, and the institutions in general (Kahu and Nelson, 2018). The student engagement through various activities can increase the persistence in the field (Hu et al., 2008). The student's ability to make appropriate career choices that include the awareness of their ability, talent and interest, and in addition to their stability and realistic on choosing over the time is important for them to select their preferred type of high school, choosing the streaming of study in upper secondary school, and steering student's option after high

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school (Rashid et al., 2009). Thus, the objective of this study was to evaluate the persistence to pursue studies in agricultural science based on student engagement.

2 METHODOLOGY

This study utilized survey design. A total of 240 questionnaires were distributed to three vocational colleges, but only 159 questionnaires were returned. The instrument of the study was a set of questionnaires distributed to 159 respondents selected from three Vocational Colleges by using random sampling techniques. The instrument of this study was developed by researchers based on the research objective with Cronbach's alpha value was 0.648 for academic, 0.704 for emotion and 0.877 for out-of-class engagement and the validity of the contents was reviewed by selected experts. The instrument used in this study was a set of the closed questionnaire consists of 3 sections, namely A, B and C, to be answered by the selected respondents. In part A-demographics, the questionnaire consists of 9 questions about respondents' demographics such as gender, race, religion, and hometown. In part B-student engagement, there are 20 items on student engagement divided into three sub-sections, namely (1) Academic, (2) Emotions and (3) Out-of-class engagement. This part was constructed based on the National Survey of Student Engagement (Pike et al., 2003). Lastly, in part C-students persistence to continue studies in agriculture, there are 11 items to evaluate student persistence level to continue their education in agriculture, which include efforts and attitudes to agriculture. Five-point scale, scores 1 to 5, where (1) represented strongly disagree (SD), (2) represented disagree (D), (3) represented less agree (LA), (4) represented agree (A) and, (5) represented strongly agree (SA) was used for every item.

3 RESULTS AND DISCUSSION

The findings showed that nearly 60% (n = 90) respondents were female students, and the rest were male students (n = 69). Malay students dominated the respondents with a total of 158 people, approaching 100% of the total respondent. There is only one Indian student involved in this survey. Then, a total of 99.4% of respondents are Muslims (n = 158,) and Hindu (n = 1). Nearly 70% of the respondents came from rural areas (n = 91) and the rest from town (n = 68).

Based on Table 1, the finding found that students persistence level to pursue their studies in agricultural science is high. The overall outcome of the finding showed a positive response of student persistence to further their studies in the agricultural field. The researchers found that the respondents responded positively to all items covering the extent of the respondents' efforts and persistence to pursue their studies in agricultural science. That is one of the good signs for agricultural science as young people tend to be serious in this field. It is common that among the factors that hinder young people from entering the field of agriculture is the negative perception of this field from their perspective (Kementerian Pelajaran Malaysia,

2010).

Table 1: Min score and Standard deviation (SD) of student persistence to pursue study in agricultural science

Items	Min	SD
Overall	4.12	.571
If I have been allowed to continue education, agriculture field is the primary choice.	4.12	.937
I am always looking for information on institutions offering programs related to agriculture.	4.09	.774
I will ensure that I have excellent results to continue my studies in agriculture.	4.21	.730
I will seek advice from the teacher or counsellor on appropriate institutions offering agricultural field related programs.	4.02	.707
If I fail to place myself in IPTA, I will find opportunities at colleges or institutes that offer agriculture programs such as community colleges and RISDA colleges.	4.19	.789
I plan to continue studies in agriculture to the highest level.	4.24	.856
I would like to have agriculture knowledge as I have a long-term plan in the agriculture field, such as owning farm/working on agriculture-based products.	4.14	.775
Even face challenge, I would not be shifting with the decision to pursue studies in agriculture.	4.10	.843
Became my dream to have an excellent job in this field of agriculture when I graduate.	4.06	.905
I think agriculture is the best choice to learn more profound in higher education levels.	4.24	.724
I am interested in agriculture as it is science-based.	4.05	.913

However, there are several conflicts of perception by the respondent to obtain information on institutions offering agricultural field. Researchers found that almost half of the respondents did not seek information related to the agricultural field. Researchers expect that respondents only receive information from the institution itself compared to the effort to find their information. The person who is ready for his or her future career is a person who cares about his job (Sharf, 2019). This concern also involves the efforts in the areas of planning and awareness of the field to be explored. Furthermore, the age of the respondent usually likes to explore. To provide exposure to existing occupations in the agricultural sector, agricultural education in secondary and tertiary education should be fundamental (Thieman et al., 2016).

Based on table 2, the emotion aspect gaining the highest mean score in overall (M = 4.10 and SD =0.624). While student engagement in the academic aspect has obtained the overall mean value score (M = 3.50 and SD =0.497). The mean score that is collected for the student engagement in the academic aspect is the lowest. While the out-of-class engagement aspect is at a moderate level for the mean score, which is (M = 3.74 and SD =0.568). In conclusion, the overall level of student engagement was quite high (M = 3.78 and SD =0.480). However, teachers should pay attention when student engagement in the academic aspect and out-of-class engagement aspect do not show high levels of response. It demonstrates that perhaps the instruction material or the teaching strategy still cannot draw the student attention.

Table 2: Min score and standard deviation (SD) of the student in the vocational college offering agricultural field

Items	Min	SD
Overall	3.78	.480
Academic	3.50	.479
I always pay attention to the teaching process.	4.02	.767
I have always shown interest in what I learned.	4.02	.845
I give full focus when teachers are teaching agriculture subjects.	4.02	.889
I feel bored in class because of the uninteresting teaching material.	2.48	1.221
I feel bored in class because the task given by the teacher is difficult.	2.44	1.071
I like to engage in academic-shaped activities.	3.63	1.022

In general, I am happy throughout the learning process in class.	3.86	1.034
Out-of-class engagement	3.74	.568
I am pleased to engage in agricultural-related activities organized by the school.	3.96	1.002
The time sacrifice is not an obstacle for me to be active in every activity.	3.99	.893
I am aware of the activities organized by the school, especially those involving agricultural field.	3.92	.893
I like to engage in agricultural field related activities when organized out of class.	4.09	.852
I will be involved directly with agriculture-related activities when organized by the school.	3.99	.853
I will give excuses to participate in the activities organized by the school.	2.52	1.282
I like to engage in co-curricular activities than in-class activities.	3.89	1.006
Emotion	4.10	.624
I am motivated by my desire to learn.	4.10	.805
I am motivated by my desire to achieve a good grade.	4.21	.790
I am motivated by a teacher that encourages me.	3.99	.879
I am motivated by the desire to succeed in the world of careers when graduating later.	4.24	.830
I feel good with life as an agricultural student.	4.11	.830
I am motivated by the words delivered by the teacher, "agriculture is business".	4.16	.776

Table 3 shows the relationship between student engagement level through academic aspect, out-of-class engagement, and

emotion with student persistence to pursue their studies in agricultural science. The finding showed a significant correlation between student engagement and student persistence in pursuing their education in the agricultural field. A moderate positive relationship that exists between three aspects where academic ($R = 0.441$), out-of-class engagement ($R = 0.635$) and emotion ($R = 0.640$).

Table 3: Pearson correlation on student engagement through aspects (academic, out-of-class engagement and emotion) with student persistence level to pursue their studies in agricultural science

Variables	Min	SD	1	2	3
Persistence	4.12	.497	.441	.635	640
Student engagement					
1. Academic	3.50	.479	-	.548	609
2. Out-of-class engagement	3.74	.568	-	-	687
3. Emotion	4.10	.624	-	-	-

The finding showed that there was a moderate relationship for student engagement with student persistence. The emotion aspect gets the highest mean score and has the strongest relationship, followed by out-of-class engagement and academic. This finding shows that engagement in academic was moderate. Based on the academic aspect, the researcher assumes that most of the respondent dislike activities in boring classrooms. Effective teaching and learning sessions can increase student engagement in academics and enhanced student persistence level to further their studies in the agricultural field (Thieman et al., 2016). Overall, majority of the respondents expressed the consent that they were motivated by the desire to succeed in the agriculture when graduate. Student engagement must be taken seriously by the school administration to increase student persistence in agricultural science. The focus of improving engagement from the academic aspects needs to be streamlined to maintain the students' momentum to choose agricultural science. Activities that are academic and more relaxed can be highlighted. Besides, engagement in emotion through the words of motivation and encouragement from all parties is highly encouraged. The correlation between emotion and the student persistence to pursue their studies in the agriculture field is very important so that the sense of belonging exists among the student. Other than that, out-of-class engagement also plays an important part to increase the persistence of the students to

pursue in agricultural science. Some exciting activities can attract the students' attention to focus on the studies.

4 CONCLUSION

In conclusion, there was a moderate relationship between student engagement with student persistence to pursue study in agricultural science. Students engagement affects the level of student persistence in pursuing their education in agricultural science based on academic, out-of-class engagement and emotion. Thus, encouragement such as providing a platform for students to express their interest by providing complete facilities and equipment, space to express talent and enthusiasm, giving opportunities to express ideas can also help increase student engagement emotionally. The school administration can hold discussions with teachers and staff on how to improve the student engagement through academic, emotion and out-of-class engagement.

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