Examining the Factor Structure of the Teachers' Sense of Efficacy Scale with Malaysian Samples of In-service and Pre-service Teachers

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ABSTRACT

This study examined the factor structure of the Teachers' Sense of Efficacy Scale (TSES) with a sample of Malaysian in-service (n=191) and pre-service (n=122) teachers. The long-form (24 items) of the TSES was tested using two plausible rival models, the one-factor model, and the theoretically-driven three-factor model. Results from confirmatory factor analysis demonstrated that the baseline three-factor model had a better fit. Standardized factor loadings, standard errors, inter-correlations between factors and reliability coefficients for each factor are reported together with the goodness of fit indices. Minor revisions to improve the fit of the scale for Malaysian teachers are recommended. The TSES scale and the conceptualisation of teacher efficacy are discussed in terms of the cultural and educational context of Malaysia. This study advances the use of the TSES for measuring teachers' sense of efficacy by demonstrating its factor stability within the Malaysian context.

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INTRODUCTION

Teachers' sense of efficacy construct has been widely studied by educational researchers over the past several decades. The construct is defined as a belief about one's capabilities to complete a particular

task in order to produce the desired result (Bandura, 1997). Teachers' sense of efficacy has garnered research attention since it has been shown to be related to other important constructs such as commitment to teaching (Johnson & Birkeland, 2003) and job satisfaction (Caprara et al., 2006). Teachers with a higher sense of efficacy report lower job stress (Klassen & Chiu, 2010) and burnout (Skaalvik & Skaalvik, 2010). Furthermore, having a higher sense of teaching efficacy enables teachers to function positively in many aspects of their profession, including dealing with students, the use of teaching techniques and classroom instruction (Guo et al., 2010). Given the range of positive behaviours demonstrated by teachers with high teaching efficacy, it is unsurprising that teachers' sense of efficacy is also positively related to students' achievement (Moulding et al., 2014). In addition to the role of efficacy beliefs for in-service teachers, teachers' sense of efficacy is also an important aspect of the educational beliefs of pre-service teachers, that is, those who are in teacher training programmes. Studies have found that teacher training programmes have a positive influence on teachers' sense of efficacy (Hoy & Spero, 2005).

Bandura (1997) quoted that performance had the most powerful impact on teachers' sense of efficacy. Successful teaching will enhance one's confidence in his or her teaching. Also, apart from one's own experience, teachers' sense of efficacy can also be established through observations of colleagues' performance, when teachers can

make comparisons with their own teaching. For pre-service teachers, they judge their performance through field experience during their training. Li and Zhang (2000) found a positive correlation between teachers' sense of efficacy and field experience perceptions; pre-service teachers with high ratings of their field experience had a higher sense of efficacy and vice versa. Verbal communication is another important source of teachers' sense of efficacy in which teachers get feedback and support from colleagues. This external information helps teachers to form beliefs about their ability to teach. Aydin and Hoy (2005) identified two social factors as significant predictors of pre-service teachers' sense of efficacy, namely, (1) the relationship between pre-service teachers and their mentors and supervisors, and (2) the quality of support from the cooperating teacher and the school community.

Teachers' Sense of Efficacy Scale

One important factor that drives research in teachers' sense of efficacy is that the construct has been well-defined from the work of Tschannen-Moran and Hoy (2001). Through rigorous literature review and analysis, they developed an instrument called Teachers' Sense of Efficacy Scale (TSES). In TSES, teachers' sense of efficacy construct is conceptualized as having three inter-correlated factors, namely, efficacy for instructional strategies (EIS), efficacy for classroom management (ECM), and efficacy for student engagement (ESE). EIS measures the extent of teachers' beliefs about

their capabilities as classroom instructors to facilitate both a conducive learning environment as well as effective learning processes. The capabilities for EIS include teaching strategies, teaching approaches and handling of teaching and learning processes. ECM measures teachers' belief about their ability to have control over the classroom environment. Teachers with high efficacy in classroom management believe that they are able to maintain discipline and have control over students' behaviour and disruptive elements of the classroom. Finally, ESE refers to the extent to which teachers believe they can instil positive attitudes among their students such as influencing students to get engaged in school activities or increasing students' motivation to learn.

Developers of the TSES claim that the scale exhibits a unified and stable factor structure. A stable factor structure is important in order to produce consistent measurements across different samples or settings. The characteristic is an important benefit of the TSES scale as compared with previous measures such as the Teacher Efficacy Scale by Gibson and Dembo (1984) or the Webb Efficacy Scale (Ashton et al., 1984). As such, the TSES has become one of the most widely used instruments for many researchers across the world such as in Australia, Greece, the United States, Turkey, and Singapore. It has been employed in various settings such as for pre-service teachers (Tsigilis et al., 2010), in-service teachers (Milner, 2002) or both (Fives & Buehl, 2010).

Even though the TSES offers many advantages over other instruments, there are also limitations associated with the scale. One important issue surrounding the claim of a stable factor of TSES is that teachers' sense of efficacy is often conceptualised as context-specific (Lin & Gorell, 2001), that is, the meaning and structure of the construct may differ across cultures, or more specifically, across countries (Tsigilis et al., 2010). As rightly argued by Tsigilis et al. (2010), since TSES is developed using samples from the United States, it is essential to test the scale with other samples to investigate the claim of a universally stable factor structure. In the development of TSES, the scale's factor structure was established using exploratory factor analysis (EFA) (Tschannen-Moran & Hoy, 2001). Based on advances in quantitative analysis, a statistical method such as confirmatory factor analysis (CFA) is also available to test the adequacy of instruments with samples from different contexts. CFA can be considered as a more stringent statistical method compared to EFA for the purpose of confirming factor structure because the CFA provides fit indices for a detailed model of a factor structure of the latent construct that can also be tested against other related models.

Recent studies regarding the factor structure of the TSES using CFA draw inconclusive results especially in terms of the number of factors related to the construct. A study by Tsigilis et al. (2010) reported that the baseline three-factor

model showed a better fit compared to the one-factor model. The results in support of the theoretical model are also shared by Klassen et al. (2009) across samples from Canada, Cyprus, Korea, Singapore, and the United States. However, Duffin et al. (2012) found a contradictory finding the one-factor model showed a better fit compared to the three-factor model for both in-service and pre-service teachers. Fives and Buehl (2010), meanwhile, found mixed results – the three-factor model fitted for in-service teachers while the one-factor model fitted for pre-service teachers.

Apart from factor stability, another important focus of research is in terms of the type of TSES used. TSES comes in two forms, namely, the long-form (24 items) and the short form (12 items) with both forms reported by the developers as having acceptable factor stability. Nevertheless, a study by Ruan et al. (2015) in Korea, China, and Japan showed that the baseline three-factor model for each country was established using the short form TSES, while the long-form did not fit in any of the countries. They also reported that one item was deleted from the short-form scale, and one item cross-loaded onto all three factors. Meanwhile, a study by Nie et al. (2012) using the sample from primary and secondary school teachers in Singapore reported that they deleted up to 12 items from the long-form TSES during the process of establishing their baseline model. Additionally, they found that a second-order factor model best fitted the data and thus concluded that teachers' sense of efficacy

could be defined in terms of one general sense of efficacy rather than efficacy in three distinct areas. This raises the issue of the adequacy of the long-form to measure teachers' sense of efficacy across countries, especially in the Asia-Pacific countries. It is considered a particular concern since the long-form is also recommended for use with pre-service teachers (Tschannen-Moran & Hoy, 2001). The mixed results regarding the factor structure and universality of the scale from the above-mentioned studies warrant additional research on the factor structure of the long-form TSES.

Malaysian Teachers' Sense of Efficacy

In Malaysia, there is no documented research on the factor structure of the TSES at present despite extensive local research on teachers' sense of efficacy (and its relationship with other constructs) that employ the TSES (Bakar et al., 2012; Hashim et al., 2014). Johari et al. (2009) showed that types of training and teaching experience were important factors that influenced the in-service teachers' sense of efficacy. Demographic factors such as gender and race also act as important variables for in-service teachers' sense of efficacy (Murshidi et al., 2006). Research using TSES shows that both types of in-service and pre-service teachers demonstrate a high teachers' sense of efficacy (Bakar et al., 2008). These studies provide an empirical base of understanding of Malaysian teachers' sense of efficacy. However, clarity of the factor structure of the TSES has never been conducted. Confirming the factor structure is

an important consideration when measuring latent variables such as teachers' sense of efficacy before additional research is carried out.

Given the Malaysian context as well as evidence that the long-form TSES did not have an adequate fit in some other Asia-Pacific countries, it is possible that not all of the items in the long-form TSES scale will appropriately fit and it is not clear whether the distinct factors of EIS, ECM, and ESE will emerge in Malaysian teachers.

Current Study

The purpose of this study is to investigate the factor structure of the TSES using a Malaysian teacher sample. In Malaysia, supporting teachers' sense of efficacy is an important precursor for effective educational reform. Questionnaires such as TSES are highly valuable instruments for quickly measuring and comparing teachers' sense of efficacy. However, before scales such as TSES can be used more widely in the Malaysian context, this scale needs to be appropriated tested among Malaysian teachers to ensure it is valid. The findings will also add to the broader body of knowledge regarding issues on the threat to factor stability of the TSES.

At the moment there are two plausible models that explain the factor structure of the TSES: the one-factor model representing teachers' sense of efficacy as a unidimensional construct (Duffin et al., 2012; Fives & Buehl, 2010) and the three-factor model derived from the work of Tschannen-Moran and Hoy (2001)

mentioned above and supported by other studies (Klassen et al., 2009; Nie et al., 2012; Ruan et al., 2015). The study is thus guided by two research questions:

(1) Do the 24 items of the long-form TSES scale have an adequate factor structure among Malaysian teachers?

(2) Does the theoretical three-factor model or the one-factor model have a better fit? In other words, do Malaysian teachers' have distinct beliefs about their capabilities to use teaching practices that support student engagement, classroom management, and instructional strategies?

METHOD

Research Design

The present validation study adopted a cross-sectional study design. Data were collected in a single time period and the study involved translation and cultural adaptation of the original version as well as providing evidence of the validity of the measurement from the TSES.

Population

According to the Ministry of Education (2017), there are 422,505 in-service teachers in Malaysia (male = 125,803, female = 296,702). However, the exact numbers of pre-service teachers are not available. This is because the teacher training program is not fully under the ministry. Rather, it is conducted by various agencies, such as universities, teacher training colleges, and private institutions.

Sample

A sample of 191 in-service and 122 pre-service teachers participated in the present study using the purposive sampling framework. The framework was employed so that the two groups of teachers could be identified. In addition, this framework eliminated teachers who did not receive formal training in education. The in-service teachers consisted of 45 males (23.6%) and 146 females (76.4%) secondary teachers from local public schools in the state of Penang, Kedah, and Perak in the northern part of Malaysia. Meanwhile, responses from the pre-service teachers were gathered during one of the common courses in a local public university. There were 21 males (17.2%) and 101 females (82.8%) in this group who were training for secondary school teaching. The inclusion of both groups of teachers was replicated from the method employed by Tschannen-Moran and Hoy (2001) during the development of the TSES. Understanding pre-service teachers' sense of efficacy is essential to understanding the construct itself because self-efficacy is established during the early years of teacher training programs (Bandura, 1997).

Instrument

The 24-item long version of TSES (Tschannen-Moran & Hoy, 2001) was used in this study. Given that the measurement of TSES was being tested among Malaysian teachers for the first time, the long version was considered more robust and could provide more potentially useful information than the short form. Several modifications were made to the scale. Firstly, it was translated into Malaysian Language by a panel of experts consisting of a psychometric lecturer and one psychology lecturer using a back-to-back translation procedure. In this procedure, both experts translated the original version of the TSES and then their translations were compared, and the consensus was obtained on the final translation draft. Then, a language teacher with more than 20 years of experience examined the draft and provide the researchers with the final translated version of the scale. Secondly, several items have been slightly rephrased in order to suit the Malaysian educational context. The original Item 22, *"How much can you assist families in helping their children do well in school?"* was rephrased as *"How much can you involve families to make sure their children complete homework?"* This is because it is a norm that Malaysian parents' involvement centres on ensuring their children do homework. Also, teachers consider completing homework like a good indicator for students to do well in school. Item 23 was also rephrased into "*How well can you teach differently if the students did not understand?"* from the original version of "*How well can you implement alternative strategies in your classroom?"* The formal classroom setting in Malaysia is very structured. As such, teachers always teach according to what they consider the best way for every session rather than trying alternative strategies. Therefore, we provide a situation ("when students

did not understand") to gauge information about their ability to implement alternative strategies. Thirdly, as suggested by Bakar et al. (2012), some Malaysian teachers were not able to sufficiently differentiate between all the 9-point options on the Likert-scale of the instrument. Therefore, the scale is reduced to 5 points where "1' represents "Nothing' and "5" indicates "A great deal".

Procedure

Teachers were invited to fill in the paper-based questionnaire. For the in-service teachers, they filled in the questionnaire at their training centres (such as hotels and education centres) during their in-service courses. Meanwhile, data collection for the pre-service teachers was gathered in the lecture hall during a common course. Both groups of teachers were able to complete the questionnaire within 10 minutes. Completed surveys were collected by the researcher and inputted into an electronic database. Prior to filling in the questionnaire, the samples were

asked for their consent. Ethical standards and procedures were carefully followed throughout the study, including ensuring the confidentiality of the data. The matrix for data collection is presented in Table 1.

Data Analysis

The factor structure for the TSES was estimated using CFA with *Mplus* 6.0 software. The plan of analysis included assessing the standardized factor loading and standard error for each item, evaluating the goodness of fit indices for each model, examining the inter-factor correlations, as well as determining the reliability for each factor in the baseline model. Items with standardized factor loadings below 0.50 fail to support an underlying solid factor (Sexton et al., 2014) and therefore would be dropped. In addition to high factor loadings, the intended result also included a moderate inter-factor correlation (below 0.80). In order to evaluate how well the baseline

Table 1

Matric for data collection

Data Collection Method	Data Sources	Time	Role and Responsibility
Administration of the questionnaire	In-service and pre-service teachers	During in-service training courses (for in-service teachers) and during the common course at university (for pre-service teachers)	Research assistants – to administer and collect questionnaires for the in-service teachers. The corresponding author - to administer and collect questionnaire for the pre-service teachers

models fit the data, several goodness-of-fit indices were employed including the normed chi-square (χ^2/df), comparative fit index (CFI), Tucker-Lewis Index (TLI), root mean square of estimation (RMSEA), and Root Mean Squared Residual (SRMR). The threshold values for these indices are provided in Table 2.

RESULTS

Table 3 presents the fit indices for the models that were estimated. The one-factor model demonstrated poor fit (χ^2/df = 2.95, CFI = 0.828, TLI =0.812, RMSEA = 0.079, and SRMR = 0.060). The theoretical three-factor model was a significant improvement over the one-factor model (Δ^2 = 159.77, Δdf = 3, p < 0.001) yet did not reach the threshold for standard goodness of fit across all indices (χ^2/df = 2.35, CFI = 0.883, TLI = 0.870, RMSEA = 0.066, and SRMR = 0.054). In establishing the new baseline model for the Malaysian sample, the theoretical three-factor model factor structure was maintained. However, based on factor loadings and suggestions from the modification indices, the following modifications were made: Q1 (*How much*

can you do to get through to the most difficult students?) and Q2 (*How much can you do to help your students think critically?*), both related to the ESE, were dropped due to low standardized loadings (below 0.50) and no strong suggestions that they cross-loaded on other variables. Q5 (*To what extent can you make your expectations clear about student behaviour?*) was dropped from ECM due to low standardized factor loading (below 0.50) and moved to ESE where it had a better fit as evidenced by a significant factor loading (0.56, p < 0.001). Note that the overall estimated model with Q5 moved to the ESE factor did not have a significantly different fit compared to the model where it was cross-loaded on both factors, thus the simpler model was preferred. The baseline model demonstrated a significant improvement over the theoretical model and had an acceptable goodness of fit (χ^2/df = 2.19, CFI = 0.908, TLI =0.897, RMSEA = 0.062, SRMR = 0.047, AIC = 10722.78). Modification indices also suggested that some residual covariances between items could be included (e.g., Q3 and Q8) to further improve the goodness of fit of the scale. However, this level of specificity is

Table 2

The goodness of fit indices

Index	Threshold	Source
χ^2/df	≤ 3.0	Byrne (2004)
CFI	≥ 0.90	Browne and Cudeck (1993)
TLI	≥ 0.90	Hu and Bentler (1999)
RMSEA	≤ 0.10	Hu and Bentler (1999)
SRMR	≤ 0.05	Hu and Bentler (1999)

beyond the scope of this study. The baseline three-factor model suggested that there is a high correlation (>0.80) between ESE and EIS. Thus, it warranted further investigation regarding whether the two factors were distinct. As such, a baseline two-factor model of TSES where ESE and EIS were combined (along with modifications from the baseline model) was tested. The model also had an acceptable goodness of fit: (χ^2/df = 2.22, CFI = 0.910, TLI =0.895, RMSEA =0.084, and SRMR = 0.054). A χ^2 difference tests were conducted based on the chi-square values of the two models and results showed that the three-factor model had a significantly better fit than the two-factor model ($\Delta\chi^2$ = 10.52, Δdf = 2, p = 0.005).

The standardized factor structure loadings (λ) for each factor, their standard errors (SE), inter-factor correlations, and Cronbach's α reliability coefficient for each factor are described in Table 4 and Table 5. All of the final factor loadings for the TSES across the three factors were significant and above 0.50. There were strong positive correlations between factors, especially between ESE and EIS. Consistencies of the factors were acceptable based on high Cronbach's α reliability coefficient, meaning that it is highly likely that the responses are replicable if the TSES is administered across comparable samples.

Table 3

Fit indices for the models

Indices	One-factor	Theoretical three-factor	Baseline three-factor	Baseline two-factor
χ^2 (df)	744.32 (252)	584.55 (249)	452.13 (206)	462.65 (208)
χ^2/df	2.95	2.35	2.19	2.22
p-value	p < 0.001	p < 0.001	p < 0.001	p < 0.001
CFI	0.828	0.883	0.908	0.910
TLI	0.812	0.870	0.897	0.895
RMSEA	0.079	0.066	0.062	0.084
SRMR	0.060	0.054	0.047	0.054

Note: Baseline three-factor and two-factor models had Q1 and Q2 dropped and Q5 moved to ESE.

Table 4

Standardized factor structure loadings and standard errors

Item	Factor	λ	SE
	Efficacy for Student Engagement		
Q4	How much can you do to motivate students who show low interest in school work?	0.629	0.039

Table 4 *(Continued)*

Item	Factor	λ	SE
	Efficacy for Student Engagement		
Q4	How much can you do to motivate students who show low interest in school work?	0.629	0.039
Q5	To what extent can you make your expectations clear about student behaviour?	0.555	0.043
Q6	How much can you do to get students to believe they can do well in schoolwork?	0.617	0.040
Q9	How much can you do to help your students to value learning?	0.698	0.033
Q12	How much can you do to foster student creativity?	0.644	0.038
Q14	How much can you do to improve the understanding of a student who is failing?	0.540	0.044
Q22	How much can you assist families in helping their children do well in school?	0.508	0.046
	Efficacy for Instructional Strategies		
Q7	How well can you respond to difficult questions from your students?	0.526	0.045
Q10	How much can you gauge student comprehension of what you have taught?	0.627	0.039
Q11	To what extent can you craft good questions for your students?	0.567	0.043
Q17	How much can you do to adjust your lessons to the proper level for individual students?	0.582	0.042
Q18	How much can you use a variety of assessment strategies?	0.576	0.042
Q20	To what extent can you provide an alternative explanation or example when students are confused?	0.667	0.036
Q23	How well can you implement alternative strategies in your classroom?	0.637	0.038
Q24	How well can you provide appropriate challenges for very capable students?	0.587	0.041
	Efficacy for Classroom Management		
Q3	How much can you do to control disruptive behaviour in the classroom?	0.698	0.033
Q8	How well can you establish routines to keep activities running smoothly?	0.694	0.033
Q13	How much can you do to get children to follow classroom rules?	0.700	0.033

Table 4 *(Continued)*

Item	Factor	λ	SE
	Efficacy for Student Engagement		
Q15	How much can you do to calm a student who is disruptive or noisy?	0.768	0.027
Q16	How well can you establish a classroom management system with each group of students?	0.718	0.031
Q19	How well can you keep a few problem students form ruining an entire lesson?	0.690	0.033
Q21	How well can you respond to defiant students?	0.743	0.028

Table 5

Inter-factor correlations and reliability coefficients

Inter-factor correlations	
Efficacy for Student Engagement - Efficacy for Instructional Strategies	0.933
Efficacy for Student Engagement - Efficacy for Classroom Management	0.795
Efficacy for Instructional Strategies - Efficacy for Classroom Management	0.760
Cronbach's α reliability coefficient	
Efficacy for Student Engagement	0.790
Efficacy for Instructional Strategies	0.812
Efficacy for Classroom Management	0.880

DISCUSSION

The current study aimed to extend previous research on teachers' sense of self-efficacy by examining whether a common measure of teachers' efficacy had acceptable fit within Malaysian samples of in-service and pre-service teachers and to determine the number of factors in the TSES. The present study employed CFA to examine the factor structure based on suggestions by previous researchers. In this study, two items that were supposed to load on the ESE factor, namely Q1 and Q2 did not provide enough evidence regarding the adequacy of these items to measure the factor. For Q1, a similar result was found from a previous validation study of the TSES in Singapore (Nie et al., 2012). It did not appear that Q1 might better fit on another factor of the TSES. With regards to Q2, it was understandable that the item did not fit well because even though critical thinking is an important part mentioned in the Malaysian curriculum; these aspects of learning are rarely emphasized in Malaysian schools. For example, research by Hamzah et al. (2011) showed that teachers did not see the benefits of sharing knowledge and expertise across subjects for enhancing creativity. Rather, teaching innovations occurred in small groups, and within the

subject, as well as among several teachers. According to Piaw (2011), the inability to think creatively stems from hindrances to internal creativity, even in the initial teacher training phase. Therefore, either the item did not make sense within this context, or else teachers' sense of efficacy in their ability to support students' criticality is viewed as separate from their sense of efficacy for enhancing student engagement.

The finding also shows that Q5 is the best fit for the ESE factor. It is not clear why this is the case. However, researchers have conceptualised engagement as multi-dimensional and containing aspects of cognition, emotion, and behaviour (Fredricks et al., 2004). Thus, it is possible that this item taps into teachers' beliefs about their ability to foster students' behavioural engagement by setting clear expectations about this behaviour. As another possibility, the item may be too vague in the sense that making clear expectations about behaviour could refer to instruction, management, or engagement. To better understand these item-level issues, it is recommended that several Malaysian teachers should be interviewed to determine how they understand the meaning of each item and what it means for their sense of efficacy. An interview is seen as an important method for attaining a deeper understanding of teachers' understanding of these items (Karabenick et al., 2007).

In summary, the abovementioned discussions provide insights that the theoretical three-factor TSES structure can be generalized within the context of Malaysian samples of in-service and pre-service teachers. However, users in Malaysia need to carefully consider the behaviour of items Q1, Q2, and Q5 especially in calculating the composite scores for the ESE, EIS, and ECM. This consideration is essential particularly if researchers have the intention to conduct studies on group differences as well as other statistical inferential using the TSES. Also, it should be noted that reports on the behaviour of the (problematic) items are unique to the present study and has not been reported in other validation studies in other countries. It is perhaps not too off the mark to say that it is possible because of the use of a more stringent method of CFA compared to the EFA.

The present study also found that Malaysian teachers had distinct beliefs about their capabilities to use teaching practices that support student engagement, classroom management, and instructional strategies. Even though the high inter-factor correlations may indicate multicollinearity, that is, two or more factors are highly correlated. Nevertheless, this is a common phenomenon of many studies on the TSES (Nie et al., 2012; Ruan et al., 2015; Tsigilis et al., 2010). In this study, the issue of multicollinearity is addressed by testing the one-factor and two-factor models against the three-factor model. In addition, the factors were treated as latent variables and therefore measurement errors were taken into account. It should be noted that the TSES developers themselves maintain that the factor structure is less distinct for

pre-service teachers (Tschannen-Moran & Hoy, 2001). Nevertheless, in a quest for a better understanding of the TSES, future research should be conducted to study the source of a high correlation between EIS and ESE. In addition, to address the high factor inter-correlations, future work should also examine the measurement invariance of the TSES across pre-service and in-service teachers to provide possible information with regards to the distinction between factors.

CONCLUSIONS

The adaptation of an existing instrument to another context, however, is an on-going process. The current study was limited in that minor revisions had to be made to the items thus restraining some comparisons to other studies. In addition, the present study was also limited in terms of generalization since the samples were only from the northern part of Malaysia. Further studies should also be encouraged in terms of assessing the factor structure of the TSES and how it may vary across different types of teachers, including exploring individual differences based on gender, educational levels (primary/secondary), or teachers with high and low sense of efficacy, in order to enable the development of norms within the Malaysian sample that would enable researchers and stakeholders to have a better understanding of the teachers' sense of efficacy construct. Moreover, there are many elements of reliability and validity that should be considered before having strong confidence in a questionnaire. Investigation

of the predictive validity of measurement from TSES with other constructs such as quality of work-life or commitment would strengthen the generalizability of the TSES. Nevertheless, perhaps it is not too off the mark to conclude that this study has advanced the use of TSES in a Malaysian sample and provided evidence of good factor structure using the three-factor model, and in that process apprehended the value of TSES as an important instrument for assessing teachers' sense of efficacy.

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