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Psychometric Properties of Teachers' Self-Efficacy Scale: Indonesian Adaptation Process

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Abstract

Background: The Teachers' Self-Efficacy Scale (TSES) was created and validated in United States of America, but its adaptation to Indonesian language is still limited.

Objectives: To adapt the Teachers' Self-Efficacy Scale (TSES) from American-English to the Indonesian language, and assess the questionnaires' internal consistency and content validity in the Indonesian context.

Methods: A six stage translation and adaptation process was used: forward translation, synthesis, back translation, expert committee review, and pilot-testing. A total of 58 teachers were involved as respondents in the pilot testing. Items were analyzed quantitatively using SPSS 20 Software.

Results: Analysis result shown that all 12 items are valid with correlation item total > 0.30 . The Cronbach's Alpha reliability obtained is 0.934 indicating very good reliability.

Conclusion: Based on the results of quantitative analysis, the measuring tool TSES is considered suitable to be used for assessment in Indonesia, especially to Early Childhood Education teachers.

Keywords: Self-Efficacy, Scale, Psychometrics, Translation, Validation

Introduction

According to Bandura's (1997) book entitled *Self-Efficacy; The Exercise of Control*, self-efficacy is defined as a belief in one's ability to organize and carry out the parts of the activity needed to produce the desired goal. Furthermore, Bandura (1997) identifies the characteristics of self-efficacy as (a) the capacity to understand, (b) the capacity to anticipate, and (c) the capacity to manage the environment, oneself, and others. Self-efficacy differentiates depending on how individuals think, feel and act. It relies on an optimistic belief of being capable of coping with many stress factors. While individuals with high self-efficacy prefer to exercise more challenging tasks, low level of self-efficacy is associated with depression, anxiety, and helplessness (Erozkan et al., 2016).

Extensive research supported the claim that self-efficacy is an important influence on human achievement in a variety of settings, including education, health, sports, and business.

In school contexts, teachers' self-efficacy plays a key role in influencing important outcomes for teachers and students (Caprara et al., 2006). Several studies have shown that self-efficacy positively influence job satisfaction (Klassen and Chiu, 2010), positively associated with occupational commitment (Klassen and Chiu, 2011; Klassen et al., 2013), and positively affect individuals' happiness (Erozkan et al., 2016).

Many instruments have been developed to measure self-efficacy. But, the instruments that have been made cannot be directly used in another country due to differences in language and culture. For this reason, it is necessary to adapt the instrument of self-efficacy to suit the respective culture. The development of this measuring tool is very important in Indonesia in order to help measure teachers' self-efficacy. In Indonesia, there are already researchers who have adapted the self-efficacy scale, but the complete adaptation process of the self-efficacy scale that uses teachers as respondents is very limited. See table 1.

Table 1. Adaptation of Self-Efficacy Scale

| Author | Scale | Respondents | Result |
|--|--|-----------------------------|---|
| Suharsono, and Istiqomah (2014); Yosua, et al (2018) | Self-efficacy by James E. Maddux consist of 23 item. Research self-efficacy by Bieschke, et al consist of 51 item | College student Lecturer | 21 item valid and 2 item not valid. 41 item valid and 10 item not valid. |
| Novrianto et al (2019) | General Self-Efficacy Scale by Schwarzer & Jerusalem consist of 10 item. | College student | 10 item valid |
| Ifdil et al (2019) | The College Academic Self-Efficacy Scale (CASES) by Owen, S.V., & Froman, R.D consist of 33 item. | Student | 33 item valid |
| Putra et al (2019) | The General Self-Efficacy Scale 12 (GSES-12) by Bosscher & Smith consist of 12 item. | College student | 12 item valid |
| Hakim, et al (2020) | Exercise Self-Efficacy Scale (ESES) by Bandura consist of 18 item. | College student | 16 item valid and 2 item not valid |

Based on this study, it is necessary to adapt the Teacher's Self-Efficacy Scale. For this research, the instrument to be adapted is The Teachers' Self-Efficacy Scale (TSES). TSES was created and validated by Tschannen-Moran and Woolfolk Hoy (2001). Bandura (1997) defines self-efficacy as an individual's belief that he or she can the situation and obtain positive results. Bandura also mentions self-confidence as one of the most powerful determinants of behaviour change, whereby self-efficacy causes individuals to take the first action towards their goals, motivates them to make efforts that are held by mutual agreement, and self-efficacy gives them strength to persist in the face of adversity.

The aim of this research is to adapt The Teachers' Self-Efficacy Scale (TSES) from the American-English to the Indonesian language, and asses the questionnaire's internal consistency and content validity in the Indonesian context.

Methods

The Teachers' Self-Efficacy Scale

The Teachers' Self-Efficacy Scale (TSES) was created and validated by Tschannen-Moran and Woolfolk Hoy (2001) and has been labelled "superior to previous measures of teachers' efficacy" because it is closely aligned with self-efficacy theory (Woolfolk Hoy and Burke Spero, 2005). The TSES short form includes 12 items assessing a range of self-efficacy beliefs about using effective instructional strategies, maintaining class discipline, and engaging all students in learning.

Items in the measure show fidelity to self-efficacy theory by assessing teachers' beliefs in their capabilities to carry out a course of desired action. Participants responded using a 9-point Likert scale, anchored by "1=nothing" to "9=great" (Klassen et al., 2013).

Table 2. Dimension and items of The Teachers' Self-Efficacy Scale

| Instruction: How much can you do? | | |
|--------------------------------------|-------------------|---|
| Dimension | Number of Items | Items |
| Classroom management | 1 (CM-TSE-1) | How much can you do to control disruptive behaviour in the classroom? |
| | 6 (CM-TSE-6) | How much can you do to get children to follow classroom rules? |
| | 7 (CM-TSE-7) | How much can you do to calm a student who is disruptive or noisy? |
| | 8 (CM-TSE-8) | How much can you do to establish a classroom management system with each group of students? |
| Student engagement | 2 (SE-TSE-2) | How much can you do to motivate students who show low interest in school work? |
| | 3 (SE-TSE-3) | How much can you do to get students to believe they can do well in school work? |
| | 4 (SE-TSE-4) | How much can you do to help students' value learning? |
| | 11 (SE-TSE-11) | How much can you do to assist families in helping their children do well in school? |
| Instructional strategies | 5 (IS-TSE-5) | How much can you do to craft good questions for students? |
| | 9 (IS-TSE-9) | How much can you do to implement a variety of assessment strategies? |
| | 10 (IS-TSE-10) | How much can you do to provide an alternative explanation when students are confused? |
| | 12 (IS-TSE-12) | How much can you do to implement alternative strategies in your classroom? |
| Total of items | 12 | |

Adaptation Process

The Teachers' Self-Efficacy Scale adaptation process is based on the stages proposed by Beaton et al (2000) which consists of six stages: translation, synthesis, back translation, expert committee review, pretesting and submission and appraisal. See Figure 1.

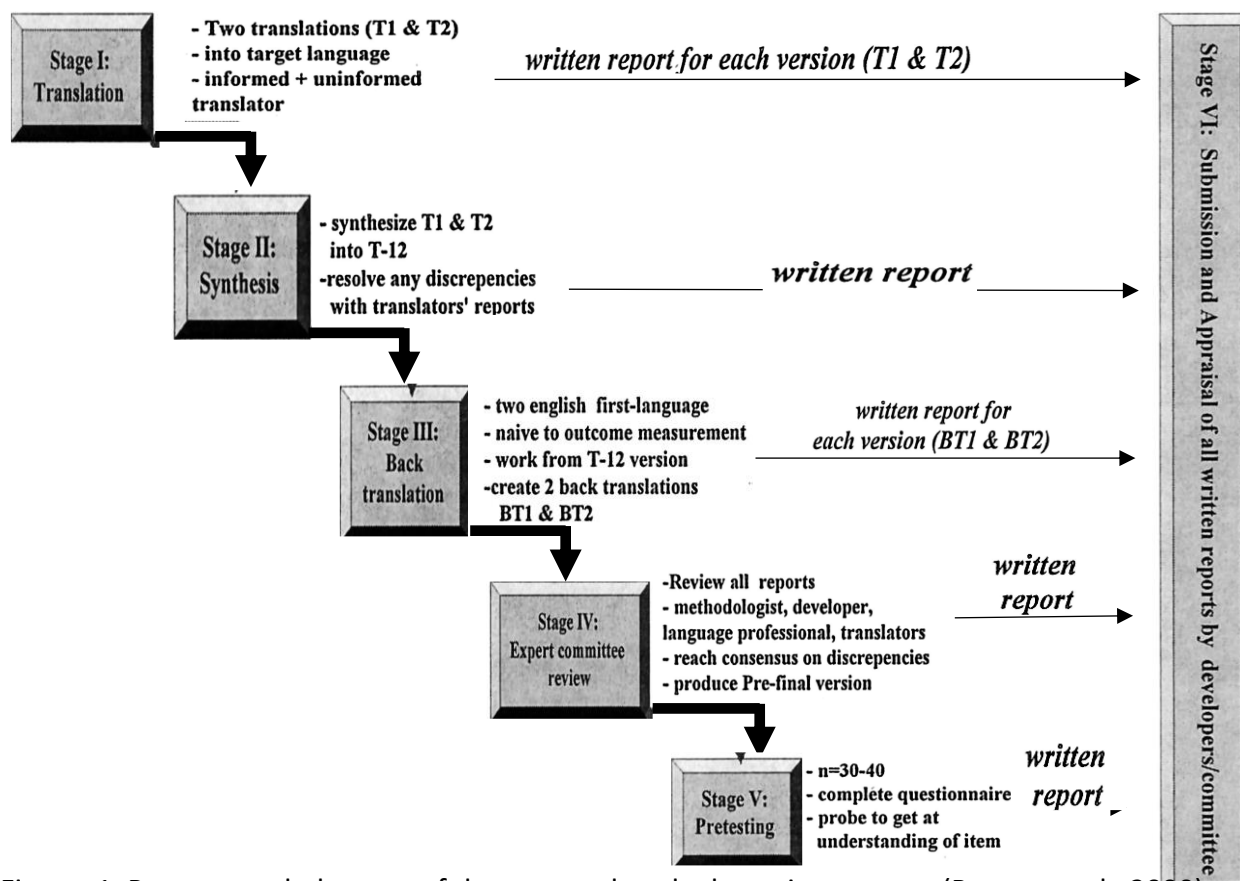


Figure. 1. Recommended stages of the cross-cultural adaptation process (Beaton et al., 2000)

Translation

The translation of the TSES instruction, items, and answer categories, was performed by two independent translators. Both translators were bilingual, with Indonesian as their mother tongue. One translator (the "informed" translator, a lecturer) had expertise on psychology (T1), and the other translator (the "uninformed" translator, a lecturer) was inexperienced about the topic (T2). Both translators reported on translated items that were difficult to comprehend, and considerations for their decisions.

Synthesis

The results of both translation (T1 and T2) were compared by the two translators and one researcher. A written report documented the consensus process, the discrepancies, and how the discrepancies were resolved. The translators and the researcher reached consensus on one common Indonesian questionnaire (T12).

Back Translation

The common Indonesian questionnaire was back-translated into American-English by two other independent translators. Both translators were bilingual, with American-English as

their mother tongue. Both translators wrote a report of the translation, mentioning difficult phrases and uncertainties of items, and considerations for their decisions.

Expert Committee Review

All the translated versions were combined into one pre-final questionnaire by an expert committee. The expert committee consists of the four translators, one researcher, one expert in Indonesian language, three expert psychologists and one psychometrician. Discrepancies between the original and translated versions were identified and discussed. Also, semantic, idiomatic, experiential and conceptual equivalences were evaluated. Again, a written report documented the consensus process, the discrepancies, and how the discrepancies were resolved. The expert committee reached consensus on a pre-final Indonesian version of the TSES.

Pretesting

To examine the comprehensibility, applicability, and completeness of the translated questionnaire, a pilot-test was performed. A total of 58 participants were included in the pilot-test. Inclusion criteria were: teachers of Early Childhood Education and able to read and understand the Indonesian language. Participants were selected using a convenience sampling of teachers in Lamongan district (Matsumoto and De Vijver, 2011).

Measurement Properties of the Pre-final Instrument

Descriptive statistics of the TSES items and scales, and the socio-demographic characteristics of the participants (program, gender, age, marital status, level of education, work experience, certification and level of income) were used to examine the distribution of the TSES responses. Internal consistency of the TSES scales was determined using Cronbach's alpha. Statistical analyses of the data were done in SPSS 20 Software.

The content validity of the Indonesian questionnaire was evaluated by the members of the expert committee throughout the adaptation process.

Results

Translation

The first stage of translation was carried out by 2 Indonesians who are experts in English. The first translator (T1) is a lecturer in the psychology department with a doctoral degree (PhD) in psychology, ~~but she~~ who is also an expert in English because she has a bachelor's degree in Psychology and also English. While the second translator (T2) is an English education lecturer who has academic qualifications of PhD in English. There is a difference in translation between T1 and T2, especially in translating the sentence "How much can you do". T1 translates to "Seberapa banyak anda dapat", while T2 translates to "Seberapa besar kemampuan anda".

The second stage was the synthetization of the translated items from T1 and T2. For example, the items "Seberapa banyak anda dapat", and "Seberapa besar kemampuan anda" was synthesized to "Seberapa mampu anda".

The back-translation was conducted with two native speakers of the English language. The first translator is a Canadian citizen who is studying doctoral degree in Indonesia (BT1). The second translator is an American who is currently working in Indonesia (BT2). There is no significant difference between the back-translation of BT 1 and BT 2. The results from BT 1

and BT 2 were discussed among the members of the expert committee review until consensus emerged.

Pretesting

The resulting version of the questionnaire was administered to 58 teachers of Early Childhood Education who are all female teachers. The majority category is kindergarten with 56 respondents (96.6), 36 respondents aged between 41-60 years old (62.1), and 51 respondents who are married (87.9). See table 3 for an overview of the sample descriptive. The highest education is bachelor-master with 43 respondents (74.1), and those having teaching experience of more than 20 years with 25 respondents (43.1). The majority of respondents have certification, with 37 respondents (63.8) and the majority level of income is below the minimum wage, with 30 respondents (51.7). See table 3 for an overview of the sample description.

Table 3. Descriptive statistic of the pre-test sample

| Aspect | Category | Total (n=58) | Percentage (100 %) |
|--------------------|---|--------------|--------------------|
| Program | Playgroup | 2 | 3.4 |
| | Kindergarten | 56 | 96.6 |
| Gender | Male | 0 | 0 |
| | Female | 58 | 100 |
| Age | 18-21 (late adolescent) | 0 | 0 |
| | 22-40 (early adult) | 20 | 34.5 |
| | 41-60 (middle adult) | 36 | 62.1 |
| | No response | 2 | 3.4 |
| Status marital | Single | 0 | 0 |
| | Married | 51 | 87.9 |
| | Widow/Widower | 4 | 6.9 |
| | No response | 3 | 5.2 |
| Level of education | Junior High School – Senior High School | 14 | 24.1 |
| | Diploma | 1 | 1.7 |
| Work of experience | Bachelor – Master | 43 | 74.1 |
| | 0.1-10 years | 8 | 13.8 |
| | 11-20 years | 22 | 37.9 |
| | More than 20 years | 25 | 43.1 |
| | No response | 3 | 5.2 |
| Certification | Certified | 37 | 63.8 |
| | No certification | 21 | 36.2 |
| Level of income | Half of the district minimum wage (0 –IDR. 925.000,-) | 30 | 51.7 |
| | According to the district minimum wage (IDR. 925.001,- - 1.851.000,-) | 17 | 29.3 |
| | More than the district minimum wage (> IDR. 1.851.000,-) | 11 | 19.0 |

Validity items and reliability of the scale were analysed using SPSS software. The results showed that 12 items were valid with values between 0.395 – 0.891 (Table 4).

Table 4. Validity items of teachers' self-efficacy scale

| | CM- TSE- 1 | CM- TSE- 6 | CM- TSE- 7 | CM- TSE- 8 | SE- TSE- 2 | SE- TSE- 3 | SE- TSE- 4 | SE- TSE- 11 | IS- TSE- 5 | IS- TSE- 9 | IS- TSE- 10 | IS- TSE- 12 |
|----------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|-------------------|-------------------|
| Pearson Correlat ion | .395 ** | .832 ** | .791 ** | .827 ** | .639 ** | .697 ** | .773 ** | .881 ** | .799 ** | .775 ** | .843 ** | .891 ** |
| Sig. (2- tailed) | ,002 | ,000 | ,000 | ,000 | ,000 | ,000 | ,000 | ,000 | ,000 | ,000 | ,000 | ,000 |
| N | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 | 58 |

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Internal consistency of the TSES scales determined using Cronbach's alpha were 0.934 indicating very good reliability (Table 5).

Table 5. Reliability of Teachers' Self-Efficacy Scale

| Reliability Statistics | |
|------------------------|------------|
| Cronbach's Alpha | N of items |
| .934 | 12 |

The results of final instrument adaptation can be seen in Table 6.

Table 6. Original and Bahasa Indonesia Versions of TSES

| Original Version | | Bahasa Indonesia Version | |
|--------------------------|----------------|---|---|
| Instruction: | | Instruksi: | |
| How much can you do? | | Seberapa mampukah anda? | |
| Dimension | Number of Item | | |
| Classroom management | 1 | How much can you do to control disruptive behavior in the classroom? | <i>Seberapa mampu Anda mengendalikan perilaku mengganggu siswa di dalam kelas?</i> |
| | 6 | How much can you do to get children to follow classroom rules? | <i>Seberapa mampu Anda meminta siswa mematuhi peraturan di kelas?</i> |
| | 7 | How much can you do to calm a student who is disruptive or noisy? | <i>Seberapa mampu Anda menenangkan siswa yang membuat gaduh atau bising?</i> |
| | 8 | How much can you do to establish a classroom management system with each group of students? | <i>Seberapa mampu Anda membangun sistem manajemen kelas dengan setiap kelompok siswa?</i> |
| Student engagement | 2 | How much can you do to motivate students who show low interest in school work? | <i>Seberapa mampu Anda memotivasi siswa yang memiliki minat rendah dalam menyelesaikan tugas di sekolah?</i> |
| | 3 | How much can you do to get students to believe they can do well in school work? | <i>Seberapa mampu Anda meminta siswa agar yakin dapat menyelesaikan tugas di sekolah?</i> |
| | 4 | How much can you do to help students' value learning? | <i>Seberapa mampu Anda membantu siswa menghargai belajar?</i> |
| | 11 | How much can you do to assist families in helping their children do well in school? | <i>Seberapa mampu Anda memberikan pendampingan pada keluarga dalam membantu anak mereka belajar dengan baik di sekolah?</i> |
| Instructional strategies | 5 | How much can you do to craft good questions for students? | <i>Seberapa mampu Anda menyusun pertanyaan yang baik untuk siswa?</i> |

| | | |
|------------|---|--|
| 9 | How much can you do to implement a variety of assessment strategies? | <i>Seberapa mampu Anda menerapkan berbagai jenis strategi penilaian?</i> |
| 10 | How much can you do to provide an alternative explanation when students are confused? | <i>Seberapa mampu Anda memberikan cara penjelasan lain ketika mendapati siswa bingung?</i> |
| 12 | How much can you do to implement alternative strategies in your classroom? | <i>Seberapa mampu Anda menerapkan alternatif strategi mengajar di kelas Anda?</i> |
| Total item | 12 | |

Discussion

The goal of the current study was to adapt the TSES from American-English to Indonesian language and assess the questionnaire's internal consistency and content validity in the Indonesian context.

The sample size in the current pilot-test (n=58) exceeded recommendation from Beaton et al. (2000) which is between 30-40 respondents. The highest education level is bachelor-master since there are 43 respondents (74.1), thus, the advanced education level allows the respondents to understand the contents of the instrument easily. The limitation of this study is that the gender of the respondents is all female. Therefore, future researchers are expected to have male respondents.

The statistical analysis of the American-English and Indonesian TSES appeared to be similar. It can be seen from the internal consistencies of the American-English TSES with value $\alpha = 0.90$ (Tschannen-Moran and Hoy, 2001). Furthermore, Wolters and Daugherty (2007) reported Cronbach's alpha coefficients just above 0.80 for the TSES. This is similar to the Indonesian version where the scale reliability is 0.93. The internal consistency of the Indonesian TSES is higher than the American-English version.

Conclusion

The adaptation of the Teachers' Self-Efficacy Scale (TSES) from the American-English to Indonesian language was conducted without major difficulties. This is because the comprehensibility, applicability, and completeness of the translated version of the TSES were appraised positively. Also, the study showed positive results concerning its internal consistency and content validity. Therefore, future research should further examine the measurement invariance, reliability, validity, and responsiveness in a larger and more heterogeneous sample. After further validation, the Indonesian TSES may be used to measure, for example self-efficacy on teachers in an Indonesian speaking context.

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