

Student-Teachers' Approaches to Learning, Academic Performance and Teaching Efficacy

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ABSTRACT

Purpose – It is argued that the approaches to learning of students undergoing teacher training are likely to be related to their teaching and learning environment, especially as they move from a more regimented, structured learning environment in school to a tertiary learning environment that encourages more independent thinking and perhaps questions ideas. Therefore, this investigation has an overall goal to use the unique approaches to learning (surface and deep approaches) of students in a teacher preparation program to address the needs of this particular group of students during their teacher education. The study examines the associations between scores on student-teachers' approaches to learning, their academic performance and teaching efficacy.

Methodology – The approach to learning instrument used was the *Bahasa Melayu* R-SPQ-2F and the teaching efficacy was collected through the *Bahasa Melayu* Teachers' Sense of Efficacy Scale (TSES). The sample for this study was a total of 104 second-year student-teachers from two cohorts enrolled in a teacher education degree programme in a Malaysian university. The R-SPQ-2F was administered on the 10th week of a 14-week semester. A cover page accompanying the questionnaires provided general information about the study and specific instructions to answer the questionnaire. Student-teachers were requested to provide their cumulative grade-point average (CGPA) score from the previous semester. Data was analyzed by using Pearson's product-moment correlation coefficient (Pearson's r).

Findings - Findings showed that surface approach to learning has shown significant negative association with teaching efficacy, indicating that those student-teachers who used surface learning exhibited low teaching efficacy. Deep approach to learning has shown significant positive association with both academic achievement and teaching efficacy, indicating that those student-teachers who adopted deep learning had better academic achievement and also had a stronger sense of teaching efficacy. Implications of these findings were discussed as they related to teaching and learning, specifically in the attempt to facilitate deeper learning strategies.

Significance - The study provides further evidence that the translated versions of the *Bahasa Melayu R-SPQ-2F* and the *Bahasa Melayu TSES* are reliable instruments to assess and monitor student-teachers' approaches to learning and their teaching self-efficacy beliefs. This study also adds to the very limited number of investigations of approaches to learning, academic performance, and teaching self-efficacy of student-teachers in Malaysia.

Keywords: Approaches to learning, *Bahasa Melayu R-SPQ-2F*, teaching and learning, teacher education, teaching efficacy, *Bahasa Melayu TSES*.

INTRODUCTION

A better understanding of the learning processes of student-teachers in Malaysia is important in the context of the challenges teachers face with ongoing changes in the teaching curriculum, and the demands to facilitate independent learning and to encourage the development of critical thinking among their students. The challenges teachers faced are made significant in a speech by YB. Dato' Sri Hishammuddin Tun Hussein, Minister of Education (2007):

Peredaran masa membawa bersama pelbagai tuntutan dan cabaran baru. Sistem pendidikan kita perlu sentiasa dipastikan bukan sahaja memenuhi tuntutan zaman malah harus mempunyai keupayaan untuk mendepani cabaran masa depan.

[The passage of time brings along various claims and new challenges. Our education system must always be assured of not only meeting current demands but also to possess the capability to lead future challenges.]

Jadi [therefore]:

... fokus akan diberikan untuk menghasilkan guru yang berkualiti, kekal dalam sistem pendidikan negara dan kekal berkualiti di sepanjang tempoh perkhidmatan...

[... focus will be given to generate quality teachers in the educational system, who will not only maintain quality teaching now but will continuously uphold this quality throughout their teaching service...]

Supaya [in order that]:

... ilmu dan kemahiran yang ada dapat disalurkan kepada murid untuk dipraktikkan demi membangunkan bangsa dan negara... dan sekolah-sekolah...dapat menjadi penanda aras dan showcase tentang kejayaan sistem pendidikan kita kepada masyarakat antarabangsa.

[... the knowledge and skills obtained can be channeled to the students for the implementation of and the purpose of nation building ... and schools... can be the benchmark and showcase of the success of our education system to the international community...]

Teachers and student-teachers who fail to follow through with these challenges, may possibly fail to provide their students with access to literacy and possibly to future employment in environments that increasingly support a knowledge-based society. According to Brand, Glasson, and Green (2006), teachers, next to parents, may have the largest influence on students' motivation to reach their educational goals, their future plans and academic achievement. Certainly, the challenges of teaching and learning qualities lie not only with the current practicing teachers, but particularly with the new student-teachers in teacher training institutions. The implied and increasing emphasis on quality of teaching and learning will place new demands on teacher training institutions; nevertheless, it is necessary, first, to call to attention the issues of student-teachers' learning and experiences in order to improve teacher education as it may be vital in training future teachers to reach specific competencies.

Concerns about quality of student learning in tertiary education are not a new phenomenon. There have been significant efforts by researchers and educators towards addressing this issue and the expanding field on student learning research has produced

many suggestions of what we should be doing to encourage quality learning. Although much of the research originated from the west, there has also been research carried out, of late, on the learning processes of Asian students studying in western universities, especially from the student approaches to learning (SAL) position.

Student approaches to learning was derived from an experiment by Marton and Säljö (1976) to examine students' experience of a particular learning situation. They demonstrated that the way students approached learning played an important role in determining the outcome of an educational endeavour. This study was motivated by a concern to better understand differing student-teachers' learning by examining their approaches to studying. This study looked at approaches to learning and their association with academic performance and teaching efficacy.

APPROACHES TO LEARNING

Approaches to learning are influenced by the interplay of various factors including the teaching context, teaching material, pre-existing knowledge, types of assessment, and the perception of students' learning processes. Approaches to learning are seen as dynamic, that is, partly context-dependent rather than as fixed personality traits. In this context-specific structure, two approaches to learning are distinguished, namely, the surface approach and the deep approach.

The surface approach to learning is typically characterised by students' attempts to remember facts and ideas that they feel might be required to succeed in an examination. Students using a surface approach are seen as goal-directed, without deriving much intrinsic meaning from the learning task. Many would have low quality learning outcomes and tend to terminate their higher education after a first degree (Biggs, 1993). Students adopting surface approaches are motivated by a desire to complete the course or a fear of failure. The intention is to fulfill the course requirements by using strategies such as memorising or reproducing the materials that are likely to appear in tests and examinations. Therefore, those students adopting surface processing have a superficial understanding of the material learnt. In addition, if the students' intentions and strategies are limited to surface processing, the ability for the students to adequately solve problems or use analytical principles to deal with new and

unanticipated situations may be hampered. Such situations would run contrary to the expectations of a lifelong learning society and would pose a serious challenge to the Malaysian education system trying to make the transformation to a knowledge-based economy. Skills associated with learning such as critical thinking, self-directed learning, adaptability, problem solving, and communication are essential to students if they are to become productive members of a society based on life-long learning, that have been shown to require a deep-level approaches to learning (Kember & Leung, 2005).

In contrast to surface level learning, the deep-level approach to learning is based on an intention to obtain meaningful understanding of what is learned through reading and research. Learning is characterised by an incentive to understand underlying principles and identify relationships between ideas and concepts (Biggs, 2001). Students are motivated by an interest in the subject material and its relevance for career purposes. A student studying using deep processing has the intention to understand its meaning and to relate it to prior knowledge and personal experiences. Defining features and characteristics of the deep and surface approaches to learning are indicated in Table 1.

The approaches students use have a significant impact on both their quality of learning and their academic achievement (Cano & Cardelle-Elawar, 2008; Goh, 2007). Goh (2007) reported that students who adopted deep approaches to learning emerged from their course having achieved higher academic attainment, including the development of analytic and problem solving skills, than those who maintained greater reliance on surface approaches. In the 1970s, Svensson (1977) found that students who consistently adopted deep approaches were more successful in passing their examination than those who consistently used surface approaches. Clarke (1986) also showed that there were consistent correlations between poor performance of medical students and the surface approach. Studies by Gordon and Debus (2002) showed that strong efficacy beliefs in students were linked to their use of deep level learning.

Advocates of measuring student-teachers' approaches to learning see it as a means to assist academics monitor and improve effectiveness of their own teaching. In addition, it gives an opportunity to assess and identify student-teachers who are at risk through the use of ineffective study strategies and provide an avenue to evaluate the quality of student learning.

Table 1

Defining Features and Characteristics of Deep and Surface Approaches

Features	Actions
Surface Approach	The student:
<p>Intention – to cope with course requirements</p> <ul style="list-style-type: none"> • Studying without reflecting on either purpose or strategy. • Treating the course as unrelated bits of knowledge. • Memorising facts and procedures routinely. • Finding difficulty in making sense of new ideas presented. • Feeling undue pressure and worried about work. 	<ul style="list-style-type: none"> • sees the task as a demand to be met, a necessary imposition if some other goal is to be reached (a qualification for instance); • sees the aspects or parts of the task as discrete and unrelated either to each other or to other tasks; • is worried about the time the task is taking; • avoids personal or other meanings the task may have; and • relies on memorisation, attempts to reproduce the surface aspects of the task (the words used, for example, or a diagram, or mnemonic).
Deep Approach	The student:
<p>Intention – to understand ideas for yourself</p> <ul style="list-style-type: none"> • Relating ideas to previous knowledge and experience. • Looking for patterns and underlying principles. • Checking evidence and relating it to conclusions. • Examining logic and argument cautiously and critically. • Becoming actively interested in the course content. 	<ul style="list-style-type: none"> • is interested in the academic task and derives enjoyment from carrying it out; • searches for the meaning inherent in the task (if a prose passage, the intention of the author); • personalises the task making it meaningful and to the real world; • integrates aspects or parts of task into whole (for instance, relates evidence to a conclusion), see relationships between this whole and previous knowledge; and • tries to theorise about the task and form hypothesis.

Source: Entwistle (1998, p.74); Biggs (1987, p.15)

TEACHER AND TEACHING EFFICACY

Bandura (1997) defines the construct of self-efficacy as beliefs that teachers have of their capability to organize and execute courses of action required to manage prospective situations. A considerable number of studies have confirmed the centrality of this construct in teacher effectiveness. Teachers with strong teaching self-efficacy are more likely to use productive teaching methods and practices to optimize student learning compared to teachers with weaker teaching self-efficacy. Teaching self-efficacy is not limited to beneficial teaching practices, but also contributes towards positive teaching behaviours which includes exhibiting greater levels of enthusiasm, better planning, improved organisation of work and overall satisfaction in the teaching profession (Woolfolk-Hoy, 2004; Tschannen-Moran, Woolfolk-Hoy & Hoy, 1998). Congruent to this, teachers with high self-efficacy tend to believe that all students are teachable and that they can influence students' motivation and success. Such perception leads to teachers applying more problem-solving behaviours and greater persistence in the face of obstacle leading to higher levels of student achievement. In contrast, teachers with a low sense of teaching self-efficacy tend to attribute student failures to difficulties in teaching and make fewer efforts towards improvement (Woolfolk-Hoy, 2004; Woolfolk, Roso & Hoy, 1990).

Strong teaching self-efficacy beliefs have been linked to deep approaches to learning (Gordon, Simpson, & Debus, 2001; Gordon & Debus, 2002). Student-teachers undergoing programme which encourages the development of analytical problem-solving methods, context-based learning and a constructivist view towards learning promotes deep approaches to learning. The capability to problem-solve may enhance student-teachers' personal sense of teaching efficacy. Beginning teachers whose efficacy beliefs are formed through this use of deep approaches to learning tend to demonstrate greater resilience when confronted with the realities and complexities of the teaching task and 'to the threats to efficacy identified to impact on teachers in their early years in the profession' (Gordon & Debus, 2002, p. 506). New teachers nurtured through deep approaches to learning are better placed to resolve teaching difficulties through their problem-solving skills and their ability to manage many agendas simultaneously.

METHODS

Materials

The approach to learning instrument used was a translated version of the R-SPQ-2F (Biggs, Kember & Leung, 2001) and the teaching efficacy data was collected through a translated version of the Teachers' Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001). The R-SPQ-2F consisted of 20 items measuring two main scales of Deep Approach (DA) and Surface Approach (SA). The DA main scale had Deep Motive (DM) and Deep Strategy (DS) as subscales, while SA had Surface Motive (SM) and Surface Strategy (SS) as subscales. Table 2 presents the meanings of the four subscales. Each of the subscales (DM, DS, SM, and SS) contained five items. Each item within the subscales was rated on a five-point Likert scale: 1 ('This item is never or only rarely true of me') and 5 ('This item is always or almost always true of me'). Subscale scores were calculated by summing up the scores on the relevant items. All items were positively worded so that no recoding was necessary when scoring the questionnaire. Subscale scores ranged from five to 25 with higher scores indicating those who made a greater use of that approach to learning. The R-SPQ-2F used in this study was the translated *Bahasa Melayu* R-SPQ-2F (Goh, 2009).

Table 2

Meaning of the Subscales in the R-SPQ-2F Instrument

Approach	Motive	Strategy
Surface	Surface Motive (SM) is instrumental: main purpose is to meet requirements minimally: a balance between working too hard and failing.	Surface Strategy (SS) is reproductive: limit target to bare essentials and reproduce through rote learning.
Deep	Deep Motive (DM) is intrinsic: study to actualise interest and competence in particular academic subjects.	Deep Strategy (DS) is meaningful: read widely, interrelate with previous relevant knowledge.

Source: Gow and Kember (1990, p.309)

The theoretical construct underlying the TSES was that teachers' sense of self-efficacy was important as they went about making decisions regarding classroom management, organising programmes, teaching, and communicating, and was related to their students' learning outcomes, achievement and motivation. The TSES had 12 items and each item required respondents to indicate their impression of their capability towards the teaching task on a 9 - point Likert-type scale (1 - nothing, 3 – very little, 5 – some influence, 7 – quite a bit, and 9 – a great deal of capacity). Similarly, the TSES used in this study was the translated *Bahasa Melayu* TSES (Goh, 2009). Higher scores would indicate higher teaching efficacy.

Previous quantitative studies conducted by Goh (2009) as shown in Table 3, and later by Mokhtar, Goh, Husain and Rahman (2010) confirmed the suitability of the translated *Bahasa Melayu* R-SPQ-2F for evaluating the learning processes. Goh (2009), as shown in Table 4, also confirmed that the *Bahasa Melayu* TSES was suitable for evaluating the teaching efficacy of student-teachers. The *Bahasa Melayu* R-SPQ-2F essentially replicated the reliability and factor structures of other linguistic versions of the SPQ (Liem & Prasetya, 2007; Watkins & Dahlin, 1997; and Albaili, 1995) and were comparable to those reported by Biggs (1987) of the original English version. It also supported the results obtained by Marton and Booth (1997). Goh (2009) also found that the reliability and factor structure of the TSES reported by Tschannen-Moran and Woolfolk Hoy (2001) were largely confirmed through the *Bahasa Melayu* TSES. The present study further added to the internal consistency of both the translated R-SPQ-2F and the TSES. The present study found that the two main scales of the translated R-SPQ-2F had internal consistency coefficient of 0.81 for DA and 0.82 for SA, while the translated TSES had internal consistency coefficients of 0.90, further indicating its acceptable limits and confidence for use.

The sample for this study was a total of 104 second year students from two cohorts enrolled in a teacher education degree programme in a Malaysian university. The R-SPQ-2F was administered on the 10th week of a 14-week semester. A cover page accompanying the questionnaires provided general information about the study and specific instructions to answer the questionnaire. Students were requested to provide their cumulative grade point average (CGPA) score from the previous semester. Students were assured of the confidentiality of their responses. Data was analyzed by using Pearson's product moment correlation coefficient (Pearson's r).

Table 3

Internal Reliability Estimates and Factor Loadings from Two-Factor Oblique Solution of Responses to the Bahasa Melayu R-SPQ-2F for Student-Teachers from Malaysia conducted in 2009 (n = 347)

Factor	α	I	II
<i>Approaches to Learning</i>			
Surface Motive	0.58	- 0.12	0.87
Surface Strategy	0.51	0.02	0.78
Surface Approach	0.67		
Deep Motive	0.63	0.79	0.17
Deep Strategy	0.73	0.88	-0.09
Deep Approach	0.81		
Total % Variance Explained		45.8	22.4

Table 4

Means and Cronbach Alpha for the Bahasa Melayu TSES for Student-Teachers from Malaysia conducted in 2009 (n = 347)

	Mean	SD	α
BMelayu TSES-12	74.7	12.3	0.92
Efficacy in Classroom Management	24.2	4.6	0.81
Efficacy in Instructional Strategies	25.3	4.6	0.85
Efficacy in Student Engagement	25.2	4.3	0.79

Samples

RESULTS

Table 5 shows the inter-correlation matrix between approaches to learning (SA and DA), academic achievement (CGPA) and teaching efficacy. Surface Approach to learning showed a significant negative correlation with teaching efficacy indicating that those students who used surface learning had low teaching efficacy. Deep Approach to

learning showed a significant positive correlation with both academic achievement and teaching efficacy indicating that those students who adopted deep learning had better academic achievement and also had a stronger sense of teaching efficacy.

Table 5

Correlations between Approaches to Learning, Academic Performance and Teaching Efficacy

	1	2	3	4
1. Surface Approach (SA)	1	-0.13	-0.11	-0.24 *
2. Deep Approach (DA)		1	0.23 *	0.44 **
3. Academic Achievement (CGPA)			1	0.03
4. Teaching Efficacy				1

* $p < 0.05$; ** $p < 0.01$

DISCUSSION

The present study shows that student-teachers undergoing teaching preparation who adopted deep approaches to learning have significant associations with their academic performance. The results are consistent with investigations which have indicated that students who adopted deep approaches to learning emerged from their course having achieved higher quality learning, including the development of analytic skills, than those who maintained greater reliance on surface approaches (Biggs, 1993; Cano & Cardelle-Elawar, 2008; Entwisle, 1998; Goh, 2006). This study also shows that deep approaches to learning in student-teachers preparing to become teachers are associated with a stronger sense of teaching efficacy. This study by and large confirms previous findings by Gordon and Debus (2002) that those students who, during their training, adopted deep approaches to learning are influenced by self-beliefs that they (a) could encourage their pupils' achievement and motivation, (b) have better class control, (c) have superior capabilities to perform as teachers and (d) would work harder and persist longer even when pupils were difficult to teach. However, the study also demonstrates that those who are inclined towards surface approaches to learning

have significant associations with weaker teaching efficacy beliefs. According to Woolfolk-Hoy (2004), teaching efficacy beliefs are important for students to believe in their own competence as future teachers and to believe in the 'teachability' of all their pupils.

IMPLICATIONS FOR TEACHER EDUCATION

This study further demonstrates that the *Bahasa Melayu* R-SPQ-2F and the *Bahasa Melayu* TSES are reliable tools for evaluating student-teachers' approaches to learning and their perceived teaching self-efficacy beliefs. Students could use the *Bahasa Melayu* R-SPQ-2F to reflect on their own approaches to learning thus providing an avenue for them to further develop or discard learning strategies that are congruent or incongruent with the objectives of their teacher training. In the same way teacher educators can use the instrument to diagnose and analyse students' learning approaches and their impact on academic performance and teaching efficacy to improve the teacher-training system.

As the use of deep approaches to learning appears to be important in influencing positive academic performance and strong teaching efficacy, the question that arises is, what are the teaching and learning contexts that can promote students' intrinsic learning and the motivation for learning. Possibly the task for teacher educators in teacher training institutions is to identify and create conducive and student-centred learning environments that are likely to foster deep approaches to learning from the commencement of a teacher training programme. Activities that can increase student-teachers' intrinsic learning should lead to improved academic attainment and teaching efficacy.

This specific study was cross-sectional and not longitudinal; therefore, causal effects of approaches to learning on teaching self-efficacy were not possible to ascertain. However, learning environment researchers (e.g. Entwistle, Entwistle & Tait, 1991; Prosser & Trigwell, 1997; Ramsden, 1997) have found that the teaching and learning context in which the students are immersed are influential in their adoption of deep approaches to learning. Many factors exist to help in inculcating deep approaches to learning such as facilitative and creative teaching (problem-based learning, active learning, collaborative work, etc), positive professional disposition

(e.g unbiased, enthusiasm), assessments that asses higher levels of learning, adequate study time, and appropriate workload, which should bring about improved teaching efficacy. After all, in order to help students learn in an effective and efficient manner, there is the need to review and to better understand learning environment from the learners' perspectives.

CONCLUSION

Although the international literature in the area of student learning is wide ranging, studies in the context of Malaysian student-teacher education appear to be under-developed and poorly represented. In recognition of the need for better understanding and clarity on learning in teacher education, this paper focuses on two perspectives that are well established in the higher education learning literature. First, is the concept of students' approaches to learning. Second, is the notion that teachers with strong teaching self-efficacy perceives that all students are teachable, leading to the application of adaptive problem-solving strategies, high academic attainment (Soodak & Podell, 1993; Dembo & Gibson, 1985), and that approaches to learning can influence teachers' teaching self-efficacy (Gordon & Debus, 2002). Findings demonstrate that deep approaches to learning can influence positive academic performance and a strong teaching efficacy.

Longitudinal research should identify the kinds of learning environment or interventions that advance intrinsic learning for better academic performance and how best to maintain and increase teaching efficacy beliefs while students are in teacher training. It may be advantageous to use additional methods of research (such as interviews to provide students' perspectives on their learning) and also to include teacher educators in the sample to obtain a more systematic look at teaching and learning in a teacher training environment. Comparative studies in other teacher training colleges in Malaysia could provide further insights.

Finally, these findings should be taken as an indicator that students' approaches to learning and the ways in which such approaches can influence achievement and teaching efficacy should be considered, together with other efforts to improve or construct a more holistic teacher-training curriculum.

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