

Conference Paper

A Conceptual Paper: Moderating Effects of Metacognition and Gender on the Association between Emotion Regulation and Self-Efficacy Among Pre-Service Teachers

Yeoh Sun Wei, Fonny Dameaty Hutagalung, and Chew Fong Peng

Department of Educational Psychology and Counselling, Faculty of Education, University of Malaya, Kuala Lumpur, Malaysia

Abstract

Pre-service teacher's self-efficacy plays a vital role in Malaysia educational transformation. Emotion regulation influences one's ability to cope with the stress and challenges. This research focuses on the two variables which determine pre-service teacher's self-efficacy and emotion regulation. Metacognition enables pre-service teachers to rationally evaluate their own capability. It serves as an important tool in emotional regulation to engage pre-service teacher in cognitive re-appraisal process. Gender differences lead to different thinking style and emotion regulation strategies. Metacognitive Awareness Inventory (MAI), Emotion Regulation Questionnaire (ERQ) and General Self-Efficacy (GSE) will serve as the instruments in this study. 133 pre-service teachers from Institute of Teacher Education Campus Bahasa Melayu will be selected using clustered random sampling method. The findings of this research can serve as a reference in teacher preparation process.

Keywords: metacognition, emotion regulation, self-efficacy, pre-service teacher, gender differences

Corresponding Author:

Yeoh Sun Wei
 sunweiyeh@siswa.um.edu.my

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1. Introduction

The role of metacognition becomes vital in the informative era. It helps learners to aware and regulate thinking process in a systematic and effective approach. Pre-service teacher's self-efficacy to meet the challenges in future teaching profession is crucial to keep them on track to the educational transformation. Metacognition enables pre-service teacher to make relevant self-belief and regulate emotion while facing the challenges in this profession (Anderson, Nashon, & Thomas, 2009). Emotional regulation influences the levels of self-efficacy because it modulates the inductions of pre-service teacher's mood state (Medrano, Flores-Kanter, Moretti, & Pereno, 2016). Hence, endeavour to equip pre-service teacher with metacognitive skill is an inevitable action to prepare them for the future classroom

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The aim of this study is to identify the third variable effects of metacognition on the association between emotion regulation and self-efficacy among pre-service teacher. Ability to aware and regulate own learning process provides pre-service teacher autonomy in learning. Empowerment of the autonomy in learning process increases pre-service teacher's self-efficacy because they are capable to take charge of their own learning process. Increase pre-service teacher's self-efficacy promotes pro-active attitude and prepare them emerge into challenging teaching industry.

This study provides teacher education the information on pre-service teacher's self-efficacy. Pre-service teacher's self-efficacy is used to predict their behaviour, thought and emotional reaction under uncertainty. Understanding of pre-service teacher's self-efficacy is crucial for teacher education because it shows the confidence and willingness of pre-service teacher to embrace challenges in future teaching profession. Development of self-efficacy among pre-service teachers during teacher preparation has significant impacts towards their performance in teaching profession. Therefore, self-efficacy should not be neglected in the process of preparing quality teacher in educational system (Tschannen-Moran & Hoy, 2007). Pre-service teachers who cannot relate the relationships among metacognition, emotion regulation and self-efficacy do not obtain their internal locus of control in stressful environment. They believe that their circumstances are driven by external factors such as other people and chance which cannot controlled by themselves. Hence, they have lower self-efficacy to face challenges in future teaching profession (Bedel, 2008).

2. Literature Review

According to (Brown, 1987), knowledge of cognition is awareness of individual on their own cognition. There are 3 types of metacognitive awareness: declarative, procedural and conditional knowledge.

Declarative knowledge is the knowing of concept and principle. It includes the knowledge of self as a problem solver and factors influence own performance. Ability to comprise information into organized form supports problem solving process (Baker, 2008). Procedural knowledge is the knowledge of skills and strategies. It is the knowledge on execution of procedural skills. Individual with better procedural knowledge able to apply skills more automatically. They are more capable to organize the strategies in problem solving process Conditional knowledge is the metacognitive knowledge. Individual aware of why and when they do things because it guides individual to apply the knowledge. It is viewed as the declarative knowledge of the utility of cognitive

procedures. Individual aware of the cognitive procedure while organizing information (Lorch, Lorch, & Klusewitz, 1993). According to Justice & Weaver-McDougall (1989), there is a positive relationship between conditional knowledge and regulation of cognition.

Theorists proposed that metacognitive abilities continues develop throughout adolescences (Brown, 1987; Flavell, 1979; Garner & Alexander, 1989) Knowledge of cognition is not expressible. Even though individual experience difficulty to explain their own cognition but conscious access to this knowledge facilitate cognitive process and regulation.

Emotion regulation refers to how individual control and manage their emotion. This abilities influence emotion experience, the intensity of the emotions and when the emotion responses occurs. According to Gross, there are five components in process model of emotion regulation: situation selection, situation modification, attention to situation, modification of thoughts and cognitions and response modulation (Gross, 1998).

Pioneer psychologists in emotion regulation (Gross & John, 2003) focused their study on emotion on intrapersonal abilities, individual reacts to stress by expression and suppression. They gave less attention on developmental, social interaction and cultural influences towards emotion regulation. Ability to regulate emotion has direct impact on individual wellbeing because it effectively navigate their social interaction. Therefore the later psychologist propose that as a social beings, individual's emotion regulation involve trust and help one received from social environment (Barthel, Hay, Doan, & Hofmann, 2018).

Gross's approach provides empirical evidence of intrapersonal emotional process. This process depends on individual self-regulation. His approach neglected sociocultural influences in emotion regulation. Interpersonal emotion regulation focus emotion regulation on intrapersonal level and interaction with others in social context. Zaki and Williams pointed out the main limitation of Gross's approach: lack of social exploration in emotion regulation. They proposed their model based on the basis of response dependence or independence. Their approach is similar to Gross but they includes intrinsic and extrinsic social interaction in emotion regulation process. Social interaction can regulate one's emotion response with or without his consent (Zaki & Williams, 2013).

Self-efficacy theory is first proposed by Albert Bandura in 1970s. It is viewed as the independent theory by itself. However, it also viewed as a construct in Social- Cognitive theory. According to self-efficacy theory, people will only do what they think they can do, they would not try if they think they cannot do. This explains the motivation of people behaviour. People with strong sense of efficacy in general has confident to master

challenges. This affects their personal achievement because they set challenging goals and persistent in commitment. They contribute more effort while facing impending failure. Strong sense of self-efficacy decrease the impacts of stress and depression. People with weak sense of self efficacy avoid challenges due to their weaknesses and obstacles. They are not persistent with their goal while facing challenges. They are more likely to feel stress and depress (Bandura, 1977, 2006).

Bandura proposed that self-efficacy is the key element in social-cognitive theory. In this research on behaviour change, he suggested that self-efficacy expectation predicts instrumental action will be implicated, extend of effort will be expanded and how persistent learner will remain during difficulties. Pre-service teachers regulate their thought, feelings and behaviour through self-system. Metacognition plays important role to regulate cognitive and affective structures. It provides reference to perceive, regulate and evaluate learning. Self-system enables pre-service teacher to change their environment and influence their own behaviour. Therefore the belief about themselves initiates them to control own learning. Self-efficacy to control outcomes of behaviour influence pre-service teacher self-efficacy in learning and teaching (Downing, 2009).

3. Method

Researcher conducts a survey study to analyze the moderation effect of metacognition and gender towards the association between emotional regulation and self-efficacy among pre-service teacher. A correlation research is limited to correlation coefficient, odds ratio and regression coefficient between two variables only. Researcher increase the possible relations among variables by including metacognition and gender as the third variable to this correlation.

The value of moderating variable define the correlation between two variables. There is no causal sequence effect on each variable in moderation. The moderation effect only define the relations between emotion regulation and self-efficacy differs across levels of metacognition. The strength of the relation between pre-service teachers' emotion regulation and self-efficacy depends on pre-service teachers' metacognitive level. The moderating effect of metacognition interacts with the relation between pre-service teachers' emotion regulation and self-efficacy. However, moderating effect is not interacting effects. Moderation effect changes the relations in one population but interaction effect refers to the effect of dependent variable rely on the level of independent variable (MacKinnon, 2011).

There are three questionnaires included in one form. Each respondent needs to complete all questionnaires. The 3 variables in this research: metacognitive awareness, emotion regulation, self-efficacy. The questionnaires used in this research are: Metacognitive Awareness Inventory (MAI), Emotion Regulation Questionnaire (ERQ) and General Self-Efficacy Scale (GSE). Researcher will analyze the data collected statically to answer the research question.

A sample of 133 pre-service teachers has been selected by using purposive sampling method. There are 27 Institutes of Teacher Education in Malaysia. Pre-service teachers from Institute of Teacher Education Campus Bahasa Melayu, Department of Malay Studies were selected by purposive sampling method to participate in this research because Malay Language is the national language of Malaysia. The selection of this campus increases the generativity of this research because demand of pre-service teachers trained under this campus is nationwide.

MAI measures participants' overall metacognitive awareness. This inventory is used to evaluate metacognition for adults. It is a comprehensive inventory which assesses various facets of metacognition. There are 52 items in this inventory. These items are divided into 2 components: knowledge about cognition and regulation of cognition. Knowledge about cognition assesses participants' understanding of their own cognition. They are required to assess their understanding of their own intellectual strengths and weaknesses. There are 3 sub-components in this component: declarative, procedural and conditional knowledge. Regulation of cognition assesses participants' ability to control their own cognition. It includes the ability to set specific goals before beginning a task. There are 5 sub-components in this component: planning, information management strategies, comprehension monitoring, debugging strategies and evaluation. The internal consistency coefficient of MAI as the entire scale was $\alpha=.95$. The internal consistency coefficient of two components in MAI: knowledge of cognition and regulation in cognition was $\alpha=.84$ (Flavell, 1979).

The second instrument used in this research is the emotion regulation questionnaire. The instrument was constructed by Gross in year 2003. The main purpose of ERQ is to evaluate the differences between two emotion regulation processes and their influence towards individual, relationship and total well-being. There are 10 items in ERQ. These items assess participants' emotion regulation strategies: Cognitive Reappraisal and Expressive Suppression. The internal consistency coefficient of ERQ for 10 items was $\alpha=.73$. The internal consistency coefficient of two components in ERQ: cognitive reappraisal was $\alpha=.79$ and expressive suppression was $\alpha=.73$. Stability coefficient of ERQ was measured by repeating the instrument at the same participants after an interval period. Stability coefficient for ERQ as a whole was $\alpha=.69$ (Schraw & Dennison, 1994).

The third instrument used in this study is General Self-Efficacy Scale (GSE). The purpose of this scale is to assess general sense of self-efficacy to predict the capability of coping difficulties in life. It perceives as the adaptation after stressful life event. Higher scores obtained from GSE were indicative of higher general self-efficacy levels, in the other hand lower scores indicate lower general self-efficacy levels. The internal consistency coefficient of GSE for 10 items was $\alpha=.76$ to $.90$. Stability coefficient of GSE was measured by repeating the instrument at same participants after interval period. Stability coefficient for GSE as whole was $\alpha=.80$ (Schwarzer & Jerusalem, 1995).

Researcher divides data analysis into two phases. Researcher carry out a descriptive to analyze and screen the data before it was send for moderation testing. Exploratory factor analysis (EFA) is conducted to identify the construct validity of the questionnaire. In second phase, researcher uses Structural Equation Modeling is conducted to analyze the inferential and advanced statistic.

4. Summary

Researcher aware that metacognitive skills playing an important role in teacher preparation. This research helps pre-service to aware of their own thinking and discover their emotion regulation strategies to cope with stress. It is an important step to equip pre-service teacher with metacognitive skills because it helps them to regulate emotion. At the same time metacognitive skills enable pre-service teacher to have realistic self-efficacy towards future teaching profession.

As a conceptual paper, this research should be conducted soon because it provides urgent information for teacher education to prepare pre-service teacher before they enter teaching profession. In the future research, researcher initiates to generalize the study to different Institute of Teacher Education in order to optimize the advantage of metacognition for all teacher in the nation.

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