The Predicting Roles of Self-efficacy and Emotional Intelligence and the Mediating Role of Resilience on Subjective Well-being: A PLS-SEM Approach

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ABSTRACT

Inevitably, the element of stress has always been present within the teaching profession. Consequently, this matter has often raised the question of teachers’ subjective well-being. In this study, the predicting roles of self-efficacy and emotional intelligence on subjective well-being, as well as the mediating role of resilience on these relationships were examined. A stratified random sampling was employed to select student teachers from four teacher education institutes in Sabah, Malaysia. Data obtained using self-administered questionnaires comprising of four adapted scales: The Teacher’s Sense of Self-Efficacy (TSES), the Emotional Intelligence Trait Questionnaire (TEIQUE), the Resiliency Scale and the Satisfaction with Life Scale (SWLS) were analyzed using PLS-SEM. In this study, results showed that self-efficacy was a significant predictor of subjective well-being and resilience significantly mediated this relationship. On the contrary, emotional intelligence was not a significant predictor of subjective well-being. The combined effect of self-efficacy, subjective well-being and resilience explained almost half of the variance in subjective well-being. Additionally, the effect size, $f^2$ of self-efficacy on resilience and subjective well-being were both large but emotional intelligence showed a small effect size. Hence, this study showed that subjective well-being could be predicted by self-efficacy and resilience mediated this relationship. Future research that considers a longitudinal study and broadening the samples to include other groups with
practicum training is recommended as more in-depth understanding of these coping abilities and subjective well-being can benefit teachers positively.

**Keywords:** Emotional intelligence, subjective well-being, self-efficacy, resilience, PLS-SEM

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**INTRODUCTION**

**Background of the Study**

As a developing country, Malaysia aims to develop the national economies based on k-economy approach with human capital development as one the success determining factor. The goal of “first class mentality” was ingrained in the national mission since the Ninth Malaysia Plan (2006-2010) (Prime Minister Department, 2006) and continued to be pursued in the recent National Transformation 2050 (Jabatan Penerangan Malaysia, 2017). The development of the national human capital is supported by a high quality education system. The teachers are the backbone and the curriculum implementer in schools that their competency to deliver teaching and learning in the classroom is demanded. Therefore, the teaching education program and particularly, the teaching practicum is the best platform for the student teachers to gain competency in delivering effective teaching and learning before they joined the teaching profession (Goh & Matthews, 2011; Kabilan & Izzaham, 2008). Hamaidi et al. (2014) explained that student teachers were able to explore their abilities and creativity that could mold the quality of their teaching. As stated by Immanuel Kant, “theory without practice is empty; practice without theory is blind”, indicated the critical role of practicum in student teachers’ education (Morrison & Werf, 2012).

Practicum stress is often experienced by student teachers (Klassen & Durksen, 2014; Malik & Ajmal, 2010). Teaching is in fact, one of the consistently identified stressful occupations that the question of teachers’ well-being is often inherently raised (Soykan, 2015). Specifically, well-being is unrelated to the absence of stress and negative emotions in life events or being satisfied with one’s job but it encompasses positive cognitions, motivations and good health (Van Horn et al., 2004). Additionally, it also includes regular positive and infrequent negative affect (Diener et al., 2009) as well-being indicates one’s positive evaluation of a situation based on affective and cognitive perspectives (Diener & Suh, 1994). Student teachers who undergo teaching practicum may be subjected to stressful working environment of teaching in the classroom and dealing with school management and administration. In fact, these demanding roles may have an impact on their well-being. With respect to this possibility, they need to have high subjective well-being as it relates to a positive perspective about life and helps to cope with stressful situation (Cenkseven-Onder & Sari, 2009). Stress and work load can result in novice teachers retracting from the teaching profession (Chaplain, 2008; Karsenti & Collin, 2013). Therefore, maintaining a high subjective well-being among the teachers during practicum training would provide them the
resilience against stress and the ability to cope with stressful situation so that when they do become teachers, they would continue in the service for a longer time.

**Problem Statement**

Self-efficacy and emotional intelligence are cognitive and affective abilities which can raise one’s resilience towards stress and maintain teachers’ well-being. Indeed, the exposure to stressful work situations is unavoidable and may adversely affect one’s subjective well-being. In response to this matter, self-efficacy can function as a supportive resource to deal with stressful events. In other words, self-efficacy can enhance resilience against stress and maintain one’s well-being. For instance, past theoretical and empirical studies showed that people tend to have high subjective well-being when they are more efficacious (Chou, 2015). On the other hand, emotional intelligence involves the abilities and skills related to understanding of self and others, and adapting to the perpetual change in environmental needs (Razia, 2016). Studies have also shown that emotional intelligence is a prominent predictor of subjective well-being (Landa et al., 2006; Soave, 2014).

In connection with this statement, student teachers who become novice teachers after completing their training are at risk to leave the teaching career because of their dissatisfaction towards teaching assignments, issues of politics related to their profession, lack in resources and various other reasons (Ee & Chang, 2010; Karsenti & Collin, 2013). Inevitably, the process of achieving resilience against stress through emotional competence will produce teachers who are competent, committed, and confident to teach over the years.

In this study, the central focus is on the predicting roles of self-efficacy and emotional intelligence on subjective well-being and the possibility of mediation by resilience on these relationships in the context of the teaching education institutions in Malaysia. Most studies on similar variables focused on other groups, particularly university students (Austin et al., 2010; Santos et al., 2014), young adults (Cakar, 2012) and in-service teachers (Moe et al., 2010; Wei, 2013) but only a handful research had focused on student teachers. Nevertheless, it is necessary to maintain happy and satisfied student teachers throughout their teacher education course so that they could complete the course and join the teaching profession as competent teachers who can deal with stressful situations and last longer in the service.

Although there are many studies that examine the relationships of these variables, but there are no study yet that examines the inter-relationships of these variables particularly among student teachers in the teaching education institutes in Malaysia. With respect to this focus, the Partial Least Squares-Structural Equation Modeling (PLS-SEM) paradigm was employed to determine the extent to which self-efficacy, emotional intelligence and resilience affect subjective well-being, as well as the mediation role of resilience in the
structural model. The PLS-SEM approach was considered for this study due to its strength in explaining linear relationship among the research variables better than using a multiple regression analysis (Wong, 2013). Further to that, PLS-SEM is more appropriate in determining the covariance among the variables when sampling is non-parametric due to the selection of a specific group of sample (Hair et al., 2016) as in the case of this study. As a second generation multi-variate data analysis, PLS-SEM can test linear and causal model that is partially supported by theories but have substantive empirical evidence (Statsoft, 2013). In other words, PLS-SEM is the best choice when there is richness in data but fuzzy supporting theory (Wong, 2013). PLS was selected rather than covariance-based SEM (CB-SEM) as the objectives of this study is prediction-oriented which can be attained with PLS-SEM and not parameter-oriented which is inclined towards CB-SEM (Urbach & Ahlemann, 2010).

Research Objectives
The research objectives of this study are as follows:
1. To determine whether self-efficacy, emotional intelligence and resilience can predict subjective well-being;
2. To determine whether resilience mediates the relationship between self-efficacy and subjective well-being; and
3. To determine whether resilience mediates the relationship between emotional intelligence and subjective well-being.

LITERATURE REVIEW
Teachers are the change agent in the school setting. Their competency is needed to ensure effective teaching and learning takes place in the classroom. These competencies are developed while they are still in the teacher education institution as student teachers. Alemu et al. (2014) stated that teaching was a highly stressful job with 33 to 37% of teachers facing excessive stress due to the intrinsic nature of the job. Hence, personal resources are needed to deal with these stressful situations and ensure that the teachers maintain or increase their well-being (Baloglu, 2008). These personal resources include self-efficacy and emotional intelligence. These strengthen one’s resilience against stress and leading to higher subjective well-being (Soave, 2014).

Subjective Well-being
First and foremost, Soykan (2015) explained that subjective well-being could be defined according to the combination of theories of self-actualization (Maslow, 1968), the maturity concept (Allport, 1961) and the perspective of the fully functioning person (Roger, 1961). On the other hand, in psychological literature, well-being is a concept relating to mental health (Diener et al., 2012). From the comparison of these two perspectives, well-being and happiness are acknowledged as contributing factors
of a good life. Specifically, the notion of subjective well-being encompasses emotional and cognitive dimensions and reflects how one would assess his life or the extent to which one considers life as an existence that is fulfilled (Diener & Seligman, 2004; Stanculescu, 2014). In fact, subjective well-being comprises of two aspects, namely affective and cognitive. The affective aspect consists of positive and negative emotions whereas cognitive aspect revolves around one’s satisfaction with life.

According to Diener et al. (2005), subjective well-being consists of positively perceived emotional experiences, low level of negative moods and high satisfaction with life. Besides, Gulacti (2010) further explained that life satisfaction is the propensity of reporting a satisfied feeling for numerous aspects of life. In this study, the emphasis was on affective dimension which is about achieving a state of equilibrium between positive and negative emotions or relating to one’s subjective happiness (Eryilmaz, 2010). Normally, people who are happy and satisfied with the conditions in their life experience more positive emotions rather than negative ones (Divya & Chanchal, 2014). Additionally, Diener et al. (2012) reiterated by stating that happiness was the highest and ultimate motivation of human efforts. Clearly, this shows that subjective well-being is considered as one of the important aspect of having a meaningful life.

Self-Efficacy and its Relationship with Subjective Well-being

Furthermore, Stanculescu (2014) explained subjective well-being as a psychological functioning could be stimulated by self-esteem which was regarded as the dimension of self-concept that was evaluative. As a matter of fact, high self-esteem contributes towards self-efficacy as well as self-confidence and performance. In this respect, this outcome eventually enhances satisfaction and happiness in life. Therefore, it can be agreed that self-efficacy is closely related to subjective well-being. For example, Bandura (2005) highlighted the importance of self-efficacy which enable a person to attain his or her desired outcome and determines psychological health. Moreover, a person who continues to feel competent is efficacious and this can boost well-being (Hanjani et al., 2016). Thus, self-efficacy can be seen in a person who has the conviction or confidence in his abilities to motivate self, uses cognitive resources and act accordingly to perform a particular task successfully within a specific context (Soykan, 2015). Similarly, Bandura (2001) also defined self-efficacy as the essence of individuals believing in their own capacity to acts in response to a particular event in order to gain control over it. To sum up, self-efficacy refers to one’s expectations and judgment on performing beyond their capabilities in a particular manner to attain goals or to cope with stressful events in an effective manner (Bandura, 1997; Santos et al., 2014).
On top of that, the self-efficacy concept is supported by Bandura’s theory of social cognitive (Lunenberg, 2011) which emphasizes on social experience and observational learning in the process of developing the personality of an individual. According to this theory, the selected behavior of an individual in a particular situation is dependent on personal observation. In this context, the observed behavior is firstly stored in the memory and implemented later to comprehend the cognitive processes and social behaviors in future events. Additionally, Bandura (2012) stated that humans do not respond mechanically to a stimulus but would resort to finding alternatives to change their environment. Therefore, this behavior is dependent on the undivided interaction of cognitive, environment and behavior to develop one’s efficacy (Qureshi, 2015).

In connection with this study, Moe et al. (2010) discovered that when teachers perceived themselves as highly capable and possessing more positive affect, they showed greater satisfaction in their work. To add on, Wei (2013) studied the efficacy of teachers and subjective well-being using 1200 preschool teachers and found that their high level of efficacy was positively related to subjective well-being. Besides, with respect to this study, Santos et al. (2014) stated that high self-efficacy means that a person believed in his own ability more, and this contributes to higher level of subjective well-being. Thus, self-efficacy and subjective well-being have been proven in past studies to having good association with one another. Primarily, efficacy is fundamental because a teacher confident of his or her competence will show greater commitment to their work, sensitive and susceptible to trending innovation, maximize effort to teach and experience a lower level of burnout as well as having a higher job satisfaction (Skaalvik & Skaalvik, 2010).

A study by Cakar (2012) on 405 young adults in Turkey, showed that self-efficacy was associated with subjective well-being. Findings in this study showed that self-efficacy was able to predict the life satisfaction among the sample. In another study, Santos et al. (2014) involved 969 college students in the Philippines and found a positive correlation between self-efficacy and subjective well-being. Therefore, the following hypothesis is proposed in this study:

H1: Self-efficacy is a positive and significant predictor of subjective well-being

Emotional Intelligence and its Relationship with Subjective Well-being

Emotional intelligence is perceived as a form of social intelligence as it relates to the ability of a person to monitor his own and other’s emotion, to differentiate among them, and utilizing it in guiding one’s thoughts and actions (Divya & Chanchal, 2014; Mayer & Salovey, 1993). In addition, Salovey and Mayer (1994) stated that emotional intelligence was indicated in a person who is able to identify the meaning behind an emotion, comprehends and solves problems based on these emotions (Muhammad et al., 2010). Likewise, Weisenger (2000) reiterated that emotional intelligence is the ingenuity of the person to use emotion intentionally to
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develop a specific behavior and channels his or her thoughts towards the attainment of a desired goal.

Generally, the concept of emotional intelligence is derived from Gardner’s interpersonal and intrapersonal intelligences which involves five domains, namely (a) ‘self-awareness’: self-observation and recognition of feelings as it happens; (b) ‘managing emotions’: handling feelings to make it appropriate and to realize the meaning behind the feelings, as well as finding means to deal with emotions such as anger, sadness, fear and anxiety; (c) ‘motivating oneself’; utilizing emotions to attain goals, promoting self-control, deferring gratification and inhibiting impulses; (d) ‘empathy’: feeling sensitive about how others feel and being concern, as well as considering their perspectives, and appreciating the fact that people develop different feeling for the same thing; and (e) ‘handling relationships’: managing the emotions of other people, being socially competent and having social skills (Divya & Chanchal, 2014).

Furthermore, emotional intelligence has been theoretically linked to subjective well-being (Bar-On, 2005; Gallagher et al., 2008). Naturally, people who are more intelligent emotionally possess appropriate emotional skills that ensure their effective coping of challenges encountered, thus promoting their well-being. In this respect, past studies (Austin et al., 2005; Bar-On, 2005; Gallagher et al., 2008; Gannon & Ranzijn, 2005; Gignac, 2006) showed that emotional intelligence predicts subjective well-being in a positive and significant manner. Hence, there is a relationship between emotional intelligence and subjective well-being.

Razia (2016) conducted a study on 120 student teachers in Aligarh, India and found that there was a significant and positive relationship between emotional intelligence and their subjective well-being. Other studies such as Koydemir and Schlutz (2012) and Soave (2014) also showed similar results. Austin et al. (2010) who studied on emotional intelligence, stress, personality, coping and subjective well-being in Canada also indicated the evidence of inter-relationships among these variables. Hence, the following research hypothesis is proposed:

H2: Emotional intelligence is a positive and significant predictor of subjective well-being

Resilience and its Relationship with Subjective Well-being

Resilience is a critical personal characteristic that can benefit student teachers as they cope with the stressful situation during practicum and the tenure of their teaching education course so that they may enjoy a positive and healthy life (Bonanno, 2012). Resilient teachers have greater coping ability (Castro et al., 2010). Kirmani et al. (2015) stated that resilience is associated with the concept of positive adaptation regardless of adversity. Their study among 98 college going adolescent girls in India showed that resilience and subjective well-being was positively related.
Resilience has been associated with the ability to cope with stressful situation among youths in studies like Chou et al. (2011), Ng and Hurry (2011), and Steinhardt and Dolbier (2008). Windle et al. (2010) explained that being happy was an armour against stress as the individual was able to adapt to the changes that was happening in his life. Therefore, the following research hypothesis is presented:

H3: Resilience is a positive and significant predictor of subjective well-being

Self-efficacy, Emotional Intelligence, Resilience, and Relationships with Subjective Well-being

In relation to this study, there are very few studies which investigated self-efficacy, emotional intelligence, resilience, and subjective well-being in a single study. However, there are some studies that examined the inter-relationships among these constructs. For instance, Soave (2014) examined the relationships between self-efficacy, emotional intelligence, resilience, subjective well-being and physical activities of pre-service teachers before and during their practicum and found significant relationships among these variables. Additionally, Sosa and Gomez (2012) noted that there was a positive relationship between the teachers’ self-efficacy and students’ academic resiliency. In this context, Hong (2012) showed that teachers who retained their position in the teaching career had greater self-efficacy and resiliency. According to Bonanno (2012), resilience is defined as the ability to withstand life adversities while continuing to live positively and healthily (Bonanno, 2012). On the other hand, Easterbrooks et al. (2013) suggested that resilience is the result of interactions between the persons with the environment as part of a dynamic developmental system. As a matter of fact, resilience may be a crucial factor that can explain why some individuals are better at coping with traumatic incidents than others (White et al., 2010). Soave (2014) also stated that if a person was able to buffer the effects of stress due to high resiliency, then he or she would have a more positive perception of life. With respect to this statement, studies conducted by Utsey et al. (2008), and Windle et al. (2010) discovered that resiliency and life satisfaction were positively correlated.

Moreover, teacher self-efficacy is also related to emotional intelligence (Chan, 2008; Fabio & Palazzeschi, 2008; Vesely et al., 2013). Interestingly, findings from studies in the field of psychology, education and work management showed that higher emotional intelligence level leads to better stress management and helps to facilitate effective teaching (Chan, 2008; Perry & Ball, 2005; Saklofske et al., 2013). According to Brackett et al. (2012), the ability to regulate emotion will result in a lower level of emotional tiredness, enhance teacher’s ability to develop personal relationship with his students, and instill positive emotions such as a sense of achievement and satisfaction in his work as a teacher. Also, Sutton and...
Harper (2009) reiterated that a teacher with greater emotional regulation could enhance their positive emotions and reduce negative emotions to increase productivity and exert effectiveness in the classroom. In fact, Foumany and Salehi (2015) in their study among 250 university students showed that emotional intelligence, satisfaction with life and resiliency were inter-related. Likewise, Koydemir and Schlutz (2012) carried out a study among university students with 201 students aged between 20 and 31 years old from Germany and 182 students aged between 18 and 29 years old from Turkey. Austin et al. (2010) examined the relationships of emotional intelligence, coping, personality and exam-related stress among 475 Canadian undergraduate students. These two studies confirmed the significant and positive correlation between emotional intelligence and subjective well-being among university students. Besides, Windle et al. (2010) stated that coping ability was necessary to maintain one’s subjective well-being throughout his or her life as this portrays the ability of the individual to adapt to life that was constantly changing. To sum up, self-efficacy and emotional intelligence are considered as coping abilities which can develop one’s resilience towards challenges in life and prolong happiness.

The mediation effect of resilience on the relationship between self-efficacy with subjective well-being and emotional intelligence with subjective well-being have not been studied before. In this study, the mediating role of resilience was examined as it was evident from empirical studies that both self-efficacy and emotional intelligence contributed to resilience which in return contributed to subjective well-being. However, in the development of a structural model, resilience is placed in between self-efficacy and subjective well-being as well as between emotional intelligence and subjective well-being. A mediator represents a variable that mediates the influence of an independent variable over a dependent variable (Mackinnon, et al., 2012). In this context, a mediator is considered as an endogenous latent variable that links the predictor to the outcome. Mediation explains the how and why of the relationship between the predictor and the dependent variable. As a matter of fact, it is expected that resilience will play a mediating role in the relationship between self-efficacy and subjective well-being as well as the relationship between emotional intelligence and subjective well-being. Nevertheless, the number of studies which investigated the mediation by resilience on the relationships between self-efficacy and emotional intelligence with subjective well-being using the perspectives of student teachers who have just completed their teaching practicum remains scarce. Therefore, in this study, the mediation effect of resilience on the relationships between self-efficacy and emotional intelligence with subjective well-being are explored based on the following research hypotheses:

H4: Resilience plays a significant mediation role in the relationship of self-efficacy with subjective well-being

H5: Resilience plays a significant mediation role in the relationship of
emotional intelligence with subjective well-being.

The Research Framework
The research framework indicated in Figure 1 shows the inter-relationships of the latent variables in this study. In particular, there are two exogenous latent variables namely self-efficacy (SE) and emotional intelligence (EI) which act as predictors to the endogenous latent variables of resilience (RES) and subjective well-being (SWB). Additionally, RES mediates the relationship between the two exogenous latent variables: SE and EI with SWB.

MATERIALS AND METHODS
Research Design
Based on a positivist philosophy, this study adopted an empirical research approach to obtain information regarding the student teachers’ subjective well-being via a survey method as a means of gaining knowledge through direct and indirect observation or experience. A causal research or explanatory research design was used to determine the extent of the cause-and-effect relationship among self-efficacy, emotional intelligence, resilience and subjective well-being. This provides an explanation to the patterns of relationship between these variables (Zikmund et al., 2012). This study utilized the survey method by distributing and collecting questionnaires to gather information.

Population and Sampling
For the purpose of this study, student teachers who had completed their practicum in the fifth semester were identified as the study population. In fact, these student teachers were still undergoing their teacher education course at the time this study was conducted in four teacher education institutes in Sabah, Malaysia. Student teachers were selected as participants in this study as they experienced stressful situation particularly when they did their teaching practicum.

![Figure 1. The research framework](image-url)
The sample size is 200 whereby the respondents were selected based on stratified random sampling. In this stratified random sampling, members of the population were first divided into strata (the four teacher education institutes) and then, randomly selected to be part of the sample. Next, a list of teachers who have completed their first teaching practicum in the Fifth Semester was prepared from each of the teacher education institute. With respect to this list, samples were randomly drawn to obtain a sample size of 200. Specifically, the sample size was determined based on the sampling for PLS-SEM. According to Wong (2013), the determination of sample size has to take into consideration the model background, the data distribution characteristics and the variables’ psychometric characteristics as well as the magnitude of the relationships among these latent variables. Besides, it was recommended that the significant level is set at 5%, the statistical power is maintained at 80% and the R square should be at least 0.25 (Hair et al., 2013). Based on Cohen’s Principle, the number of arrow pointing to a latent variable is represented by at least 10 samples (Ringle et al., 2012). Hence, in connection to the principle stated, the minimum sample size was 50. However, Akter et al. (2011) stated that a small sample size in a big complex model might not be able to determine a low structural path coefficient, and therefore, adopting a larger sample size is advisable.

**Research Instrument**

In this study, data was obtained from self-administered questionnaire which included four scales: Teacher’s Sense of Efficacy Scale (TSES) adapted from Tschannen-Moran and Woolfolk-Hoy (2001) to measure the student teachers’ self-efficacy; Emotional Intelligence Trait Questionnaire adapted from Petrides and Faunham (2006) to measure emotional intelligence; Resiliency Scale adapted from Wagnild and Young (1993) to measure resilience; and Satisfaction with Life Scale (SWLS) adapted from Diener et al. (1985) to measure subjective well-being.

The TSES consists of 12 items with responses based on a 9-point Likert scale starting from “1” which represents “never” and “9” as “always”. For instance, in a previous study, the scale had a 0.90 alpha coefficient indicating good reliability (Tschannen-Moran & Woolfolk-Hoy, 2001). On the other hand, the Emotional Intelligence Trait Questionnaire comprises of 30 items with responses based on a 7-point Likert scale. With respect to a past study, results showed that the Cronbach Alpha for male was 0.88 and female was 0.87, both indicating good reliability (Biggart et al., 2010). On top of that, the Resiliency Scale has 25 items with a 7-point Likert scale while the SWLS has 5-items based on a 7-point Likert scale which was previously used in Soave (2014). Additionally, another past study indicated a high test-retest reliability of 0.82 thus signifying good criteria validity (Diener et al., 2012).

Furthermore, these scales were translated from English to Malay using the back-translation method (Brislin, 1970).
Specifically, this method suggests the use of a bilingual expert to translate the scales from English to Malay. Similarly, another bilingual expert was also employed to translate the scales in Malay back to English. As a matter of fact, this method is usually applied in a cross-cultural study (Jones et al., 2001). Primarily, the back translation was carried out without referring to the original instrument by the second translator to ensure that there is similarity between the English and Malay version of the scales. Then, both documents were examined to determine their accuracy. In this study, items which indicated inconsistency in meaning were required to be identified and translated back by a second bilingual expert without scrutinizing the original item. Essentially, this process needs to be repeated several times until the translated scales are similar to its original version (Lee et al., 2009). McDermott and Palchanes (1994) also stated that there should be at least two independent bilingual translators in the translation process of the research instrument. Hence, in this study, experts from the teacher training institute translated the questionnaire from English to Malay while another group of experts translated the Malay version to English.

The Malay version of the scales was assessed for its reliability and validity in a pilot study using 50 samples of student teachers from one institute using a confirmatory factor analysis. The translated self-efficacy scale showed a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy value of 0.960 and Bartlett’s Test of Sphericity with a significant value of 0.000. All factor loadings were more than 0.70, implying that the 12 items in the scale was acceptable.

The translated emotional intelligence scale has a KMO value of 0.940 and Bartlett’s Test of Sphericity with a significant value of 0.000. Although some of the items have factor loadings less than 0.70 but none has less than 0.40. Therefore, all items were accepted to use in the final study. The translated resilience scale showed a KMO value of 0.968 and Bartlett’s Test of Sphericity with a significant value of 0.000. Some items yielded factor loadings less than 0.70 but no item has loading less than 0.40. The 25-item scale was retained to use in the final study.

The translated subjective well-being scale has a KMO value of 0.725 and Bartlett’s Test of Sphericity with a significant value of 0.000. Some items showed factor loading less than 0.70 but all were above 0.40. Therefore, all items in this scale was also retained. Field (2005) stated that a KMO value must be more than 0.50 to ensure sampling adequacy and Bartlett’s Test of Sphericity with a significant value less than 0.05 to ensure that the original correlation matrix is not an identity matrix. The cut-off at 0.40 is the lowest acceptable value to retain item in a scale (Matsunaga, 2010).

**Data Collection and Analysis**

In this study, data was collected using the questionnaire which was distributed to the targeted samples in the four
Predictors of Subjective Well-being

Teacher Education Institutes. Firstly, the obtained data was keyed into the IBM SPSS 23.0 template and converted into a comma delimited (.csv) format to be used in SmartPls3.0 software. Next, the PLS-SEM approach was employed in the development of a structural model. With respect to the study, this approach allows researchers to assess the predicting accuracy and relevancy of self-efficacy, emotional intelligence of SWB and the significance of mediation by resilience to the relationships between the exogenous latent variables (self-efficacy and emotional intelligence) with the endogenous latent variable, SWB. Additionally, PLS-SEM is a component-based causal modeling approach intending to maximize the explained variance of the dependent latent variable, SWB by the two independent latent variables, self-efficacy and emotional intelligence (Hair et al., 2011). Moreover, it has non-parametric distributional assumptions and possesses the ability to estimate relationships between formative and reflective indicators. In fact, there are many software programs developed for PLS-SEM and one of them is SmartPLS (Nimako et al., 2014; Temme et al., 2010).

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Structural Model Specification (The Research Framework is formulated)</td>
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<tr>
<td>2</td>
<td>Measurement Models Specification (Scales Selection, Translation, Assessment and Adaptation)</td>
</tr>
<tr>
<td>3</td>
<td>Data Collection via Survey (Survey Implementation in Four Teacher Education Institute)</td>
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<tr>
<td>4</td>
<td>PLS Path Model Estimation (SmartPLS3.0 Use in Data Analysis)</td>
</tr>
<tr>
<td>5</td>
<td>PLS-SEM Measurement Models Assessment (Reliability and Validity Determination of the Scales)</td>
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<tr>
<td>6</td>
<td>PLS-SEM Structural Model Assessment (Research Hypotheses Testing and Determination of the Predictive Accuracy and Relevancy of the Structural Model)</td>
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<tr>
<td>7</td>
<td>Interpretation of Result and Conclusion (Presentation of Result to Fulfil Research Objectives)</td>
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Adapted from Hair et al. (2016)

*Figure 2. The Stages in PLS-SEM application*
In this study, the SmartPLS3.0 software was used to run the PLS-SEM that assessed the predicting and mediating role of the variables. Figure 2 presents the steps taken in running the analysis with SmartPLS3.0.

In this study, all the measurement models are reflective and the determination of its reliability and validity is based on the following guidelines in Table 1.

The assessment of the mediation effect of resilience in the structural model is determined based on the Preacher and Hayes (2008) procedures that include the use of a 2-step procedure of bootstrapping in SmartPLS3.0 software. The first step must establish that there is a significant effect of direct effect which is determined by using bootstrapping in the absence of the mediator in the model. The next step determines the significance of the indirect effect which is done by running bootstrapping in the presence of the mediator. If the indirect effect is not significant, then mediation does not occur (Wong, 2016). Figure 3 and

### Table 1

**Guidelines of the Reflective Measurement Models’ Assessment**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Indices</th>
<th>Acceptance Level</th>
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<tbody>
<tr>
<td>Internal consistency</td>
<td>Cronbach’s Alpha, Composite reliability</td>
<td>A value &gt;0.7 indicates adequate internal consistency and composite reliability</td>
</tr>
<tr>
<td>Indicator Reliability</td>
<td>Outer loadings</td>
<td>A value &gt;0.7 is acceptable. Consideration to retain or delete items with values between 0.4-0.7 depending on its effect on AVE. Items with value &lt;0.4 is recommended for deletion.</td>
</tr>
<tr>
<td>Convergent Validity</td>
<td>Average Variance Extracted (AVE)</td>
<td>Value should be 0.5 or higher to ensure convergent validity</td>
</tr>
<tr>
<td>Discriminant Validity</td>
<td>Fornell-Larcker Criterion</td>
<td>Square root of AVE (value in the top-most, most-right in the reporting table) is greater that the correlations of the latent variables</td>
</tr>
<tr>
<td></td>
<td>Heterotrait-Monotrait Ratio (HTMT)</td>
<td>A value of HTMT &lt;0.85 implies there is discriminant validity.</td>
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</tbody>
</table>

Source: Adapted from Hair et al. (2016)

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![Figure 3](image3.png)

**Figure 3.** The mediation analysis of resilience on the relationship between self-efficacy and subjective well-being

![Figure 4](image4.png)

**Figure 4.** The mediation analysis of resilience on the relationship between emotional intelligence and subjective well-being
Figure 4 presents the mediation analysis for the mediator, resilience on the relationship between self-efficacy and subjective well-being and between emotional intelligence and subjective well-being respectively.

RESULTS AND DISCUSSION
The result of this study was based on the 200 questionnaires obtained from student teachers in four teacher education institutes in Sabah, Malaysia. In particular, the student teachers comprised of 59 (29.5%) males and 141 (70.5%) females aged below 25 years who underwent their teaching practicum in the fifth Semester.

The Measurement Models’ Assessment
With respect to this study, the reliability and validity of four measurement models: self-efficacy, emotional intelligence, resilience and subjective well-being were determined using SmartPLS 3.0. Table 2 presents the indicator reliability based on outer loading (OL), construct reliability based on the composite reliability (CR) and convergent validity based on the Average Variance Extracted (AVE). Clearly, it showed that all outer loadings were more than 0.600 in each construct. Besides, all indicators in self-efficacy were retained. However, 12 indicators in emotional intelligence, two indicators in resilience and two indicators in subjective well-being were deleted. This was done to ensure that the construct reliability indicated by AVE yields more than 0.500 for each construct. As a matter of fact, the CR values obtained were more than 0.708, indicating good construct reliability.

Furthermore, Table 3 presents the Fornell-Larcker criterion for each of the latent constructs. Precisely, the values
shown in the uppermost column and to the most right are greater than those below and to the left respectively, indicated in bold in the table. In other words, this shows that the measurement models of each construct have good discriminant validity.

On top of that, Table 4 further validates the discriminant validity of the measurement models with Heterotrait-Monotrait (HTMT) ratio. Indeed, the result showed that all values were less than 0.80, indicating acceptable discriminant validity.

Based on the results gathered, it can be concluded that the measurement models of the constructs have good reliability and validity (Hair et al., 2012). In summary, the measurement model comprises 12 indicators for self-efficacy, 18 indicators for emotional intelligence, 23 indicators for resilience and three indicators for subjective well-being.

The Structural Model Assessment

The structural model assessment presented the result of testing of the research hypotheses and the predictive accuracy and relevance of the structural model. The significance and relevance of relationships among the constructs are indicated in Table 5. The relationships among the research variables were assessed to determine its significance and relevance. The beta value presented a comparison of relevance of the exogenous latent variables in relation to the endogenous latent variable. The comparison of the two exogenous variables indicated that self-efficacy is the most relevant to explain subjective well-being, followed by resilience and lastly, emotional intelligence. The T statistics and the p values conclude whether the relationship is significant or not. The testing of the research hypotheses is a one-tailed test, therefore, the cut-off value

Table 3

<table>
<thead>
<tr>
<th>Discriminant validity with Fornell-Larcker</th>
<th>Self-Efficacy</th>
<th>Emotional Intelligence</th>
<th>Resilience</th>
<th>Subjective Well-Being</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Efficacy</td>
<td>0.845</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Intelligence</td>
<td>0.341</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resilience</td>
<td>0.661</td>
<td>0.401</td>
<td>0.783</td>
<td></td>
</tr>
<tr>
<td>Subjective Well-Being</td>
<td>0.673</td>
<td>0.265</td>
<td>0.563</td>
<td>0.878</td>
</tr>
</tbody>
</table>

Table 4

<table>
<thead>
<tr>
<th>Discriminant validity with HTMT ratio</th>
<th>Self-Efficacy</th>
<th>Emotional Intelligence</th>
<th>Resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emotional Intelligence</td>
<td>0.323</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resilience</td>
<td>0.678</td>
<td>0.392</td>
<td></td>
</tr>
<tr>
<td>Subjective Well-Being</td>
<td>0.735</td>
<td>0.283</td>
<td>0.606</td>
</tr>
</tbody>
</table>
for supporting or rejecting a hypothesis is 1.64 for T statistics. In this case, two pathways (SE → SWB and RES → SWB) were significant and positive while one pathway (EI → SWB) was insignificant.

**Testing of the Research Hypothesis, H1**

From the result shown in Table 5, it can be seen that the relationship between self-efficacy and SWB was positive and significant ($\beta = 0.54$, $T = 6.40$, $p = 0.00$). With respect to the result obtained, the first research hypothesis, H1 is supported. This finding agrees with results from past studies (Chou, 2015; Hanjani et al., 2016; Soave, 2014; Wei, 2013). Highly efficacious student teachers in this study also exhibited higher level of life satisfaction.

**Testing of the Research Hypothesis, H2**

In contrast, emotional intelligence was negatively and insignificantly related to subjective well-being ($\beta = -0.002$, $T = 0.03$, $p = 0.97$). Thus, based on this result, the second research hypothesis is not supported. Hence, findings in this study contradicts past findings (Austin et al., 2005; Bar-On, 2005; Gallagher et al., 2008; Gannon & Ranzijn, 2005; Gignac, 2006; Landa, et al., 2006; Razia, 2016; Soave, 2014). One reason for the current finding may be due to the fact that the emotional intelligence scale has 30 items with a mixed of 16 positive and 14 negative statements. Podsakoff et al. (2003) stated that the use of negatively worded items could lead to the issue of common method variance leading to measurement error.

**Testing of the Research Hypothesis, H3**

Resilience was discovered to have a positive and significant relationship with SWB ($\beta = 0.21$, $T = 2.75$, $p = 0.006$) and therefore supports the third research hypothesis. This agrees with findings from Kirmani et al. (2015), Utsey et al. (2008) and Windle et al. (2010). Student teachers who are resilient are happier and more satisfied with their current life.

**Testing of the Research Hypothesis, H4**

In this study, the mediation by resilience on the relationship between self-efficacy and subjective well-being was established by assessing the direct and indirect relationships between self-efficacy and subjective well-being. The result in Figure 5 shows that the direct pathway between

<table>
<thead>
<tr>
<th>Pathways</th>
<th>$\beta$ (Beta Coefficient)</th>
<th>$T$ Statistics</th>
<th>$p$ Values</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: SE → SWB</td>
<td>0.535</td>
<td>6.399</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>H2: EI → SWB</td>
<td>-0.002</td>
<td>0.033</td>
<td>0.974</td>
<td>Not Supported</td>
</tr>
<tr>
<td>H3: RES → SWB</td>
<td>0.210</td>
<td>2.749</td>
<td>0.006</td>
<td>Supported</td>
</tr>
</tbody>
</table>
self-efficacy and SWB is significant ($\beta = 0.648, p = 0.000$). The pathways between self-efficacy and resilience ($\beta = 0.593, p = 0.000$) and between resilience and subjective well-being ($\beta = 0.210, p = 0.004$) were both significant and the indirect pathway was also significant ($\beta = 0.125, p = 0.000$). Therefore, resilience plays a mediating role in the relationship between self-efficacy and subjective well-being.

**Testing of the Research Hypothesis, H5**

As shown in Figure 6, the direct pathway between emotional intelligence and subjective well-being ($\beta = 0.07, p = 0.147$) is not significant. The pathway between emotional intelligence and resilience is significant ($\beta = 0.199, p = 0.002$) but the pathway between resilience and subjective well-being is not significant ($\beta = -0.002, p = 0.973$). The indirect pathway of emotional intelligence to subjective well-being is insignificant ($\beta = 0.0004, p = 0.436$). Therefore, mediation did not take place and the research hypothesis, H5 is rejected.

**The Predictive Accuracy and Relevance of the Structural Model**

The predictive accuracy and relevancy of the structural model to explain subjective well-being with self-efficacy, emotional intelligence, and the mediator, resilience are indicated in Table 6. Specifically, the predictive accuracy is given by the value of $R^2$ while the predictive relevancy is provided by the value of $Q^2$. In this study, the results showed that self-efficacy and emotional intelligence produced 47.2% of variability in resilience whereas the combined effect of self-efficacy, emotional intelligence, and resilience explained 47.8% of variance in subjective well-being.

### Table 6

**The predicting accuracy and relevancy of the structural model**

<table>
<thead>
<tr>
<th>Constructs</th>
<th>$R^2$</th>
<th>$Q^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resilience</td>
<td>0.472</td>
<td>0.281</td>
</tr>
<tr>
<td>Subjective Well-Being</td>
<td>0.478</td>
<td>0.356</td>
</tr>
</tbody>
</table>

### Table 7

**The effect size of the predicting accuracy and relevancy of the structural model**

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Resilience</th>
<th>Subjective Well-being</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$f^2$</td>
<td>$q^2$</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>0.589</td>
<td>0.259</td>
</tr>
<tr>
<td>Emotional Intelligence</td>
<td>0.066</td>
<td>0.029</td>
</tr>
</tbody>
</table>

*Figure 6. The $\beta$ and $p$ values of the direct and indirect pathways between emotional intelligence and subjective well-being.*
SWB. With respect to the results in Table 5, the corresponding exogenous latent variables were able to provide 28.1% predictive relevancy in resilience and 35.6% in subjective well-being.

As shown in Table 7, the effect sizes of the predictive accuracy ($f^2$) and the predictive relevancy ($q^2$) are tabulated. In this respect, self-efficacy was discovered to have a large effect size in terms of predictive accuracy and relevancy on resilience ($f^2 = 0.59$, $q^2 = 0.26$) as well as on subjective well-being ($f^2 = 0.31$, $q^2 = 0.19$). In contrast, the effect size of emotional intelligence on resilience ($f^2 = 0.07$, $q^2 = 0.03$) and subjective well-being ($f^2 = 0.00$, $q^2 = 0.00$) was small or negligible.

**CONCLUSIONS**

In conclusion, this study implies that self-efficacy and resilience of student teachers can help to ensure their subjective well-being. Most importantly, the process of developing the competence and confidence of student teachers’ teaching ability will eventually contribute to their subjective well-being. In other words, having a high level of self-efficacy will function as a catalyst to promote happiness and enhance satisfaction amongst student teachers. In addition, the notion of being resilient will further elevate the effect of self-efficacy on subjective well-being. Indeed, teachers who are happy and satisfied with their life would naturally acquire the willingness to continue their teaching career and ensure that the education system in Malaysia has sufficient human resources. In connection with the insights gathered from this study, strategic planning of the teacher education curriculum can be designed to incorporate activities that can enhance their self-efficacy to improve their well-being. Thus, such initiatives will equip teachers with the competence and confidence in their ability to perform well in their teaching profession.

However, there are some limitations in this study. Firstly, this study only focuses on student teachers who have just completed their first practicum in the fifth semester. Normally, the student teachers are exposed to three teaching practicum (Institut Pendidikan Guru Malaysia [IPGM], 2013) in the fifth, sixth and eighth semester. With advancing time and experience, the student teachers may have develop greater self-efficacy, emotional intelligence, resilience and subjective well-being as these are subjected to change due to personal and environmental factors (Zyga et al., 2016). The mediation of resilience on the relationship between emotional intelligence and subjective well-being might be present in the later stage of the teacher education program. Therefore, a longitudinal research might provide insights to the change in the mediation capability of resilience in such relationship. With strong support from theoretical and empirical perspectives on the role of self-efficacy, emotional intelligence and resilience to boost subjective well-being as well as the need for individuals to be happy and satisfied to cope with stressful situations, replicating this research with other samples that are subjected to practicum experience such as student nurses, medical students and other
undergraduate program students might shed more understanding of these phenomena. A broader scope of such research might support a national educational policy that supports the development of self-efficacy, emotional intelligence, resilience and subjective well-being in the curriculum.

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Predictors of Subjective Well-being


