Psychometric Properties of Indonesian Version of Teacher Classroom Management Efficacy Scale

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Abstract. Teacher self-efficacy (TSE) in classroom management is an important predictor of teaching practice, but there are limited studies on the application in Asian countries, particularly Indonesia. Therefore, this study aimed to describe psychometric properties of Classroom Management Efficacy scale in Indonesian version. Psychometric properties of the scale were evaluated using a total of 582 Indonesian teachers, who served as participants. The results supported a bifactor model with high internal consistency, showing that the scale could be psychometrically sound measure of TSE in classroom management in Indonesian version.

Keywords: TSE, classroom management, factor analysis, Indonesia

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Introduction

Several reports have shown that addressing student behavior in a classroom context is a challenging endeavor for teachers. Despite the progression of studies in classroom management, teachers still consistently express concerns regarding student misbehavior, which interfered with the teaching process (Beam & Mueller, 2017; Black, 2016; Elnoordiansyah, 2019; Malak et al, 2017; Yusoff & Mansorb, 2016), leading to the use of physical punishment.

In Indonesia, government efforts to eliminate the prevalence of physical punishment in schools have proven to be ineffective. In 2019, the Indonesian Child Protection Commission reported that there were 153 complaints of physical and psychological violence against children in education environments, and 44% were carried out by teachers or school principals (Elnoordiansyah, 2019). Furthermore, these reported cases include a range of punishment, administered by educators, including actions, such as pinching, slapping, and running. Although teachers can justify these measures as necessary for education and discipline (Elnoordiansyah, 2019), empirical studies consistently underscore the ineffectiveness of punitive disciplinary strategies over the long term. The strategies have also been associated with adverse outcomes, such as causing injuries, creating a cycle of violence, and increasing the risk of exclusion (Armstrong, 2018).

Teacher-effective behavior management has been reported to be predicted by TSE in classroom management (Suico, 2021; Toran, 2017). Educators possessing high teacher self-efficacy (TSE) are more likely to perceive the classroom as less threatening, leading to the use of positive strategies, such as praise, modification of teaching approaches, and a willingness to explore new methods (Emmer & Hickman, 1991; Gaudreau et al., 2013; Paramita et al., 2021). A comprehensive synthesis by Zee and Koomen (2016), comprising 40 years of study on TSE effects, reported that teachers with high TSE were more likely to adopt proactive behavior management strategies. Consequently, these individuals often report more positive classroom experiences, fewer disturbances, and less emotional exhaustion (Dicke et al., 2014).

According to previous studies, teachers who lack confidence in their ability to manage classroom events or situations effectively are typically less proactive and more prone to giving up easily when facing continuous disruptive behavior of students. This situation often leads to the adoption of reactive strategies, including punishment (Brouwers & Tomic, 2000; Emmer & Hickman, 1991; Gaudreau et al., 2013; O'Neill & Stephenson, 2011). Furthermore, this situation can create a cyclical pattern, where high levels of student problem behavior lead to a low level of TSE in classroom management, leading to high burnout levels. This, in turn, fosters an environment conducive to further problem behavior, thereby creating a circle (Brouwers & Tomic, 2000; Korpershoek et al., 2016).

In education-related literature, the term TSE is often used synonymously for teacher efficacy (Dellinger et al., 2008), but Dellinger et al. (2008) state that both terms refer to different constructs and must be differentiated. Tschannen-Moran and Hoy stated that teacher efficacy referred to teacher beliefs in the abilities to affect student performance (Alibakhshi et al., 2020), whilst TSE beliefs focused on the successful performance of a task in a specified situation (Bandura, 1997).

For this current study, the term TSE was used, which was defined as "teacher belief in the ability to perform specific teaching tasks at a specified level of quality in a specified situation" (Dellinger et al., 2008, p. 752). In particular, the investigation focuses on TSE in classroom management, which refers to 'teacher belief in the ability to organize and execute the courses of action required to maintain classroom order' (Brouwers & Tomic, 2000, p. 242).

The construct of TSE in classroom management has been explored since the 1980s (O'Neill & Stephenson, 2011). The investigation started in 1984 when Gibson and Dembo developed an instrument to measure TSE, which contained items about managing behavior in the classroom (Alibakhshi et al., 2020). However, Emmer and Hickman (1991) were among the first to state that TSE in classroom management and discipline was conceptually and behaviorally different from general self-efficacy.

The classroom Management Efficacy scale (Emmer & Hickman, 1991) is the TSE scale, which clearly identifies the parameter of the classroom management factor (O'Neill & Stephenson, 2011). The item construction of the scale is influenced by contemporary classroom management literature, including Doyle's (1986) review of more and less effective teachers, and report on the importance of proactive classroom management teacher behaviors. Furthermore, it comprised establishing expectations and rules, as well as monitoring student engagement (Emmer & Hickman, 1991; O'Neill & Stephenson, 2011). The scale also includes items on the use of behavioral strategies, such as implementing rewards or positive reinforcement (O'Neill & Stephenson, 2011). Several studies also showed that it had good reliability, validity, and factor structure (O'Neill & Stephenson, 2011), and had been widely used to explore TSE in classroom management (e.g., Brouwers & Tomic, 2000).

Based on the results, most studies on TSE in classroom management were conducted in Western countries (e.g., Dicke et al., 2014). Although there are several studies in the Asia Pacific region, that examine TSE beliefs (Dalioglu & Adiguzel, 2016; Thompson & Woodman, 2018), only a very few reports have specifically examined TSE in classroom management. Among these few reports, Handrianto et al. (2021) and Suico (2021) showed the applicability of the construct of TSE in classroom management in the Asian context and the need for further investigation in this area.

At present, there are limited studies on Indonesian TSE in classroom management (e.g., Loreman et al., 2013; Mudra, 2018; Mustafa, 2013). Therefore, this study aims to validate the Classroom Management Efficacy scale (Emmer & Hickman, 1991) in Indonesia. An evaluation of the dimensionality and reliability of the scale in the Indonesian version provides important information concerning the measurement of Indonesian TSE.

Methods

This study was carried out using a descriptive, quantitative method to examine the psychometric properties of the Classroom Management Efficacy scale developed by Emmer and Hickman (1991). The instrument comprised 14 items measuring teacher-perceived self-efficacy in classroom management, which was defined as a teacher belief of competence in the area of management and discipline (Emmer & Hickman, 1991). The classroom Management Efficacy scale, along with External Influences and Personal Teaching Efficacy, was a part of the Teacher Efficacy in Classroom Management and Discipline scale developed by Emmer and Hickman (1991), with a reliability of .79.

The instrument adaptation process in this study comprised 7 stages based on the guideline for the process of cross-cultural adaptation of self-report measures as described by Beaton et al. (2000), and the guideline from the International Test Commission (2017). First, permission was from Edmund T. Emmer, the author of the Classroom Management Efficacy scale. Second, the scale was translated into Indonesian by two independent bilingual translators. Furthermore, one of the forward translators had a background in Psychology and Education, while the other had a background in Communication. This showed that one

translator was aware of the concept being examined in the scale (informed translator), while the other had limited knowledge about the topic (uninformed translator), as outlined by Beaton et al. (2000). The 2 translator created Indonesian version of the scale, which was then back-translated by 2 certified translators who were native English speakers. This study developed all of the translated versions and created a draft of the Indonesian version of the Classroom Management Efficacy scale (see Table 1).

Third, the draft of the Indonesian version was reviewed by 3 psychology lecturers in Indonesia with expertise in educational and developmental psychology and/or experience in instrument adaptation, and 2 Indonesian Ph.D. students studying in the Faculty of Education at an Australian university. These 5 reviewers assessed the comparability of language (the formal similarity of words, phrases, and sentences) and similarity of meaning (the extent to which the original and translated versions induce the same response even if the wording is different) (Sperber, 2004).

Table 1
Indonesian Version of Classroom Management Efficacy scale

Number	Item
1.	*Saya tahu rutinitas apa yang dibutuhkan agar aktivitas berjalan efektif.*
2.	*Saya tahu jenis penghargaan yang perlu diberikan untuk menjaga siswa tetap terlibat dalam pembelajaran.*
3.	*Jika siswa berhenti mengerjakan tugas di kelas, saya biasanya bisa menemukan cara agar mereka kembali mengerjakan tugasnya.*
4.	*Saya memiliki keterampilan manajemen kelas yang sangat efektif.*
5.	*Saya dapat menangani beberapa siswa yang bermasalah sehingga tidak mengacaukan seluruh kelas.*
6.	*Saya dapat mengkomunikasikan kepada siswa bahwa saya sungguh-sungguh ingin mereka menunjukkan perilaku yang baik.*
7.	*Saya yakin dengan kemampuan saya untuk memulai tahun ajaran baru sehingga siswa akan belajar untuk berperilaku baik.*
8.	*Mudah bagi saya untuk menjelaskan harapan-harapan saya kepada siswa.*
9.	*Jika seorang siswa di kelas saya mengganggu dan berisik, saya merasa yakin bahwa saya tahu beberapa teknik untuk mengarahkan mereka dengan cepat.*
10.	*Ketika saya benar-benar berusaha, saya dapat menangani siswa yang paling sulit sekalipun.*
11.	*Hanya ada sangat sedikit siswa yang saya tidak tahu bagaimana cara menanganinya.*
12.	*Saya tidak selalu tahu bagaimana cara memantau beberapa aktivitas siswa sekaligus.*
13.	*Terkadang saya tidak yakin aturan apa yang tepat untuk siswa-siswa saya.*
14.	*Saya tidak yakin bagaimana menanggapi siswa yang badung.*

Based on the suggestions, the translations of some items were revised. Fourth, the draft items were compiled into a questionnaire and were validated using cognitive interviewing with 6 Indonesian postgraduate students in the Faculty of Education in an Australian university, who had experience as teachers in Indonesia.

The fifth step comprised the presentation of the scale to participants, while the sixth was data analysis to examine the psychometric properties of the adapted scale. Exploratory factor analysis (EFA), confirmatory factor analysis (CFA), and reliability analysis were conducted to examine the structure of the questionnaire with Indonesian sample. For data analysis purposes, the sample was divided into two groups. EFA was performed on the first sub-sample, and CFA was performed on the second sub-sample (Lorenzo-Seva, 2022), followed by a reliability analysis on the whole sample to determine the internal consistency of Cronbach's Alpha of the scale.

The sample population of this study comprised primary school teachers in Surabaya, Indonesia. Participants were selected using a purposive sampling method, where invitations were sent to the principals of 50 public primary schools in Surabaya. Principals from 48 schools consented to participate in this study, and survey packages were delivered to 763 teachers in these schools. Ethics approval was obtained from Monash University, Australia (Project Number: 11677), and permission from a local government agency in Indonesia was before data collection. A statement outlining the details of the project was provided to teachers. Participants' implied consent was evident, as the survey allowed individuals the choice to abstain from participation. Data obtained from 582 participants were used in the data analysis stage.

Results and Discussion
Participants' demographic data are presented in Table 2. The results showed that most participants were female (81.8%), held an undergraduate degree (85.4%), aged 40 years or older (71.5%), and had more than 20 years of teaching experience (51.6%). To conduct the factor analyses, the total sample of 582 teachers was randomly divided into two equivalent sub-samples (Lorenzo-Seva, 2022), each consisting of 291 participants. The distribution of participants for each sub-sample is described in Table 3.

A statistical comparison was conducted to ensure the comparability of both sub-samples in terms of demographic characteristics. Age and years of teaching were compared using t-tests, while the gender distribution was compared using a chi-square test. The t-test results showed that there were no significant differences between both sub-samples for age ($t_{(574)} = -.756$, $p = .450$) and years of teaching ($t_{(570)} = -.213$, $p =$

.832). Based on the chi-square results, there were no significant differences between both sub-samples in terms of gender distribution ($\chi^2_{(1)}$ = .235, p = .628). Therefore, it could be concluded that both sub-samples were comparable in terms of age, years of teaching, and gender. For the data analysis, EFA was performed on the first sub-sample, and CFA was performed on the second sub-sample, followed by a reliability analysis on the whole sample to determine the internal consistency of the scale.

Exploratory Factor Analysis
EFA was conducted using SPSS on the data of the first sub-sample (n = 291). A principal axis factoring with direct oblimin rotation was performed on the 14 items. Furthermore, oblimin rotation was used to allow correlations between factors, which were expected to measure the same dimension. The result of the analysis showed a three-factor solution, and one item (item 11: "There are very few students that I don't know how to handle") was removed as the communality, which indicated the proportion of variance explained by the extracted factors (Field, 2018), was very low (h^2 = .07). The item did not also load on any of the extracted factors. Although item 8 ("I find it easy to make my expectations clear to students") had a slightly lower communality (h^2 = .29) compared to others, it was retained due to the moderate loading onto the first factor. Following item deletion, another analysis was conducted with the remaining 13 items. This led to a two-factor solution, which explained 31.98% and 13.78% of the variance, respectively. A total of 3 negatively worded items (items 12, 13, and 14) were loaded on the second factor. The factor loadings of the items are presented in Table 4.

Table 2
Participants' demographic data (N = 582)

Demographic aspect	Frequency	Percentage
Gender		
Female	476	81.8%
Male	96	16.5%
Education level		
Secondary school	12	2.1%
Diploma	13	2.2%
Bachelor degree	497	85.4%
Master degree	57	9.8%
Age		
<30	34	5.8%
30-40	126	21.6%
40-50	147	25.3%
50-60	269	46.2%
Teaching experience		
<10 years	88	15.1%
10-20 years	184	31.6%
20-30 years	140	24.1%
30-40 years	160	27.5%

Table 3
Demographic data for each sub-sample

Demographic aspect	Sub-sample 1 (n = 291)	Sub-sample 2 (n = 291)
Gender		
Female	80.8%	82.8%
Male	17.2%	15.8%
Age		
Range	23-60	26-60
Mean	46.25	45.65
SD	9.73	9.52
Teaching exp		
Range	4-40 years	3-40 years
Mean	21.14	20.96
SD	10.51	10.17

Table 4
Pattern Matrix of Exploratory Factor Analysis (EFA)

Item	TSE	Reverse-worded factor	Commu-nalities
6. I can communicate to students that I am serious about getting appropriate behavior	.71		.48
7. I am confident of my ability to begin the year so that students will learn to behave well	.70		.50
1. I know what routines are needed to keep activities running effectively	.70		.47
9. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect them quickly	.67		.46
5. I can keep a few problem students from ruining an entire class	.63		.39
2. I know what kinds of rewards to use to keep students involved	.59		.36
3. If students stop working in class, I can usually find a way to get them back on track	.58		.35
4. I have very effective classroom management skills	.57		.34
10. When I really try, I can get through to most difficult students	.55		.31
8. I find it easy to make my expectations clear to students	.53		.29
13. Sometimes I am not sure what rules are appropriate for my students.		.96	.89
14. I am unsure how to respond to defiant students.		.79	.68
12. I don't always know how to keep track of several activities at once.		.66	.44

Confirmatory Factor Analysis
CFA was conducted using AMOS on the data of the second sub-sample (n = 291). As EFA results showed that negatively worded items were loaded on a reverse-worded factor, a two-factor model was tested and compared with a bifactor model. In the two-factor model, a total of 10 positively worded items were

loaded onto 1 factor and the 3 negatively worded items were loaded onto a separate factor, as shown in Figure 1. For the bifactor model, all items were loaded onto a general factor, and 3 negatively worded items were loaded onto an additional reverse-worded factor. A comparison between two-factor and bifactor models could determine whether the scale items were driven by a general factor or two distinct factors (Pererae et al., 2017). The R2 corresponding to two items (items 13 and 14) showed that the respective factor explained a large portion of the variance, namely 89.3% and 76.2%, respectively. A total of 7 items explained a fair portion of the variance, ranging from 31.5% to 53.7%, while the remaining 4 items (items 1, 3, 8, 10) had low R2, ranging from 21.9% to 26.9%. The standardized estimates between the factors and items are presented in Figures 1 and 2.

The results showed that both the two-factor model ($\chi^2 = 124.85$, $\chi2/df = 1.98$, $p < .001$) and the bifactor model ($\chi^2 = 117.96$, $\chi2/df = 1.93$, $p < .001$) yielded significant chi-square statistics, suggesting a less-than-perfect fit for both models. Furthermore, several fit indices, including the comparative fit index (CFI), Tucker and Lewis' index of fit (TLI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA), were used to further evaluate the model fit. An adequate or better fit of the model was shown by CFI ≥ .90, TLI ≥ 0.90, IFI ≥ .90, SRMR < .09, and RMSEA ≤ .10 (Shek & Yu, 2014). RMSEA < .05 was described as a close fit, between .05 and .08 was reasonable fit, and values larger than .10 were inadequate fit (Shek & Yu, 2014). Goodness-of-fit statistics showed that both two-factor (CFI = .951, TLI = .939, IFI = .951, SRMR = .051, and RMSEA = .058) and bifactor models (CFI = .955, TLI = .942, IFI = .955, SRMR = .049, and RMSEA = .057) had relatively good fit with the current data. As shown in Figure 1, the residuals of two items (items 1 and 2) were allowed to correlate based on conceptual relatedness. This result supported a bifactor model, showing that Classroom Management Efficacy scale in Indonesian version was sufficiently unidimensional. Therefore, an overall score can be used, while allowing for additional variance from reverse-worded items (Perera et al., 2017).

The result showed that all standardized factor loadings in the bifactor model were statistically significant. Furthermore, all positively worded items had moderate standardized loadings, ranging from .47 to .68, to the general factor. The 3 negatively worded items (items 12, 13, 14) had higher standardized factor loadings to the reverse-worded factor (range from .68 to .92) compared to the general factor (range from .23 to .30), but all values were statistically significant.

Reliability Analysis

The internal consistency coefficient (Cronbach's alpha) was computed on the complete data set (n = 582). Furthermore, Cronbach's alpha for the scale, consisting of 13 items was .80, showing good internal consistency.
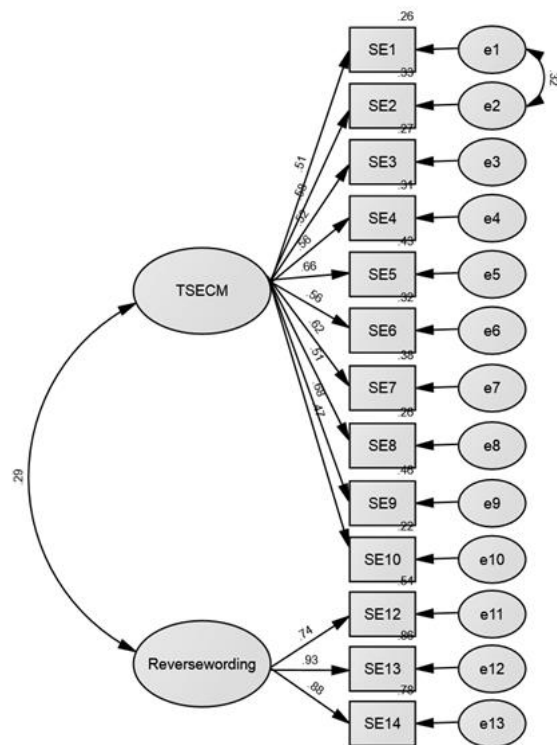

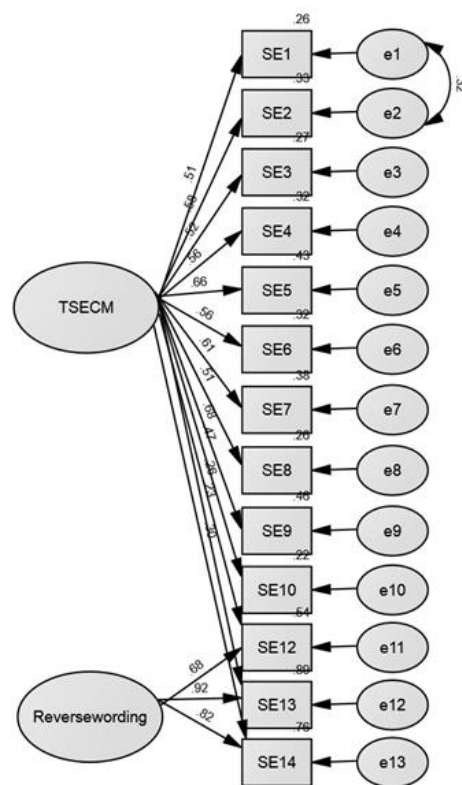*Figure 1.* Results of CFA: The Two-factor Model

Figure 2. Results of CFA: The Bifactor Model

Validating Classroom Management Efficacy Scale
TSE in classroom management had been thought to be conceptually different from general TSE (Emmer & Hickman, 1991; O'Neill & Stephenson, 2011). Furthermore, it had typically been assessed by asking participants to show the extent of the ability of performing specific teaching-related tasks (O'Neill & Stephenson, 2011). In terms of TSE in classroom management, the focus of measurement was directed towards the area of classroom management.

A recent study by Lazarides et al., (2020) employed two items adapted from the Teachers' Sense of Efficacy Scale to measure TSE for classroom management. Participants were asked to show the certainty in the ability to manage disobedient students and establish classroom management system. Acceptable reliability coefficients, between .66-0.75, were reported for this two-item scale. As explained by O'Neill and Stephenson (2011), several TSE scales included items measuring TSE in classroom management, while other scales could include a domain or subscales with more items.

This current study explored the use of the 14 items of Classroom Management Efficacy scale (Emmer & Hickman, 1991) in Indonesian version. The results showed that Classroom Management Efficacy scale (Emmer & Hickman, 1991) in Indonesian version showed a bifactor structure with a reasonable fit. In the bifactor model, all items were loaded onto a general factor of TSE, with three reverse-worded items being loaded onto an additional reverse-worded factor. This model was different from a two-factor model, where the items were loaded onto two separate factors, namely TSE and reverse-worded factors. This result was in line with previous studies (Brouwers & Tomic, 2000; Emmer & Hickman, 1991), where the factor TSE in the area of management and discipline was underlying teacher responses to the items. Cronbach's alpha score of .80 found in this study was similar to the .79 reported in the original study (Emmer & Hickman, 1991). However, this result must be interpreted with caution as this was the first attempt to examine psychometric properties of Classroom Management Efficacy scale in Indonesian version, showing the need for further studies.

Based on the result, a total of 3 negatively worded items were loaded both on a general TSE in classroom management factor and additional reverse-worded factor, showing that reverse-worded items contaminated the factor structure of the scale when being used in Indonesian sample. Previous studies suggested that reverse-worded format could interfere with the measurement of the main construct, and create a nuisance (method) factor (e.g., Perera et al., 2017; Zhang et al., 2016). Furthermore, there was a possibility that negatively worded items could create confusion for Indonesian teacher participants, given that 1 removed item in this study seemed to imply double negatives (item 11: "There are *very few* students that I *don't know* how to handle").

The study by Slater and Main (2020) developed Classroom Management Self Efficacy Instrument to be used for pre-service teachers. A total of 9 out of the 14 items included in the scale had the same contents as the items used by Emmer and Hickman (1991). However, 2 negatively-worded items were changed into positive directions. "I can keep defiant students involved in my lessons" and "I know what rules are appropriate for my students" were used, rather than "I am *unsure* how to respond to defiant students" and "Sometimes I am *not sure* what rules are appropriate for my students". The CMSEI was found to be an internally consistent, unidimensional scale (Slater & Main, 2020).

Reflecting on the study by Slater and Main (2020) as a cautionary measure, studies in Indonesian version often modified the negatively worded items straightforwardly, and compared the factor structure of the modified scale with the original Classroom Management Efficacy scale. Future studies could also use the Rasch method to monitor the quality of the instrument, and examine participants' performances (Boone, 2016).

This study had several limitations, such as the inability to obtain valid evidence based on correlation with other variables, and the sample was limited to Indonesian primary school teachers from 1 city. Future studies must attempt to gather more validity evidence, and include participants from other educational levels and various regions in Indonesia.

Conclusion
In conclusion, this current study provided preliminary results and foundational data for future studies exploring Indonesian TSE in classroom management. Classroom Management Efficacy scale in Indonesian version was shown to have adequate validity and reliability. Furthermore, the result suggested that there was a need to pay attention on the cultural context in countries, such as Indonesia, in measuring TSE. More studies were required to further refine TSE measurements in Indonesian version.

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