Assessing the Validity and Reliability of the Questionnaire on Student Learning Online Interests in Biology
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ABSTRACT
This research aimed to determine the assessing the validity and reliability of the questionnaire on student learning online interests in biology. The type of this research is survey with quantitative description. The subjects in this study were 100 senior high school students year 2018/2019 from five different regions: 33 respondents in DIY, 31 respondents in Central Java, 22 respondents in East Java, 11 respondents in West Java and three respondents in West Sumatera. The respondents were students in Science class of 10-grade (n=11), 11-grade (n=35) and 12-grade (n=54). Data was collected by questionnaire. This instrument used the answer or response category based on a Likert scale, where the level score started from the lowest (1) to the highest (4). In this study, analysis method used to determine the eligibility of items in the questionnaire was carried out with the significance of the reliability coefficient. This was performed to calculate the reliability coefficient per item using the reliability analysis with the Alpha Cronbach formula. Based on the analysis of the statement items using SPSS, out of 22 items, 18 items were recognized as valid and four items were considered invalid. On the reliability test, the 22 questions given to 100 respondents had Cronbach's Alpha value of 0.763, and this showed a sufficient reliability.

Keywords: Gadget, Validity, Reliability, Biology

1. INTRODUCTION
The development of science and technology is currently very developed so that it influences in life. With this development has changed the view of the public in finding and getting information can be in the form of magazines, newspapers, radio and electronic media can also find sources of information with the internet [1]. In the field of education the use of technology as a form of media and learning innovation. This technology is used as an innovative learning media [2]. Online learning will benefit students in digital competence. Online learning can help learners repeat confusing material until they understand, and can assist faster learners by allowing them to continue as they understand material, without requiring them to sit through repeated explanations and provide interactive experiences between students and the text they access [3].

Learning media has an important role in the learning process where the learning process is basically the process of communicating and sending messages from sender to receiver. The use of educational technology provides an attractive appearance to use learning activities in increasing motivation and interest to learn that students are interested in and beneficial to student skills [4]. Online learning in Indonesia has a positive impact on the development of information technology.

Technology that is integrated in learning is one of the strategies to achieve learning objectives. Gadgets
are familiar among students, especially high school students [2]. Gadgets that are connected to the internet make it one of the media in finding information. The internet has become an important tool as a provider of learning resources in research and learning, both for teachers and students to share and obtain information. The internet and technology can be used as developing e-learning as learning media. The use of information and communication technology is used in e-learning [5].

There exists a positive correlation use of technology in education. The use of online learning has a positive relationship between students and teachers to create interactive learning. Students show increased demand in virtual field experiences. Online learning modalities encourage student-centered learning [6]. Online learning can be as an online media used in the learning process that supports interaction between users with learning material or with fellow e-learning users so that they can gain knowledge and experience learning. With information technology, e-learning is able to provide teaching materials and store learning instructions that can be accessed anytime and from anywhere. E-learning does not require a role (place) as large as conventional classrooms. Thus this technology has shortened the distance between teachers and students [7].

Online education best practices, Finch and Jacobs (2012) [8] have the following advantages: reducing time and costs on the way to school, giving students flexibility to access online learning according to their wishes and being able to adjust the context needs of the subject. Online education opens opportunities when it comes to balancing work, study, and family responsibilities and can increase interaction between students and teachers [9]. Various words in the terms of online education include: online learning, electronic learning (e-learning), distance education, internet-based learning, web-based learning, computer-based learning, telephoto education, cyber learning, mixed learning, distributed learning, virtual learning, etc[10].

Learning media can be used by the teacher to convey learning to students so that it can be conveyed properly teacher can use media learning so that the learning material delivered can be conveyed well to students. It was used in the learning process in order to stimulate attention and interest of the students to have a message and information can be conveyed [11]. Therefore, this study aims to determine the assessing the validity and reliability of the questionnaires on student learning online interest in biology.

2. RESEARCH METHODS

2.1. Method and Time

This study method used is the survey method with quantitative description. Questionnaires will be given to respondents with Google forms in several senior high schools. This study was conducted at April to May 2019.

2.2. Subject of Research

Population is natural sciences’ students at DIY, Central Java, East Java, West Java and West Sumatera. Samples are 100 high school students.

Table 1. Respondent classification data

| Classification Respondent | N        |
|---------------------------|----------|
| based on school origin    |          |
| SMA in DIY                | 33 respondents |
| SMA in Central Java       | 31 respondents |
| SMA di East Java          | 22 respondents |
| SMA di West Java          | 11 respondents |
| SMA di West Sumatera      | 3 respondents |
| Total                     | 100 respondents |
| grade level               |          |
| Class of 10-grade         | 11 respondents |
| Class of 11-grade         | 35 respondents |
| Class of 12-grade         | 54 respondents |
| Total                     | 100 respondents |

Respondent classification data based on school origin. The subjects in this study were 100 high school students year 2018/2019 from five different regions: 33 respondents in DIY, 31 respondents in Central Java, 22 respondents in East Java, 11 respondents in West Java and three respondents in West Sumatera. Respondent classification data by grade level. The respondents were students in Science class of 10-grade (n=11), 11-grade (n=35) and 12-grade (n=54). Data was collected by questionnaire.

2.3. Questionnaire

Questionnaires will be given to respondents with google forms in several high schools. The questionnaire instrument consisted of 22 items that were tested on 100 students. It used likert scales totally agree, agree, don’t agree and totally disagree. This study is to calculate the validity and reliability of items analysis, analyzed using SPSS.
2.4. Data Analysis

Validity is the extent to which a test measures what it is intended to measure. Validity means measurements related to the suitability and accuracy of the function of the measuring instrument used [12]. Items are said to be valid when the significance value is less than 0.05 (<0.05) and is declared invalid if the significance value is more than 0.05 (>0.05). Or it could also determine whether or not the item statement is valid by comparing the values between r tables and r arithmetic. The statement item will be declared valid if the value of r table < r count. Meanwhile, if r table > r count, the statement item will be declared invalid [13] [14].

Reliability test is a test that shows the tools used to obtain information can be to reveal information in the field as a data collection tool. A questionnaire is said to be reliable or reliable if a person’s answer to a statement is consistent over time. High and low reliability is expressed by a value called the reliability coefficient, ranging between 0-1. The reliability test uses the Cronbach Alpha formula which is represented using the Cronbach Alpha coefficient. If the Cronbach Alpha value is 0.7 or higher indicates acceptable internal consistency. Cronbach’s alpha is used in studies as an indicator of instrument reliability or scale or internal consistency. Generally, in science education to consider an alpha value of 0.70 as a sufficient measure of reliability [15]. Moreover, the smaller the alpha value indicates the more items that are not reliable. The standard used is alpha > 0.70 (sufficient reliability).

3. RESULTS AND DISCUSSION

Based on testing the results obtained can be seen as follows:

Table 2. Reliability test case processing summary

| Cases     | N   | %   |
|-----------|-----|-----|
| Valid     | 100 | 82  |
| Excluded* | 22  | 18  |
| Total     | 122 | 100 |

*List wise deletion based on all variables in the procedure

From table 2, shows the number of samples or respondents (N). Respondents = 100 student, questionnaires = 22 item and analyzed in the SPSS program of 100% students with a valid number of 82%.

Table 3. Alpha Cronbach’s results

| Reliability Statistics |
|------------------------|
| Cronbach’s Alpha       |
| N of Items             |
| 0.763                  |
| 22                     |

The result of the analysis using SPSS, on the reliability test. 22 items of statement items tested on 100 respondents had Alpha Cronbach’s value of 0.763, it meant sufficient reliability. Its means it is assumed that variations of all items have a positive relationship with variations in variables of student learning online interest in biology.

At the 5% level it can be shown that the variation of all items together has a positive relationship with the variation in the variable of student learning online interest in biology. Meaning: twenty-two items reviewed are of sufficient reliability. The implication: the twenty-two items reviewed are constructors with sufficient reliability for the variable student learning online interest in biology.

Table 4. Test results for the validity of the questionnaire instruments

| Number | Value | Significance | Level Significant | Validity |
|--------|-------|--------------|-------------------|----------|
| Item 1 | 0.000 | 0.000        | Valid             |
| Item 2 | 0.000 | 0.000        | Valid             |
| Item 3 | 0.188 | 0.05         | Not Valid         |
| Item 4 | 0.146 | 0.05         | Not Valid         |
| Item 5 | 0.000 | 0.05         | Valid             |
| Item 6 | 0.397 | 0.05         | Not Valid         |
| Item 7 | 0.840 | 0.05         | Valid             |
| Item 8 | 0.04  | 0.05         | Valid             |
| Item 9 | 0.000 | 0.05         | Valid             |
| Item 10| 0.000 | 0.05         | Valid             |
| Item 11| 0.000 | 0.05         | Valid             |
| Item 12| 0.000 | 0.05         | Valid             |
| Item 13| 0.010 | 0.05         | Valid             |
| Item 14| 0.000 | 0.05         | Valid             |
| Item 15| 0.000 | 0.05         | Valid             |
| Item 16| 0.000 | 0.05         | Valid             |
| Item 17| 0.000 | 0.05         | Valid             |
| Item 18| 0.000 | 0.05         | Valid             |
| Item 19| 0.000 | 0.05         | Valid             |
| Item 20| 0.000 | 0.05         | Valid             |
| Item 21| 0.000 | 0.05         | Valid             |
Items are said to be valid when the significance value is less than 0.05 (<0.05) and invalid if the significance value is more than 0.05 (>0.05). Based on the analysis of statement items using SPSS, it can be seen that out of the 22 item statement items there are 18 item statement items already valid and 4 item statement are invalid.

4. CONCLUSION

The results of the analysis of statement items can be concluded that of the 22 item statement items there are 18 item statement items already valid and 4 item statement items invalid. On the reliability test results can be from 22 items of statement items tested on 100 respondents have a Cronbach's Alpha value of 0.763 meaning sufficient reliability. Therefore this questionnaire instrument can be used as a reference for large scale data stabilization.

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