Developing a Self-Assessment Instrument for Analysis of the Social and Personal Competencies of Teachers in Senior High Schools in Indonesia

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Abstract. Teacher competencies are an important requirement when creating excellent educational processes. This present study aims to develop a self-assessment instrument and norms tests to analyze teacher’s social and personal competencies. This development of a self-assessment instrument uses a model which was suggested by DeVellis. The items used in the test were constructed using a personal and social competencies indicator that was released by The Educational Ministry of Indonesia. The test results of instrument quality showed that: (1) Content validity analysis through IOC analysis showed 66 items out of 101 from this initial design are valid; (2) Analysis of language content through pilot study interviews showed the items of the instrument were easy to understand, although some self-assessment items contained typographical errors; (3) A discriminant power analysis showed that 48 items (from 66 items) were rated as having good index values; (4) Construct validity analysis using CFA shows the model used in this study fitted the criteria for validity; (5) Reliability analysis showed the alpha values for personal and social competencies were acceptable. This present study also developed a Norm to interpret the results of the self-assessment instrument which consist of three scales: High, Average, and Low.

1. Introduction
Teachers possess a number of important factors for the success of learning processes in formal education. Teachers have a mission to deliver: information, student ability coaching, learning partnerships, advice and act as mentors for students. Indonesian Government Regulation No. 14 states that “The teacher is a professional educator who has a duty to formally educate, guide, train, assess and evaluate learners through pre-school, elementary school and high school”. Nowadays, teachers face complex activities that may guarantee the success of students, including students with learning difficulties. Being professional teachers involves using teaching skills to deliver an appropriate level of subject knowledge and to ensure that learning content is accurately and appropriately presented and mastering some specific competencies that teachers must fulfill.

In Indonesia, there are four core competencies that teachers must be fulfill which are pedagogic, professional, social, and personal competencies. Formerly, the Indonesian government held the national teacher-competence test every year. Today, its focus is to measure pedagogic and professional...
issues. Moreover, according to data results from the national teacher-competence test released by the educational ministry, the national average score for this test was about 42.5 (out of 100) and 52.6 in 2013 and 2015, respectively. There were some teachers who got 90, but the national accumulative score revealed that the teacher competences in Indonesia were relatively low. According to this previous explanation, this study attempted to develop an instrument based on a self-assessment method and norm (grading scale) to observe personal and social competencies using variables proposed by DeVellis with modifications in the development step and guidelines to adjust to this researcher’s needs.

2. Research Methodology
The present study used procedures aimed at developing a self-assessment instrument. The development study consisted of steps to both develop a new product and improve upon existing products. In this study, the development step guidelines proposed by DeVellis were adapted to conform the research objective with the needs of the study. (see Fig. 1).

![Research Framework Scheme](image-url)

This study was conducted in Makassar city, focusing on 22 senior high schools (government schools). The sample of teachers in Makassar was 622 teachers. The sample was divided into 3 groups: (a) the first group consisted of 64 teachers to assess discriminant power; (b) the second group consisted of 300 teachers to assess construct validity and the reliability of the instrument; and (c) the third group consisted of 258 teachers to develop a norm (scoring/grading) for the self-assessment instrument.

3. Results and Discussion

3.1. Developing a Self-Assessment Instrument
The results of the development of this instrument were modified from the DeVellis development model so that it consists of six steps instead of twelve. Each step in this model consists of different activities which aim to check the quality of instrument. The first step (Determine Clearly What is to be Measured), determines the definition and in-depth description of variables by conducting a literature
review. According to the Indonesian Educational Ministry regulation No. 16, there are nine sub-competencies which consist of 22 indicators derived from two teacher competencies (social and personal competencies).

The second step of the study was to determine a measurement format. The format used in this study is the Likert scale, one of the popular rating scales normally used for instruments which consist of items with declarative sentences. There are two types of scale used in this instrument (based on the content of each item), they are: (a) The frequency scale; and (b) The agreement scale. The study generates the items for this self-assessment instrument based on the Social and Personal competencies of teachers. The initial design of the self-assessment instrument consisted of 101 items (57 items for personal competencies; and 43 items for social competencies).

Validity is important in developing this self-assessment instrument. For the fourth step, the self-assessment instrument was reviewed by five experts (four people from Indonesia & one person from Thailand) to check content validity using Index of Items-Objective Congruence, the IOC result shows that 66 items (39 items of personal competencies; and 27 items of social competencies) were a valid initial design. Five items were suggested by experts for removal, as those items that had a similar content to other items, even though the IOC score of those items was more than 0.5, i.e.: (2) I use rude words when scolding the students that may offend my students and cause cultural harassment (racism), and (6) When students in my class speak using their cultural accent it, makes me laugh and make fun of their accent. These two items were explained by the indicator as “Teacher appreciates learners without discriminating against their beliefs, ethnicity, customs, place of origin or gender”. To solve this problem, the researcher tried to find the more specific items that could be described and covered by the indicator (see Table 1).

| Table 1. Index of Items Objectives Congruence (IOC) |
|---------------------------------|---------------------------------|---------------------------------|
| Valid (IOC ≥ 0,5) | Invalid (IOC ≥ 0,5) | Invalid (similarity content) |
| 66 item | 22 item | 13 item |

The fifth step was to administer the instrument in a pilot study. The researcher asked 10 teachers randomly as respondents. This step was conducted in order to evaluate the feasibility of the instrument and to reduce misconceptions. Based on the results of the interview, all of the respondents gave a good response and agreed that most of the items were easy to understand, although there were items containing typographical errors. Also there were some corrections made for improper use of conjunction words.

After checking the language content of the instrument in the pilot study, a survey was conducted to evaluate the item. The first statistical analysis is power of discriminant. The results of using the item total correlation formula showed 48 items (consisting of 28 items of personal competencies and 20 items of social competencies) were rated with a good discriminant power index which meant the items could differentiate when the testee did not understand the materials of instrument. The items (48 items) selected from discriminant analysis then tested through construct validity and reliability. Based on the result of construct validity through Confirmatory Factor Analysis (CFA), the model that was tested for social and personal competencies in this study fitted the criteria. The results of a reliability analysis for self-assessment showed both personal competencies (28 items) and social competencies (20 items) were rated as having high reliability, with acceptable values of alpha, ranging from 0.70 to 0.95.

3.2. Developing Norm

The purpose of developing norm in this study to interpret the participant score after taking self-assessment instrument test. The first step, determines the distribution score of self-assessment participant (258 teachers) by using z-score. The result showed both social and personal competencies scores has normal distribution (see Fig. 2). Normal distribution indicated that next analysis (percentile and normal t score) can be applied. In this percentile analysis, the researcher calculated the frequencies for each score of respondent. (see Table 2). The final step was to convert the percentile score into
Normal T score (based on the Normal T score table) and determine the interval of each grade. Based on the result of interval calculation shows the grading scale are distributed into three class (high, average, and low) (see Table 3).

**Table 2. Conversion of Percentile Score to Normal t Score (Personal and Social Competencies)**

| Percentile | Normal t-score | Percentile | Normal t-score | Percentile | Normal t-score | Percentile | Normal t-score | Percentile | Normal t-score |
|------------|----------------|------------|----------------|------------|----------------|------------|----------------|------------|----------------|
| 99.61      | 77             | 45.54      | 49             | 99.81      | 79             | 73.06      | 56             | 9.30       | 37             |
| 99.03      | 73             | 37.79      | 47             | 99.42      | 75             | 67.64      | 55             | 7.75       | 36             |
| 98.26      | 71             | 32.17      | 45             | 98.84      | 73             | 62.40      | 53             | 6.40       | 35             |
| 97.29      | 69             | 25.78      | 43             | 98.06      | 71             | 56.20      | 52             | 4.26       | 33             |
| 96.12      | 68             | 19.77      | 41             | 97.48      | 70             | 50.00      | 50             | 2.71       | 31             |
| 93.22      | 65             | 16.47      | 40             | 96.32      | 68             | 45.16      | 49             | 2.13       | 30             |
| 89.73      | 63             | 13.57      | 39             | 94.77      | 66             | 39.73      | 47             | 1.55       | 28             |
| 87.02      | 61             | 10.85      | 38             | 93.22      | 65             | 35.08      | 46             | 0.97       | 26             |
| 83.72      | 60             | 8.72       | 36             | 91.86      | 64             | 30.23      | 45             | 0.58       | 25             |
| 79.46      | 58             | 6.40       | 35             | 90.89      | 63             | 25.19      | 43             | 0.19       | 21             |
| 75.00      | 57             | 4.46       | 33             | 89.73      | 63             | 21.51      | 42             |            |                |
| 70.93      | 56             | 2.71       | 31             | 87.98      | 62             | 18.02      | 41             |            |                |
| 67.64      | 55             | 1.36       | 28             | 86.05      | 61             | 15.31      | 40             |            |                |
| 61.82      | 53             | 0.58       | 25             | 83.53      | 60             | 12.98      | 39             |            |                |
| 53.88      | 51             | 0.19       | 21             | 78.68      | 58             | 11.05      | 38             |            |                |

**Table 3. Grade Scale of Personal and Social Competencies**

| Grade       | Personal Competences | Social Competences |
|-------------|-----------------------|--------------------|
| High        | 59.6 ≥                | 61 ≥               |
| Average     | 40.5 - 59.5           | 40 - 60            |
| Low         | ≤ 40.4                | ≤ 39               |

**Figure 2.** Distribution diagram of participant score for personal (right) and social (left) competencies

4. **Conclusion**

In conclusion, the result shows that the quality of instrument are rated as a good. These data was proved by the statistical analysis which aiming to test the quality of instrument. Which is both of
construct and content validity shows the items of instrument can interpret and measuring accurately the teachers ability based on the indicator of social and personal competencies. The other quality analysis for this instrument such as reliability analysis shows the high indexes which mean the stability of each item in this instrument are rated as a good. Besides that, researcher also developed the norm to interpret the result of self-assessment instrument which consist of three level of scale that is high, average, and low. All things considered, the self-assessment instrument can be used to measure the social and personal competencies of teacher in Indonesia. Although there are a some point such as the use of appropriate and correct language to improve the objectivity of items, and to avoid the ambiguity of item test.

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