# Development of Web-Based Self Assessment Instruments to Assess the Social Attitude of Students

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# Diálogos

# Development of Web-Based Self Assessment Instruments to Assess the Social Attitude of Students

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**Abstract:** This study aims to compile and develop an assessment instrument for students' social attitudes that is practical, valid and reliable. This study uses research and development (R&D) methods with the design proposed by Borg & Gall. The research was conducted at the Barito Kuala District Junior High School in the 2021/2022 academic year. Limited instrument trials were conducted with 100 students as respondents. Field trials were carried out on a wider sample, namely 900 students which are spread over 7 State Junior High Schools in Barito Kuala Regency, namely: SMP Negeri 2 Alalak, SMP Negeri 4 Alalak, SMP Negeri 5 Alalak, SMP Negeri 2 Anjir Muara, SMP Negeri 1 Rantau Badauh, SMP Negeri 2 Rantau Badauh, and SMP Negeri 4 Balawang. Data collection was carried out by means of a questionnaire. In accordance with the characteristics of the type of response, the format of the measuring instrument chosen to present the items of the instrument is a questionnaire with a Likert scale. For each item there are 4 answer choices, namely Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS). Scoring on positive statements is done by giving a score of 4 for SS, 3 for S, 2 for TS, and 1 for STS. As for negative statements, scoring is done by giving a score of 4 for STS, 3 for TS, 2 for S and 1 for STS. Data analysis was carried out quantitatively using the SPSS version 25 program. After conducting small-scale and large-scale trials and experiencing several improvements, while determining reliability by using Cronbach's alpha formula, a reliability value of 0.866 was obtained which was categorized as having high reliability. The instrument is then entered into a Web-based application (Web-Based). *Application)* with link http://projectjs.xyz/angket/. For practicality in filling out the Web-based self-assessment instrument, 83% of students stated that it is very easy and easy to use. Based on these data, it can be said that the Web-based self-assessment instrument to assess students' social attitudes has valid, reliable and practical criteria so that it is feasible to use.

*Keywords*: Instrument Development, Self-Assessment, Students' Social Attitudes.

## INTRODUCTION

Character building is the foundation of National Development. Character education is a concept that is based on strategic values and is upheld by the Indonesian people. The development of character values is very important and is an ideal that must be realized through the implementation of national education (Rochalina, 2021). One of the character development strategies can be done through the scope of the education unit (school). Schools through various subjects have roles and responsibilities at the same time in fostering the character of the nation.

Schools are responsible not only for producing students who excel in science and technology, but also in character and personality (Suwandayani, Isbadrianingtyas, & Nafi, 2017). Schools have long been seen as institutions to prepare children for life, both academically and as moral agents in society. To become moral citizens, children need to be given the opportunity to learn moral values (Johansson, 2011). Schools are essentially not places for teachers to convey knowledge through various subjects, but schools are institutions that carry out business and learning processes that are oriented towards character values (Suwandayani, Isbadrianingtyas, & Nafi, 2017). Durkheim (Worsley, 1991) say that schools socialize children to become effective and tolerant citizens in society. MForming a child with character is

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not an easy and quick effort. This requires continuous effort and deep reflection to make a series of (Moral Choice) moral decisions that must be followed up with real actions, so that they become practical and reflective (Subianto, 2013).

Education and character building of the nation have a big role to play in advancing the nation's civilization so that it becomes an increasingly advanced nation with human resources who are knowledgeable, insightful and have character. Maintaining national identity and character is a reflection of the attitude that becomes the national identity that can give birth to people of good character, advancing our nation's civilization more advanced with quality and character human resources (Giri, 2021).

In an effort to strengthen character education in schools, the government has issued various policies, including enacting the 2013 national education curriculum, which is also known as the Character-Based Curriculum. The Government's earnest efforts towards character building were then followed up through Presidential Regulation of the Republic of Indonesia Number 87 of 2017 concerning Strengthening Character Education. The implementation of the 2013 curriculum brings its own problems for teachers, including those related to assessment. The implementation of the assessment in the 2013 Curriculum explicitly asks that teachers in schools be balanced in conducting assessments in three domains, namely cognitive, affective and psychomotor in accordance with the objectives to be measured. Assessment in the 2013 curriculum is seen as having more complexity compared to the assessment system in the previous curriculum (Setiadi, 2016). One of the biggest barriers to assessment is attitude assessment (Retnawati, 2015).

In the 2013 curriculum, the formation of attitudes at the basic education level has the highest proportion among the three domains of learning outcomes, namely knowledge, attitudes, and skills. However, the assessment of the affective domain or attitude received less attention from the teacher. The teachers judge more on the cognitive domain (Sudjana, 2017). Whereas the affective domain determines a person's success. People who do not have good affective abilities have difficulty achieving optimal study success (Popham, 1995; Mardapi, 2011). Success in the cognitive and psychomotor domains is largely determined by the affective condition of the learners. Assessment through tests on cognitive aspects alone, has not been able to describe the function of assessment that can be used as an approach to encourage students to learn (McCormack and Yager, 1992).Learning activities in cognitive and psychomotor aspects need to be supported by the affective domain (Ponto, 2020).

The affective domain is the domain that is considered the most difficult to develop so far, including how to evaluate it. In fact, various efforts to form the character and personality of students, both cognitive, affective and psychomotor, whether directly integrated in the subject or implicitly through the daily activities of students, should be accompanied by a systematic, comprehensive and sustainable assessment program (Imtihan, 2008). 2017).Sax said that if the assessment only emphasizes the aspect of knowledge as a result of student learning and ignores aspects of students' attitudes and skills, psychologically it has a negative impact on the development and progress of learning, namely invading students' rights, causing anxiety, and disrupting the learning process, categorizing students permanently, punishes intelligent and creative students, creates discrimination and can only measure very limited learning outcomes (Lubis, 2016). MMeasuring outcomes in the affective domain (ie, student engagement, growth mindset, self-efficacy in language arts, and stereotype threat) requires the development and/or modification of instruments (Callahan & Park, 2021).

In process assessment, teachers need assessment instruments to assess student readiness, processes, and learning outcomes (Maulida & Astawan, 2020). The preparation of the assessment instrument must be carried out starting from the determination of the instrument, the preparation of the instrument, the review of the instrument, the implementation of the assessment, the analysis of the assessment results, and the follow-up program for the assessment results. In line with the opinion of Chng & Lund, (2018) and Inteni, et al. (2013) who said that in the assessment process, it is necessary to pay attention to determining the object to be assessed, making and determining criteria for measurement, collecting data, and determining decisions.

Although all educators know that the learning domains that must be fully developed include cognitive, affective, and psychomotor (behavioral) aspects, in practice the assessment of the affective and psychomotor domains has not received adequate attention. More specifically, the affective domain has been considered the most difficult to develop, including how to evaluate it (Hall, 2011; Imtihan, Zuchdi, Istiyono, 2017).Most of the teachers carry out the assessment of aspects of student attitudes only through rough observations without instruments (Lubis, 2016; Widhaningsih, 2021). Eventhere are teachers who give values to attitudes without conducting attitude assessments, only based on the

cognitive aspect test scores that are added with attitude values (Muslich, 2014). The implementation of social attitude assessment in several schools is seen as not optimal because the assessment is only carried out based on observations without instruments (Dessiane & Kristen, 2021).

The difficulty of teachers in assessing student attitudes in the learning process is the limited time and large number of students (Maba, 2017; Zuhera, Habibah and Mislinawati, 2017). Teachers often do not compile an attitude assessment instrument formally or in writing because of the difficulty in compiling it (Rimland, 2013). In addition, teachers consider that attitude assessment takes more energy and time because they assess one by one, so they tend not to carry out (Audina, Susetyo, and M. Arifin, 2018).

One solution to overcome the problems described above is to develop a practical, valid and reliable attitude assessment instrument. Assessment activities require an instrument as a reference in the implementation process. Based on the history of its development, the making of assessment instruments is carried out based on an approach that is centered on validity and reliabilityreliability, teachers, and students (Lyon, 2011). An important aspect of attitude to be assessed in accordance with the provisions of the 2013 curriculum is social attitude. So that the instrument is more practical and can be used by the teacher even online, the development of this instrument uses a Web application. Technology that is integrated with the assessment process is one of the strategies for creating learning objectives (Lestari, Hasan, & Taufik, 2016). Web-based attitude assessment instruments are becoming more practical for their users, especially for teachers. With this research, there will be a practical, valid and reliable assessment instrument for student social attitudes.

The 2013 curriculum demands a balance of assessment between the affective, cognitive and psychomotor domains. However, many teachers have difficulty in carrying out assessments in the realm of attitudes, especially in compiling quality assessment instruments.

One solution to overcome these problems is to develop instrument attitude assessment according to indicatorwhich will be assessed. The questions in this study are:

1. What is the level of validity of the self-assessment instrument developed to assess attitudes? social student?
2. How is the reliability of the self-assessment instrument developed to assess attitudes? social student?
3. How practical is the web-based self-assessment instrument to assess students' social attitudes?

## LITERATURE REVIEW

Assessment is defined as the process of gathering information about the performance of students, to be used as a basis for making decisions (Broadfoot, Winter & Weeden, 2002). In learning activities, assessment is an important component that must be done by the teacher to determine the effectiveness of the learning that has been carried out (Baharun, 2016). A good assessment system will encourage educators to determine good teaching strategies and motivate students to learn better (Widoyoko, 2019).

In the 2013 Curriculum there is a shift in conducting assessments, namely from assessment through tests (measuring knowledge competencies based on results only) to authentic assessments (measuring attitudes, skills, and knowledge competencies based on processes and results) (Kunandar, 2015). Assessment is carried out both in the learning process and student learning outcomes (Bisri & Ichsan, 2015). Therefore, the teacher in conducting the assessment must be comprehensive, to obtain information on all aspects of student development, both cognitive, affective and psychomotor aspects. The assessment carried out is limited to certain aspects, it cannot be used as the only basis for making decisions on student development (Wildan, 2017).

Assessment in learning is significantly more effective for teachers in improving the quality of learning (Broadfoot, Winter & Weeden, 2002; Kunandar, 2015).Good assessment has an impact on the learning process (Popham, 2009) and becomes a reference for further policies (Mardapi, 2008). The accuracy of the selection of the assessment method will greatly affect the objectivity and validity of the assessment results, which in the end is objective and valid information on the quality of education. On the other hand, errors in choosing and applying assessment methods also result in invalid information regarding learning and education outcomes (Setiadi, 2016). Based on theseAssessment needs to be designed and designed as well as possible so that the instruments used are of high quality.

Several studies in Indonesia have shown that teachers in certain subjects have a low ability to develop quality evaluation instruments (Sholahuddin et al., 2021). The low ability of teachers to develop evaluation instruments can cause

the goal to determine the quality of learning for students to be hampered (Sholahuddin et al., 2021).For this reason, the assessment needs to be designed and designed as well as possible. One of them is the design of assessment instruments in the realm of attitudes.

Attitude assessment is a complex activity, because it deals with values that are difficult to measure. The results of the attitude assessment must be understood as a processnot asThe results of the instant learning process are assessed by educators every time they complete the learning process. Therefore, this assessment is an accumulative process of student behavior over a certain period of time (Kuseiri, 2019). Ideally, the assessment of the attitude domain uses an attitude measurement instrument, which includes components of cognition, affection, and conation. Cognition is related to beliefs (beliefs, ideas, and concepts). The affective component concerns a person's emotional life, while the conative component is the tendency to behave. The three components of attitude do not stand alone, but interact with each other in a complex manner. To overcome this problem, it is necessary to prepare the correct attitude assessment instrument (Mawardi, 2019).

There are several techniques that can be used to measure attitudes, including self-assessment. Self-assessment is useful for: 1) motivating students to learn to give good assessments, 2) increasing students' self-confidence, 3) getting new experiences in learning activities, 4) gaining insight in conducting assessments, 5) improving students' critical thinkingbecause there isthe urge to search and find something carefully to give notes or comments (Amo and Jareno, 2011). SOne of the goals of self-assessment is to help students describe their performance in class. High self-confidence in learning can increase student success in learning (Walser, 2009).

JIf teachers will implement self-assessment, teachers need to provide direction on self-assessment before the assessment process is carried out, because this can increase students' self-confidence in conducting assessments (Kritikos et al., 2011). Self-assessment can be done in order to build and shape the character of students (Febriyanto, Naufal, & Budiarty, 2021).With self-assessment students are trained to monitor and evaluate their own thoughts and actions and identify their own weaknesses and strengths to achieve the desired learning outcomes.

## METHOD
### Research Design

This study uses a research and development (R&D) approach. The research and development method is a scientific way to research, design, produce and test the validity of the products that have been produced (Sugiyono, 2015). This research and development design uses the model proposed by Borg & Gall (2003) which consists of 10 stages, namely: (1) Potential problems, (2) Information gathering and literature study, (3) Product design, (4) Design validation, (5) Design revision, (6) Limited trial, (7) Product revision, (8) Field trial), (9) Final product revision, and (10) Dissemination and implementation. However, due to time constraints, this research only reached stage 9.

These steps are then divided into two stages, namely the preliminary stage and the development stage. The preliminary stage includes potential problems, information gathering and literature study and product design. The development stage includes design validation, design revision, limited trial, product I revision, field trial, and final product revision.

The operational variable in this study is students' social attitudes. There are two methods that can be used to measure the affective domain, namely the observation method and the self-report method (Andersen, 1980). The use of the observation method is based on the assumption that affective characteristics can be seen from the behavior or actions displayed and/or psychological reactions. The self-report method assumes that the person who knows a person's affective state is himself.

In this study, attitude assessment was carried out through self-report/self-assessment. Specification of instruments for assessing attitudessocialThis is done by first describing the concepts of social attitudes into indicators that reveal students' social attitudes. The type of response in this study is a typical performance that cannot be declared true or false, but all responses can be said to be true according to the conditions of each respondent. In accordance with the characteristics of the type of response, the format of the measuring instrument chosen to present the items of the instrument is in the form of a questionnaire with a Likert scale. For each item there are 4 answer choices, namely Strongly Agree (SS), Agree (S), Disagree (KS), and Disagree (TS). Scoring on positive statements is done by giving a score of 4 for SS, 3 for S, 2 for KS, and 1 for TS. As for the negative statementf, scoring is done by giving a score of 4 for

TS, 3 for KS, 2 for S and 1 for SS. The steps used to construct the scaleLikert between others:1) compose a statement objectattitude; 2) carry out trialsinstrument; 3) determine the score for each statement; 4) perform item analysis to determine the validity of the instrument (Mawardi, 2019).

## Participants

This research was conducted at the State Junior High School in Barito Kuala Regency in the 2021/2022 academic year. For the purposes of developing the instrument, the research population was all students of State Junior High Schools in Barito Kuala Regency. The research sample is part of the State Junior High School students in Barito Kuala Regency who were taken randomly. A limited trial was conducted on 100 students drawn from two schools, namely State Junior High School 2 Barambai and State Junior High School 1 Anjir Muara.

Field trials were carried out on a wider sample, namely 900 students spread across 7 Barito Kuala District Junior High Schools, namely: SMP Negeri 2 Alalak, SMP Negeri 4 Alalak, SMP Negeri 5 Alalak, SMP Negeri 2 Anjir Muara, SMP Negeri 1 Rantau Badauh. , SMP Negeri 2 Rantau Badauh, and SMP Negeri 4 Grasshopper. According to Nunnally (1970) N is the number of respondents and the size is 10 times the number of items or at least 5 times the number of items in the measuring instrument (Nunnally, 1970). Crocker&Algina (1986) discusses the size proposed by Nunnally and adds that for the sake of information stability, a minimum of 200 respondents is required. Even if the measuring instrument is only 20 items, a minimum of 200 respondents is required.

## Data Collection

Data were collected through a questionnaire (questionnaire) using a Web application (Web Based). *Application)* with link http://projectjs.xyz/angket/. At the stage of the process of making the Application of Student Attitude Assessment Instruments to the Web-based Environment, it is carried out in several stages, namely:

1. *Download* sublime text
2. *Download* xampp
3. Making coding
   *coding* is the process of translating the design in making applications made into a programming language. In making coding aims to make a design that has been made into the form of an application. The coding is done using the sublime text application. The coding is done by referring to the login, the statement-making process, and filling out the questionnaire made at the design stage.
4. Uploading coding results to hosting
   *Hosting* is a service for storing all data, files, and images on a website. This service also ensures that a website can be accessed via the internet. After hosting, you can then access the application by opening the site in a browser with a link *http://projectjs.xyz/angket/*, and to log in as admin can access the link *http://projectjs.xyz/angket/login.php*
5. Test
   The fifth stage is testing by going to the link *http://projectjs.xyz/angket/* can be tested on the application by filling out an environmental assessment questionnaire. If you want to fill in the statement data, you can enter the admin section with the link *http://projectjs.xyz/angket/login.php* and use username: admin, and password: admin
6. Revision
   The revision stage is only carried out if in the testing stage an error is found. Revision is done by returning to the third stage. In more detail, the revision steps are:
   a. Making coding
   b. Uploading coding results to hosting

## Data Analysis

The power obtained was analyzed quantitatively using the SPSS version 25 program.

## RESULT AND DISCUSSION

This study departs from the problems faced by junior high school teachers in carrying out the assessment of the domain of attitudes, one of which is social attitudes. Teachers generally also do not have appropriate and quality instruments to assess these attitudes. Then a literature study was conducted to find references related to the attitude dimensionsocialstudent. In this study, there are six indicators to assess students' social attitudes, namely: honest attitude, discipline, responsibility, caring, polite, confident. Of the seven indicators then developed into 35 items as shown in the following table:

### Table 1. Distribution of Social Attitude Dimensions Based on Number of Statement Items

| Indicator | No Item | Number of Items |
|---|---|---|
| Honest | 1, 2, 3, 4, 5, 6 | 6 |
| Discipline | 7, 8, 9, 10, 11 | 5 |
| Responsibility | 12, 13, 14, 15, 16, 17 | 6 |
| polite | 18, 19, 20, 21, 22, 23, 24, 25 | 8 |
| Care | 26, 27, 28, 29,30 | 5 |
| Self-confident | 31, 32, 33, 34, 35 | 5 |
| Amount | | 35 |

Of the 35 statement items developed, 25 instrument items are positive and 10 items are negative. Before conducting a limited trial, validation was first carried out by 5 experts (experts), with expertise in the field of evaluation 2 people, in the field of learning 2 people and in the field of language 1 person. Validation is carried out to ask for opinions regarding the instrument to be developed, both regarding the clarity of the sentence in the statement, the suitability of the indicator with the statement or about the linguistic aspect.

For the questionnaire instrument/questionnaire the content validity assessment uses the Validity index from Aiken. The validity assessment was carried out using a five-point scale, namely (1) very inappropriate, (2) not suitable, (3) unsure, (4) appropriate, and (5) very appropriate. The validity using index V from Aiken is as follows: $V = s/[n(c-1)]$

Information:

$S = r - lo$

$lo$ = the lowest score of validity (in this case = 1)

$c$ = the highest validity rating score (in this case = 5)

$r$ = number that given by appraiser

$n$ = number of appraisers (Azwar, 2015)

The results of the recapitulation of the expert validity of this research instrument can be presented in the following tables.

### Table 2. Recapitulation of Instrument Validity Test Results by Experts

| No | Rated aspect | Validity Value |
|---|---|---|
| 1 | Guidelines for answering and filling out Instruments | 0.70 |
| 2 | Instrument Format | 0.70 |
| 3 | Conformity of the statement with the indicator | 0.70 |
| 4 | Language used | 0.60 |
| 5 | Compatibility with writing Indonesian language rules | 0.60 |
| 6 | Statement sentence length | 0.60 |
| 7 | Number of items instrument | 0.60 |

From the table above, it is known that the results of the expert validity test on the instrument to be used obtain scores with high and sufficient criteria. Some of the suggestions given include sentences in statements that cannot be duplicated, sentences must be clarified, and sentence structure must comply with Indonesian writing rules (SPOK). This is in accordance with Azhar's opinion (Mawardi, 2019) that validation is based on signs, namely: (1) the statement does not contain elements of the past, (2) the statement does not contain an element of fact or can be translated into a fact, (3) the statement does not have an element of the past. more than one interpretation, (4) the statement does not come

out of the psychological object to be measured, (5) the statement does not invite a reaction of approval from all parties or vice versa, (6) chooses a statement that includesabout desired affective, (7) statements written using simple, clear, and direct language, (8) statements written using concise language and no more than 20 words, (9) statements containing only one idea or ideas, (10) statements does not contain universal elements, (11) the statement avoids the use of words only, merely, solely, and other words that have the same meaning as the word, (12) statements as much as possible are arranged using simple words, (13) statements do not use words that are difficult to understand, (14) statements do not use double negative words.

After repairing all the instruments according to the input of several experts, the next step is to enter the instrument into a Web-based application (Web-Based). *Application)* with link http://projectjs.xyz/angket/. The next step is to conduct a limited trial to determine the validity and reliability of the instrument to be developed. A limited trial was conducted on 100 students drawn from two schools, namely State Junior High School 2 Barambai and State Junior High School 1 Anjir Muara. The results of student answers are used to analyze statement items using the SPSS version 25 program of the 35 statement items that were tested at an early stage (limited scale), 34 items were valid instruments, and 1 instrument was invalid because it only had a value of 0.137 while the r table for n 100 was 0.195. Against invalid instruments then carried out repair. While the alpha coefficient value is 0.963. Thus it can be said that the statement items have high consistency as shown in the following table.

### Table 3. Limited-Scale Instrument Reliability

| Reliability Statistics | |
|---|---|
| Cronbach's Alpha | N of Items |
| .963 | 35 |

The second phase of the instrument trial (field test) was carried out after the instrument was revised with a total of 35 statements. The following items are instruments for measuring students' social attitudes.

### Table 4. Distribution of Items for Measuring Students' Social Attitudes

| No | Statement | SS | S | KS | TS |
|---|---|---|---|---|---|
| 1 | I quote a friend's answer during a test or exam | | | | |
| 2 | I do my own assignments given by the teacher without imitating my friends | | | | |
| 3 | I protect a friend who made a mistake | | | | |
| 4 | I will admit if there are mistakes or mistakes | | | | |
| 5 | I will hand over the items found to the owner or to the authorities | | | | |
| 6 | I save a friend's thing that I borrowed so that it can be used again | | | | |
| 7 | I strictly obey the rules made by the school | | | | |
| 8 | I obeyed the school rules because I was afraid of sanctions | | | | |
| 9 | I do the assignments given by the teacher when it is close to collection time | | | | |
| 10 | I wear uniform according to school regulations | | | | |
| 11 | I have less study time than play time | | | | |
| 12 | I carry out picket assignments in class correctly and on time | | | | |
| 13 | I just keep quiet when there are friends who don't carry out daily pickets | | | | |
| 14 | I try to keep my promises with friends | | | | |
| 15 | I acknowledge and apologize if any mistakes were made | | | | |
| 16 | I do my job seriously | | | | |
| 17 | I returned the item lent by a friend after I finished using it | | | | |
| 18 | I respect older people | | | | |
| 19 | I thank you after receiving the help of others | | | | |
| 20 | I'll raise my hand first if I want to ask the teacher | | | | |
| 21 | I will speak, even if someone else is talking | | | | |
| 22 | I treat others with courtesy | | | | |
| 23 | I am friendly towards everyone | | | | |
| 24 | I say hello when I enter class | | | | |
| 25 | I appreciate friends who express their opinions | | | | |
| 26 | I let friends who are having trouble do their homework | | | | |
| 27 | I try to visit if there is a teacher who is sick | | | | |

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28    I try to visit if there is a friend who is sick
29    I'm trying to donate
      every time there is a voluntary donation at school to help people who are stricken by
      disaster
30    I feel happy if the school makes a visit to the orphanage to make a donation
31    I dare to appear in front of the class to convey the results of group discussions
32    I will express my opinion in the discussion if asked by the teacher
33    I dare to take part in various competitions at school
34    I dare to give my opinion during the class discussion
35    I am willing if asked to be an organizational manager at school

The next stage is conducting a field trial (phase II) on 900 students spread across 7 Barito Kuala District Junior High Schools, namely: SMP Negeri 2 Alalak, SMP Negeri 4 Alalak, SMP Negeri 5 Alalak, SMP Negeri 2 Anjir Muara, SMP Negeri 1 Rantau. Badauh, SMP Negeri 2 Rantau Badauh, and SMP Negeri 4 Grasshopper. The results of the instrument validity test phase II can be seen in the following table.

### Table 4. Phase II Instrument Validity Test Results

| No | r count | r table | Information | No question | r count | r table | Information |
|----|---------|---------|-------------|-------------|---------|---------|-------------|
| 1 | 0.660 | | Valid | 19 | 0.200 | | Valid |
| 2 | 0.219 | | Valid | 20 | 0.199 | | Valid |
| 3 | 0.660 | | Valid | 21 | 0.097 | | Valid |
| 4 | 0.180 | | Valid | 22 | 0.205 | | Valid |
| 5 | 0.150 | | Valid | 23 | 0.204 | | Valid |
| 6 | 0.013 | | Invalid | 24 | 0.224 | | Valid |
| 7 | 0.192 | | Valid | 25 | 0.156 | | Valid |
| 8 | 0.016 | | Invalid | 26 | 0.090 | | Valid |
| 9 | 0.101 | | Valid | 27 | 0.223 | | Valid |
| 10 | 0.148 | | Valid | 28 | 0.203 | | Valid |
| 11 | 0.145 | | Valid | 29 | 0.199 | | Valid |
| 12 | 0.256 | | Valid | 30 | 0.222 | | Valid |
| 13 | 0.088 | | Valid | 31 | 0.385 | | Valid |
| 14 | 0.152 | | Valid | 32 | -2.51 | | Invalid |
| 15 | 0.166 | | Valid | 33 | 0.410 | | Valid |
| 16 | 0.236 | | Valid | 34 | 0.367 | | Valid |
| 17 | 0.139 | | Valid | 35 | 0.367 | | Valid |
| 18 | 0.179 | | valid | | | | |

For the r value of the Product Moment table with N = 900 the number 0.065 is found, and the instrument is considered valid if the value of r count > r table, then the instrument is valid (Arikunto, 2016). The results of this study indicate that of the 35 self-assessment instruments to assess students' social attitudes, 32 of them already have validity criteria, and 3 items are invalid, namely instrument items number 6, 8 and 32.

Validity is defined as the degree to which a concept is accurately measured in quantitative studies (Heale & Twycross, 2015). Another definition states that validity is a measurement that actually measures what we want to measure (LoBiondo-Wood & Haber, 1990). Validity test is a measurement method that aims to find out how precise and how accurate a measuring instrument is (Purnomo, 2018). The validity test also aims to find out whether there are statements that must be discarded or replaced because they are considered irrelevant (Erida, 2021). A measurement result that is called valid is not only data that accurately describes the aspects being measured, but also provides a careful description of the variables being measured (Azwar, 2015).

The next step is to do a reliability test. Instrument reliability is the accuracy of the instrument, in other words, the extent to which a research instrument consistently has the same results when used in the same situation on repeated occasions ((Heale & Twycross, 2015; Purnomo, 2018). Reliability testing is useful for determine whether an instrument can be used more than once or not (Beni, Nursalam & Hasanuddin, 2020) Instruments with high reliability will produce the same results if measured again at another time with the same scale (LoBiondo & Haber, 2006). The reliability test greatly influences the quality of the data collected (Yusuf & Daris, 2018). An instrument is said to be reliable if the KR

reliability coefficient value is more than 0.70 (Fraenkel, Wallen, & Hyun, 2012: Litwin, 1995). Meanwhile, Naga (1997) said that an adequate reliability coefficient should be above 0.75. The reliability of the instrument in the second phase of the trial can be seen in the following table.

### Table 5. Large-Scale Instrument Reliability

| Reliability Statistics | |
| --- | --- |
| Cronbach's Alpha | N of Items |
| .866 | 35 |

Based on the table above, it is known that the reliability of the social attitude measurement instrument is high with a value of 0.866. Thus it can be said that the self-assessment instrument to assess students' social attitudes has met an adequate reliability coefficient. Anderson et. Al. (Arikunto, 2013) states that the requirements for the instrument are validity and reliability. In this case, validity is more important, and reliability is necessary because it supports the formation of validity. A test may be reliable but not valid. On the other hand, a valid test must be reliable (Arikunto, 2013). Based on some of these opinions, this instrument can be accepted and declared valid and reliable and suitable to be used to measure students' social attitudes.

To find out the practicality or convenience of students in filling out the self-instrument assessment web-based, then a questionnaire was distributed to 675 students, and the results can be seen in the following figure.
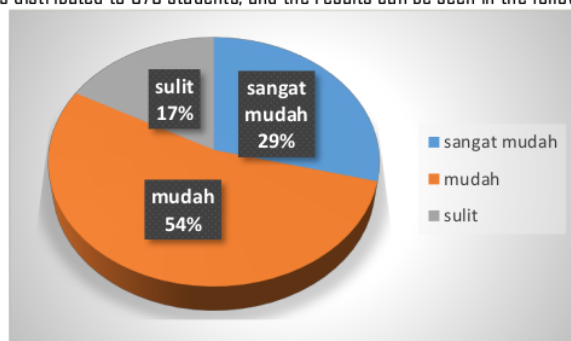


**Figure 1. The ease of students in filling out the instrument evaluation**

From the picture above, it is known that most of the students stated that it was very easy and easy to fill out the Web-based instrument. Based on this, in addition to being valid and reliable, this instrument was also assessed by most students as very easy and practical to use. Various advantages are obtained by carrying out this Web-based attitude assessment, including being able to conduct assessments without having to face to face, as currently requires learning to be carried out online due to the corona pandemic. Student can access anywhere and anytime, while connected to the Internet network (Rossett, in Nasution, 2015).

In addition, online-based assessments can attract and motivate students and help spur their interest in learning (Jordan, 2011). E-assessment, which uses computer-based assessment, has high consistency and is not influenced by subjectivity factors (Bull & McKenna in Jordan 2013). Technology that is integrated with the assessment process is one of the strategies for creating learning objectives (Lestari, Hasan, & Taufik, 2016). It can be concluded that the Web-based self-assessment instrument is very practical and feasible to use to assess students' social attitudes.

## CONCLUSION

After conducting small-scale and large-scale trials and undergoing several improvements, 32 instruments were produced to measure students' social attitudes that were valid through the Product Moment correlation test. While determining reliability by using Cronbach's alpha formula, a reliability value of 0.866 was obtained which was categorized as having high reliability. Instruments that have been tested for validity and reliability are then entered into a Web-based application (Web-Based).*Application)* by address http://projectjs.xyz/angket/.

For practicality in filling out the Web-based self-assessment instrument, 83% of students stated that it was very easy and easy to use. Based on these data, it can be said that the Web-based self-assessment instrument to assess students' social attitudes has valid, reliable and practical criteria so that it is feasible to use.

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