Jurnal Pendidikan Agama Islam
ISSN: 1829-5746 | EISSN: 2502-2075
Vol. 19, No. 2, Desember 2022
DOI: https://doi.org/10.14421/jpai.2022.192-05

Developing a Google Form-based Instrument for Measuring the Spiritual Attitude of the Students Class XI

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ABSTRACT

Purpose – This study aims to construct an instrument for assessing the spiritual attitudes of moral subjects and how much the contribution of these spiritual attitudes can be applied in everyday life.

Design/methods/approach – The research approach used by RnD (Research and Development) with the ADDIE (Analysis, Design, Development, Implementation and Evaluation) model. The subjects of this study were students of class XI. Data collection techniques use the Likert scale.

Findings – The instrument was analyzed using Exploratory Factor Analysis (EFA); in the assessment of spiritual attitudes, there were four factors/dimensions, but the per-factor instrument variables did not correspond to the initial dimensions (obedience, thanksgiving, praying, and tasamuh) with the average value of the loading factor of each factor namely F1 = 0.650, F2 = 0.615, F3 = 0.578 and F4 = 0.774. In contrast, the instrument reliability test obtained a value of 0.705 with a high instrument category. The analysis results produce the findings by making new factors, namely tasamuh, gratitude, worship, and aqidah.

Research implications/limitation – This spiritual attitude assessment can be used in all Madrasah Aliyah in Indonesia. However, due to the limitations of researchers in distributing questionnaires, this research was only conducted in Sintang Regency.

Originality/value – Further research is expected to construct an assessment of the spiritual attitudes of students in terms of more specific aspects of learning and daily life.

OPEN ACCESS

ARTICLE HISTORY
Received: 31-07-2022
Revised: 30-12-2022
Accepted: 31-12-2022

KEYWORDS
Development; Attitude Assessment Instrument; Google Form

Introduction

Learning is a process of organizing and organizing students so that a learning process occurs. Learning is carried out to regulate the operation of good teaching and learning activities. Learning is said to be good if there is interactive and educational learning between educators and students (Nugroho & Mawardi, 2021, p. 809). Following Law Number 20 of 2003 concerning the National Education System, learning is an interaction between educators and students on a large environmental scale (Ministry of Education and

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Culture, 2016) (Ministry of Education and Culture, 2016). The process of interaction and education can only run directly with planning that can illustrate an interactive and educational learning process.

The learning planning process includes components that can make the learning process interactive and educational. These components consist of learning objectives, learning materials, learning strategies, learning models, learning media and learning assessment (learning outcomes) (Nugroho & Mawardi, 2021, p. 809). Following the Minister of Education and Culture Number 22 of 2016, the learning design is designed as a Learning Implementation Plan (RPP). One of the plans contained in the Learning Implementation Plan is the assessment of learning, both assessment of knowledge aspects and attitude aspects.

Assessment in the 2013 Curriculum is carried out through authentic assessment, which is an assessment that covers three domains consisting of knowledge, attitudes and skills (Nufus et al., 2017). This authentic assessment is expected to describe the condition of students from the aspects of attitudes, skills and knowledge. The implementation of attitude assessment based on the 2013 curriculum is carried out through observation, self-assessment, and peer assessment techniques using instruments in the form of checklists and assessment scales equipped with rubrics (Azwar, 2022; Triyono et al., 2019, p. 2). Attitude assessment consists of primary and supporting assessments, and the central assessment is obtained from the results of observations written in the daily journal. In contrast, supporting assessments can be obtained from self-assessment and peer-to-peer assessment so that the results become a confirmation tool for attitude assessment by educators (Ministry of Education and Culture, 2016).

Attitude assessment is carried out during teaching and learning activities, such as group discussions. It can be judged by politeness, while discussion can be judged from the attitude of responsibility at the time of presentation and can be assessed as self-confidence. Attitude assessment can be seen in outdoor learning, such as disciplinary attitudes from students' presence, and honest, polite and caring attitudes are seen when students play with their friends (Ministry of Education and Culture, 2016). However, this could be more effective in providing value so that the assessment is subjective and so that the assessment is carried out so that it is objectively. The teacher needs to make an instrument for assessing social and spiritual attitudes to ensure the assessment can run well and be objective. However, with this regulation, many teachers need help understanding the making of the attitude assessment instrument, so there are still many teachers who have yet to used attitude assessment objectively to students considering that this assessment requires a long time to make the instrument.

Spiritual attitudes can form students' character and give birth to a whole person who can act wisely, faithfully and in piety, in harmony with the subject of moral creeds that emphasize behavior and godliness. The subject of aqidah akhlak is one of the clusters of

Islamic Religious Education. It has been regulated in the Decree of the Minister of Religion Number 183 of 2019 concerning the Curriculum of Islamic Religious Education and Arabic Language (Ministry of Religion, 2019). In this case, the Islamic religious education curriculum is divided into four families: the Qur'an Hadith, Fiqh, Akidah Akhlak and History of Islamic Culture. The implementation of the four subjects can be seen from the level of education.

Relevant research was conducted previously with the results of research in making attitude assessment instruments using rubrics, the result that educators still have obstacles related to making an attitude assessment instrument (Gusviani, 2013; Usfa, 2020). Regarding learning evaluation, educators still need help in implementing the 2013 Curriculum. In addition, research conducted by Rokhmatin (2018, p. 80) showed that the assessment of student attitudes in the subject of Islamic Religious Education at SMA Negeri 5 Bekasi still has many obstacles that arise, such as there is no detailed attitude assessment format, educators only use some attitude assessment techniques such as observation and journals. Another study by Inayah et al. (2015, p. 139) found that the attitude assessment instrument made in the beam has a component as an indicator of student honesty, so a companion instrument is needed to obtain more accurate data. Assessment sheets with print media are considered less economical, and this is resolved using a software-based assessment sheet that students and teachers can easily access.

With the existence of Distance Learning which was carried out during the past Covid-19 pandemic, educators are required to develop all learning processes through the network, so educators must be able to manage computer software well in terms of teacher assessment. It will be more efficient if they measure the ability of students, both knowledge and attitudes, through internet learning. Fitriawan et al. (2021, p. 68) research mentioned several applications used during online learning, such as moodle, google classroom, Edmodo, genius, google meet, zoom and so on. In line with research conducted by (Haryadi & Ferdiansyah, 2021, p. 108), the learning process carried out during the Covid-19 pandemic triggered educators to manage school administration online. Although this has many limitations, after the COVID-19 pandemic passed, the online system was still widely applied instead of using manual paper. In addition, the evaluation of students is carried out by teachers through web platforms, such as research from Laela et al. (2021) that evaluates the learning of aqidah akhlak subjects at SD Islam Bani Hasyim uses the google form application during the exam. Research conducted by Wulandari, (2020, p. 87) showed that the results of supervision of Madrasah Aliyah teachers in Bojonegoro Regency increased by 25.93% with a good predicate in managing the google form platform for knowledge and skills assessment. Shows that some schools in Indonesia still use the google form platform to assess attitudes, knowledge, and skills.

Research by Muchtar & Kadir, (2017) shows that the assessment of spiritual attitudes in elementary school students consists of three dimensions of five, namely Affection, which consists of indicators of the experience of living with God. The Cognition

dimension consists of indicators of a) having the awareness that life is devoted to God, b) having awareness and self-inclination towards life. The kinesthetic dimension consists of several indicators related to applying worship values in everyday life.

Previous studies on spiritual attitude assessment research in elementary school children have been conducted. However, there is still little covering the assessment of spiritual attitudes at the high school/ma level, so researchers are interested in developing spiritual attitude assessment instruments in Madrasah Aliyah. That way, seeing the importance of an objective assessment in students, it is necessary to conduct research aimed at developing a spiritual attitude assessment instrument on moral aqidah learning in Madrasah Aliyah students through a google form by looking at what dimensions underlie the concept of spiritual attitudes of students, in addition to knowing the validity and reliability of the developed instrument worth using in assessing spiritual aspects learners of class XI..

Methods

This research uses a development research method known as RnD (Research and Development) to developand to produce a product that can be accounted for (Sukmadinata, 2016, p. 164).

This development research process consists of three stages: preliminary study, development and testing. In the preliminary study stage, the steps are conducting literature studies and field surveys. At the development stage, researchers use the Instructional Design model through the ADDIE (Analysis, Design, Development, Implementation and Evaluation) approach (Sugiyono, 2019, pp. 765–766). As well as in the testing stage, a trial will be carried out for students at MAN 1 Sintang with research samples, namely class XI IIS1 and XI IIS2, with a total of 67 respondents; the sampling time will be carried out on April 14-18, 2021.

The data collection technique used in this study is the Likert scale with four answer options, namely Strongly Agree (SS), Agree (S), Disagree (TS) and Strongly Disagree (STS), with a total of 30 statements of spiritual attitude assessment instruments. The data analysis technique used in analyzing the validity of the contents is the Aikens Index by analyzing aspects of matter, construction, and language, as well as reliability tests between raters using inter-Class Correlation (ICC). Meanwhile, testing the accuracy of instruments with indicators is carried out using factor analysis (Exploratory Factor Analysis) and reliability testing using Alpha Cronbach.

Result

This research showed that a product in the form of an instrument for assessing spiritual attitudes in learning aliyah-level moral creeds. This instrument was developed using a Likert scale and research steps with several stages, namely as follows.

1. Preliminary Studies

Preliminary studies are the first stage carried out in development research. At this stage, researchers conduct research studies and field surveys. The stage of literature study produces primary material, namely spiritual attitudes. In the field survey stage, researchers found that teachers still needed to pay attention to assessing spiritual attitudes made toward students. Teachers generally judge students through observation, so the assessment is subjective.

2. Development

The model used in this development is the Instructional Design model through the ADDIE (Analysis, Design, Development, Implementation and Evaluation) approach (Sugiyono, 2019, pp. 765–766).

2.1. Analysis

The analysis stage has two stages: performance analysis and needs analysis. In the process of performance analysis, researchers conduct observations and interviews at MAN 1 Sintang, Sintang Regency, West Kalimantan. The results of an interview conducted by researchers with one of the teachers at MAN 1 Sintang, Mr. Juhdi, show that many students do not have good learning motivation. It can be seen in students who like to chat and sleep in class. Moreover, many students still need an awareness of themselves to do zuhr prayers in schools. So, from the results of observations and interviews, researchers concluded that teachers needed to pay more attention to assessing aspects of spiritual attitudes. Hence, they only emphasized the aspect of knowledge. Then the researcher also conducted a needs analysis to develop an instrument for assessing attitudes toward religious tolerance. So, researchers developed an instrument for assessing the spiritual attitudes of class XI students on the subject of Akidah Akhlak on the material Death and Life in the Barzakh Realm.

2.2. Design

In the design stage, researchers designed instruments based on the theme of Death and Life in the Barzakh Realm class XI Akidah Akhlak Subjects. Researchers have studied the theme because the instrument to be developed is by the assessment aspect. Then the researcher will focus on developing assessment instruments, namely on the spiritual aspects contained in (KI-1). After determining the theme, make the essential (KD) and basic competencies to be used, namely KD-2, which will be developed into an indicator to be achieved. Subsequently, researchers compiled a grid of measurements of spiritual attitudes in Table 1.

Table 1. Lattice Instruments for Assessing Spiritual Attitudes

Indicator	Statement		Sum
	Positif	Negatif	
Obedience in worship	4	3	7

Grateful behavior	4	5	9
Saying a prayer	3	2	5
Tolerance in worship	4	5	9
Sum	15	15	30

2.3. Instrument Development

At this stage, the researcher makes an attitude assessment instrument or statement item that assesses spiritual attitudes using a Likert scale. Researchers have created four constructs consisting of 30 statement items with 15 positive statement items and 15 negative statements.

(1) Validity

Furthermore, the researcher conducted a validity test with three aspects. Design validation used in this development aims to test the instrument's validity to experts. The instrument contains several aspects, namely material, construction, and language. The material aspect is aimed at testing whether the attitude assessment instrument that has been made can represent the assessed competence, the construction aspect is aimed at testing whether the attitude assessment instrument meets the technical requirements of a good instrument, and the language aspect is to test whether the use of sound and correct language and communicative is by the level of development of the learner. The subject of this design validation consists of 7 people, namely one construction expert lecturer, 4 Graduate Students of the Research Measurement Concentration and two teachers of aqidah subjects. The validity used in the development of this instrument design is the validity of the content (content validity) using the Aiken Index with the following formula:

$$V = \sum S/[n(c-1)]$$

Information:
r: rating appraiser
L: lowest category rater rating
C: Highest category
n: number of appraisers/respondents

The criteria used to assess this attitude instrument are Irrelevant (TR) with a score of 1, Less Relevant (KR) with a score of 2, Sufficient (C) with a score of 3, Relevant (R) with a score of 4, and Very Relevant (SR) with a score of 5. The results of the validation of the attitude assessment instrument design with seven panelists are as follows:

Table 2. Inter-Rater Validation Results

Assessed aspects	Percentage	Interpretation
Material	84%	High
Construction	70%	Medium
Language	89%	High

Table 2 shows that the instrument developed is valid. However, as many as 30 statements after validation in the construction aspect, there are nine statements declared invalid because the < value of 0.40, namely statements 4 and 5 have a coefficient of 0.32 < 0.40 with a low category, statements 7.18 and 28 have a coefficient of 0.28 < 0.40 with a low category, statements 13 and 19 have a coefficient of 0.321 < 0.40 with a low category, statements 15 0.21 < 0.40 with a low category, statement 26 has a coefficient of 0.35 < 0.40 with a low category. So, statements declared low categories would be omitted, from 30 statements to 21 statements. While in the material aspect, there is one statement with a value of < 0.40, namely in statement 15, which has a coefficient of 0.39, so statement 15 in terms of material and construction aspects is invalid.

(2) Reliability

After validating the instrument, the researcher calculates its reliability to declared it entirely valid and reliable. Reliability is the ability of a measuring instrument to provide constant or stable measurement results (Istiyono, 2020). Researchers use Inter-Class Correlation (ICC) with a Two-Way Mixed model to estimate reliability. This method is used to test the reliability of panelists/validators. The values of the ICC coefficients are presented in Table 3.

Table 3. Coefficients of ICC (*Inter-Class Correlation)*

ICC value	***Interpretation***
0,00-0,50	*Poor Reliability*
0,51-0,75	*Moderate Reliability*
0,76-0,90	*Good Reliability*
0,91-1,00	*Excellent Reliability*

Reliability estimation with Inter-Class Correlation (ICC) was analyzed using the IBM SPSS 26 Program. The results of the analysis are as follows.

Table 4. Reliability of *Inter-Class Correlation*

	Interclass Correllation Coefficient				
	Interclass Correlation	**95% Confidence Interval**		**Value**	**Sig**
		Lower Bound	**Upper Bound**		
Single Measure	,375	,211	,592	5,287	,000
Average Measure	,808	,651	,911	5,287	,000

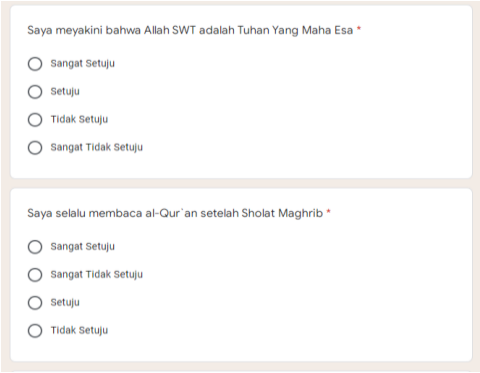
The results of the analysis above are known to be the Average Measures value of 0.808 between 0.76-0.90, so the interpretation is good reliability. So, of the seven panelists tested, they have good reliability.

2.4. Implementation

At the implementation stage, researchers conducted limited trials through the google form link. Then students are asked to fill out this spiritual attitude instrument through the google form link given by the previous homeroom teacher through the

Whatsapp Group. The researcher prepared the google form link in advance regarding the filling instructions so that the learner could provide the answer by choosing one of the four alternative answers from each statement. Here are the design results of Prototype II.

(a)



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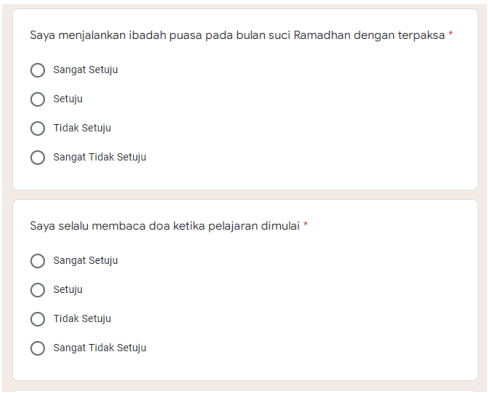

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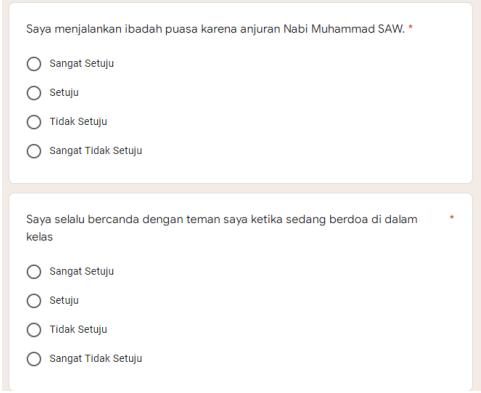

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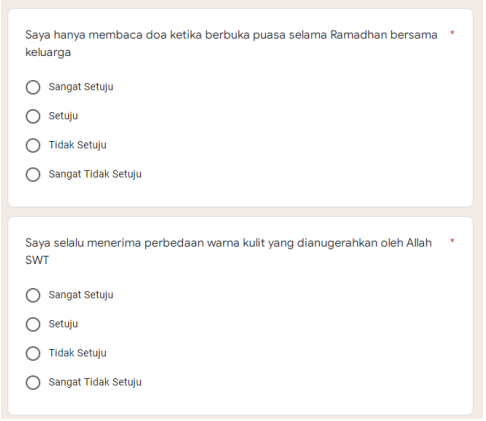

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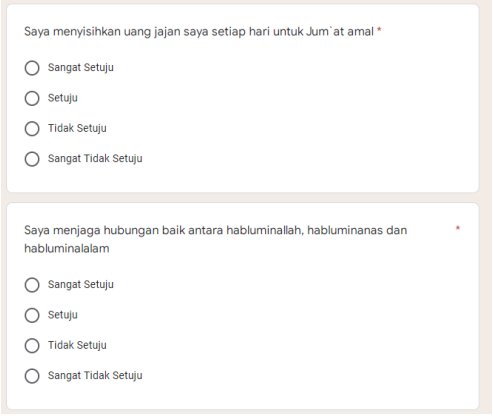

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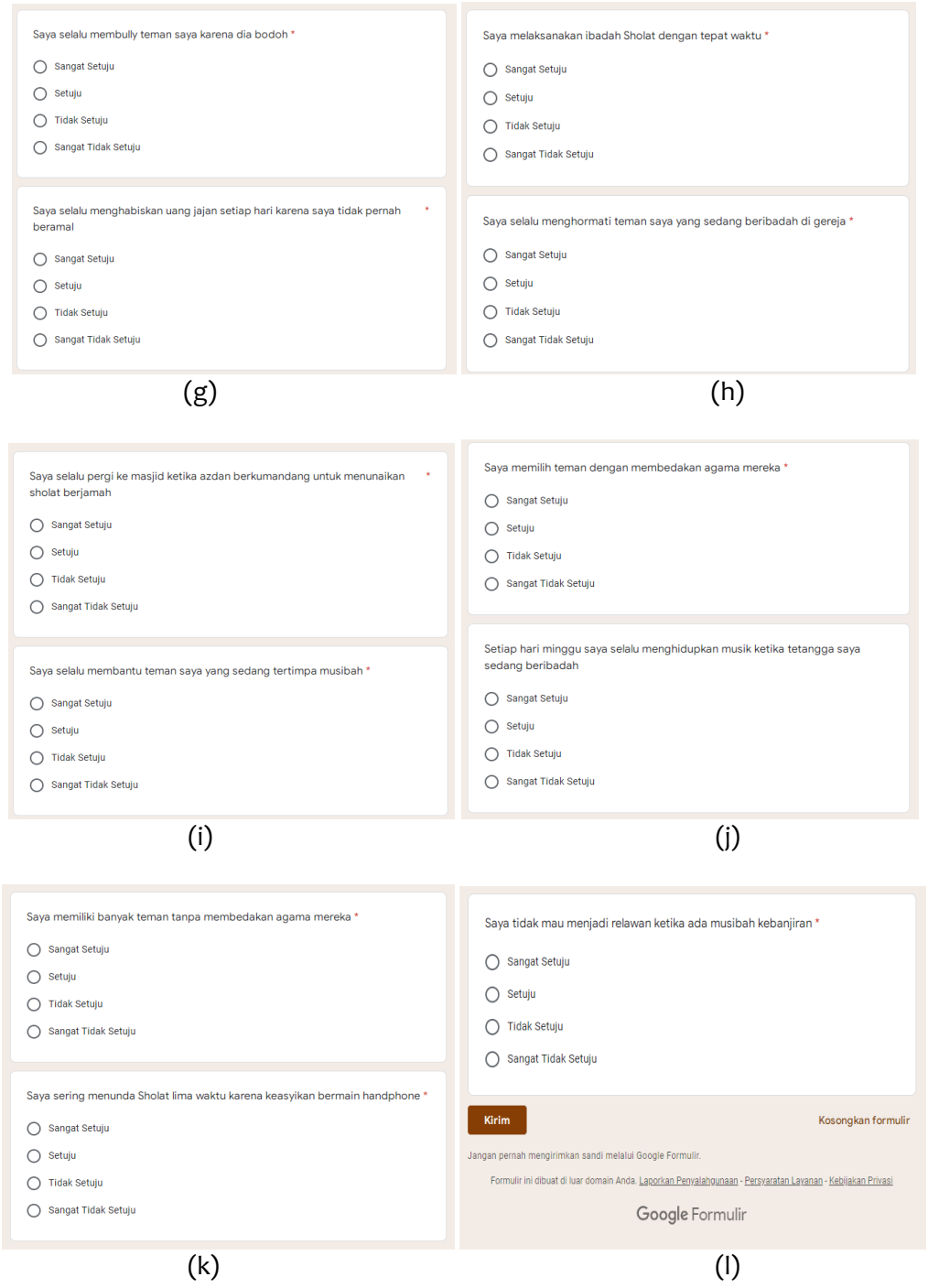

Figure 1. Google form questionnaire (**a**) filling instructions; (**b**) items 1 and 2; (**c**) Items 3 and 4; (**d**) Items 5 and 6; (**e**) Items 7 and 8; (**f**) Items 9 and 10; (**g**) Items 11 and 12; (**h**) Items 13 and 14; (**i**) Items 15 and 16; (**j**) Items 17 and 18; (**k**) Items 19 and 20; (**l**) Item 21.

2.5. Evaluation

At this evaluation stage, researchers get feedback from the panelists' validation results that there are some notes and suggestions for improvements to the Prototype I design instrument, so the product needs to be revised. The panelists advise that it is necessary to reduce the number of statement items so as not to be boring. Product Design has a complete statement of 30 items, and then after being revised to 21 items, this

decrease occurs because there are nine invalid items. Besides that, some other things need improvement in the construction aspect. This product is called Prototype II.

3. Testing

The next step is to pilot the Prototype II product to students. The results of the revised panelist/expert test were tested at MAN 1 Sintang on class XI IIS1 and XI IIS2 students with a total of 67 students via the Google Form link. The investigator has prepared filling instructions for the learner to answer by choosing one of four alternative answers from each statement.

After getting the trial results, the next step is to determine each student's score based on the rubric of existing scoring guidelines. It then analyzes the instrument by determining the validity and reliability of the statement. The determination of construct validity in this instrument uses factor analysis, namely Exploratory Factor Analysis (EFA) which is a technique to reduce data from the original variable or initial variable to a new variable or a smaller number of factors than the initial variable. The exploratory factor analysis process can find new intervariable relationships that are mutually independent, so there is a simple set of variables from the initial number of variables that are not correlated.

The basic assumption of exploratory factor analysis is that each item of the statement correlates with the other. Researchers can see a correlation, so sufficient samples are needed. Therefore, the KMO value (Kaiser-Meyer-Olkin) indicates the adequacy of the piece. Generally, a KMO value of > 0.5 already indicates a sufficient sample. Then bartlett's test of sphericity showed a correlation between variables, if significant (sig <0.05).

The analysis using the JASP 0.16 Program showed that the KMO value on the overall MSA was 0.638 > 0.50, and bartlett's test of sphericity was <0.001, so it was declared significant.

Table 5. Results Factor Loadings Instruments for Assessing Spiritual Attitudes

Item Number	Items	Factor			
		1	2	3	4
N12	I always spend pocket money every day because I never do charity.	0.860			
P13	I perform prayers on time	0.672			
P4	I always read a prayer when the lesson begins	0.664			
N19	I have many friends, regardless of their religion	0.619			
N18	Every day of the week, I always turn on the music when my neighbors are worshipping	0.560			
N7	I only read prayers when breaking the fast-during Ramadan with my family.	0.527			

P14	I always respect my friend who is worshipping at church	0.705		
P16	I always help my friend who is being hit by a disaster	0.648		
P10	I maintain good relations between *habluminallah, habluminanas,* and *habluminalalam*	0.642		
N8	I always accept the difference in skin color bestowed by Allah Almighty.	0.621		
P17	I often postpone prayers five times because of the fun of playing on mobile phones	0.463		
P15	I always go to the mosque when azan is in prayer.		0.684	
N20	I'm not too fond of volunteering when there is a flood disaster		0.677	
P9	I set aside my pocket money every day for charity Fridays		0.509	
N11	I always bullied my friend because he was stupid		0.444	
P1	I believe that Allah Almighty is God Almighty.			0,993
P2	I always read the Qur'an after finishing the Maghrib prayers			0,555
N3	I practice fasting in the holy month of Ramadan by force			
P5	I practiced fasting because of the advice of the prophet Muhammad SAW.			
P6	I always joke with my friend when I'm praying in class			
N21	I choose friends by distinguishing their religions			

Table 5 shows that the first factor consists of six statement items at numbers N12, P13, P4, N19, N18, and N7, each with a loading factor of > 0.5. Moreover, the second factor consists of five variables in statement items P14, P16, P10, N8, and P17. In the third factor, four variables group P15, N20, P9, and P11. While statement items that have a low loading factor, namely items 3, 5, 6, and 21, will not form constructs between variables. The Exploratory Factor Analysis diagram in Figure 2 reinforces this analysis.

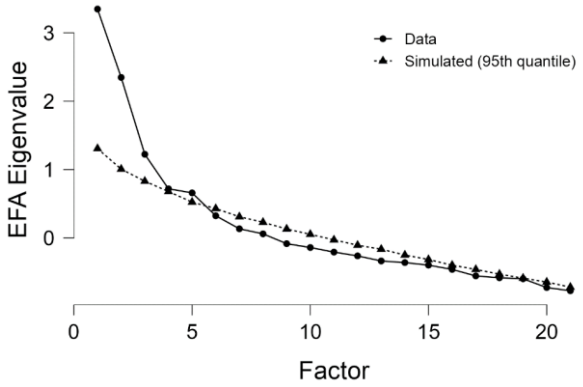

Figure 2. Scree Plot Spiritual Attitude Assessment Instrument

Figure 2 shows that the estimated data had a steep drop in points before the intersection of four points. Therefore, the items of the statement are grouped into four factors.

Reliability can be estimated using Cronbach's alpha as a measure of reliability. The decision criterion for a reliability test using Cronbach Alpha is if the questionnaire is reliable if the Cronbach Alpha value > 0.60.

Table 6. Reliability of *Cronbach Alpha*

Frequentist Scale Reliability Statistics	
Estimate	***Cronbach's α***
Point estimate	0.705
95% CI lower bound	0.586
95% CI upper bound	0.796

Note. The following items correlated negatively with the scale: P17, N3, P10, P14, P16, N21.

Table 6 is the result of output with Cronbach Alpha reliability values of 0.705 > 0.60 so that it can be concluded that there are four factors consisting of 17 attitude scale instruments that are declared reliable or consistently used in the study.

Discussion

The discussion stage explains the suitability of the resulting product with the development objectives and the advantages and disadvantages of the product resulting from the development.

1. Conformity of the Resulting Product to the Development Objectives

This development research aims to create an instrument for assessing spiritual attitudes on the learning of Akidah Akhlak, the theme of death and life in the Barzakh realm. The resulting philosophical agent is a collection of statements about attitudes related to religious values. Panelists have tested the feasibility of this spiritual attitude assessment instrument by validating the instrument. Reliability This instrument is estimated using Inter-Class Correlation (ICC) or reliability testing between panelists. Based on the test results of the agent, this instrument was declared feasible. It can be used as an evaluation instrument to measure the competence of attitudes in moral learning, which is

reviewed based on their suitability from material aspects (84%), construction (70%), and language (89%) used in instruments.

The trial conducted at MAN 1 Sintang in class XI totaled 67 students. The reliability test results using Cronbach Alpha were 0.705, so this attitude assessment instrument has a good level of accuracy.

This study has similarities with previous studies (Nurhadi et al., 2014, p. 117). The trial was conducted on Grade VII 1 students of SMP Global Madani, totalling 19 students. The results of the instrument reliability test obtained a reliability coefficient of 0.878. The development objectives, namely developing instruments for assessing spiritual (divine values) and social (values of love for the environment), have been achieved and can be used as attitude assessment instruments in integrated science learning on the theme of change around us. Hermawan et al. (2014) Their research has produced an attitude assessment instrument for implementing science learning programs with religious values that guide in fostering the character of junior high school students. The feasibility of the attitude assessment instrument in a study is from the validation and reliability results of the agent, and the product is declared suitable for use as a tool to measure student attitudes in learning based on religious values.

Meanwhile, the research by Muchtar & Kadir (2017, p. 24) tested the spiritual attitude assessment instrument in elementary school students. There are three dimensions and twelve indicators using the SEM model match test with a reliability value of 0.846 and a variance value of 0.599, so the instrument has been proven valid and reliable. It only needs a slight addition of statement items in the three dimensions. The research conducted by Triyono et al. (2019, p. 137) in developing an instrument for assessing spiritual attitudes in elementary school students also had a high validity with an average of 89.37 in the excellent category and obtained reliability results of 0.637.

Another study from Sarjono & Indah (2018) showed the results of their research that the instruments made are valid and reliable. In this study, there were four factors: tolerance to other religions, respect, living, and practicing the teaching of their faith. In addition, research from Retnowati (2019) on the attitude of responsibility of students by compiling standard instruments has 47 valid items and an estimated reliability of 0.945 with the category of students having an attitude of responsibility with a high tendency.

Some studies reveal that a suitable instrument is an instrument that has a match between indicators and development goals. However, in this case, many studies are carried out only measuring whether the instrument is valid, so there needs to be more explanation regarding the conformity between the material and the development objectives.

2. Advantages and Disadvantages of Product Development

This development product has several advantages and disadvantages, including this attitude assessment instrument advantage that educators can use to measure students'

spiritual attitudes while learning Kuntoro & Wardani (2020) (Kuntoro & Wardani, 2020). Most educators measure the spiritual attitude of students only in terms of diligent worship, courtesy, and courtesy. So that this instrument can be used by educators to measure student attitudes with assessment instruments according to predetermined guidelines and can be used sustainably (Nurjannah, 2019). From the results of research by (Nurhadi et al., 2014, p. 117), one of the advantages of measurement using this development instrument is that it will be more helpful for teachers in providing a fair assessment of students because teachers do not need to memorize students one by one, so far teachers feel less fair because the assessment is more subjective to students.

The weakness of this product is that educators need to prepare time to design attitude assessment instruments precisely. When testing, students do not go down directly to distribute the questionnaire, so many students want to avoid filling out the questionnaire because they consider it unimportant.

Conclusion

This research developed an instrument for assessing spiritual attitudes. The results showed that students of class XI MA have a spiritual level with an excellent category to contribute to everyday life significantly. Furthermore, the instrument consists of four factors, each containing a different variable.

Through the findings obtained in this study, an assessment of spiritual attitudes of both peer assessment and self-assessment in various high schools / MA is recommended. Training on making spiritual attitude assessment instruments must be held so educators can make assessment instruments in other subjects. In addition, it is necessary to conduct further research that examines the assessment of spiritual attitudes. The study will provide information about the advantages and disadvantages of the instrument compared to the assessment by observation. In addition, other research related to other assessment instruments is still being carried out so that educators are aware of using more efficient attitude assessment instruments.

Declarations

Funding statement

This research did not receive a special grant from Yogyakarta State University. However, Madrasah Aliyah Negeri 1 Sintang was willing to provide facilities and allowed to conduct surveys in the field and provide samples as subjects of this study.

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