

Development of an Instrument for Teachers' Attitudes Towards Academic Supervision Performed by Supervisors in Schools of Special Education

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Abstract. This study aims to develop an instrument for teachers' attitudes toward academic supervision performed by supervisors in special education. This is an instrument development study working under the modified six-step development framework introduced by Djaali and Sumadi. The validity of the study was examined by two experts in measurements. The instrument was tested on 94 teachers in schools of special education in South Sulawesi. The validity and reliability were estimated using the confirmatory factor analysis by Lisrel program. The instrument produced from this attempt were 44 questions in a form of likert scale; the validity was 0.90 and the reliability was 0.96, and it was done under a tridimensional structure (i.e., monitoring, assessment, and coaching). The dimension of monitoring measured the execution of eight education standards observed by school supervisors. The dimension of assessment measured the performance of supervisors during a class supervision that was taught by a teacher of special education. The dimension of coaching measured the supervisors' performance in giving motivation, delivering training, and providing feedback for teachers of special education. It was done in order to make the teachers more professional and independent in completing their tasks and responsibilities as teachers for special education. Therefore, the instrument produced from this research is expected to be able to describe the teachers' attitudes toward academic supervision performed by the school supervisors.

Keywords: instrument development, teachers' attitudes, academic supervision.

INTRODUCTION

A school supervisor is a regular government teacher assigned to serve as a supervisor in a certain school. The presence of a supervisor in every school is getting more and more necessary in order to improve the quality of education (Ariffin et al., 2014; Gunarasa & Kadir, 2013). Every emerging issue in a school can be easily monitored by the local education authorities through a school supervisor. One of the efforts and procedures initiated by the local

education authorities regarding the utility of supervisors is by monitoring how the supervisors perform their main tasks (Abunifah, 2014).

The main tasks of school supervisors are to carry out the academic and managerial supervision in schools which includes: preparing supervision programs, performing coaching programs, monitoring the implementation of the eight National Education Standards, assessing, and giving some practical guidance and

professional training for teachers (Rahmah, 2018)

Teachers are the main target of the academic supervision; it is the teachers who directly feel the implementation of this academic supervision the most (Daud et al., 2018). Thus teachers can be a source of some accurate information in evaluating the academic supervision carried out by supervisors. Academic supervision for teachers has been an integral part with every effort made to improve the quality of teaching and learning processes.

Teachers of special education carry out different tasks from any other regular teachers. The burden that must be borne by teachers of special education is heavier because they have to deal with children who have special needs as well as different characteristics (Douglas et al., 2016; Hapsari & Mardiana, 2016). As stated by Holmberg & Jeyaprabhan (2016) in the implementation of learning, teachers of special education are required to develop a set of individual learning programs that suits the characteristics and special needs of each student. Therefore a special education teacher needs some guidance, direction and instructions when carrying out these tasks. Besides that, they also need some strong motivation and encouragement so that those demanding jobs will be no longer seen as a heavy load. Hence a school supervisor is highly necessary.

Gunarasa and Kadir, (2013) explained that there are several prerequisites that must be met by a supervisor during a class supervision, namely the teacher's trust in the supervisor, the supervisor's support in creating such an active learning, and a supervision that supports the development of the teacher's competence. (Glickman et al., 2001) added that therefore supervisors need to obtain the necessary information either directly or through the teacher professional development training, or through any action-research initiatives that can help supervisors achieve organizational goals and meet the teacher's needs, which in turn can improve the student's competence. .

It is essential for supervisors to recognize any reactions or attitudes shown by the supervised teacher. Supervisors need to know whether the teachers are happy with the supervision steps taken or vice versa. The teachers' attitudes towards the supervision carried out by supervisors can be an opening gate for supervisors to learn and seek to increase teachers' creativity in demonstrating the teaching

and learning processes (Khun-Inkeeree et al., 2019; Makin et al., 2018). The aspects of teachers' attitudes towards the supervision can be seen from the dimensions of monitoring, the dimensions of assessment, and the dimensions of coaching carried out by supervisors. Therefore, academic supervision that is done well can encourage teachers to build positive attitudes. This makes teachers feel the need to be supervised, and they feel that they really receive some technical support in overcoming various problems that they are probably facing in their class, so that teachers will always look forward to the presence of their supervisors in school (Gunarasa & Kadir, 2013).

A study conducted by Sharma et al. (2011) in three Asian countries showed that supervisors, when carrying out their supervisory functions, tend to merely limit their tasks to the paperwork and scrutinize every fault. This is in line with the findings brought forward by Abubakr (2018) which suggested that school supervisors should spend more time guiding teachers, collaborating with teachers, visiting schools more often, and using the annual principal's assessment as a basis. They should not be supervising just for the sake of fulfilling tasks; not become judgmental; not become intrusive or threatening. On the other hand, according to Döş & Savaş (2015), supervisors should be able to provide some advice and guidance, motivate, hold educational seminars, provide constructive feedback, and empathize with teachers. For this reason, it has become necessary to design an instrument that can measure teachers' attitudes towards academic supervision carried out by supervisors for special education; an instrument that encompasses the dimensions of monitoring, assessment, and coaching (Putra, 2017; Rahman et al., 2020; Sturre et al., 2012).

Based on some interviews with several special school (SLB) teachers in Makassar, there have not been any similar assessments conducted in the area. They have not filled or responded to any instruments for monitoring the implementation of academic supervision. A similar sentiment was also expressed by the supervisors. Thus it has become more interesting to design and develop an instrument concerning teachers' attitudes towards the implementation of academic supervision performed by supervisors in schools for special education. The instrument was expected to be useful for supervisors, especially those who work closely in the realm of special education. At the same time it was also

expected that supervisors will be able to increase their motivation, which at some point, should help them improve their performance in carrying out their supervisory duties. In addition, it is also going to be beneficial for the local Education Authorities to use this instrument for monitoring supervisors performing their academic supervision throughout the semester. If this can be carried out properly, the empowerment of supervisors by the Local Education Authorities in carrying out their main duties and responsibilities will be far more optimum (Hidayati, 2018).

This research was conducted with the aim of developing a set of qualified instruments that will be used to analyze teachers' attitudes towards academic supervision conducted by supervisors in schools for special education.

METHOD

This research was designed to produce a set of instruments for measuring the teachers' attitudes towards academic supervision conducted by supervisors in schools of special education. This instrument was meant to be a tool to monitor the supervisors' performance concerning the academic supervision. The development design was carried out by (1) formulating a theoretical construct, (2) formulating a conceptual definition and operational definition, (4) developing instrument specifications (instrument grid), (5) writing the items of statement, reviewing and revising the items of statement, (6) assembling the items of statement, (7) then testing the instrument, analyzing the test results (validity-reliability testing), and (8) finally, determining the final instrument (Djaali & Mulyono, 2007; Suryabrata, 2005). Given the limited space, not every detail

was described in this article. Only the necessary steps were included, especially those related to the instrument validation processes. The subjects of this developed instrument were 94 teachers of special schools in South Sulawesi, distributed over 5 (five) districts / cities.

An analysis on the results of content validity was carried out by experts (content validity coefficient) using the Gregory content validity (Gregory, 2007; Sanjaya et al., 2019). The content validation of the instrument was performed by asking for responses from two experts (i.e., experts in the realm of measurements). More specifically, it was done by closely scrutinizing every single item in the instrument that was to be validated, evaluating the cohesion of every item that has been made, and giving considerations about the best thing in the interpretation of the evaluation instrument. The data of testing results were analyzed using the confirmatory factor analysis with the help of the LISRE 8.70 program.

RESULTS AND DISCUSSION

Results

The preparation of an instrument for teachers' attitudes towards academic supervision of supervisors was executed by examining theories related to academic supervision performed by supervisors as well as theories about attitudes. Based on several theories that had been studied, a conceptual definition was finally decided, which in turn, for the purposes of measuring, turned into an operational definition (Agung, 1992). The instrument developed consisted of 3 dimensions and 15 indicators containing 45 items, as presented in the table 1.

Table 1. The Teachers' Attitude Instrument Grid

Dimensions	Number of indicators	Number of items		
		Cognitive	Affective	Conative
Monitoring	4	4	4	4
Assessment	5	5	5	5
Coaching	6	6	6	6

The results of the consistency analysis among experts which were analyzed using the Gregory content validity, ended up with the value of 0.98 or 98%, greater than 80%, so the questionnaire instrument designed for the teachers' attitudes towards the supervisors'

academic supervision in special education was valid by content. Mustiani et al., (2016) quoted Gregory, who stated that if the content validity coefficient is > 0.80, it is classified as high; the content validity coefficient of $0.40 \geq 0.80$ is classified as medium, and the content validity

coefficient of <0.40 is categorized as low. In addition to assessing the accuracy of the items measuring the indicators, the two experts also provided notes on the clarity of the language used, the graphic components such as typography (e.g., types / variations of fonts), paper size / quality, as well as the illustrations or the format of the instrument layout. Based on the review and revision on the items of statement during the content validation processes by experts, a set of instruments for teachers' attitudes towards the supervisors' academic supervision in schools for special education was finally produced. The

instrument consisted of 45 statement items that were declared valid by content. Then the instrument reliability test was done by evaluating the construct reliability (CR) and the coefficient of variance extracted (VE) from the results of the Confirmatory Factor Analysis (CFA) (Kusnendi, 2008). The results of the coefficient of construct reliability (CR) and the coefficient of variance extracted (VE) of the measurement model of teachers' attitudes towards academic supervision carried out by supervisors of special education are presented in the table 2.

Table 2. The estimation of the CR and VE coefficients, measurement model of teachers' attitudes towards academic supervision of special education supervisors

Measurement Model	Construct Reliability (CR)	Variance Extracted (VE)
Dimensions of monitoring	0.97	69%
Dimensions of assessment	0.95	71%
Dimensions of coaching	0.96	65%
Attitude Variable	0.97	70%

According to (Dali Santun Naga, 2013; Khumaedi, 2012), for disciplines with firm measurements, the coefficient of reliability should be above 0.75, while for disciplines with unsteady measurements, the reliability coefficient of 0.50 or above were already deemed to be adequate. On the other hand, Puji Astuti et al. (2013), stated that the reliability of around 0.90 was at a very high criterion. Based on the results of the reliability test, it was shown that of the 45 items tested, all were valid and reliable, and that the testing process could proceed to the first stage of the empirical test.

The quality test on the items was executed using the confirmatory factor analysis (CFA) with the help of a ready-to-use Lisrel 8.70 program. The test was taken in three stages, namely, the overall model fit test, the test of significance on each loading factor coefficient and the construct reliability testing, as had been done by Asnita & Tjalla (2016). The results of the model suitability test for 45 items using the overall model fit test (GOF) are presented in the table 3.

Based on the results of the analysis presented in the table 3, it was known that from the GOF measure of the model fit, there were two areas categorized as 'less fit' (i.e., Chi-Square and GFI), and nine models fell under the 'good fit' category. Because the measures of 'good fit'

outnumbered 'the less fit', it can be concluded that the overall model is suitable with the data. This means that the dimensions of monitoring, assessment, and coaching on academic supervision instruments for special education supervisors can be both explained and measured by the very items that construct them.

The test of significance of each loading factor coefficient was done by looking at the value of loading factors of each indicator from each dimension. The results of the first stage empirical test showed that there was one item that had a fairly small loading factor value of 0.30 and a measurement error by 0.90, so that the item was declared invalid. It was the item number 45. Thus, it was dropped from the measurement model.

The process of the second-stage empirical test was the same as that of the first stage empirical test. The results of the second stage CFA test done on all composite scores on the instrument of 15 indicators containing 44 items, are shown in the table 5.

The results of the CFA test on all composite scores on the instrument of 15 research indicators containing 44 items was collected using the Maximum Likelihood method. Following that, it was found out that there were two GOF measures that fell under the category of 'less fit', namely: Chi Square, and

GFI. While the other GOF measures were all deemed to be good. Thus, it can be concluded that the overall model fits the data, as said by (Hooper et al., 2008).

Furthermore, the second-stage test of significance was carried out on each loading factor coefficient by looking at the value of loading factor of each indicator from every dimension. From the results of the loading factor

analysis in the second stage of the empirical test, it was found out that the Construct Reliability was (CR) > 0.70, the Average Variance Extracted (AVE) value was > 0.50, and there were 15 indicators containing 44 items. Thus it can be said that all items can accurately measure the teachers' attitude towards academic supervision of the special education supervisors.

Table 3. Degree of Model Fit (*Overall Model Measurement*)

GOF Measurements	Estimation Results	Degree of the Model Fit
A. Absolute Fit Measures		
1. <i>Chi-Square (X²)</i>	1592.18	less fit
2. <i>Goodness of fit index (GFI)</i>	0.79 < 0.80	less fit
3. <i>Root mean square residue (RMR)</i>	0.031 < 0.05	Good
4. <i>Root mean square Error of Approximation (RMSEA).</i>	0.061 < 0.08	Good
5. <i>Expected Cross Validation Index (ECVI)</i>	7.59 < 7,58	Good
B. Incremental Fit Measures		
1. <i>Non-normed fit index (NNFI)</i>	0.99 ≥ 0,90	Good
2. <i>Normed fit index (NFI)</i>	0.99 > 0.90	Good
3. <i>Relative fit index (RFI)</i>	0.98 ≥ 0.90	Good
4. <i>Incremental Fit Index (IFI)</i>	0.99 ≥ 0.90	Good
5. <i>Comparative Fit Index (CFI)</i>	0.99 ≥ 0.90	Good
C. Parsimony Fit Measures		
<i>Parsimony Goodness of Fit (PGF)</i>	0.61 > 0.60	Good

Table 4. Loading Factor Value of Each Indicator

Dimensions	Indicators	Items	loading (λ)	δ	Status
Monitoring	X1	B1	0.67	0.56	Valid
		B5	0.82	0.32	Valid
		B9	0.80	0.37	Valid
	X2	B2	0.86	0.25	Valid
		B6	0.65	0.58	Valid
		B10	0.90	0.19	Valid
	X3	B3	0.86	0.27	Valid
		B7	0.78	0.40	Valid
		B11	0.85	0.27	Valid
	X4	B4	0.86	0.27	Valid
		B8	0.91	0.17	Valid
		B12	0.88	0.22	Valid
Assessment	X5	B13	0.91	0.18	Valid
		B18	0.65	0.58	Valid
		B23	0.90	0.19	Valid
	X6	B14	0.91	0.18	Valid
		B19	0.86	0.25	Valid
		B24	0.61	0.63	Valid
	X7	B15	0.90	0.19	Valid
		B20	0.84	0.30	Valid
		B25	0.68	0.54	Valid
		B16	0.93	0.13	Valid

	X8	B21	0.86	0.25	Valid
		B26	0.92	0.15	Valid
	X9	B17	0.92	0.16	Valid
		B22	0.82	0.33	Valid
		B27	0.93	0.13	Valid
Coaching	X10	B28	0.78	0.39	Valid
		B34	0.77	0.41	Valid
		B40	0.76	0.42	Valid
	X11	B29	0.82	0.32	Valid
		B35	0.90	0.18	Valid
		B41	0.63	0.61	Valid
	X12	B30	0.67	0.55	Valid
		B36	0.91	0.17	Valid
		B42	0.85	0.28	Valid
	X13	B31	0.87	0.23	Valid
		B37	0.93	0.14	Valid
		B43	0.69	0.52	Valid
	X14	B32	0.90	0.19	Valid
		B38	0.90	0.20	Valid
		B44	0.88	0.22	Valid
X15	B33	0.87	0.26	Valid	
	B39	0.89	0.21	Valid	
		B45	0.30	0.90	Dropped

Table 5. Overall Model Measurement , second stage

GOF Measurements	Estimation Results	Degree of the model fit
A. Absolute Fit measures		
1. Chi-Square (X^2)	1636.90	less fit
2. Goodness of fit index (GFI)	0.80 = 0,80	less fit
3. Root mean square residue (RMR)	0.030 < 0.05	Good
4. Root mean square Error of Approximation (RMSEA).	0.059 < 0.08	Good
5. Expected Cross Validation Index (ECVI)	7.16 < 7.25	Good
B. Incremental Fit Measures		
1. Non-normed fit index (NNFI)	0.99 ≥ 0.90	Good
2. Normed fit index (NFI)	0.99 > 0.90	Good
3. Relative fit index (RFI)	0.98 ≥ 0.90	Good
4. Incremental Fit Index (IFI)	0.99 ≥ 0.90	Good
5. Comparative Fit Index (CFI)	0.99 ≥ 0.90	Good
C. Parsimony Fit Measures		
Parsimony Goodness of Fit (PGF)	0.61 > 0.60	Good

Table 6. Loading Factor Value of Each Indicator, Second stage

Dimensions	CR	VE
Monitoring	0.96	0.68
Assessment	0.97	0.72
Coaching	0.97	0.65

Discussion

Sudjana (2012) states that the implementation of school supervisor duties in the target schools must be monitored on an ongoing basis. Monitoring is performed in a well-planned way. Ajasan et al. (2016) and (Douglas et al., 2016) suggested that, in preparing the supervision program, always involve senior teachers and coordinate with school supervisors. Monitoring aims to determine whether school supervisors have executed their main duties properly or not. Monitoring can be done by filling out a monitoring instrument in the form of a structured questionnaire which can be filled in by the supervisors themselves, the principal, or the teachers in the school being supervised. The instrument for measuring teachers' attitudes towards academic supervision is developed in a tridimensional framework, namely the dimensions of monitoring, assessment, and coaching, which are all carried out by the supervisors.

The monitoring dimension encompasses the monitoring of the implementation of the eight educational standards carried out by school supervisors (Directorate General of Teachers and Education Personnel, 2016). This dimension consists of 12 valid items with a reliability level of 0.96. Several research results showed that supervisors' support for the teaching and learning processes has a significant relationship with teachers' attitudes towards supervisors (Daud et al., 2018; Khumaedi, 2012; Ryan & Gottfried, 2012). It was further stated by Kazi, et al., (Hoque et al., 2020) that in an effort to improve the quality of teaching, supervision can be used as a strategy that allows teachers to achieve high quality learning goals.

The assessment dimension encompasses a set of assessments on the implementation of teaching and learning processes by teachers (Directorate General of Teachers and Education Personnel, 2016). The supervision for school principals and teachers in assessing the learning process is an important thing that must be performed continuously and consistently to make professional teachers (Ajasan et al., 2016; Daud et al., 2018; Khun-Inkeeree et al., 2019). To find out the teachers' attitudes towards the dimension of assessment, 15 validated items were developed and resulted with a reliability level of 0.97.

The third dimension developed is the dimension of coaching. To get some necessary information regarding the teachers' attitude towards this dimension, 17 valid items were

compiled with a reliability level of 0.97. In this dimension, supervisors were tasked with providing motivation, support, and direction in order to help teachers grow more professionally and independently (Directorate General of Teachers and Education Personnel, 2016; Sudjana, 2012). This is in line with an opinion put forward by Brunelle et al. (Hoque et al., 2020) that academic supervision aims to make teachers autonomous in running their teaching and learning processes. However, not all teachers are ready, this depends on their personal maturity and professionalism. In another study, Brunelli et al. (Hoque et al., 2020) categorize teachers into four types: first, teachers who depend on their supervisors and need to be directed to do whatever they need to do to solve problems; second, teachers who prefer to work with their supervisors in overcoming problems; third, teachers who use their supervisors as a theoretical resource for solving problems; Lastly, teachers who prefer to improve their own teaching through their experiences. This shows that the needs of each teacher are different. With the creation of this instrument, we finally can see and analyze teachers' perceptions on the expected aspects of technical guidance and support from the special education supervisors.

In an effort to improve the quality of teaching and learning processes, the supervision can be taken as a strategy that enables teachers to achieve these goals. With the increasing attention of the government and society towards the education of children with special needs, special education teachers are required to receive more proper training that is based on their needs, and to receive proper supervision from a professional supervisor (Douglas et al., 2016). In line with this policy, Sudjana (2011) states that teachers are one of the main components in the delivery of education; thus, the quality of education depends in part on how they are trained and supervised. In addition, numerous research findings claim that the supervision has the potential to improve both teachers' professionalism and performance; so that it can improve learning practices in the classroom and affect the students' success (Baffour-awuah, 2011; Hoque et al., 2020; Kayikci et al., 2016; Kholid & Rohmatika, 2019).

Glickman et al. (2001) suggest that the view of supervision has changed from inspection to a school-based collaborative process aimed at enhancing learning. Ahmad, A. R., & Farley (2013) added that the current supervision is no longer aimed at merely checking or evaluating

the teachers' performance, but rather leads to technical guidance which in turn leads to continuous teacher development. This is a form of guidance for teachers, including teachers for special education, to improve their teaching skills through various methods such as class visits, workshops, seminars, and training that help fulfill the teachers' needs (Pennington et al., 2020).

Based on the aforementioned analysis, the developed instrument that measures the extent to which the teachers' attitudes towards academic supervision of special education supervisors is in line with the views of experts and the results of some research in the same realm. By and large, the results of the empirical test of the developed instrument meet the content validity requirements, and the level of adequate reliability. Thus, this set of instruments is appropriate to describe the teachers' attitude towards academic supervision of special education supervisors.

CONCLUSIONS AND SUGGESTIONS

The development of an instrument for teachers' attitudes towards academic supervision of special education supervisors produces an instrument that is compiled in the form of a Likert scale statement with four alternative answers. The instrument constitutes 3 dimensions, and 15 indicators containing 44 statement items.

The monitoring dimension measures the implementation of the eight educational standards carried out by school supervisors. By using the points developed in this instrument, we can reveal the perceptions of special education teachers on the supervision, especially the implementation of education standards by special education supervisors. With this supervision, teachers can achieve high quality teaching and learning goals. The instrument in this dimension constitutes 12 items that have met all the validity and reliability criteria to be deemed as valid and or reliable.

The dimension of assessment measures the implementation of the teaching and learning assessment performed by the special education teachers. The supervision of the teaching and learning processes for students with special needs is an important thing that must be done continuously and consistently in order to produce professional teachers. The instrument for measuring this dimension consists of 15 validated items and a qualified reliability level. By using the instrument in this dimension, we can see how

supervisors perform the assessment supervision on the teaching and learning processes carried out by teachers for special education.

The coaching dimension measures the performance of supervisors in providing motivation, guidance and direction to special education teachers, so that they may become more professional and independent teachers in performing their educational tasks and in teaching learners with special needs. The instrument for measuring this dimension consists of 17 validated items and sufficient reliability degree. By using this instrument, the special education teachers' attitudes towards the aspects of guidance can eventually be disclosed.

By and large, an analysis on the validity and reliability of the developed tridimensional framework shows that the coefficient of content validity is above 0.90, the coefficient of reliability is above 0.70, and the coefficient of variance extracted is above 51%. Based on the presented data, it can be said that this instrument is quite reliable in measuring the variables of teachers' attitudes towards academic supervision of special education supervisors. In addition, the reliability is also in a good standing. Thus this developed instrument has the potential to describe teachers' attitudes towards academic supervision of special education supervisors.

The instrument produced in this study was meant to be used as a tool to empirically assess the performance of special education supervisors when performing their academic supervision in classrooms.

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