PRE-SERVICE TEACHERS' PERCEPTIONS OF THE EFFECTIVENESS OF SELF-MONITORING PRACTICES IN LEARNING

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ABSTRACT

This study was conducted to explore the effectiveness of self-monitoring practices on learning of Learner Diversity and Differentiated Teaching, a compulsory course in a B. Ed. (TESL) program for pre-service teachers. Twenty-five pre-service teachers (11 males, 14 females) in the second year of the program participated in this study. Pre-service teachers were given instruction and guidance on using a self-monitoring instrument designed to help them monitor their understanding and self-efficacy regarding specific topics in the course over a period of eight weeks. Data sources included a questionnaire to collect initial data about how pre-service teachers felt about the course Learner Diversity and Differentiated Teaching and a form to guide them in writing reflections on the effectiveness of the self-monitoring process at the end of the study. The results showed that the majority of the pre-service teachers (23 out of 25) were of the opinion that the self-monitoring process was effective in helping them understand and also in raising their self-efficacy for the topics studied.

Keywords: *self-monitoring practices, effectiveness, self-efficacy, pre-service teachers*

ABSTRAK

Kajian ini dilakukan untuk menerokai keberkesanan amalan pemantauan kendiri dalam pembelajaran kursus 'Learner Diversity and Differentiated Teaching', satu kursus wajib dalam program Ijazah Sarjana Muda (TESL) untuk guru pra perkhidmatan. Seramai dua puluh lima guru pra perkhidmatan (11 lelaki, 14 perempuan) dalam tahun kedua program berkenaan telah terlibat dalam kajian ini. Guru-guru pra perkhidmatan diberi tunjuk ajar dan bimbingan bagaimana mengguna instrumen pemantauan kendiri untuk memantau kefahaman dan keyakinan kendiri mereka terhadap topik-topik tertentu dalam kursus tersebut selama lapan minggu. Sumber data termasuk soal selidik untuk memperoleh maklumat awal mengenai perasaan guru pra perkhidmatan tentang kursus 'Learner Diversity and Differentiated Teaching' dan borang refleksi untuk membimbing mereka membuat refleksi tentang keberkesanan proses pemantauan kendiri pada akhir tempoh kajian. Dapatan kajian menunjukkan bahawa kebanyakan daripada guru pra perkhidmatan yang terlibat (23 daripada 25 orang) berpendapat bahawa proses pemantauan kendiri berkesan dari segi membantu kefahaman dan meningkatkan keyakinan diri terhadap topik-topik yang dipelajari.

Kata kunci: *amalan pemantauan kendiri, keberkesanan, keyakinan kendiri, guru pra perkhidmatan*

INTRODUCTION

Learner Diversity and Differentiated Teaching is one of the compulsory education courses for pre-service teachers enrolled in the Bachelor of Education program. The aim of this course was to introduce pre-service teachers to the concept of learner diversity and differentiated instruction to accommodate diverse learner needs. Through this course, pre-service teachers were introduced to the concept of learner diversity, types of learner diversity, and the implications of diversity on teaching and learning in the classroom. Another aim of this course was to introduce them to the concept of inclusive education, that is, conducting teaching and learning for special needs students in the same classroom as the general education students. This is a very interesting and appropriate course for preparing pre-service teachers to handle individual differences among students.

However, since the beginning of the semester, some of the pre-service teachers have expressed concern regarding the vast amount of information they needed to access and internalize in this course. Mastering the contents of the topics was a great challenge to them. They were also worried about completing the two compulsory assignments well and getting through the final examination, which consisted solely of essay items. The latter can be quite daunting, as hitherto, they have been used to taking examinations that have a mixture of objective, structured and essay items. In addition, when I asked some of them what they had studied, how they studied, the time they spent studying, and have they understood what they studied, they could not give me specific answers. It is possible that these individuals do not spend enough time studying and if they do, they study inefficiently and ineffectively. The pre-service teachers concerned apparently lack key self-regulatory strategies such as planning and self-monitoring.

In view of the above preliminary findings, I felt that there was a need to help these pre-service teachers handle the challenges that they were facing in a more systematic way. What they needed was guidance in self-regulating their own learning, particularly in the area of self-monitoring their progress in learning. This basically involves guiding them to recall what they have learned, assessing how well they have understood what they have learned, and identifying what they still had doubts about. I hypothesized that as they go through these steps over an extended period of time, they will be able to keep track of their own progress, make the necessary adjustments to their own efforts in learning, and also raise their self-efficacy for the topics concerned in the process. At the same time, they will be able to acquire self-monitoring skills that will be useful to them in the future.

REVIEW OF LITERATURE

Self-Monitoring
Much of the literature on self-monitoring is grounded in the field of psychology, with attention mainly given to how students can optimally employ self-monitoring strategies to improve their academic achievement (Zimmerman, 2002). Zimmerman (1989) defined self-monitoring as "observing and tracking one's own performance" (p. 78). Pintrich, Walters, and Baxter (2000) compared monitoring to the thermostat of a furnace. When the temperature falls below a specified level the thermostat tells the furnace to turn on the heat; similarly, when a learner is confused or does not comprehend what he/she is studying, the 'self-monitoring' tells the learner to regulate his/her behavior, cognitive strategies, or motivation and affect to increase learning. To be effective learners, students must adjust their study

time and strategies based on their awareness of their own understanding and mastery of the material studied. One of the critical barriers to success for many students may be their inability to objectively assess their mastery of the academic tasks they are facing. Studies show that students who set learning goals and monitor their progress ultimately achieve higher levels of success (Bandura, 1986; Ernsbarger, 2002; Jacobson, 1998; Schunk, 1985). In an experimental study on self-monitoring by Lan (1996), graduate students in the self-monitoring group performed better on course tests than those in the instructor-monitoring group and a control group. They also used more self-regulated learning strategies, and developed better knowledge representation and understanding of the course content.

Self-monitoring is one of the important elements in the social cognitive learning theory put forward by Bandura in 1986. Social cognitive theorists (Bandura, 1986; Schunk & Zimmerman, 1997; Zimmerman, 1989) view self-regulation as comprising three classes of behavioral influences or sub-processes namely, self-observation, self-judgment and self-reaction. Self-observation or self-monitoring refers to students' actions of systematically monitoring their own performance (Zimmerman, 1989). Systematic self-observation or self-monitoring provides information on how well one is progressing towards one's goals. Self-monitoring is aided with the use of self-recording, where instances of the behavior are recorded along with such features as the time, place and frequency of occurrence. Regularity and proximity are two important criteria necessary for effective self-observation or monitoring (Bandura, 1986). Regularity means that behavior is monitored on a continual basis. Proximity means learning behaviors are observed close in time to actual occurrence (Schunk, 1989). An experimental study conducted by Mount and Tirrell (1977) involving undergraduate psychology students has confirmed the effectiveness of monitoring behavior on a continuous and proximal basis. The results indicated that students who recorded time on a proximal (immediately on note cards) and continuous basis (on note cards and once a night on graph paper) attained higher scores in the final examination. The authors noted that educators should concentrate on providing instruction in self-monitoring techniques for students who need to improve their study habits and ultimately their academic success.

An interesting observation was made by Morgan (1985) concerning monitoring learning goals or mastery of the content studied as opposed to monitoring study times and activities. Morgan (1985) discovered that students who self-monitored sub-goals attainment performed better on a course final exam than students who self-monitored study times, study activities, or long-term goals. While monitoring study times and study activities is a beneficial process, the study results suggest that monitoring

study times and activities may actually divert a learner's attention from more critical components of self-regulation such as goal progress monitoring. Zimmerman, Greenberg, and Weinstein (1994) suggested that monitoring of time is truly effective only if it is integrated as just one component of an overall self-regulatory strategic plan.

Self-Monitoring and Self-Efficacy
The process of self-monitoring is not simply a mechanical audit of one's performance. Bandura (1986) stated that pre-existing self-conceptions and mood states exert collective influence on which aspects of one's behavior are given the most attention, how they are perceived (negatively or positively), and how performance information is organized for memory representation. Self-monitoring can motivate changes in behavior and affect perceptions of self-efficacy. Perceived self-efficacy describes the belief a person has about his or her personal capabilities to accomplish a task. Efficacy beliefs affect what people will try, motivating them to choose skills with which they believe they will be successful. According to the social cognitive learning theory (Bandura, 1986), self-efficacy beliefs are influenced by four main sources: enactive attainment, vicarious experience, social persuasion, and physiological/emotional states. Enactive attainment is based on a person's actual past performance, giving an authentic measure of a person's capability that can encourage further attempts. Vicarious experience comes from the confidence gained by seeing other people judged to be similar to self perform the behavior. Social persuasion encourages action through verbal reinforcement of the ability to succeed. Positive subjective states, whether physical or emotional, can increase the likelihood of repeated action while negative ones can cause individuals to feel inefficacious about performing the task. Self-efficacy beliefs are usually assessed by asking individuals to report the level, generality, and strength of their confidence to accomplish a task or succeed in a certain situation. According to Bandura (1993, 1997), task-specific judgments of self-efficacy are superior to both domain-specific assessments and omnibus measures of general self-efficacy. This is because task-specific measures require students to generate judgments with a clear academic activity or task in mind. Generalized self-efficacy instruments basically assess people's general belief that they can make things happen without specifying what these things are. Pajares (1997) argued that when students do not know with any degree of accuracy what it is they are expected to do, the judgments on which they will base their capability to do it would be nebulous at best.

The self-monitoring process, which requires individuals to do self-recording, provides an individual with information about his/her actual progress and this helps to increase self-efficacy through focusing on enactive attainment. This

visual documentation of performance also makes the learner more aware of his/her progress and needs. Schunk (1983) found that children who kept records of their progress in learning had higher self-efficacy, more skills, and more task persistence, while Isaacson and Fujita (2006) found that practicing self-monitoring helped to increase, among other things, undergraduate students' self-efficacy for Educational Psychology and led to improved performance in the subject. Self-monitoring is clearly an important quality of successful learners. Many successful learners regularly self-monitor their progress to see how they are doing in their effort to complete a project, develop a skill, or perform well on a test or other assessment. The present study aimed to explore the effectiveness of self-monitoring practices among pre-service teachers who were taking the course Learner Diversity and Differentiated Teaching.

DESIGN AND METHOD

Research Design
The four-step action research cycle put forward by Kemmis and McTaggart (1988) was used in this study. The four steps included (1) Initial reflections on the situation, (2) Planning for improvement, (3) Enacting the plan and observing how it works, and (4) Reflections.

Participants
Participants were 25 pre-service teachers (11 males, 14 females) in the second year of a Bachelor of Education (TESL) program in a Teacher Education Institute in Malaysia. The age range of these pre-service teachers was from 21 to 22 years (mean age = 21.08, SD = .28). These pre-service teachers were undergoing training to teach English in secondary school. Learner Diversity and Differentiated Teaching was one of the compulsory courses in the Bachelor of Education Program.

Instruments
Questionnaire
A free-response questionnaire on pre-service teachers' concerns and thoughts about the course Learner Diversity and Differentiated Teaching was administered at the outset of the study (in the third week of the semester) to gain greater insights into the problems they were facing. The questionnaire was designed to obtain information on (1) what they knew about the course, (2) what were their thoughts and concerns about taking the course, and (3) what they intended to do about their concerns.

Self-Monitoring Instrument
Based on the review of literature concerning self-monitoring practices, I designed a self-monitoring instrument to help pre-service teachers monitor their progress in studying certain topics in the course. The eight topics covered during the eight-week study were: Scenario of Learner Diversity in Malaysia, Systematic Approach for Adapting the Learning Environment (SAALE) Model (Wood, 1987), Socio-emotional Adaptation, Learning Styles and Teaching Techniques, The Gifted and At-risk Students, Gender Differences in Achievement, Cultural and Linguistic Diversity, and Adapting Evaluation. The instrument required pre-service teachers to (1) reflect on the topic they have learned each week, (2) assess their mastery of what they have learned through (a) explaining how they can apply what they have learned, and (b) estimating how confident they were about sharing what they have learned with a friend using a 10-point scale (this task-specific estimation of confidence is a measure of their self-efficacy for the topic), and (3) identifying what they still didn't understand about the topic. This process promotes regularity and proximity, which are key elements of self-monitoring, as pre-service teachers have to do self-monitoring at the end of each week over a period of eight weeks. Furthermore, the self-monitoring activities in this study focused on monitoring mastery of the topics studied rather than on monitoring study times or activities.

Reflections on the Effectiveness of Self-Monitoring
At the end of the eight weeks, pre-service teachers were given guidance in doing reflections on the whole process they had been through in the past eight weeks. They were asked to give comments on the effectiveness of the self-monitoring activities of the past eight weeks, namely (1) reflecting on something they have learned each week, (2) thinking about applying what they have learned, (3) estimating their confidence in explaining what they have learned to a friend, and (4) identifying what it is they still don't understand.

Procedure
Initial Reflections and Findings on the Situation
As mentioned earlier, from my observations and informal discussions with the pre-service teachers, I saw the need to help them meet the challenges they were facing. I decided to administer a questionnaire to gain greater insights into the situation. Table 1 presents the thoughts and concerns of pre-service teachers regarding the course. The findings revealed that the majority of the pre-service teachers (22 out of 25) had some idea of the contents of the course. Meanwhile, 10 of the pre-service teachers were concerned about whether they would be able to master the contents of the course and complete the assignments well; six of them were concerned about whether they would be able to apply the knowledge acquired in the

real situation later; while nine of them expressed concern as to whether they could cope with the diverse situation in the inclusive classroom. In answer to the question, "How do you intend to handle these challenges?", 10 of them intended to study hard, be more focused, while 15 of them planned to do more research, read more, and make short notes on what they had read.

Table 1

Pre-service teachers' thoughts and concerns about the course (N = 25)

No.	Thoughts and Concerns	Frequency
1	Prior knowledge about the course Learner Diversity & Differentiated Teaching:	
	- Don't know what it is all about	3
	- Have some knowledge about it	22
2	Concerns about whether they can:	
	- Learn the subject well/do the assignments	10
	- Apply what they have learned in the real situation	6
	- Cope with the diverse situation in the classroom	9
3	What they intend to do:	
	- Study hard/be more focused	10
	- Do research/read more/make short notes	15

Planning for improvement
The above initial findings show that the pre-service teachers were anxious about their ability to (i) master the contents of the course, (ii) apply the knowledge acquired in the real situation, and (iii) cope with inclusive education in school later. Their responses regarding how to handle their concerns showed that they knew what they should do. Based on the data collected, I surmised that what I needed to do was to help raise their self-efficacy for the topics covered in the course. I planned to achieve this through providing guidance in systematically monitoring their own knowledge, understanding of and self-efficacy for the topics studied, as well as prompting them to think of adjustments in study time and learning strategies if there is anything that is still not clear to them. (These activities also promote planning and goal-setting but the focus of this study is on self-monitoring only.) As for coping with inclusive education in future, it is hoped that mastery of the contents of the course would contribute towards that.

Enacting the Plan and Observing How It Works
Enacting the Plan
At the beginning of the study, I informed the pre-service teachers that they were involved in a study to help them master the contents of the course

Learner Diversity and Differentiated Teaching. They seemed quite eager to participate and said that they would give their full cooperation during the study. (That was really encouraging!) I gave input to the pre-service teachers on how to do weekly self-monitoring using the self-monitoring instrument. They were required to do this for a period of eight weeks, during which they had to submit the completed forms to me at the end of each week. Each week, the group leader faithfully collected the completed self-monitoring forms from her course-mates and handed them to me. At the end of the eight weeks, I asked them to do reflections on whether the self-monitoring activities had been effective in helping them master the contents of the eight topics.

FINDINGS AND DISCUSSION

Observing How It Works
Generally, pre-service teachers' reflections regarding the eight weeks of self-monitoring activities were very positive. The majority of the pre-service teachers found the self-monitoring activities beneficial to them. Pre-service teachers' reflections were content analyzed and coded into categories. As a check on the consistency of the coding of pre-service teachers' reflections, the responses were blind-coded after two weeks to compute the intra-rater reliability. Cohen's (1988) kappa value, an index of coder reliability that corrects for chance agreement was computed to determine the agreement level between the two codings. The k value obtained was .91, showing that there was high consistency in the coding of responses. Table 2 presents the categories and number of responses for each type of activity done during the eight-week self-monitoring period.

Table 2

Category and number of responses regarding the effectiveness of the self-monitoring process (N = 25)

No.	Activity/Category of Responses	Number of Responses
1	*Reflecting on something you have learned each week*	
	- helps in evaluating understanding of the content	7
	- helps to identify what else need to be done	5
	- helps in recall of what has been studied	12
	- not effective (*I prefer to answer past examination questions*)	1

2	*Thinking about how you can apply what you have learned*	
	- helps in reflecting on/recalling what has been studied	4
	- helps in thinking about how to apply it in future	13
	- helps them to be better prepared to teach in future	5
	- makes learning more meaningful	2
	- not effective (*I prefer to be told how to apply it*)	1
3	*Estimating how confident you are about sharing what you have learned*	
	- helps in evaluating self-confidence for the topic	13
	- provides motivation to study hard if the confidence level is low	2
	- raises self-confidence for the topic studied	8
	- not effective (*I prefer to be evaluated by others; I am horrible at sharing things in detail*)	2
4	*Identifying what it is you still don't understand*	
	- helps to identify uncertainties/doubts/problems	15
	- helps in self-evaluation of the learning process	3
	- provides motivation to look for answers to what is still not clear	4
	- beneficial in learning the course	1
	- not effective (*I prefer to be given the solution to the problems; I am still doubtful about how it can help me*)	2

Perusal of the findings show that for the first activity (reflecting on the topic learned), 24 out of 25 pre-service teachers found it to be effective (helps in evaluation, identifying what is not clear, and recall). One pre-service teacher, however, preferred to reinforce learning through answering past examination questions. Regarding thinking about how to apply what they have learned, 24 of the pre-service teachers found this activity useful (helps in recall, thinking about application in future, preparation for teaching in school, meaningful learning) while one of them preferred to be told how to apply what was studied. Meanwhile, 23 of the pre-service teachers found that estimating their confidence regarding what they have learned was effective in helping to raise their level of confidence for the topics studied in terms of estimating level of confidence, motivation to learn, and raising self-confidence. This finding concurs with that of other researchers (Isaacson & Fujita, 2006; Schunk, 1983) in that self-monitoring activities helped raise

students' perceptions of self-efficacy for the subject. Two pre-service teachers, however, were not in favor of self-evaluation. As for the activity 'reflecting on what they still didn't understand', 23 of the pre-service teachers found this activity was effective (in identifying problems/uncertainties, self-evaluation, motivation to learn, generally beneficial) while the remaining two did not find it effective. The above findings show that as a whole, more than 90% of the pre-service teachers reported that self-monitoring practices were effective in helping them study the topics concerned.

REFLECTIONS

The findings of this study have provided me with some valuable insights into the effectiveness of self-monitoring practices in learning among pre-service teachers. As the findings show, self-monitoring helped them to keep track of how they were getting on throughout the eight weeks. Having to estimate their confidence regarding their understanding of each topic was a form of self-evaluation and made them aware of what they needed to do if their confidence was low. For the pre-service teachers who did not find the self-monitoring activities beneficial at all, further investigation such as interviewing the individuals concerned is in order. Perhaps the pre-service teachers should to be given further guidance in carrying out the self-monitoring activities.

The results of this study show that it is really well worth the effort to introduce this practice of self-monitoring to the pre-service teachers. Indeed training in self-monitoring practices will prove to be useful to pre-service teachers in the long run, as all teachers are to be reflective practitioners and lifelong learners who are continually improving themselves professionally in formal or informal ways. In closing, I would like to say that I am glad that I carried out this study. Initial findings provided insights into the struggles that the pre-service teachers were going through in their efforts to master the contents in the course Learner Diversity and Differentiated Teaching so that I was better able to assist them. Meanwhile, the self-reflections at the end showed how the self-monitoring activities had benefited them. Further research could include interviews to obtain more data to substantiate the findings from questionnaires and written reflections. The categories of responses identified through the present study could also be used in developing a rating scale to measure the degree of effectiveness of the self-monitoring process.

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