

DEVELOPMENT and Validation of Senior High School English Language Teachers' Self-Efficacy Scale in Region XI

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ABSTRACT

This study explored the dimensions of the senior high school English language teacher's self-efficacy, particularly developed a measurement tool for teachers' self-efficacy. Through purposive sampling, the participants of the study for the qualitative phase were the senior high school English language teachers of the five schools' divisions of Davao region. The exploratory factor analysis yielded six factors: efficacy in personal growth and professional development, efficacy in assessment and feedback, efficacy in fostering inclusive classroom environment, efficacy in technology integration, efficacy in instructional strategies, and efficacy in student engagement. The model was found to be the best fit as items with poor loadings of less than 0.40 and cross-loadings with other dimensions were eliminated during confirmatory factor analysis. Model fit values satisfy the index conditions. The final questionnaire, which was the main output of the study, consisted of 35 items and found to have an excellent overall reliability, as indicated by a Cronbach's alpha of 0.954.

KEYWORDS: *Education, applied linguistics, dimensions, self-efficacy, senior high school English language teachers, Philippines*

INTRODUCTION

Self-efficacy is defined by Canyaka (2018), as the belief of English language teachers to handle challenges in the classroom and the ability to effectively teach English. A study of Pratt et al. (2021) in the United States

reported that language instructors with a moderate sense of self-efficacy are indicative that their influence is not sufficient to achieve the desired impact. These teachers do not feel accountable for students discontinuing their language learning and if these trends persist, foreign language enrollments will continue to decline, leading to fewer fluent speakers.

While many English teachers in England working in challenging settings frequently experience threats to their confidence in their Self-Efficacy as English language teachers. Wyatt, (2021) explicates that many English teachers who are non-native experience different overt and covert kinds of discrimination, including being unfairly and needlessly held to native-speaker standards of pronunciation. In Indonesia, Yasin et al. (2022) found that compared to more experienced teachers, those with low self-efficacy in language education face greater difficulties with curriculum literacy.

Given these problematic issues on the self-efficacy in English language teaching, it is vital to explore tools that can accurately measure and address these beliefs. Studies of English language specific measures include Hansen (2005); Akbari and Abednia (2010); Rezvani and Amiri (2013); Pratt et al. (2021); and Ciampa and Gallagher (2021) TBLI21c scale. These studies have offer insights about self-efficacy of English language teachers across diverse contexts.

There is a wide range of scales developed for self-efficacy in different teaching settings and in different learning areas. Nevertheless, there is still a continuing gap in research when it comes to developing a validated scale specific to the senior high school English language teachers in Region XI. Studies in the past have produced tools capturing the different aspects of teaching efficacy like general efficacy and specific learning area competencies, yet none have specifically focused on the self-efficacy of senior high school English language teachers particularly in Region XI. The proposed study sought to fill this gap through contributing to the understanding and development of teacher self-efficacy in the field and having a specialized instrument tailored to the needs specific to the contexts of senior high school English instruction in Region XI.

Moreover, the findings for the new scale will significantly contribute for publication specializing in language teaching and education. This may allow other researchers and educators to access the scale and its validation process, guaranteeing its credibility and wide dissemination within the academic

community. The newly Senior High School TSES construct may serve as reference in constructing other self-efficacy scale in second language teaching with different contexts or in other subjects.

Research Questions

1. What are the underlying dimensions of their ELTS?
2. Does the factor structure of the measurement scale for SHS-ELTS possess adequate internal consistency?
4. What measurement tool, based on the findings of the analysis, is appropriate for assessing the SHS-ELTS?
5. Does the tool's result measure what it intends to test in terms of SHS-ELTS?

METHODOLOGY

Research Design. The study used a mixed-methods research design (MMRD), specifically an exploratory sequential approach. This research approach aims to create a research instrument for assessing the level of SHS English language teachers' self-efficacy, employing both qualitative and quantitative approaches. According to Creswell (2012), a Mixed Methods Research Design (MMRD) refers to the process of collecting, evaluating, and combining qualitative and quantitative research methods within one study to investigate and clarify research issues. Each dimension of MMRD should be executed with careful attention and critically assessed for validity issues (Schoonenboom & Johnson, 2017). In this regard, Aramo-Immonen (2013) suggested that it enables researchers to address their research problems objectively by using holistic methods and triangulation.

Place of the Study. The study was conducted to the public senior high schools among five schools' divisions in Region XI, Philippines. In this study, the researcher included the Schools Division of Davao Oriental, Schools Division of Davao del Norte, Schools Division of Davao de Oro, Schools Division of Davao del Sur and Schools Division of Davao City in Region XI in which the selected public high schools offering senior high schools are located.

Research Participants. In qualitative strand, purposive sampling (PS) was employed to determine the senior high school English language teachers of the five identified schools' divisions in Region XI who participated in the study. PS is a non-probability sampling method used to choose participants for the

study based on their demographic characteristics and the research objectives. Purposive sampling, as noted by Crossman (2020), is often referred to as judgmental, selective, or subjective sampling, in contrast to convenience sampling.

The study included 15 key informants for the in-depth interview (IDI) from the selected public senior high schools, with a focus on Senior High School (SHS) English language teachers. Morse (2000) suggests that 5-50 IDI participants are adequate for the study. To verify the data gathered during the IDI, 10 SHS English language teachers from the five selected divisions were interviewed during the focus group discussion (FGD). Vaughan (2017) states that the purpose of FGD is to encourage new viewpoints among participants, which can result in a more thorough discussion, by enabling group members to express their opinions freely. Since FGDs typically involve smaller groups, eight to twelve participants are considered adequate (Robson, 2002). In this study, the FGD participants were distinct from those in the IDI.

In the quantitative strand, 200 SHS English language teachers were expected in a survey for EFA and CFA. Among the 200 SHS English language teachers, 100 teachers were the respondents for the EFA. While the remaining 100 teachers served as the respondents for the CFA. Gorsuch (1983) recommends that the number of EFA respondents should be no less than 100. Additionally, Mundfrom et al. (2009) suggest that a sample size of 100 to 1,000 respondents is suitable for CFA.

In addition, 30 Senior High School (SHS) English language teachers participated in the pilot testing of the English Language Teaching Self-Efficacy measurement tool to evaluate its reliability. These respondents are different from the 200 respondents involved in the EFA and CFA. Sudman (1983), as cited by Zukerberg et al. (1995), suggests that a pilot test with 20 to 50 samples is typically sufficient to identify major issues in a questionnaire before the main study.

Statistical tools. The underlying factor structure of English language teaching self-efficacy scale was determined using EFA and CFA. EFA is a standard measurement model used to assess observable and latent variables on an interval scale. It is applied to examine structural equivalence (Weiss and Adams, 2010). CFA was employed to confirm the factor structure of the variable set (Mustafa et al., 2020; Sakib et al., 2020). This helped validate the domains of English language teaching self-efficacy, based on the findings from EFA.

Ethical Considerations. The researcher ensured that all ethical criteria were complied with. This research protocol underwent a thorough review by the University of Immaculate Conception Research Ethics Committee.

RESULTS

Underlying Dimensions of the Self-Efficacy of Senior High School English Language Teachers

A 100-item checklist to assess the self-efficacy of senior high school English language teachers was created. The instrument was then administered to 100 SHS English language teachers from selected secondary schools in the schools' division of Davao Oriental, Davao de Oro, Davao Del Norte, Davao Del Sur, and Davao City. In this EFA survey, participants were instructed to indicate their degree of agreement with each statement using a five-point Likert scale.

The responses to the checklist assessing the self-efficacy of senior high school English language teachers were encoded and analyzed using EFA to identify the underlying factors. The analysis showed that only 48 items from the checklist were retained since all of their factor loading results were higher than 0.4. According to Ohura et al. (2021), factor loadings above the threshold of 0.40 to 0.60 are generally considered acceptable for the retention of questionnaire items in Exploratory Factor Analysis (EFA).

The rotated factor matrix from Principal Axis Factoring with Promax rotation and Kaiser Normalization is also shown in Table 1. Regarding the assertion made by Hayton et al. (2004), the findings show that all item loadings across the six parameters above the 0.4 threshold. Items that did not reach the specified loading value were excluded. ‘

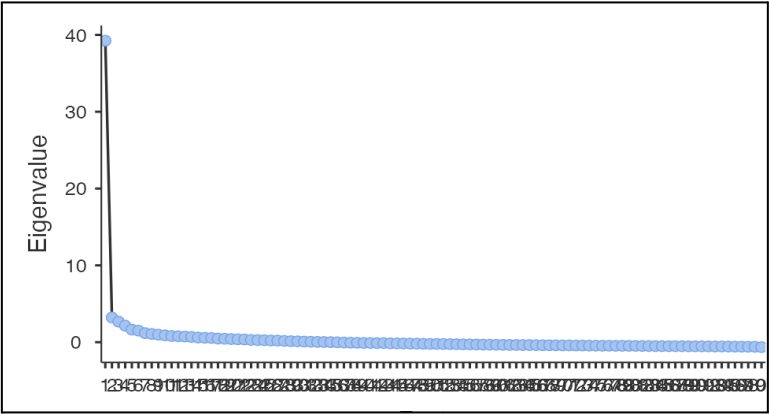


Figure 1. Scree Plot

After identifying that the data consisted of six factors, the 48 items were subjected to rotation. Promax rotation was employed because the data was not orthogonal and the factors were not required to be uncorrelated. Items were removed if their factor loading was less than 0.4, indicating that they were unreliable items. Eliminating factors with load levels below 0.4 improves the factor structure because keeping them may result in less interpretable solutions (Hayton et al.). Following this procedure, 48 items were ultimately retained.

Additionally, the scree test was used to identify how many factors should be kept, based on the data points that exceeded the break or inflection point. Figure 1 shows six data points corresponding to the break, representing the six dimensions of the scale.

Using the EFA, the 6-Factor model with 48-item Self-Efficacy scale was developed as shown in table 2, namely: Efficacy in Personal Growth and Professional Development, Efficacy in Assessment and Feedback, Efficacy in Fostering Inclusive Classroom Environment, Efficacy in Technology Integration, Efficacy in Instructional Strategies, and Efficacy in Student Engagement.

The Kaiser-Meyer-Olkin (KMO) measure for sampling adequacy and Bartlett's test of sphericity were used to assess whether the data were appropriate for factor analysis. Bartlett's test of sphericity examines the assumption that the correlation matrix is an identity matrix, suggesting that the variables are not related. Bartlett's test of sphericity tests the hypothesis that the correlation

matrix is an identity matrix, which would indicate that the variables are uncorrelated and not appropriate for factor analysis. A significance level below 0.05 suggests that factor analysis is appropriate for the dataset.

Factor structure of the measurement scale for ELTS

Confirmatory Factor Analysis was used to determine the most suitable model to its factors. The developed 48-item checklist for assessing the Self-Efficacy of the SHS English Language Teachers based on the result of the EFA was administered to 100 respondents from the secondary schools of Davao Oriental, Davao de Oro, Davao Del Norte, Davao Del Sur and Davao City. In this CFA survey, the respondents were asked to rate their agreement level to each item by using a five-point Likert scale: 5 for strongly agree, 4 for agree, 3 for moderately agree, 2 for disagree, and 1 for strongly disagree.

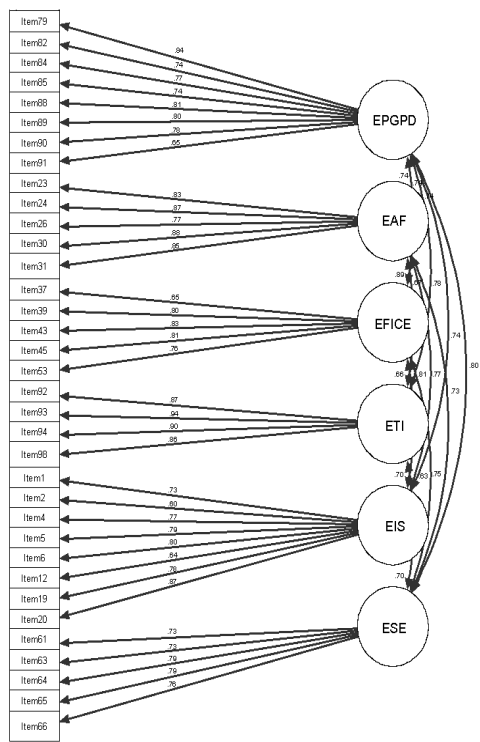


Figure 2 CFA Model of Senior High School English Language Teachers' Self-Efficacy Scale (SHS-ELTS)

To obtain the best fit model for the factor items, items with poor loadings of less than 0.40 and cross-loadings with other dimensions were eliminated during CFA. Figure 2 shows the CFA model of the underlying dimensions for assessing the self-efficacy of senior high school English language teachers. To generate a model with the items having factor loadings of greater than 0.40, some of the 48 items were eliminated because their cross-loading values were less than 0.40. It can be observed that the items of the six factors were retained. This is due to sufficient factor loadings of items that are above 0.40. This is predicated on the assertion made by Hayton et al. (2004) that items should be kept if their factor loading value is greater than 0.40.

Figure 2 presents the model that most accurately represents self-efficacy in English language teaching. This figure is important as it illustrates the factor loadings for each item after multiple analyses. It also highlights the interrelationships among the self-efficacy factors and a well-fitting model. Based on this criterion, the model can be considered an excellent showing the final set of items deemed suitable for measuring the respondents' level of self-efficacy in teaching English.

Moreover, Table 4 demonstrates that the model fit values satisfy the index conditions (TLI, CFI, and GFI > 0.95), with RMSEA and SRMR < 0.08. According to Byrne (1994), Tucker and Lewis (1973), and Hu and Bentler (1999), a good fit is one with a TLI, CFI, and GFI value higher than 0.95, respectively. According to Hayashi et al. (2011), a good fit is also indicated by RMSEA and SRMR values less than 0.08. According to Kline (2015), a CMIN/DF value below 3 signifies representation of self-efficacy, as it aligns closely with the observed data. The findings confirm that this model provides the most accurate fit for self-efficacy scale.

Measurement Tool Suitable for Assessing the Self-Efficacy of Senior High School English Language Teachers

The measurement tool suitable for assessing the Self-Efficacy in English language teaching of senior high school teachers, as shown in Table 5, is comprised of 35 items. Factor 1 has eight statements, factor 2 has five statements, factor 3 has five statements, factor 4 has four statements, factor 5 has eight statements, and factor six has five statements. Respondents were asked to rate their level of agreement with each statement using a five-point Likert scale.

Reliability Test of LTSE Scale

The reliability of the developed instrument was assessed to examine the internal consistency of its items. Cronbach's Alpha, which ranges from 0 to 1, was utilized as the measure of internal consistency. Moreover, reliability estimates indicate the extent to which measurement error may be present in the test. Tavakol and Dennick (2011) explain that, in essence, this type of reliability reflects how consistently the test measures by correlating it with itself.

Each factor showed good reliability, with Cronbach's alpha values: efficacy in personal growth and professional development (0.846), efficacy in assessment and feedback (0.823), efficacy in fostering inclusive classroom environment (0.807), efficacy in technology integration (0.854), efficacy in instructional strategies (0.855), and efficacy in student engagement (0.861). The instrument has excellent overall reliability, as indicated by a Cronbach's alpha of 0.954.

DISCUSSION

Underlying Dimensions of Self-Efficacy of Senior High School English Language Teachers

Using several analyses, mainly exploratory and confirmatory factor analyses, six factors of self-efficacy in English language teaching of senior high school English Language Teachers were identified: efficacy in personal growth and professional development, efficacy in assessment and feedback, efficacy in fostering inclusive classroom environment, efficacy in technology integration, efficacy in instructional strategies, and efficacy in student engagement. The relationship between emerging self-efficacy components was further examined in the confirmatory factor analysis. There is a substantial positive correlation between the variables. This result suggests that the two variables frequently rise and fall at the same time.

The self-efficacy constructs of senior high school English language teachers were subjected to confirmatory factor analysis (CFA) in order to guarantee the final dimensions, item representation to its factor, and the factor models' goodness of fit. In order to improve the model's fit, items that had cross-loadings to other dimensions were discarded. When assessed to determine whether it was the best fit, the model for SHS English teachers' self-efficacy in teaching the English language has a TLI value of 0.995, which indicates an

acceptable fit. CFI value of 0.996 and a GFI value of 0.984 also show a good fit. These results are aligned with the findings of Hu and Bentler (1999), and Tucker and Lewis (1973), which state that a good fit model must have a TLI, CFI, and GFI value greater than 0.95, respectively.

Furthermore, the model's RMSEA value is 0.039 and the model's SRMR value is 0.069 which are both a good fit. These results are congruent with Hayashi et al. (2011), which state that a good fit has RMSEA and SRMS values less than 0.08. Likewise, the model's CMIN/DF value is 1.299, which is a good fit. This finding supports Kline (2015), stating that a good fit has CMIN/DF value less than 3. The values of TLI, CFI, GFI, RMSEA, SRMS, and CMIN/DF demonstrate an acceptable fit. Hence, it is the best fit model for the self-efficacy of SHS English language teachers.

Measurement Tool Suitable for Assessing the Self-Efficacy of Senior High School English Language Teachers

The final tool to use to assess the SHS English language teachers' self-efficacy had undergone phases of qualitative and quantitative data collection and analysis. It has six factors with 35 items tool. The first factor is efficacy in personal growth and professional development, which has eight statements. The second factor is efficacy in assessment and feedback which has five statements. The third factor is efficacy in fostering inclusive classroom environment which has five statements. The fourth factor is technology integration, with four statements. Meanwhile, the fifth factor is efficacy in instructional strategies, which has eight statements. Lastly, the sixth factor is efficacy in students in engagement, which comprised of five statements. The 5-point Likert scale is used, ranging from 5 – strongly agree to 1 – strongly disagree, to rate respondents' level of agreement with the statements. The use of Likert scale as noted by Sullivan and Artino (2013) is apropos tool for measuring respondents' attitudes, perceptions, and levels of agreement to employ in survey research.

The tool developed in this study contributes significantly to existing measures of self-efficacy among teachers and English Language Teaching (ELT) through a psychometric tool for senior high school English language teachers in Region XI. Whereas, generic tools may not fully capture the unique challenges and contexts of specific to SHS English language teachers. The rigorous development process, involving both qualitative and quantitative phases, ensures the tool's validity and reliability. This tool merits its existence as a valuable

resource for educators and researchers seeking to support teacher development and enhance teaching quality in English language context in the Philippines.

Reliability Test of the Self-Efficacy Scale

In order to conduct a pilot study, 30 senior high school teachers from the secondary schools in Davao Oriental, Davao de Oro, Davao Del Norte, Davao Del Sur, and Davao City were given the instrument developed for assessing their level of self-efficacy in teaching English. The Cronbach's alpha is 0.954, indicating an excellent reliability. Moreover, the Cronbach's alpha coefficients for each item in the instrument range from 0.807 to 0.861, indicating good reliability across all items. Taber (2018) asserts that for a scale to be considered reliable, it should have a Cronbach's alpha of 0.70 or higher.

CONCLUSION

The factors of self-efficacy include personal growth and professional development, assessment and feedback, fostering inclusive classroom environment, technology integration, instructional strategies and student engagement.

There is a model that best fits the self-efficacy of the senior high school English language teachers. Each index's criteria have been satisfactorily met by the values, and tests have also been conducted on its emerging dimensions. The model leads to the development of the measurement tool to assess the level of self-efficacy that ensures the representation of each item to its factors. However, because of the limitations of the developed instrument, future researchers may carry out additional studies to validate the questionnaire and conduct further statistical analyses to enhance its reliability and effectiveness. Also, the measurement tool has a good internal consistency since its Cronbach's alpha value is above the reliability criteria. Based on this conclusion, the tool measures what it supposes to measure.

RECOMMENDATIONS

It is recommended that educational institutions, particularly the Department of Education (DepEd), mandate regular self-assessment and reflection on self-efficacy for senior high school English language teachers using the developed scale, to identify strengths and areas for professional growth,

thereby enhancing instructional effectiveness and fostering a supportive learning environment. Organizing activities that encourage senior high school teachers to share their teaching practices is recommended to enhance classroom practices and professional development. This approach aligns with DepEd's commitment to improving teaching practices through reflective tools and professional development programs.

Additionally, it is advisable for English language researchers to employ EFA to determine the structural variables or concepts, especially when there is limited theoretical guidance on the underlying factor structures. Subsequently, to validate the hypothesized factor structures of observed variables, CFA can be utilized. Using both EFA and CFA ensure a comprehensive and rigorous approach to scale development and validation.

For the Department of Education at school, division, regional level, and the national level, the crafted measurement tool can assess the self-efficacy scale of Senior High School teachers. This context-specific questionnaire may be used to determine the extent of the self-efficacy in terms of the developed factors which will provide future planning, policy, and programs of the SHS English language teachers.

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