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Perceptions of Supervisors, Teachers, and Students Regarding the New Agricultural Science Syllabus for the Malaysian Upper Secondary Schools

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ABSTRAK

Kementerian Pendidikan Malaysia telah memperbaharui kurikulum sekolah menengah bersesuaian dengan aspirasi masyarakat umum dan pembangunan ekonomi negara. Kurikulum baru sekolah menengah telah diperkenalkan secara berperingkat mulai tahun 1989. Mata pelajaran Sains Pertanian mempunyai silibus baru mulai tahun 1993. Silibus baru diharapkan lebih berteknologikal dan integratif berbanding dengan silibus sebelumnya. Tujuan kajian adalah untuk mendapatkan maklum balas daripada penyelia, guru dan pelajar terhadap pengajaran sains pertanian berasaskan silibus baru. Secara khusus, kajian bertujuan mendapatkan persepsi responden terhadap pelbagai aspek pengajaran sains pertanian di sekolah menengah atas. Kajian berbentuk tinjauan deskriptif dengan menggunakan soal selidik mel sebagai alat pengumpulan data. Kajian melibatkan semua guru sains pertanian dan penyelia mereka. Responden pelajar dipilih secara rawak bertujuan. Soal selidik telah dikaji rintis dan menghasilkan koefisyen kebolehpercayaan .80. Sejumlah 511 (61%) soal selidik berguna telah dikumpul dan dianalisis. Kadar respons adalah 194 (57.4%) daripada guru, 85 (63.9%) daripada penyelia, dan 232 (58%) daripada pelajar. Keputusan membuktikan bahawa semua responden mempunyai persetujuan persepsi dari segi projek sains pertanian. Bagaimanapun, responden kurang bersetuju dalam persepsi mereka terhadap pencapaian objektif, kandungan mata pelajaran, prestasi mata pelajaran, pelaksanaan, pelajar, dan penilaian. Kajian juga memperlihatkan perbezaan dan perkaitan signifikan antara pemboleh ubah latar belakang terpilih dengan persepsi mereka. Kajian memberi sumbangan penting dengan memberi kefahaman tentang status semasa mata pelajaran Sains Pertanian pada peringkat sekolah menengah atas. Dapatan kajian juga berguna sebagai asas untuk pembangunan selanjutnya mata pelajaran Sains Pertanian.

ABSTRACT

The Ministry of Education, Malaysia has reformed the school curriculum in accordance with the aspirations of the general public and economic development of the country. The new curriculum for secondary schools was introduced in stages beginning in 1989. The agricultural science subject had its new syllabus starting from 1993. The new syllabus was supposed to be more technological and integrative as compared to the old one. The purpose of the study was to obtain feedback from supervisors, teachers and students regarding the teaching of agricultural science subject based on the new syllabus. Specifically, the study sought the perceptions of respondents with regard to various aspects of agricultural science teaching in upper secondary schools. The research was a descriptive survey, employing a mailed questionnaire as the research instrument. The study included all teachers and supervisors of agricultural science. On the other hand, student respondents were purposively sampled. The instrument was pretested, yielding a reliability coefficient of .80. A total of 511 (61%) usable questionnaires were received and analyzed. The response rate was 194 (57.4%) from teachers, 85 (63.9%) from supervisors, and 232 (58%) from students. The results revealed that all respondents were in agreement in term of their perceptions of the agricultural science project. However, the respondents were in

less agreement in their perceptions of the accomplishment of objectives, subject content, subject performance, implementation, students and evaluation. The study also revealed significant differences and associations between selected background variables of respondents with their perceptions. The research contributes significantly in providing insights regarding the present status of the agricultural science subject at upper secondary schools. The research findings are also useful as a basis for furthering development of the agricultural science subject.

INTRODUCTION

Presently, the Ministry of Education, Malaysia divides the upper secondary education into two streams — academic and vocational stream. The academic stream prepares students for further study whereas the vocational stream prepares students for gainful employment. Generally, the academic stream is associated with the secondary academic schools. On the other hand, the vocational stream is associated with secondary technical and vocational schools. However, the two streams are not totally exclusive. The vocation-oriented subjects such as agriculture, home economics, commercial studies and engineering are still offered at the academic schools. Similarly, the academic-oriented subjects such as mathematics and science are offered at the technical and vocational schools. This pattern of subject offering is in consonant with the educational philosophy upheld by the country, i.e., to produce well-balanced and harmonious individuals and at the same time to establish an equality in the educational opportunity. However, there is a clear distinction between the offers of agriculture in the two school systems. The academic schools offer agriculture as a subject whereas the vocational schools offer it as a course.

Agriculture has been included in the Malaysian educational system for a long time. Agriculture was among the early practical subjects taught in academic schools. It was first taught as a gardening activity in elementary schools during colonial days. After Malaysia became an independent nation and through the passage of the comprehensive educational policy, agriculture was offered as an elective subject at the lower and upper secondary levels, covering the period of three and two years, respectively.

The secondary education in Malaysia enters its new era with the inception of the Integrated Curriculum for Secondary Schools or shortly named as ICSS since 1988. The ICSS represents the effort of the Ministry of Education, Malaysia in reforming the school curriculum so as to achieve the educational goal of producing well-balanced and harmonious individuals. As a part of the reformation process, a new agricultural science syllabus was developed and put into practice for lower secondary students. Subsequently, the agricultural science subject at the upper secondary level also had its new syllabus.

At the lower secondary level, agriculture is taught as an integrated component of a new subject called Living Skills. The teaching of agriculture takes 20% of the total time allotted for the Living Skills subject. Meanwhile, at the upper secondary level, agriculture is taught as an independent subject. However, agricultural science at the upper secondary level is offered as an elective subject.

In any new educational program such as the reformed agriculture subject, a real, concerted effort is needed to evaluate the subject. This appraisal can be done by obtaining information from those people involved in the implementation of the program. The information gathered is very useful in assisting planners in determining the effectiveness of the program and in making decisions regarding program improvement. Studies of perceptions of teachers, students, and administrators regarding new agricultural education programs had been reported by Duncan (2004), Warnick and Thompson (2004), Connors and Elliot (1994), Newman and Johnson (1993), Norris and Briers (1989), Birkenholz (1987) and Thompson (1986). The respondents studied gave their positive responses toward new agricultural education programs in the schools. Such studies have contributed significantly in determining the status and value of agricultural education programs. However, such studies are not well-addressed in Malaysia.

PURPOSE AND OBJECTIVES

The purpose of the study was to obtain feedback from supervisors, teachers and students regarding the teaching of agricultural science at the upper secondary academic schools based

on the new syllabus. Specifically, the study sought to accomplish the following objectives:

a. To gather background information on supervisors, teachers, and students of the agricultural science subject at the upper secondary schools.
b. To determine the perceptions of the respondents regarding the new agricultural science syllabus for upper secondary schools.
c. To determine the difference in perceptions of respondents regarding the new agricultural science syllabus.
d. To determine the variables which have relationship with the perception of respondents.

METHODOLOGY

Design

The study was designed to be a descriptive-correlational type of research study. The variables studied were respondent category, selected background characteristics and their perceptions. The research utilized a survey method to meet the purpose of the study.

Study Population

The study population consisted of supervisors, teachers and students of agricultural science subjects in the upper secondary academic schools of Malaysia. The study took a census population of 133 supervisors and 338 teachers. However, the students were selected by using a purposive sampling technique. Twenty schools were sampled by region and 20 students were selected by teacher from each school. The list of supervisors, teachers and schools were secured from State Department of Education so as to control any frame error.

Instrumentation

The study made use of questionnaire to gather data. Three different questionnaires were used, one each for supervisor, teacher and student respondents. Each questionnaire differed only in the items of securing the background data of respondents. They had identical items for measuring the perceptions of respondents. These items covered eight aspects — objective attainment, general perception, subject characteristics, subject performance, subject implementation, evaluation and agricultural project. There were 66 perception items included in the questionnaire. The perception was measured on a five-point Likert scale ranging from 1 point (strongly disagree) to 5 points (strongly agree). The content validity of the questionnaire was assessed by a selected panel of teacher educators and serving teachers. The questionnaire was pretested to a group of preservice teacher education students. The resulting reliability coefficient was .80 for all items. The reliability coefficient by category of items was as follows: objective attainment (.90), general perception (.80), subject characteristics (.80), subject peformance (.70), subject implementation (.90), students (.70), evaluation (.80) and agricultural projects (.80).

Data Collection and Analysis

The questionnaires were mailed directly to the supervisor and teacher respondents. The student questionnaires were mailed to the respective teacher. An adequate instruction was given each of the teachers in the selection of students, administering and mailing back the questionnaires. A few selected non-respondents were contacted through personal visits and telephone calls. No statistically significant difference was observed in the responses of early and late respondents.

The data were analyzed by a software package, SPSSPC+. The descriptive statistics were used as a measure of central tendency of responses. The F statistic was used to analyze the differences in perceptions of respondents. An appropriate coefficient of correlation was used to describe the relationship of variables. In analyzing the degree of perception, mean value 3.5 and above were considered as indicating agreement whereas the mean value below 3.5 was considered as indicating disagreement.

FINDINGS

Tabulation of Respondents

A total number of 511 (61%) usable questionnaires were received and analyzed. The response rate was 85 (63.9%) from supervisors, 194 (57.4%) from teachers and 232 (58%) from students.

Data on Supervisors

Based on the responses provided by 85 supervisors, it was found that a great majority of the supervisors were Malay males holding

TABLE 1
Level of agreement and rank of perceptions

No	Variable Category	Respondent Category [x(s.d.)^{rank}] Supervisors (n=85)	Teachers (n=194)	Students (n=232)	Total (n=511)
1.	Accomplishment of of objectives	3.7(0.5)$^{\#2}$	3.5(0.5)$^{\#3}$	4.2(0.4)$^{\#1}$	3.8(0.6)$^{\#2}$
2.	General perceptions	3.7(0.4)$^{\#2}$	3.7(0.4)$^{\#2}$	3.7(0.4)$^{\#4}$	3.7(0.4)$^{\#3}$
3.	Subject characteristics	3.2(0.3)$^{\#7}$	3.2(0.4)$^{\#7}$	3.7(0.4)$^{\#4}$	3.4(0.4)$^{\#6}$
4.	Subject performance	3.5(0.4)$^{\#4}$	3.4(0.4)$^{\#4}$	4.1(0.4)$^{\#2}$	3.7(0.5)$^{\#3}$
5.	Subject implementation	3.5(0.3)$^{\#4}$	3.4(0.4)$^{\#4}$	3.4(0.4)$^{\#7}$	3.4(0.4)$^{\#6}$
6.	Students	3.1(0.3)$^{\#8}$	3.1(0.4)$^{\#8}$	3.3(0.4)$^{\#8}$	3.2(0.4)$^{\#8}$
7.	Evaluation	3.3(0.5)$^{\#6}$	3.3(0.5)$^{\#6}$	3.6(0.6)$^{\#6}$	3.5(0.6)$^{\#5}$
8.	Agricultural project	3.9(0.4)$^{\#1}$	3.8(0.5)$^{\#1}$	4.1(0.5)$^{\#2}$	4.0(0.5)$^{\#1}$

Scale:
5=Strongly Agree
4=Agree
3=Slightly Agree
2=Disagree
1=Strongly Disagree

Spearman Rank-order correlation (r_s=.5) showed significant associations between respondent category and their perceptions at .05 alpha level.

bachelor degrees. On the average, these schools have one agricultural teacher, three agricultural classes and 50 agricultural enrolees. Forty (93.3%) of the responding supervisors reported their schools offered agriculture both at the lower and upper secondary levels.

Data on Agricultural Teachers

An analysis of responses provided by 194 teachers revealed that a majority of teachers were Malay males, holders of bachelor's degree, had approximately ten years of teaching experience and taught subject in accordance with their qualifications. The most frequent problem reported by teachers was the rather strong tendency of arts students to enrol in the agricultural science class. This problem was attributed to the school policy regarding the subject selection by these students.

Data on Agricultural Students

An analysis of responses provided by 232 students showed that a great majority of the students were Malay male, raised by farm families and enrolled in the agriculture elective whilst in the lower secondary level. A high number and percentage of these students were encouraged by their peers in selecting the agricultural science subject. A high number and percentage of students reported better exam results in agricultural science subject than in their science subject.

Analysis of Perceptions by Agriculture Subject Categories

The perceptions of respondents towards various categories of the agricultural science subject are summarized in Table 1. Overall, respondents were in agreement in term of their perceptions regarding five of eight categories of the agricultural science subject. The five categories were: objective accomplishment, general perceptions, subject performance, evaluation and agricultural project. Agricultural project received the highest mean value. The respondents were in disagreement in three categories of the agricultural science subject: subject characteristics, subject implementation and students.

Perceptions by Specific Statements

The perceptions of all categories of respondents towards specific statements are as shown in Table 2. The selected statements were those ranking in the top ten. Statements 1, 2, 5, 6, 10 were considered as general perceptions, whereas Statements 3 and 4 were related to subject performance and subject characteristic respectively. Statements numbered 7 and 8 were related to agriculture project whereas Statement

TABLE 2
Level of agreement of perception regarding selected statements

No	Statement	Composite Mean(rank)	s.d.
1.	Agricultural science subject ought to be given due respect by the university of agriculture in the process of screening applicants for the diploma program.	4.6(1)	0.7
2.	Agricultural science subject is suitable only for students who are weak in science.	4.3(2)	1.0
3.	Agricultural science subject enables the students to identify factors influencing plant and animal production.	4.3(2)	0.6
4.	Agricultural science subject makes use of elements from other subjects such as mathematics, basic sciences, social sciences, and commercial studies.	4.2(4)	0.8
5.	Agricultural science subject should be retained whenever the government reforms the public education.	4.2(4)	0.8
6.	The effectiveness of teaching agricultural science is greatly dependent on the competence of the agriculture teacher.	4.2(4)	0.8
7.	Agricultural project carried out by students is beneficial in inculcating positive work habits.	4.2(4)	0.7
8.	Agricultural project carried out by students enables the teacher to identify students' interests and aptitudes toward agriculture.	4.2(4)	0.6
9.	Agricultural science subject has succeeded in creating awareness among students with regard to the contribution of agriculture toward economic development in Malaysia.	4.1(9)	0.7
10.	The teaching unit on agriculture in Malaysia gives adequate exposure to students with regard to various crops, livestocks, and their importance to the country's economy.	4.1(9)	0.8

9 was about objective accomplishment. Clearly, the respondents were in agreement in most categories of the agricultural science subject. However, particular attention should be given to the level of agreement of respondents regarding the suitability of agricultural science subject. In the perception of the respondents, agricultural science subject was meant for those students who were weak in science. It could be interpreted

Difference of Perceptions

The differences of perceptions of respondents regarding the agricultural science subject are reported in Table 3. The perceptions of respondents were found to be significantly different with regard to three variables; respondent category, race and school location. Student respondents had more positive perceptions compared to the supervisor and teacher respondents in six categories of the agricultural science subject. Malay respondents had positive perceptions compared to other races in the category of subject characteristics. Respondents from rural schools had more positive perceptions compared to the respondents from urban schools in the category of objective accomplishment and subject performance.

Relationship of Perceptions

The relationship of variables in the study is reported in Table 4. The variables that had significant relationships with perceptions were respondent category, race and gender. Respondent category recorded a significant coefficient of correlation with six categories: objective accomplishment, subject characteristics, subject performance, students, evaluation and agriculture project. The variable, race had a significant correlation with three categories: objective accomplishment, evaluation and agriculture project. The gender variable had a significant relationship with only two categories: subject performance and students.

TABLE 3
Difference in respondents' perceptions

No	Characteristics[a]	Mean				F Value
1.	Respondent Category	Supervisors (n=85)		Teachers (n=194)	Students (n=232)	
	Objective accomplishment	3.7		3.5	4.2	103.5
	Subject characteristics	3.2		3.2	3.7	93.8
	Subject performance	3.5		3.4	4.1	161.8
	Students	3.1		3.1	3.3	23.4
	Evaluation	3.3		3.3	3.6	18.0
	Agricultural project	3.9		3.8	4.1	19.6
2.	Race	Malay (n=419)	Chinese (n=24)	Indian (n=18)	Others (n=47)	
	Subject characteristics	3.4	3.1	3.3	3.4	4.3
3.	School Location	Urban (n=35)	Rural (n=158)			
	Objective accomplishment	3.3	3.6			1.0
	Subject performance	3.2	3.4			1.6

[a]Domain where differences were observed

TABLE 4
Relationships of selected personal characteristics of respondents and their perceptions (N=511)

Variable Category	Category of Respondent	Race	Gender
	r_s	r_s	r_{pb}
Objective accomplishment	.56	.42	.09
Subject characteristics	.51	.11	.10
Subject performance	.63	.12	.25
Students	.29	.13	.28
Evaluation	.23	.29	.06
Agricultural project	.28	.31	.05

Coding Note.
Category of Respondents: 1=Supervisors
2=Teachers
3=Students
Race: 1=Malay 2=Chinese 3=Indian 4=Others
Gender: 1=Male 2=Female

CONCLUSION

Based on the research findings, it could be concluded that agricultural science at the upper-secondary academic schools was supervised by qualified personnels, taught by experienced teachers and learned by students who had farm background. Certainly, these background factors would strengthen the agricultural science subject.

The subject was well-perceived by supervisors, teachers and students. In fact, the students had a higher mean value of perception than the other two categories of respondents. This conclusion may provide some good insights with regard to the youth perception on agriculture. All the while, most agricultural agencies have been confronted with the problem in getting youth to get involved in the agricultural activities.

The respondents were in agreement in their perceptions regarding five of eight categories of the agricultural science subject. These categories were: objective accomplishment, general perceptions, subject performance, evaluation and agricultural project. Of the five categories, the agricultural project received the highest mean value. The respondents were in disagreement with the five categories: subject characteristics, subject implementation and students.

The research findings also revealed the difference in the perceptions held by respondents by their category, race and school location. The student respondents had a higher mean value of perception than the supervisor and teacher respondents in six categories: objective accomplishment, subject characteristics, subject performance, students, evaluation and agricultural project. The different perceptions by race and school location in one or two characteristics. Respondent category, race and gender influenced the way the respondents teach the agricultural science using the new syllabus.

RECOMMENDATIONS AND IMPLICATIONS

Agricultural science was perceived as a subject which is suitable only for those students who are weak in science. This has an implication on the image problem of agriculture subject. In contrary, the new agricultural science syllabus was sicence- and technology-based. Hence, there was a need for the school to review the policy with regard to selection and offering of subject so as to encourage students with strong background in science to enrol in these agriculture classes.

The agriculture subject was well-perceived by all supervisors, teachers and students. Interestingly, the students had better perceptions on the agricultural science subject than the supervisors and teachers. This has a positive implication on the problem confronted by agricultural agencies in getting the involvement of youth in agricultural activities. Since school youth had positive perceptions on agriculture, it is recommended that the government step up efforts in luring youth to take up agriculture as an occupation.

The importance of agricultural project was well-perceived by all categories of respondents. Hence, agricultural projects ought to be retained and enhanced as an approach in teaching of the agricultural science subject. This approach is in line with the principle of learning agriculture as advocated by Newcomb *et al.* (1989). The proper implementation of agricultural project needs effective planning and management strategies on the part of the teacher. This implies that teachers need to be competent in both planning and managing the agricultural project.

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