

Subject Matter Knowledge of Student Teachers: How Does it Affect Their Ability to Teach Entrepreneurship

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ABSTRAK

Kajian ini mengkaji prestasi akademik 64 orang guru pelatih Universiti Pertanian Malaysia dan persepsi mereka terhadap keupayaan mengajar topik perdagangan dan keusahawanan dalam silabus Kemahiran Hidup. Dapatan menunjukkan (1) terdapat perbezaan yang signifikan antara prestasi akademik responden dengan program pengajian mereka, (2) taraf kemasukan pelajar mempengaruhi pencapaian akademik dan (3) pencapaian akademik yang tinggi menghasilkan keupayaan yang tinggi untuk mengajar komponen perakaunan. Kajian ini mencadangkan pemilihan guru hendaklah berdasarkan pengalaman mengajar Kemahiran hidup dan juga prestasi akademik yang memuaskan. Dalam usaha menghasilkan guru yang profesional, pengetahuan guru dalam subjek yang diajar hendaklah ditambah melalui pengambilan beberapa kursus berkaitan.

ABSTRACT

This study investigated 64 UPM student teachers' academic performance and their perception of their ability to teach commerce and entrepreneurship topics in the living skills syllabus. The findings show that (1) there is a significant difference between academic programmes and academic performance of the respondents, (2) entry qualifications influence academic performance of the respondents, and (3) high academic performance results in high ability to teach accounting components. This study suggests that proper selection of vocational teacher trainees should be made to ensure better living skills teachers. Selection should be based on experience in teaching living skills and satisfactory academic achievement. To produce professional teachers, teachers' subject matter knowledge should be increased by enrolling in several related courses.

INTRODUCTION

Guyton and Farokhi (1987) agreed that if prospective teachers are recruited from among the academically best candidates, if they perform well in university courses, if they possess basic skills competency and are educated extensively in their academic disciplines, and if they are placed in schools under the guidance of master teachers, then highly competent teachers will emerge.

Currently, subject matter knowledge of teachers is highly emphasized. The nature of teachers' professional development varies considerably across different nations. According to Calderhead (1995) "...how we prepare new teachers for the profession, how we support them in their first post as teachers, and how we

help them to develop in their future careers varies widely". He also agreed that the training of teachers is seen as a key influence in the improvement of education. Adler (1982) suggested that teachers should themselves be at least as well-schooled as the graduates of the schools in which they are expected to teach.

Clark and Elmore (1981) reported that teachers adapt curricula to fit their knowledge and Calderhead (1995) explained that studies of novice and experienced teachers suggest that the competent teacher possesses an enormous diversity of knowledge — not only about subject matter, but about children, teaching and the classroom context — that enables teachers to make sense of classrooms and to monitor and shape their classroom routines and behaviour.

On the other hand, Berliner (1987) commented that novice teachers only make simpler, common-sense interpretations of classroom events, and are less able to anticipate possibilities and act accordingly. Calderhead (1995: 3) concluded that

“since children’s own backgrounds vary considerably and they approach a subject with particular understanding of their own, so teachers need a wide repertoire of pedagogical content knowledge to cater for children’s individual differences. The analogy that works for one child, for example, may be completely meaningless to another.”

Debate about the knowledge base for teacher education is at the core of the move to establish professional standards for teaching (Beaudry 1991). Grossman (1989) agreed that teachers must have a theoretical understanding of how students learn a particular subject in addition to a knowledge of the subject material itself.

Entrepreneurship stands as part of the new frontier in the 1990s. Porter and McKibbin (1988) mentioned 3 ideas that stand out in importance for entrepreneurship education. First, they predicted that entrepreneurship would be one of the driving forces of the 21st century economy. The second key idea identified was cross-functional integration, which is central to entrepreneurship and small business management, as an important part of future business education. The third idea, relating to staff development, stressed the need for the faculty to understand their specialty in the large system of business. This type of business academic interaction defines a hallmark of the academic field of entrepreneurship (Katz 1991).

Evans (1987), Hess (1987), Atkinson (1989), Gleason (1989), Vawdrey (1989), Daughtery and Ristau (1991) and Massey (1990) agreed that if entrepreneurship is to permeate all of education then all teacher training efforts should include preparation in the concepts and practices of entrepreneurship. The agenda of teacher education institutions must address the critical need for informed and competent teachers.

In Malaysia, a new subject in Kurikulum Baru Sekolah Menengah (KBSM) (the new secondary school syllabus) called Living Skills was introduced in 1989 to replace pre-vocational or elective subjects (agriculture science, home economics, commerce, and industrial arts). It consists of 3 core components (manipulative

skills, commerce and entrepreneurship and self management) and the elective part consists of 3 areas (agriculture science, home economics and additional manipulative skills). All Form 1, 2 and 3 pupils are required to study the subject. Thus commerce and entrepreneurship elements become compulsory for all lower secondary students. Since living skills is a new subject, teachers were not trained specifically for the subject, but they were given in-service training to learn the subject matter. The elective teachers were asked to teach the core component of living skills, including commerce and entrepreneurship. The topics covered under commerce and entrepreneurship syllabus are very broad — 85 topics, including 21 accounting topics.

Research has been conducted on the implementation of living skills in KBSM (Sharifah *et al.* 1990; Ramlah 1992). All the researchers reported problems of teaching living skills, and suggestions were given on how to improve the teaching-learning situation. Ramlah (1992) also found that living skills teachers had low confidence in teaching accounting topics and had average confidence in teaching other topics in commerce and entrepreneurship for the Form 1 syllabus. She also indicated that teachers with an agriculture science background had more confidence in teaching topics related to agriculture, but not the other core components of living skills including commerce and entrepreneurship. The purpose of this study was to: (a) assess agriculture and home economics student teachers’ ability to teach topics in commerce and entrepreneurship in the living skills subject; (b) assess students teachers’ knowledge. Their knowledge was measured in terms of academic achievement in accounting, commerce and entrepreneurship, as well as cumulative grade point average (CGPA); (c) to determine the relationship between student teachers’ academic performance and their ability to teach.

MATERIALS AND METHODS

Subjects

The subjects for the study consisted of all the 64 Universiti Putra Malaysia final-year Education students majoring in Agriculture and Home Economics in the 1993/94 session. They were selected because they were required to take “living skills” as their minor. These students

were exposed to two business courses in a living skills minor package at Faculty of Educational Studies, Universiti Putra Malaysia.

Instrument

The instrument was developed by the researchers. Part one of the instrument covered the background information of the students. Part 2 was concerned with the ability to teach. All the 85 commerce topics found in the syllabus for Forms 1, 2 and 3 were considered. Student teachers' ability to teach was measured by using the Likert scale: 1 indicates very low and 5 indicates very high. The number of items measured was 85 and the reliability of the items was found to be .95. The third part of the instrument was the academic performance of the students, which was measured using CGPA and test scores for 2 business-related courses. Data on CGPA were obtained from the students' records and their scores for business courses were obtained from the lecturers involved in teaching the subjects.

FINDINGS

Profile of Respondents

Table 1 shows that most of the education students majoring in Agriculture Science and Home Economics were Diploma and Higher School Certificate holders.

TABLE 1
Students' programme entry qualification

Programme	Diploma/ HSC	Trained Teachers	Matricu- lation & Promoted	Total
Agriculture Science	15	11	8	34
Home Economics	12	8	10	30
Total	27	19	18	64

Table 2 shows that the CGPA of most of the respondents was in the low category — second class lower and third class.

Table 3 shows the scores in commerce and entrepreneurship for agriculture and home economics students. Most of the agriculture students have higher scores than the home economics students; this difference is significant at .05.

TABLE 2
Student teachers' CGPA and teaching experience

	High	Low	Total
Trained teachers	7	11	18
Non-teachers	17	29	46
Total	24	40	64

Note: High = first class + second class upper
Low = second class lower + third class

TABLE 3
Student teachers' programme and performance in commerce and entrepreneurship

Programme	High	Low	Total
Agriculture Science	23	11	34
Home Economics	8	22	30
Total	31	33	64

Chi square = 10.71659
D.F. = 1
Significance = .00106

Table 4 shows the score for agriculture and home economics students in accounting. Chi square analysis indicates that there is no significant difference between the two groups of students since $p = .739$.

TABLE 4
Programme of student teachers and their performance in accounting

Programme	High	Low	Total
Agriculture Science	19	15	34
Home Economics	18	12	30
Total	37	27	64

Chi square = .11079
D.F. = 1

Table 5 shows that agriculture students have higher CGPA than home economics students, and this difference is significant at .05 level.

Table 6 shows that most students who joined the programme based on Diploma and HSC qualifications had higher scores for commerce and entrepreneurship, accounting and CGPA, whereas a significant number of teachers had a low score in all these areas. Matriculation and promoted students, too, had

TABLE 5
Programme of student teachers and their CGPA

Programme	High	Low	Total
Agriculture Science	19	15	34
Home Economics	8	22	30
Total	27	37	64

Chi square = 5.57759
D.F. = 1
Significance = .01819
Pearson's R = .29521 Significance = .01788

TABLE 6
Academic achievement and entry qualifications of student teachers

	Commerce and Entrepreneurship		Accounting		CGPA	
	High	Low	High	Low	High	Low
Diploma/HSC Teachers	14	13	21	6	16	11
Matriculation/Promoted	5	14	8	11	4	15
Total	12	6	8	10	7	11
Total	31	33	37	27	27	37

low scores on those aspects, except for commerce and entrepreneurship. Promoted student are the first year diploma students in UPM who had attained a certain cumulative grade point average and had been promoted to the first year degree programme in the Faculty of Educational Studies, UPM.

Table 7 shows that a higher percentage of the non-bumiputera students scored higher for

TABLE 7
Race and academic achievement of student teachers

	Commerce and Entrepreneurship		Accounting		CGPA	
	High	Low	High	Low	High	Low
Bumiputera	23	29	26	26	15	37
Non-bumiputera	8	4	11	1	9	3
Total	31	33	37	27	24	40

Note: Bumiputera(n) = 52
Non-bumiputera (n) = 12

commerce and entrepreneurship, accounting and CGPA than bumiputera students.

Tables 8, 9, 10 and 11 show the significant differences between gender and programme of respondents with academic achievement. There is a significant difference between programme of respondents and scores on commerce and entrepreneurship and CGPA, where agriculture students have a higher mean than home economics students. There is also a significant difference between gender of respondents and scores on commerce and entrepreneurship and CGPA, where male students have a higher mean than female students. There is no significant difference between gender and programme of students and accounting score, as shown in Table 8.

TABLE 8
Difference between demographic variables and accounting score

	Mean	s.d.	t-value	Sig.
Gender				
Female	70.0909	11.969	.63	.531
Male	68.1500	10.038		
Programme				
Ag. Sc.	69.2059	10.365	-.21	.836
Home Econ.	69.8000	12.560		

Note: * p < .05

TABLE 9
Difference between demographic variables and commerce and entrepreneurship score

	Mean	s.d.	t-value	Sig.
Gender				
Female	76.1364	5.246	-2.55	.013*
Male	79.7000	5.069		
Programme				
Ag. Sc.	79.5000	5.490	3.92	.000*
Home Econ.	74.7000	4.087		

Note: * p < .05

TABLE 10
Difference between demographic variables and CGPA

	Mean	s.d.	t-value	Sig.
Gender				
Female	2.8963	.273	-.92	.363
Male	2.9681	.326		
Programme				
Ag. Sc.	3.0222	.298	3.26	.002*
Home Econ.	2.8014	.233		

Note: * = p < .05

TABLE 11
Mean and standard deviation of the variables

Variables	Mean	Standard Deviation
Ability	307.328	37.769
CGPA	2.919	.290
Commerce and Entrepreneurship	77.250	5.413
Accounting	69.484	11.357

Table 12 shows the correlation of ability to teach, CGPA, score on commerce and entrepreneurship, and score on accounting.

TABLE 12
Correlation of variables

	Ability to teach	CGPA	Com. & Entrp. Score	Acct. Score
Ability	-	.162	-.056	.338*
CGPA	.162	-	.644*	.456*
Commerce & Entrepreneur- ship	-.056	.644*	-	.239*
Accounting	.338*	.456*	.239*	-

* = $p < .05$

Even though students were exposed only to a few business courses, those who have higher academic performance tend to have a higher ability to teach, and vice versa. This can be explained by their background. According to the current pattern of courses taken by agriculture and home economics students, not even one business course related to the living skills syllabus was included as a technical course in their major programmes. But all agriculture students have the opportunity to learn a few other related business courses such as agriculture economics, farm management, and principles of economics. Diploma holders have studied three extra business courses such as introduction to accounting, introduction to agricultural economics; basic economics; all these courses have contributed to their performance in both subjects, commerce and entrepreneurship and also accounting. With this background, there is no doubt that they have more confidence in teaching the business topics as required compared to teachers and matriculation students who do not have such a background. Their background also contributed to the differences

in scores for commerce and entrepreneurship compared to home economics students.

The findings show that those who have high CGPA are those students enrolled in Agricultural Education who were selected for the programme based on their entry qualifications, that is Diploma in Agriculture and HSC/STPM. The researchers found that those students who are not teachers had a higher score in commerce and entrepreneurship, accounting and CGPA.

The findings also illustrate the significant difference between demographic variables and academic achievement in terms of gender and programme. It was also found that a majority of non-bumiputera students tend to have a higher score than the bumiputera students in all three areas; this is because the majority of the non-bumiputera students are HSC holders. Agriculture students tend to have higher scores in commerce and entrepreneurship and CGPA than home economics students. Respondents who are high achievers tend to be diploma and HSC holders as discussed above. They have a higher ability to teach because they understand the content of the subject better, especially in commerce and entrepreneurship and accounting topics, than those who are in the lower category.

The commerce and entrepreneurship syllabus is quite broad and consists of a variety of topics which could not be covered merely by taking two business courses. Even though the students had high academic performance they still do not have a high perception of their ability to teach the whole components in the commerce syllabus. The only explanation for this situation is that students are not really exposed to all the topics required by the living skills syllabus due to the time factor and limited courses. Other courses should be introduced in the minor package to cover all commerce and entrepreneurship topics as required. The situation is different for accounting topics because by taking one accounting course, the high ability students manage to understand the main contents of the 21 topics in the syllabus. The teaching strategy to conduct both related courses should be modified to suit the differences in the background of respondents.

CONCLUSION

Based on the findings of the study, the following conclusions can be made.

1. There is a significant difference between programme and academic achievement of respondents. Agriculture students have higher CGPA scores, and better results on the commerce and entrepreneurship course than the home economics students.
2. Diploma and HSC holders have higher scores on commerce and entrepreneurship, accounting and CGPA than teachers and matriculation students.
3. Non-bumiputera students have a higher score on commerce and entrepreneurship, accounting and CGPA than bumiputera students.
4. There is no significant relationship between student teachers' ability to teach and students' CGPA.
5. There is a significant relationship between students' score in accounting and their score in the commerce and entrepreneurship course.
6. There is a significant relationship between students' CGPA and accounting performance.
7. There is a significant relationship between students' CGPA and commerce and entrepreneurship performance.
8. There is a significant relationship between students' ability to teach and their accounting performance.

RECOMMENDATIONS

1. Both programmes should continue to consider admitting diploma and HSC holders to the programme since they have a higher ability than the other groups of students.
2. Teachers should be given more opportunity to learn the accounting subject according to their pace, since their entry qualification is not as high as diploma, HSC or matriculation students. This could be done by having a full-time lecturer teaching the accounting components and arranging tutorials as required.
3. More business-related courses suitable to the requirements of the living skills syllabus should be introduced. The current commerce and entrepreneurship course should be divided into 2 separate courses so that the 64 topics will be taught deeply and not only superficially.
4. New courses should be introduced so that students could be exposed to higher level subject matter beyond school syllabus so that they will be more knowledgeable and more confident in teaching the subject matter. For

this reason, a minor in living skills is not suitable for all categories of students, unless they are admitted based on their experience and knowledge related to business.

5. Different approaches should be used to handle different categories of students in agriculture and home economics education. Different groups have different abilities and different needs to understand the demands of the subjects.
6. Matriculation students should be considered for admission to the programmes only if they are really interested to teach and do not perceive teaching as a second choice profession.
7. Co-ordinator of both programmes, Agriculture and Home Economics Education should advise students before they take living skills as their minor. In addition, selection of teacher trainees in vocational areas should not be based only on their experience in teaching agricultural science or home economics but also consider their experience in teaching commerce and entrepreneurship or living skills.
8. Students with "teaching experience" also need to undergo teaching practice because their previous experience was not related at all to the new subject matter.

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