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Validating and Testing the Teacher Self-Efficacy (TSE) Scale in Drug Education among Secondary School Teachers

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Abstract. Teacher self-efficacy (TSE) in drug education is critical because it is linked to teachers' beliefs and ability to deliver learning material about drug abuse to students. There is scant literature about TSE in drug education. This might be due to the lack of valid instruments measuring TSE in drug education. This study aimed to validate and test the TSE Scale among secondary school teachers in drug education. The TSE Scale was adapted from the instrument of teacher efficacy by Tschannen-Moran and Hoy (2001). One hundred and thirteen public secondary school teachers in Johor, Malaysia were involved in this quantitative study. Cronbach's alpha was used to examine the internal consistency and factor analysis through factor loading to confirm the items in each construct. The results reveal that the scale has internal consistency, with a Cronbach alpha value greater than .7. Furthermore, the factor loading results confirm the structure of the instrument, where each item had a factor loading greater than .5 and was loaded in each construct. Therefore, the TSE Scale is a valid tool to measure secondary school teacher self-efficacy in drug education. The instrument can be used in studies related to drug prevention activities in secondary schools.

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1. Introduction

The drug prevention program in Malaysia is a long-term effort that involves various parties, including government and non-governmental organizations (Mallow, 2020; Mohamad et al., 2018; Nawawi et al., 2021). Drug prevention programs in secondary school aim to develop students' self-awareness, understanding, and resilience to avoid drug abuse (Bahramnejad et al., 2020). The government has devised and implemented the SHIELDS program (from Sayangi Diri Elak Derita Selamanya - i.e., Love Yourself, Avoid Suffering Forever) to provide opportunity for students to develop their social skills and build good relations with their peers while at the same time committing to avoiding the negative effects of their environment (Liu, 2020; Walid et al., 2021). The program is part of the co-curricular activities involving public secondary school students in drug abuse prevention.

The main purpose of drug prevention programs in Malaysia is to prevent students from abusing drugs by improving their skills and knowledge. For example, Program Intelak Asuhan Rohani (PINTAR) aims to develop students' awareness and self-esteem, Program Sifar Dadah Sekolah Rendah (PROSIDAR) in the form of night camps focuses on improving students' life skills, and SHIELDS aims to increase students' awareness (Walid et al., 2021). Teachers organize activities for students, such as talks or seminars about drug abuse, inviting guests from anti-drug agencies to share knowledge about the dangers and misuse of drugs. Furthermore, teachers or counsellors also distribute posters or brochures containing drug education materials for the students (Amat et al., 2020).

In the curriculum context, classroom teachers play a significant role in preventing drug and substance abuse in secondary school (Nebhinani & Kuppili, 2018; Tremblay et al., 2020). Drug education refers to the efforts of subject teachers to integrate drug topics into their teaching material in a classroom situation. The main purpose of drug education is to increase awareness and knowledge about the negative effects of drugs (Zakaria et al., 2021). Therefore, teachers have suggested incorporating the drug topics by involving students in discussing the dangers of drugs in their lives (Rahman et al., 2022; Yan et al., 2020). Teachers should be able to deliver essential knowledge, promote student participation, and present attractive classroom activities to achieve positive outcomes in drug education (Walid et al., 2021). In this case, teachers have a big responsibility in drug education, which requires them to have the appropriate psychological traits, one of which is self-efficacy.

Self-efficacy generally refers to self-belief about oneself to attain selected performance standards (Kamarudin et al., 2020). For teachers, self-efficacy is defined as how much they believe they can carry out their duties as teachers (Mokhtar et al., 2021). It affects how teachers think, feel, are motivated, and behave in the classroom. Kamarudin et al. (2020) stated that self-efficacy affects an individual's behavior to complete the task given successfully. Therefore,

teacher self-efficacy (TSE) in drug education is critical because it is linked to teachers' beliefs and ability to deliver learning material on drug abuse to the students (De-Smul et al., 2019; Sayed et al., 2019; Uzun & Kelleci, 2018). Sukor and Hussin (2019) explained that the effectiveness of drug education is greatly affected by teachers' self-efficacy in handling program activities.

Through self-efficacy, teachers will have confidence, knowledge, information, and good classroom management skills to engage secondary school students to participate in drug abuse prevention discussed in their classes (Nengsih et al., 2022; Sithole, 2023; Zainil et al., 2023). Furthermore, self-efficacy is said to be a mediator for teachers to enhance their service provision in drug education (Sukor & Hussin, 2019). Despite the importance of TSE, little research has been done about TSE in drug education in Malaysia. Some related research about TSE in drug education in Malaysia is: TSE as a predictor of teacher job satisfaction in drug education in Malaysia (Sukor & Hussin, 2019); the rubric of TSE development in drug education based on the ADDIE model (Jusoh et al., 2022); and the mediating role of TSE between teacher job satisfaction and teacher commitment (Mokhtar et al., 2021). No research has directly measured TSE in drug education.

The lack of research about TSE in drug education might be due to the lack of valid instruments measuring TSE in drug education. In the Malaysian context, self-efficacy is validated in the context of science self-efficacy (Dzin & Lay, 2021), counselling self-efficacy (Pei-Boon et al., 2020), and exercise self-efficacy (Hidrus et al., 2020). Still, no research has validated TSE in drug education. Therefore, this study aimed to validate and test the TSE Scale by involving classroom teachers in secondary schools in Malaysia. This research will contribute to a complete instrument that can be used to measure the efficacy of Malaysian secondary school teachers in drug education. This is important since, currently, there is no specific instrument measuring TSE in drug education. Therefore, the instrument can be used by other researchers or scholars in drug education research practice in the future.

2. Literature Review

The idea that an individual is capable of effectively executing the actions that are necessary to accomplish the results that are sought can be characterized as self-efficacy. Self-efficacy is a term that is used interchangeably with self-confidence. Educators with a high level of self-efficacy in teaching and learning have the self-assurance necessary to convey learning information and develop teaching strategies involving students to accomplish active learning. The same is said about having "self-efficacy in teaching and learning". Educators who have a solid understanding of their abilities in the classroom, in terms of teaching and learning, stand a better chance of experiencing the personal and professional satisfaction that comes with success in their chosen field (Gcabashe & Ndlovu, 2022; Najwan et al., 2022).

The teacher's self-efficacy is an important link between the teacher and students because it determines the quality of classroom management (Makhananesa & Sepeng, 2022; Wong et al., 2019). There is a connection between the teacher's level

of self-efficacy and the level of commitment, involvement, and achievement demonstrated by secondary school students in the classroom. Secondary school teachers' level of self-efficacy in their ability to instruct affects their thought processes. These factors drive them to excel in their jobs, the quality of their work, their perceptions of their competence, and how they rate their performance. Teachers' level of self-efficacy in their ability to instruct also affects the quality of their work (Muliati et al., 2022). Establishing substantial contact with students and assisting them in developing their critical thinking are crucial factors that teachers must devote careful attention to if they want to be effective in their roles. If teachers have high self-efficacy, they will likely be inspired to encourage their students to improve their academic achievement. This is because it is likely that teachers will have a good feeling about their capabilities. Teachers make it a priority to improve their knowledge and expertise while they are on the job to be able to provide students with services that are of a high standard. They are prepared to be evaluated and engage in self-assessment to strengthen their capacity to fulfil their professional responsibilities as educators (Freer & Keefer, 2022). This preparation also includes the ability to self-assess their performance. In addition, they will also be able to provide and receive feedback to and from peers.

Drugs were first brought to Malaysia in the 19th century by workers from China and India. At the time, the drugs were still not considered harmful since there were no regulations or restrictions on their usage (Arshad et al., 2020). Today, the number of drug abusers in Malaysia increases annually. Hasani et al. (2021) reported that drug abusers increased from 1.5% to 3.4% between 2012 and 2017. The number of drug users in 2017 was 12,089, increasing to 12,520 in 2018 (Sulaiman et al., 2021). Cheah et al. (2020) reported that in 2017, 33,500 of the 59,600 convicts in prison in Malaysia were there because of drug abuse offences. Another study revealed that in 2015, half of the Malaysian jail population of 30,000 were convicted of drug abuse (Abdalrazak et al., 2019). Drug abuse in Malaysia is not a small problem, and the government has launched numerous efforts to combat this (Sulaiman & Zainuddin, 2019). Various programs by various Malaysian government agencies have been conducted, for example by the Ministry of Youth and Sports, the Ministry of Education, and the National Population and Family Development Board (Yusof et al., 2019).

Drug abuse affects not only adolescents but also children. In Malaysia, drug abuse among children is a hot topic to discuss since drug abuse among youth keeps increasing (Sulaiman & Zainuddin, 2019). Hasani et al. (2021) stated that schoolchildren are of the age that is associated with a high risk of drug usage. Data from the National Anti-Drug Agency (NADA) Malaysia revealed that there was an increasing number of drug abusers among youth in Malaysia; where there were 18,417 drug cases in 2018, this increased to 18,986 in 2019 (Ahmad, 2022; Mey et al., 2020). Ismail et al. (2022) reported that in 2010, there were 13.8 million drug abusers worldwide aged between 15 and 16, which accounts for (5.6% of all drug abusers. For Malaysia, 9.25% or 2138 of all drug abusers fell in this age category for 2010. This emphasizes the high number of youth drug abusers worldwide in general and in Malaysia in particular. Youth are prone to drug addiction because

of curiosity, susceptibility to peer pressure, and poor self-worth (Ismail et al., 2022). They are developing physically and psychologically at this age. Drug use is prevalent during this critical growth period (Wahab et al., 2021).

Shafi and Chandrashekar (2020) stated that three aspects should be considered to prevent youth from becoming drug abusers: family relationships, peer pressure, and academic stress. Some aspects of drug abuse are related to school, for example peer pressure and academic stress. This indicates the importance of preventive action to be taken in school. Furthermore, the concept of drug abuse needs to be introduced to the students early on, since their childhood experiences can affect their perspective for the rest of their life-(Mustapha et al., 2019). Therefore, the Malaysian Government initiated several drug prevention programs in schools.

3. Methodology

3.1 Respondents

This study is a quantitative study validating the TSE Scale in drug education. Data were collected in Johor, Malaysia. A total of 113 secondary school teachers participated in this research. The respondents were selected based on the stratified sampling method. The stratified sampling method separates the population into strata, which are individuals based on shared and distinctive traits (Berndt, 2020). In this study, the population has the same teaching characteristics in drug education. Therefore, respondents selected were teachers teaching drug abuse topics in their subject. The respondents taught Islamic education, Malay language, moral education, science, technological design, and physical and health education in the school. Female teachers dominated this study, where 63.7% of the respondents were female and 36.3% were male. Furthermore, most respondents (32.74%) had teaching experience ranging from 11 to 15 years. Detailed demographic information about the respondents can be seen in Table 1.

Table 1. Demographic profile of respondents

Characteristic	Number (n)	%
Gender		
Male	41	36.03
Female	72	63.07
Age		
20-29	17	15.04
30-39	46	40.71
40-49	37	32.74
50-59	13	11.51
Monthly income		
RM2001 - RM3000	17	15.00
RM3001 - RM4000	14	12.04
RM4001 - RM5000	34	30.01
> RM5000	48	42.05
Years teaching		
1-5	22	19.47
6-10	15	13.27
11-15	37	32.74
16-20	24	21.25
> 20	15	13.27

Teaching subject		
Islamic education	22	19.05
Malay language	22	19.05
Moral education	14	12.04
Science	23	20.04
Technological design	14	12.04
Physical and health education	18	15.09

3.2 Instrument

The TSE instrument used in this study was adapted from the instrument Teacher efficacy: Capturing an elusive construct (Tschannen-Moran & Hoy, 2001). We received permission to use and modify the instrument, which consists of two questionnaires. The first questionnaire relates to respondent demographics, inquiring about respondents' gender, age, monthly income, and teaching subject. The second questionnaire is a TSE Scale comprising 21 items measuring TSE in drug education. Experts from Malaysian public universities evaluated the new version of the instrument before distributing it to secondary school teachers for testing. It received positive feedback from expert evaluators, and some comments were taken into account to improve the quality of the instrument. There were three constructs of the self-efficacy instrument: efficacy in students' engagement, efficacy in instructional strategies, and efficacy in classroom management. Each of the constructs consisted of eight item questions. The instrument items were employed using a five-point Likert scale: SD = *strongly disagree*, D = *disagree*, M = *moderate*, A = *agree*, and SA = *strongly disagree*.

3.3 Data analysis

This study used SPSS version 23.0 statistical software to analyze the data. Cronbach's alpha and factor analysis were applied to the TSE Scale responses. Cronbach's alpha was used to measure the internal consistency of the scale. Internal consistency is defined as the degree to which every item on a scale measures various facets of the same attribute (Olaniyi, 2019). The interpretation of Cronbach alpha for this study is as follows: $a < .5$ for low reliability, $.5 < a < .8$ for moderate (acceptable) reliability, and $a > .8$ for high (good) reliability (Ekolu & Quainoo, 2019). In factor analysis, factor loading is examined. Factor loading displays the relationship between the items and the construct, where items with factor loading greater than .4 indicate that the item represents the construct (Shrestha, 2021). Therefore, in this study, the item adequately represents the construct if the factor loading is greater than .4.

4. Results

4.1 Factor Analysis Results

The items that did not weigh heavily towards either factor were assumed not to represent teachers' self-efficacy in drug education and were removed prior to data analysis. The questions and factor analysis for the items included in the final version of the TSE instrument are shown in Table 2.

Table 2. Items of the questionnaire and factor loading as the final version of the TSE Scale in drug education

Construct	Item	Factor loading
Student engagement	Can you approach students who face learning difficulties?	.683
	Are you able to encourage students to think critically about the dangers of drugs?	.772
	Can you motivate students to participate in classroom teaching?	.718
	Are you able to help students be confident about staying away from drugs?	.725
	Are you able to develop the positive behavior of students in teaching?	.796
	Are you able to improve students' creativity in drug prevention efforts?	.802
	Are you able to increase students' understanding of the dangers of drugs?	.756
	Can you collaborate with parents to encourage students to do positive things?	.688
Instructional strategies	Are you able to answer the questions related to drug abuse from students?	.816
	Are you able to measure to what extent the students understand what you have taught?	.809
	Are you able to create some questions about the dangers of drug abuse for students?	.846
	Are you able to adapt lessons to the level of abilities of each student?	.740
	Can you use various drug prevention assessment strategies in the classroom?	.792
	Can you give explanations when students are confused about understanding the subject matter?	.803
	Are you able to implement alternative strategies in the classroom in drug prevention efforts?	.740
	Are you able to give challenges to students who are capable of fighting against drugs?	.824
Classroom management	Are you able to control disruptive behaviors in classes?	.719
	Can you prevent students from getting involved with drug abuse?	.750
	Can you set various strategies so that my teaching and learning activities can run smoothly?	.787
	Are you able to make students follow the rules to stay away from drugs?	.748
	Are you able to calm down the students who are making noise in class?	.730
	Are you able to improve classroom management by cooperating with each group of students?	.801
	Are you able to manage students who have a preference to try drugs?	.812
	Are you able to overcome students who have problems in class?	.828

Table 2 shows the results of the factor analysis based on factor loading for each item in the instrument of TSE in drug education in secondary schools. Generally, items greater than .5 are considered to factor “highly” on that scale. Based on the data, no one item was lower than .5. All the items in the instrument were suggested as factor determinants in the quality of teachers’ self-efficacy in drug education in secondary schools.

4.2 Cronbach Alpha Results

Factor loading examines the correlation between the items and the constructs. The analysis revealed three constructs, and each construct consisted of eight items. The researcher then examines the internal consistency of the item through Cronbach’s alpha. The results of the Cronbach alpha analysis can be seen in Table 3.

Table 3. Cronbach alpha results

Factor	Cronbach alpha
Student engagement	.926
Instructional strategies	.948
Classroom management	.952

The results indicate that all constructs were categorized as having good Cronbach alpha values which exceeded the threshold of .7. The construct of student engagement had a Cronbach alpha of .926, the construct of instructional strategies had a Cronbach alpha of .948, and the construct of classroom management had a Cronbach alpha of .952.

5. Discussion

This study aimed to validate the TSE Scale in drug education. Cronbach alpha measures the internal consistency of the scale and factor loading frames the relationship between the items with the construct. The results reveal that the scale was valid for drug education research. The scale had Cronbach alpha values that exceeded the threshold of .7, and each item in the scale loaded in each construct with satisfactory factor loading. Ultimately, the scale consists of three constructs: student engagement, classroom management, and instructional strategies. The finding is similar to the research conducted by Poulou et al. (2019), where TSE is related to student engagement, classroom management, and instructional strategies. Regarding management skills, TSE is an important mediator of classroom management skills.

Regarding student engagement, TSE connects with the commitment, involvement, and achievement demonstrated by secondary school students in the classroom. Other than that, secondary school teachers’ level of self-efficacy in their ability to instruct affects their thought processes. These factors drive them to excel in their jobs, the quality of their work, their perceptions of their competence, and how they rate their performance. In addition, teachers’ level of self-efficacy in their ability to instruct affects the quality of their work (Muliati et al., 2022).

Self-efficacy is a term that is used interchangeably with self-confidence. Educators with a high level of self-efficacy in teaching and learning have the self-assurance necessary to convey learning information and develop teaching strategies involving students to accomplish active learning. This is exactly what is said about having self-efficacy in teaching and learning. Educators who have a solid understanding of their abilities in the classroom, in terms of teaching and learning, stand a better chance of experiencing the personal and professional satisfaction that comes with success in their chosen field (Gcabashe & Ndlovu, 2022; Najwan et al., 2022). Other than that, secondary school teachers have access to resources linked to substance abuse that can be utilized as learning media to pique students' interests in their academic activities. They can come across these resources in print and on the internet. Using a rubric that compares a teacher's performance in the classroom and a set of standards makes it possible to accurately evaluate a teacher's efficacy in the field of drug education (Jusoh et al., 2022). It is conceivable to use the construct produced from the TSE instrument as the foundation for developing the rubric. This could be done with the results of this study.

Self-efficacy is an essential component of drug education to guarantee that educators have the necessary skills and the appropriate mentality to address drug-related topics in a classroom setting. Self-efficacy is the belief that one can complete a task or accomplish a goal despite constraints (Hong, 2021; Wang et al., 2020). Teachers' self-efficacy in drug education for secondary school is not related to skills possessed but to individual confidence (Hajovsky et al., 2020). They can use their knowledge to educate students about the dangers involved with drug addiction and provide suggestions on how students can protect themselves by adopting preventative measures. They can also use their knowledge to educate students about the dangers associated with drug addiction (Naegele et al., 2022). Therefore, students can curb their drug consumption habits. Furthermore, teachers with high levels of self-efficacy will be inspired to encourage their students to improve their academic achievement. This is because it is likely that teachers will have a good sense of their capabilities.

It has been determined through factor analysis and the Cronbach alpha coefficient that the TSE Scale is a valid instrument for determining the effectiveness of secondary school teachers in drug education. These findings are made possible because the scale measures the degree to which teachers believe they can educate their students about drug topics. In order to investigate the extent to which the TSE Scale is present among secondary school teachers who are engaged in drug education, the instrument can be used in expansive research projects, which necessitates the recruitment of a larger sample. Because the instrument can be used in such projects, it is possible to investigate the presence of the TSE Scale (Okamoto et al., 2019). The findings also reveal that teachers have a greater possibility of being effective in avoiding the use of drugs in classroom settings when they have a higher degree of self-efficacy. Classroom teachers with high self-efficacy perceive that they can develop a positive classroom management style, successfully manage instructional approaches, and increase the number of students participating in drug education (Lindquist-Grantz et al., 2021).

5. Conclusion

This study was designed to validate and test the TSE Scale of secondary school teachers in drug education. The instrument was validated by adapting constructs and items from previous research on teachers' self-efficacy. The current version of the instrument was validated and tested with secondary school teachers in Johor, Malaysia. Based on the study, the TSE Scale is valid based on factor analysis and Cronbach alpha values. The instrument is valuable enough to be implemented in a study to measure teachers' self-efficacy in drug education in Malaysian secondary schools. This study contributes to providing a valid instrument to be used in drug education. Therefore, future researchers can utilize the instrument to measure the level of TSE in drug education.

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