PRELIMINARY STUDY OF APPROACHES TO LEARNING AND TEACHING SELF-EFFICACY OF STUDENT-TEACHERS IN MALAYSIA
(KAJIAN PENDIDIKAN DAN KEYAKINAN PENGAJARAN GURU PELATIH DI MALAYSIA)

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Abstract

The purpose of the study was to investigate the approaches to learning and teaching self-efficacy of student-teachers in Universiti Pendidikan Sultan Idris (UPSI). Data were collected with 347 UPSI student-teachers using two questionnaires, the Study Process Questionnaire (SPQ) and Teacher's Sense of Efficacy Scale (TSES), that were translated into *Bahasa Melayu* (Malay Language). The study showed that the two translated instruments were reliable for use with student-teachers. An examination of student-teachers' approaches to learning (using the SPQ) and their belief concerning their teaching self-efficacy (using the TSES) revealed that deep and achieving approaches to learning were associated with strong teaching self-efficacy beliefs and that those student-teachers who sought to achieve did so through the use of deep approaches to learning. Some implications for teacher training institutions were discussed.

Keyword   Approaches to Learning, Teaching Self-Efficacy Belief, Teacher Education, Student-Teachers, Learning Environment

Abstrak

Tujuan kajian ini adalah untuk melihat pendekatan dan kemujaraban diri guru pelatih dari Universiti Pendidikan Sultan Idris. Data diperoleh daripada 347 guru pelatih dengan menggunakan dua set soal selidik, Study Process Questionnaire (SPQ) and Teacher's Sense of Efficacy Scale (TSES) yang diterjemahkan ke dalam Bahasa Melayu. Kajian ini menunjukkan yang kedua-dua set soal selidik mempunyai kebolehpercayaan yang memuaskan untuk digunakan bagi mengukur pendekatan pembelajaran dan kemujaraban diri pelatih-pelatih guru ini. Kajian menunjukkan bahawa pendekatan pembelajaran dan kemujaraban diri mempunyai hubungan yang tinggi. Beberapa implikasi untuk institusi latihan guru juga dicadangkan.

Kata kunci   *Pendekatan pembelajaran, Keyakinan Pengajaran,*
Pendidikan Guru, Guru Pelatih, Persekitaran Pembelajaran

INTRODUCTION

A better understanding for 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 recent speech by YB. Dato'Hishammuddin Tun Hussein, Minister of Education (2007):

> [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.]
>
> [therefore]:
>
> [… 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…]
>
> [in order that]:
>
> [… 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 environment 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, and possibly, the search for new 'models' and methodologies (which are promising) for the preparation, practices, and training of new teachers. Nevertheless, it is necessary, first to call to attention the issues of student-teachers' learning and experiences in order to improve teachers education as it may be vital in training future teachers to reach specific competencies.

Although the literature in the area of student learning is wide ranging, in the context of Malaysian student-teacher education it appears to be under-developed and poorly represented in international student-teacher literature. In recognition of a lack of better understanding and clarity on learning in teacher education, this paper aims to focus on two perspectives well established in the higher education learning literature. First, is the concept of students' approaches to learning, as initiated by Marton and Saljo (1976) and further developed by Biggs (1987), Entwistle and Ramsden (1983) and Ramsden (1992). Based on the '3P Model' of student learning, Biggs (1993) attempts to explain that students' approaches to learning is influenced by an interplay of various factors including the teaching context, teaching material, pre-existing knowledge, types of assessment, and their perception of their own learning process. Approaches to learning are seen as dynamic and is partly context-dependent rather than as a fixed personality trait. In this context-specific structure, three approaches to learning are distinguished, namely (1) deep approach, which is characterized by an intention to engage in the task meaningfully; (2) surface approach, which is characterised by the intention to meet learning requirements with as little effort and time as possible (such as memorization); (3) achieving approach, which is characterised by the desire to gain high grades rather than necessarily to learn. The second perspective is the notion that teachers with strong teaching self-efficiacy perceives that all students are teachable leading to the application of adaptive problem-solving strategies (Soodak & Podell, 1993; Dembo & Gibson , 1985), and that approaches to learning can influence teachers' teaching self-efficacy (Gordon & Debus, 2002). Although the relationships have been investigated and reported in the higher education learning literature, the present study intends to make a contribution by investigating these relationships with a sample of Malaysian student-teachers. In addition, since two of the questionnaires administered to the sample are Bahasa Melayu (Malay Language) translated version of the English versions, the study contributes by testing the reliability of these instrument with a Malaysian sample. The present study also explored whether one of the instrument which has also been translated into different linguistic versions (Albaili, 1995; Watkins & Dahlin, 1997; Liem & Prasetya, 2007) has factor structure which can be confirmed with a Malaysian sample.

Approaches to Learning

An area of learning that appears to be little developed in techer education, but is an established form of inquiry in educational studies, is the exploration of students' approaches to learning (SAL). Pioneering studies into SAL by Marton and Saljo (1976) identified two different levels of processing of reading materials by students that they subsequently named the 'deep/surface' approach to learning. Students using a surface approach are seen as goal-oriented without deriving much intrinsic meaning from the learning task, probably using memorisation to achieve minimum requirements. In some situation, memorisation is necessary, but in a surface approach, the studnets use memorisation as an attempt to remember facts and ideas that they felt might be required to succeed in an examination (Biggs, 2001). An outcome of surface learning is that there is no analysis of the reproduced material and the underlying meaning tends to become lost or fails to be integrated into the learners' knowledge base. Students who continue to use a surface approach, not only have low quality learning outcomes, but they tend to terminate their higher education after a first degree. By contrast, the deep approach is based on an intention to obtain meaningful understanding of what is learned through reading and research (Biggs, 2001). There is an attempt to understand what is learned and to relate it to both their previous knowledge and previous experience. Resultant outcomes are high quality learning, including the development of problem-solving and analytic skills (Biggs, 2001; Goh, 2006; Gordon, Simpson, & Debus, 2001; Gordon & Debus, 2002). Biggs also described another approach he called achieving approach. Achieving approach is seen as a student's desire to gain good grades through structured time management techniques or organised study skills (Biggs, 1993). Learning behaviours are driven by assessment requirements, but are generally structured and efficient. If a student perceives that deep understanding will be required, then a deep approach and achieving approach will be used. Depending on the requirements of the assessment, a student's learning outcomes may vary. In an achieveing framework, understanding and integration of learned material may happen, but these outcomes are seen as incidental. According to Biggs (1993) surface approach is insufficient as its purpose is to avoid failure while using minimal effort, and the achieving approach is inadequate because learning is not the central intention, cheating also serves that end but Biggs maintains that the deep approach is the '… only one whick is task-centred and task-appropriate…' (1993:75).

Students' adoption of a particular learning approach is affected by the complex interplay of two situational factors (student factors and teaching context) involved in their learning. Students are perceived to try to find the best fit to their learning circumstances by adopting the surface, deep or achieving strategies or a combination of these approaches.

They come into the learning situation with certain preconceptions and motivations about the nature of learning, their expecations of success, whether there us relevance and enjoyment within the learning environment and also have different preferences in how they like to engage in the learning process (Biggs & Moore, 1993). The teaching context involves the preconceptions held by teachers about the process of learning and how it might be facilitated (Trigwell, Prosser & Taylor, 1994; Prosser & Trigwell, 1997). Teachers who use facilitative teaching methods, who are perceived by their students as demonstrating pastoral care and empathy or as possessing good subject knowledge contributes towards students' choices of approaches to learning (Trigwell & Prosser, 1991; Kember and Wong, 2000; Leung & Kember, 2003). However, teachers' experience and the perceptions of teaching self-efficacy also from part of this situational characteristic (Gordon & Debus, 2002). How teachers perceive theirteaching self-efficacy is important towards how they maintain or adapt teaching methods and practices in the teaching and learning process (Ross, 1998), which in turn can influence their students' perceptions of the learning environment and the students subsequent adoption of approaches to learning (Trigwell et al., 1994).

Teacher and Teaching Efficacy

Bandura (1997) defines the construct of self-efficacy as beliefs that teachers have their capability to organize and execute courses of action required to manage prospective situations. A considerable amount of study has 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 organization of work and overall satisafaction 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 alow sense of teaching and make fewer efforts towards improvement (Aston & Webb, 1986; Dembo & Gibson, 1985; Soodak & Podell, 1993; Woolfolk, Roso & Hoy, 1990).

Strong teaching self-efficacy beliefs have been linked to deep approaches to learning (Gordon, Simpson, and Debus, 2001; Gordon & Debus, 2002).

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 'tp 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. It would appear that teacher training programme that facilitates the adoption of deep learning approaches may be better able to produce student-teachers with the kind of problem-solving and analytical skills necessary to maintain their sense of teaching self-efficacy as professional educators. The objective of this study is to explore the existence (or otherwise) of these relationship between student-teachers' approaches to learning and their sense of teaching self-efficacy in a teacher training degree programme.

METHOD

Participants

The sample for this study comprised of a total of 347 second year student-tecahers from four cohorts attending a teacher education degree programme in a Malaysian university, of whom 320 indicated their gender (228 females, 92 males). Students' age ranged from 18 to 35 years with the vast majority (93.9%) between 18 and 25 years of age. The ethic divide of the smaple included 80% Malay, 6% Chinese, 1% Indians, and 6% indigenous races. Another 7% did not indicate ethnicitu. The study was part of a larger investigation looking at vaious relationships of student-teachers' values, teaching efficacy as well as their learning. As gender and ethnicity were not part of this particular study, no responses were discarded.

Measures and Data Analysis

Data were collected through questionnaires. The first questionnaire, the Study Process Questionnaire (SPQ) (Biggs, 1987) was obtained through the Australian Council of Educational Research (publishers of the questionnaire) while the Teachers' Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) was obtained through the website of Professor Anita Woolfolk Hoy and had written permission from the author for its use. Both questionnaires were translated into *Bahasa Melayu* (Malay Language) and adapted to take cultural differences into account to be used in this study.

Although independent translation of the questionnaires back into English is recommended (Hui & Triandis, 1985), this was omitted and must be regarded as a limitation of the study. Nevertheless, the Bahasa Melayu and English versions of the two questionnaires were compared by a second professional who was proficient in both languages.

In the theoretical construct of the SPQ (Biggs, 1987), three approaches to learning (Surface, deep, and achieving) are proposed, each with a motive and strategy subscale. Each of the subscales contains seven items and is answered on a 5-point 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 are calculated by summing up the scores on the relevant items to indicate those who make a greater use of that approach to learning. Biggs (1987) conducted a study with Australian students which investigated the construct and internal reliability of the SPQ. Subscale level factor analysis by Biggs (1987) did not confirm the three-factor solution (surface, deep, and achieving), but instead yielded of two-factor solution. Factor 1 was determined by the surface motive and surface strategy subscales, while Factor 2 was determined by the deep and achieving subscales. Internal consistency alpha values for the three scales ranged from .73 (surface approach) to .81 (deep approach), while for the six subscales, it ranged from .61 (surface motive) to .77 (achieving strategy). Since its first validation, other studies using the SPQ have also indicated a two factor solution with deep-achieving and surface approaches, but saw achieving motive subscale loading onto both factoes (Watkins & Akande, 1992; Snelgrove & Slater, 2003). Cross-cultural research to investigate the reliability of the SPQ had the questionnaire translated into various languages. Liem and Prasetya (2007) who translated the SPQ into Indonesian report acceptable internal consistency for the three main scales (coefficients ranging from .65 to .78) but less internal consistency for the six subscales (coefficients ranging from .46 to .77). In the Arabic version, Albaili (1995) shows similar internal consistency with the three main scales ranging from .67 to .73, and lower internal consistency ranging from 0.49 to .71 for the six subsccales. The estimates of internal consistency of a Swedish version (Watkins & Dahlin, 1997) for the six subscales ranged from .41 to -75, but did not report the three main scales. The above mentioned studies report a two-factor solution similar to those found by Watkins and Akande (1992) and Snelgrove and Slater (2003), where the achieving motive subscale divide between the two factors. These findings were further confirmed in the present study of the Bahasa Melayu SPQ (BMelayuSPQ). Table 1 shows the reliability measures and factor loadings for each subscale, together with the Cronbach alpha for the three main scales.

From the table, it can be seen that, in fact, the internal consistency for the three main scales (coefficients ranging from .67 to .81) and the six subscales (coefficients ranging from .51 to .74) were generally higher than those reported by Albaili (1995), Liem and Prasetya (2007), and Watkins and Ddahlin (1997).

Table 1 Internal Reliability Estimates and Factor Loadings from Two-Factor Oblique Solution of Responses to the BMelayuSPQ for Student-Teachers from Malaysia ($n = 347$)

Factor	α	I	II
Approaches to Learning			
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		
Achieving Motive	0.74	0.47	0.53
Achieving Strategy	0.73	0.84	-0.11
Achieving Approach	0.79		
Total % Variance Explained		45.8	22.4

The second instrument was the Bahasa Melayu TSES. The original TSES was developed at the Ohio State University and was formerly called the Ohio State Teacher Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001). The theoretical construct underlying the TSES is that teachers' sense of self-efficacy is important as they go about making decisions regarding classroom management, organizing programmes, teaching, and communicating, and is related to their students' learning outcomes, achievement and motivation. The TSES has two versions, a longer one containing 24 items and a shorter one with 12 items. Both versions have three dimensions: teachers' efficacy in classroom management and discipline, efficacy in typical teaching situations, and personal efficacy in motivating and engaging students' interest. Each item requires respondents to indicate the extent of their capability towards the teaching task on a 9-point scale (1 – nothing, 3 – very little, 5 – some influence, 7 – quite a bit, and 9 – a great deal).

The version translated and used in this study is the 12 – item TSES. The study conducted by Tschannedn-Moran & Woolfolk Hoy (2001) on the 12 – item TSES reported good Cronbach's alpha values for the three dimensions (.86 for Classroom Management, .86 for Instructional Strategies, and .81 for Student Engagement). Factor analysis indicated the presence of three factors explaining 65% of the variance when used with in-service teachers but revealed a single factor which accounted for 61% of the variance when used with student-teachers. Similarly, a single factor was found in the current with the Bahasa Melayu 12-item TSES (BMelayuTSES-12) which accounted for 54.1% of the variance when used with student-teachers in Malaysia. Table 2 reports the reliability measures for the BMelayu-TSES-12 and its three dimensions.

Table 2 Means and Cronbach Alpha for the BMelayuTSES-12 for Student-Teachers from Malaysia ($n = 347$)

	Mean	**SD**	**α**
BMelayuTSES-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

To investigate any relationship between student-teachers' approaches to learning and their sense of teaching efficacy, statistical correlations were examined using Pearson's product moment coefficient (Pearsons *r*).

Procedures

The two questionnaires were administered over the last two weeks (of a 14-week long semester) of the students' semester. A cover page accompanying the questionnaires provided general information about the study and specific instructions to answer the questionnaires. Students were assured of the confidentiality of their responses. In addition, general demographic information such as students' registration number, gender, age group, and ethnicity were requested.

RESULTS

Correlations were computed on the approaches to learning and the student-teachers' teaching self-efficacy scores to indicate relationships. Deep and achieving motive ($r = .31$, $r = .24$, $p < .01$, respectively) and deep and achieving strategu ($r = .29$, $r = 26$, $p < .01$, respectively) revealed significant positive correlations with student-teachers' teaching and self-efficacy. Surface motive showed negative correlation ($r = -.05$, $p > .05$) while surface strategy displayed positive correlation ($r = .10$, $p > .05$) with student-teachers' teaching self-efficacy although both were not significant. At the scale level, significant positive correlations were noted between deep approaches and student-teachers' teaching self-efficacy ($r = .33$, $p < .01$). Similarly, scores for achieving approaches were also significantly correlated to student-teachers' teaching self-efficacy ($r = .31$, $p < .01$). The results imply that those student-teachers who adopted deep approaches or achieving approaches to learning also had stronger sense of teaching self-efficacy. Nevertheless, a word of caution is mentioned here that although there is a relationship, the strength of this relationship is considered modest as teaching efficacy accounted for only about 11% of variance in deep approaches to learning, and only about 10% for achieving approaches to learning. No correlation was found between surface approaches and teaching self-efficacy (p-values all exceed .05). A particularly strong relationship was found between deep approaches to learning and achieving approaches to learning ($r = 65$, $r^2 = .42$, $p < .01$) suggesting that those student-teachers who sought to achieve did so through the use of deep approaches to learning.

DISCUSSION

The present study quantitatively explored the suitability of the translated BMelayuSPQ and the BMelayuTSES-12 for evaluating the learning processes and teaching efficacy of student-teachers in a teacher training degree programme in Malaysia. The BMelayuSPQ used in this study with Malaysian student-teachers essentially replicated the reliability and factor structures 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. To a large extent, the two-factor solution reported here also supported the result obtained by Marton and Booth (1997). Reliability and factor structure of the TSES reported by Tschannen-Moran and Woolfolk Hoy (2001) were largely confirmed through the BMelayuTSES-12.

While a much stronger relationship between approaches to learning and teaching self-efficacy would have been desirable, nevertheless, this study does show that deep and achieving approach to learning of student-teachers are associated with a stronger sense of teaching self-efficacy. In addition, the findings indicated that thise student-teachers who adopted the achieving approaches tended to do so through a deep approach. This study to some extent confirmed previous findings by Gordon and Debus (2002) and Gordon, Simpson, and Debus (2001) of pre-service teachers. In this study, student-teachers' adoption of deep approaches to learning have influenced their self-beliefs that they could encourage their student's achievement and motivation, have better class control, have higher capabilities to perform as a teacher and would work harder and persist longer even when students are difficult to teach (Woolfolk, 1998). Teaching self-efficacy beleifs are important for student-teachers to believe in thie own competence as future teachers and to believe in the 'teachability' of all their students (Woolfolk, 1998).

IMPLICATIONS

What implications can be garnered from these findings? First, this study demonstrates that the BMelayuSPQ and the BMelayuTSES-12 are reliable tools for evaluating student-teachers' approaches to learning and their perceived teaching self-efficacy beliefs. Student-teachers could use the BMelayuSPQ and BMelayuTSES-12 to self-evaluate and reflect on their own approaches to learning and teaching efficacy, thus providing an avenue for them to further develop of discard learning strategies that are congruent (or incongruent) with the objectives of their teacher learning and training. In the same way teacher educators can use it to diagnose and analyse student-teachers' learning approaches and its impact on teaching efficacy for improvement in the teacher-training system. Whilst the questionnaires certainly have its use and practical applications, further work should be conducted on these two translated versions to enable its use across other educational and psychological studies in Malaysia.

Second, seeing that the use of deep approaches to learning are important in influencing high teaching and learning context that can promote student-teachers' intrinsic and motivation for learning. possibly the task for teacher educators in teacher training institutions is to identify and create conducive and student-centered learning environment that will 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 teaching self-efficacy. The findings from this specific study was a cross-sectional and not a longitudinal one, therefore, causal effects of approaches to learning on teaching self-efficacy were not possible.

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 inare 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 assessing higher levels of learning, adequate study time, and appropriate workload should bring about improved teaching efficacy.

Finally, these findings might be taken as a reminder that student-teacher's approaches to learning and the ways in which such approachers can influence teaching self-efficacy should be considered, together with any other efforts in improving or constructing a more holistic teacher-training curriculum.

CONCLUSION

The study provided some evidence that the translated versions of the BMelayuSPQ and BMelayuTSES-12 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 and teaching self-efficacy of student-teacgers in Malaysia.

Findings demonstrated that deep approaches to learning can influence a strong teaching self-efficacy. Longitudinal research should attempt to identify what kinds of learning environment or interventions that would advance intrinsic learning and how best to maintain and increase teaching efficacy beliefs while student-teachers' are in their university training. It may be advantageous to use additional methods of research (such as interviews, to provide student-teachers' perspective on their learning) and also to include teacher educators into the sample to obtain a more systematic look of teaching and learning in a teacher training environment. Other comparative studies using the translated instruments in other teacher training colleges in Malaysia could provide greater insights on the issues discussed here. Perhaps only then can a more realistic picture of teaching and learning of student-teachers emerge to provide a platform for ministers, curriculum designers, and implementers in their quest to reform teacher training with innovative 'models' and methodologies for the preparation, practices, and training of new teachers to meet the new challenges as espoused by the Malaysian Education Minister.

ACKNOWLEDGEMENT

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