

## SCIENCE TEACHER ABILITY TO DESIGN STUDENT SPIRITUAL ATTITUDE INSTRUMENTS

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### ABSTRAK

Setiap guru harus mampu menyelaraskan antara penilaian aspek kognitif dan psikomotor dengan penilaian aspek afektif siswa dalam pembelajaran. Sebagian besar penelitian yang dilakukan di Aceh masih terbatas pada pengembangan instrumen penilaian sikap spiritual, sedangkan kajian tentang gambaran kemampuan guru sains dalam merancang instrumen penilaian sikap spiritual masih sangat terbatas. Untuk mengetahui kemampuan guru IPA SMP di Kabupaten Pidie dalam menyusun soal mengukur sikap spiritual siswa. Penelitian menggunakan metode *Mixed Method*, dengan teknik analisis dokumentasi dan wawancara menggunakan model Miles dan Huberman, dan validitas kelayakan instrumen penilaian sikap spiritual menggunakan skala *Likert* kemudian disajikan dengan menggunakan perhitungan persentasi. Pengambilan sampel menggunakan teknik *purposive Sampling*. Hasil analisis validasi tergambar bahwa sebagian instrumen yang dirancang termasuk dalam katagori belum layak sebesar 40%. Instrumen dalam katagori cukup layak sebesar 10% dan sisanya instrumen dengan katagori sangat tidak layak sebesar 26,67%. instrumen dari total keseluruhan instrumen yang divalidasi. Kesimpulan sebagian besar guru memiliki kemampuan yang kurang dalam merancang instrumen penilaian sikap spiritual. Sedikit guru yang mampu menyusun instrumen penilaian sikap spiritual yang komprehensif sesuai dengan teknik penilaian sikap pada kurikulum 2013.

**Kata Kunci:** Instrumen Penilaian, Sikap Spiritual, Kemampuan Guru

### ABSTRACT

Each teacher must be able to harmonize the assessment of cognitive and psychomotor aspects with the assessment of students' affective aspects in learning. Most of the research conducted in Aceh is still limited to the development of spiritual attitude assessment instruments, while studies describing the ability of science teachers to design spiritual attitude assessment instruments are still very limited. This study aims to determine the ability of junior high school science teachers in the Pidie District to prepare questions to measure students' spiritual

attitudes. The research uses the Mix method, with documentation and interview analysis techniques using the Miles and Huberman models, and the feasibility validity of the spiritual attitude assessment instrument uses a Likert scale and is then presented using percentage calculations. A purposive sampling technique is applied in determining the sample. The results of the validation analysis illustrated that some of the instruments designed were included in the unfit category of 40%. The instrument in the category is quite feasible by 10% and the remaining instruments in the category are very unfit by 26.67% of the instruments from the total validated instruments. The conclusion that most of the teachers had less ability to design spiritual attitude assessment instruments. Few teachers could compile a comprehensive spiritual attitude assessment instrument per the attitude assessment technique in the 2013 curriculum.

**Keywords:** Assessment Instrument, Spiritual Attitude, Teacher Ability.

## **INTRODUCTION**

Applying the 2013 curriculum requires teachers to be professional in designing instruments; assessment instruments designed by teachers must be holistic, including all aspects of cognitive, affective and psychomotor. A typical 2013 curriculum change is on educational standards with aspects of Graduate Competency Standards, Process, Content and Assessment [1]. Assessment in the 2013 curriculum is regulated based on Permendikbud No. 66 of 2013 so that the results of the learning evaluation can describe students' abilities as a whole and measurably [2]. Each teacher must be able to harmonize the assessment of cognitive and psychomotor aspects with the assessment of students' affective aspects in learning. Teachers, especially science teachers, in designing assessment instruments are not only focused on cognitive and psychomotor aspects. However, the assessment of affective aspects is very important to be designed by the teacher in the learning process, especially the assessment of spiritual and social attitudes as required in the 2013 curriculum [3].

The spiritual attitudes related to the formation of students are noble, independent, democratic and responsible [4]. Assessment of affective attitudes in learning is expected to shape students' character in learning, such as having faith, piety to God Almighty,

and having noble character. This is formulated in the national education goals, which are integrated into the assessment of students' spiritual attitudes in the 2013 curriculum [5].

The characteristics of the 2013 curriculum include: developing a balance between the development of spiritual and social attitudes, curiosity, creativity, and collaboration with intellectual and psychomotor abilities. Thus the teacher must have good competence in planning, implementing and evaluating learning following what is expected of the 2013 curriculum; the teacher must pay attention to education that is responsive to students' affective needs [6], [7] and needs related to emotions, feelings, values, attitudes, predispositions, and morals [8]. So it is essential to formulate clearly about teacher competition in designing students' spiritual attitudes, which are integrated with affective attitudes at school.

Factors that cause the importance of making instruments for assessing spiritual attitudes include, first, the goal of national education is to develop the potential of students to become human beings who believe and fear God Almighty, have a noble

character, are healthy, knowledgeable, capable, creative, independent, and become citizens of a democratic and responsible country [9]. In addition, it is moral, which gives understanding in judging right and wrong by faith in God [10], [11]. The second factor is the demands of the Aceh government, which expects all students to have character and personality that upholds the spiritual and moral values of the Acehnese people.

The design of the assessment instrument is expected to be able to shape this character. The third factor is the application of Islamic law as the pride of the Acehnese people in the cultural diversity and pluralism of the Indonesian people. It is appropriate for educational institutions in Aceh, especially junior high school education, to produce students who are in line with the vision and mission of the Acehnese, who have syariah. The instrument for assessing spiritual attitudes in learning is an obligation. Based on the facts above, it is essential to formulate clearly teacher competition in designing students' spiritual attitudes, which are integrated into affective attitudes in schools. There are several research studies regarding the ability of science

teachers to design spiritual attitude assessment instruments in learning.

In getting accurate and maximum assessment results, the teacher must use excellent and valid instruments or guidelines. In fact, in designing evaluations of student learning outcomes, most science teachers prioritize students' cognitive and psychomotor assessments rather than affective assessments [12]. This is in line with Sudjana stating that the assessment of learning outcomes in the affective domain received less attention because teachers only assessed the cognitive domain [13]. The teacher's assessment is always centered on knowledge assessment [14], [15].

Teachers more easily design assessments on cognitive and psychomotor aspects because they are directly related to the subject matter. In contrast, science teachers' affective assessments must have good competence because they are related to student character formation so that they match the personality of the Indonesian nation as formulated in the 2013 curriculum [16].

Based on the results of the lesson plan analysis on initial observations with science teachers, it was found that

most teachers ignored the assessment of spiritual attitudes, which were integrated into student affective assessments. The teachers were more competent in designing cognitive and psychomotor assessment instruments that clearly illustrated student learning outcomes in a natural way. The teachers sometimes ignore affective attitudes in designing assessment instruments. Based on interviews with several science teachers, it was stated that the assessment of students' spiritual attitudes had not been carried out perfectly because the assessment instruments were complicated compared to the cognitive and psychomotor aspects assessment instruments.

In addition, these difficulties were caused by too many assessment instrument formats and difficulties in observing individual students in a limited time. So, there are schools that place more weight on spiritual and social assessments in religious teachers and counselling. From the explanation above, the study aims to find out the ability of junior high school science teachers in Pidie Regency to compile questions to measure students' spiritual attitudes.

## **RESEARCH METHOD**

This research was conducted using the mixed method, qualitative method with descriptive using documentation and interview analysis techniques. The quantitative method was carried out to determine the validity of the spiritual attitude assessment instrument designed by the teacher in the 2013 curriculum-based learning plan. The subject of the study was a 30 science teacher from UIN Ar-Raniry Alumni who taught at Junior High Schools in the Pidie district.

The sampling technique used the purposive sampling technique, with the consideration that science teachers of UIN Ar-Raniry alumnae had competence in designing spiritual attitude assessment instruments based on the 2013 curriculum. The samples in this study were science teachers alumnae of UIN Ar-Raniry who had become civil servants and science teachers of UIN Ar-Raniry alumni who had passed professional certification even though they were not civil servants. The time of the research was conducted from June to August 2021.

The instruments used in this study were the analysis guideline instrument and the instrument for assessing the validity of the feasibility of a spiritual attitude made by a science teacher who graduated from UIN Ar-Raniry Banda Aceh. Data collection techniques in this study were obtained by using documentation analysis. The documentation is in the form of a lesson plan made by the teacher, which covers all aspects including the spiritual attitude assessment instrument. Qualitative data analysis techniques by Miles and Huberman (data reduction, presentation, verification, and drawing conclusions) suggest activities in data analysis, and use open direct interviews. Furthermore, quantitative data using ordinal scale data is then converted to a Likert scale and presented using percentage calculations, with the equation:

$$\%K = \left[ \frac{N}{Nm} \right] \times 100\%$$

K = Percentage of Eligibility  
N = Total Score  
Nm = Maximum Value

Then convert according to Table 1 below:

**Table 1.** Conversion of Eligibility Criteria Scores [13]

Percentage of Achievement of Eligibility	Value Scale	Interpretation
81% ≤ Score ≤ 100%	5	Strongly Agree
61% ≤ Score ≤ 80%	4	Agree
41% ≤ Score ≤ 60%	3	Neutral
21% ≤ Score ≤ 40%	2	Disagree
0% ≤ Score ≤ 20%	1	Strongly Disagree

## RESULTS AND DISCUSSION

The ability of science teachers to design instruments for assessing spiritual attitudes in lesson planning is the ability of teachers to generate, design and develop instruments for assessing spiritual attitudes based on the prepared lesson plans. The ability of science teachers who are Alumni of UIN Ar-Raniry Banda Aceh to design spiritual attitude instruments is defined as the ability to compile instruments to obtain data, analyze data, interpret, and make decisions on assessing students' spiritual attitudes towards science learning.

Regarding the description of the Science Teacher's Competence in designing a Spiritual Attitude Assessment Instrument based on K13 can be seen in Table 2.

**Table 2.** Assessment Instrument for the Development of Spiritual Attitudes

Rated aspect	Description
Conformity of the instrument with the KI-1 Trust	The instrument developed is in accordance with the KI-1 mandate
Indicator Conformity	The indicators used show attitudes in real situations and can be measured.
The scope of aspects assessed	The designed instrument must contain a spiritual attitude following the KI-1 mandate, and the attitude content assessed must be in accordance with the demands of the 2013 curriculum (K-13).
Instrumental techniques and forms	The assessment technique developed is in accordance with the spiritual attitude assessment technique. The form is in the form of observation sheets (journals), self-assessments, assessments between friends.
Rubik's Assessment/Guidelines Scoring	Uses a scoring scale appropriate for the 2013 curriculum (K-13).
Format	Appropriateness of assessment format with assessment technique.
Language	The use of Indonesian standard, communicative and easy to understand and not ambiguous

Rated aspect	Description
Instrument validity	The use of Indonesian standard, communicative and easy to understand and not ambiguous

Core Competency (KI-1) in the 2013 curriculum is a spiritual attitude competency that theoretically is not taught directly in the learning process (indirect teaching). However, this spiritual attitude competency is formed through an ongoing learning process. In science learning, spiritual attitude competency (KI-1) is not derived in the form of KD-1. So the science teachers, to assess students' spiritual attitudes, must have competence, skill, and seriousness in designing measurable instruments. It indicates that most of the designed spiritual attitude assessment instruments are not in accordance with the 2013 curriculum.

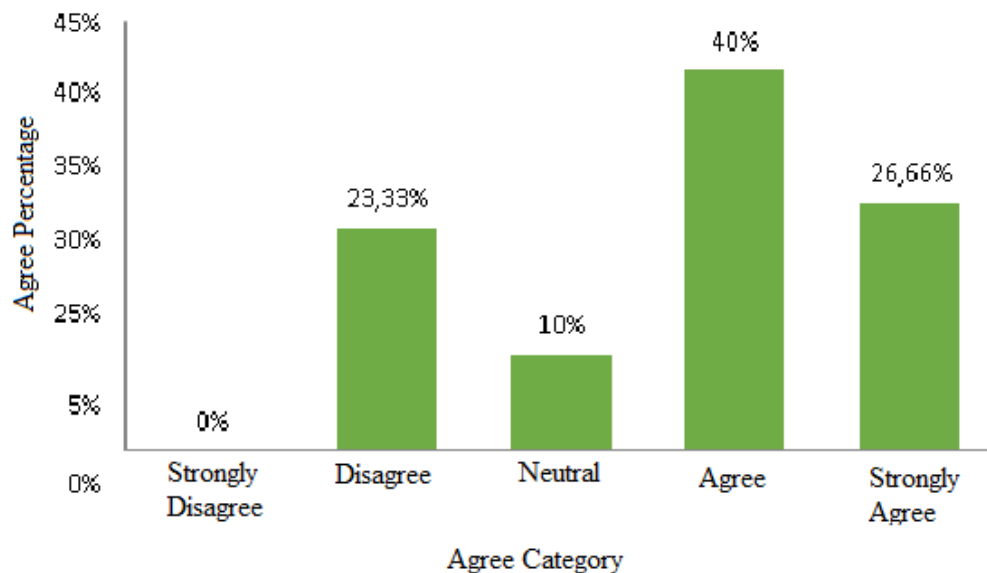
Based on the analysis of the lesson plan document, it can be seen that there is a discrepancy between the instruments designed with KI-I in the lesson plan, and there are teachers who do not design the attitude assessment instrument in the lesson plan at all. In the aspect of conformity, it was found that there was no conformity between the assessment indicators and the assessment of spiritual attitudes. Most of the teachers used indicators of assessment of social attitudes. Appraiser

techniques use all the techniques and forms of assessment in one designed instrument. All forms and assessment techniques are used to assess spiritual attitudes in the form of observational assessments, self-assessments and also peer assessments. Teachers have good skills in designing assessment rubrics with scoring techniques in their instrument designs. The aspect of using language is not in accordance with the language rules (EYD), where the use of a short, precise, and firm does not cause double meanings. The instruments used in measuring spiritual attitudes have yet to be validated independently. However, overall validation of the lesson plan is carried out by the school principal, supervisor and part of the curriculum because it is an administrative need. Most of the evaluations in planning designed in teacher lesson plans are still dominated by aspects of student knowledge.

The data on the results of the due diligence assessment of the spiritual attitude assessment instrument for 30 lesson plans for UIN Ar-Raniry alums science teachers were analyzed in percentage form. The results of the

validation of the spiritual attitude assessment instrument follow the results of the researcher's analysis of the UIN

Ar-Raniry Alumni RPP document can be seen in Figure 1 below:

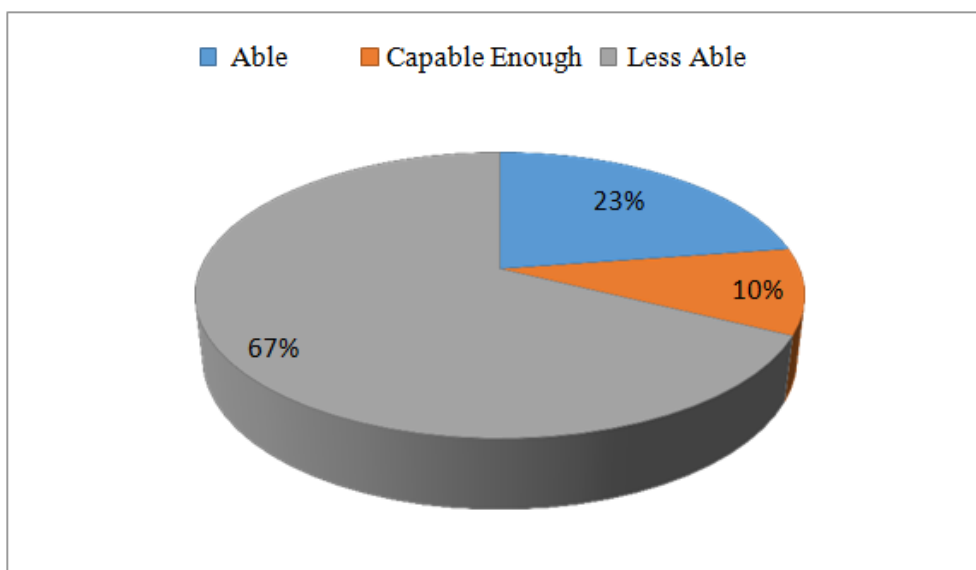


**Figure 1.** Feasibility of the Spiritual Attitude Assessment Instrument

This fact indicates that most results of the validator teachers have less ability to design recommendations for most of the spiritual attitude assessment instruments, instrument techniques are instruments in accordance with the mandate of the 2013 curriculum. An assessment grid does not accompany the

recommendations for most of the instruments, instrument techniques are not listed, and the instruments are not attached.





**Figure 2.** Analysis of Lesson Plan Documentation, Interviews, and Validation of the Spiritual Attitude Assessment Instrument

Based on the Figure. 2 above, it can be concluded that most of the teachers (67%) in this study were not capable (skilled) in designing spiritual attitude assessment instruments. Only 23% of teachers were able to develop a spiritual attitude assessment instrument that met the eligibility standards with several validator improvements and suggestions so that the instrument was suitable for use in learning. The low ability of teachers and the seriousness of teachers in designing instruments for assessing their spiritual attitude states that the 2013 curriculum has very many components and assessment indicators that must be made. According to them, the leading causes of the constraints were limitations and time management,

which resulted in the ineffectiveness of the designed spiritual attitude assessment instrument.

The results of this study are in line with the results of Purnamawati's study, which obtained the fact that *Madrasah Ibtidayah* (MI) teacher respondents participating in pedagogic competency improvement training, most of the 52% studied had not been able to design assessment techniques, instruments and scoring guidelines in accordance with KD indicators in KI-1 and KI-2 and/or degrees in their learning objectives [17]. In line with Fityana, most teachers experienced obstacles and difficulties in formulating appropriate indicators and designing attitude assessments with various assessment techniques [18].

This factor is caused by the lack of understanding of some teachers in interpreting spiritual attitudes with social attitudes in learning.

## CONCLUSION

The ability of science teachers who teach at junior high schools in Pidie District alums of UIN Ar-Raniry mostly have less ability to design spiritual attitude assessment instruments. The preparation of the spiritual attitude assessment instrument designed by only a few teachers was able to compile a comprehensive spiritual attitude assessment instrument in accordance with the attitude assessment technique in the 2013 curriculum.

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