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DEVELOPMENT OF DIGITAL LITERACY ASSESSMENT INSTRUMENTS FOR HIGH SCHOOL STUDENTS (CASE STUDY IN CLASS XI IPS STUDENTS OF SMAN 5 AND SMAN 27 JAKARTA)

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Abstract:

The purpose of this study is to find out the steps for developing digital literacy instruments for high school students and to ensure that digital literacy instruments meet the validity and reliability of students. This research method uses a quantitative approach with R&D (Research and Development) used in this study. R&D (Research and Development) is a strategy for creating an invention and examining the creation (Sugiyono, 2019). The location of the research will be carried out in 2 public high schools in the Central Jakarta area, SMA Negeri 5 Jakarta and SMA Negeri 27 Jakarta. From the acquisition of studies that have been obtained, it can be concluded that the steps for developing digital literacy instruments for students start from the stages of realizing previous studies, developing initial creations, carrying out creation validation, realizing trials and producing final creations. In the previous study step, a field survey was carried out at the research location and collecting literature that supported the development of a digital literacy assessment instrument. At the initial product development stage, a research instrument was designed with a grid used to measure the quality of the digital literacy assessment instrument. At the stage of realizing product validation, the digital literacy assessment instrument was assessed for feasibility by experts with the results of validation by language experts, content and instruments respectively obtaining a validity value of 90.28%; 91.67% and 90.97% which are very valid criteria (SV). At the stage of realizing the trial, namely small group and large group trials to obtain validity and reliability values for students. Lastly is to make the final product. The digital literacy assessment instrument has fulfilled the validity and reliability of students. It is known from the small group trials that the items on the digital literacy assessment instrument are declared valid and reliable as many as 20 items with a score of r count above r table (0.1497) and the reliability of the digital literacy assessment instrument is 0.972. Meanwhile, in the large group trial it was found that the items on the digital literacy assessment instrument were declared valid and reliable as many as 20 items with a score of r count above r table (0.4973) and the reliability of the digital literacy assessment instrument was 0.874

Keywords: Assessment Instruments, Case Study, Development Of Digital Literacy, High School Students, Research and Development

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BACKGROUND

Education is one of the determinants of a person's growth and development and even becomes an assessment of the success or failure of a person in his life. Law Number 20 of 2003 concerning education implies that education is a basic and planned effort to realize and give birth to humans as students in a learning atmosphere so that students actively develop their potential so that they have religious spiritual strength, personality, self-control as human personalities. , intelligence, skills, noble character that is useful for society, nation and state (Chomaidi & Salamah, 2018).

According to a survey conducted by the Ministry of Information and Technology in collaboration with UNICEF on children and adolescents aged 10-19 that are spread throughout Indonesia and represent urban and rural areas, information was obtained that around 79.5% of children and adolescents are internet and digital media users. This resulted in a transition, where school-age children and adolescents like to dig up information through the internet and digital media, like interesting lessons that can be directly used with various available applications and tend to like the virtual world. The digital era requires teachers to be able to follow the development of science and technology, so that the lessons presented are in accordance with the times. However, the phenomenon that occurs in the educational environment, teachers are still slow in catching up with the pace of modernization.

The research results reported by Mitchell Kapoor show that the younger generation who have the expertise to access digital media, currently has not matched their ability to use digital media for the benefit of obtaining self-development information. This is also not supported by the increasing material/information presented in digital media which has a wide variety of types, relevance, and validation (Hagel, 2012). Currently, in Indonesia, the number of media outlets has increased rapidly, reaching around 43,400, while only 243 have been registered with the Press Council. Thus, the public can easily get information from various existing media, regardless of whether the news is official or not (Kumparan, 2017). This is indicated by the decline in reading culture in society, which is still at a low level. The presence of various devices (gadgets) that can be connected to the internet network diverts people's attention from books to the devices they have.

SMA N 5 Jakarta and SMA Negeri 27 Jakarta are also one of the schools in Jakarta that have started implementing digital media literacy in student activities at school. So according to the observations of researchers that have been made, there are problems with students of SMA N 5 Jakarta and SMA Negeri 27 Jakarta in welcoming systems and technology due to a lack of ability and skills in using search engines on the internet in accessing information, a lack of understanding about the content of a website, lack of ability to prove the truth of news circulating on the internet, and lack of compiling new knowledge with information obtained through the internet. More specifically, the problems or phenomena that occur are the difficulty in obtaining sources of information, and the low desire to create new knowledge from various information obtained from the internet. Based on the background of the problem above, they are interested in examining the extent to which the media influences students' reading interest through the digital literacy movement.

THEORETICAL FRAMEWORK

Digital Literacy

Literacy comes from English, namely literacy which is defined as the ability to read and write. However, the notion of developing literacy includes the process of reading, writing, speaking, listening, imagining, and seeing. The reading process involves cognitive, linguistic, and social activities. According to UNESCO literacy is the ability to identify, understand, interpret, create, communicate, calculate and use printed and written materials related to various contexts. Literacy involves a range of learning that enables individuals to achieve their goals, to develop their knowledge and potential,

and to participate fully in their communities and society at large. Literacy learning aims to introduce children to the basics of reading, writing, maintaining language awareness and motivation to learn. Literacy learning at the high school level aims to bring students to be more motivated to foster an interest in literacy in themselves in order to increase interest in reading and become lifelong learners. Based on the various definitions above, what is meant by digital literacy is a set of basic technical skills to run computer and internet devices further, as well as understanding and being able to think critically and evaluate digital media and be able to design communication content. There are four indicators or dimensions of someone having digital literacy skills, including: Technical literacy skills, Information literacy skills, Communication literacy skills, Reproduction literacy skills.

Digital Literacy Competence in Schools

Competence comes from the word competence which describes the appearance of a certain ability as a whole which is a dialectic (combination) between knowledge and ability. In a general sense, competency has almost the same meaning as life skills or "life skills", namely skills, skills to express, maintain, maintain, and develop oneself. Competence or life skills are expressed in skills, habits, skills, activities, actions, or performance that can be observed and even measured (Sukmadinata, 2012). Someone can master digital literacy gradually because one level is more complicated than the previous level. Digital competence requires computer and technology literacy. However, to be said to have digital literacy, one must master information, visual, media, and communication literacy (Sukmadinata, 2012). There are four core competencies that a person needs to have, so that it can be said to be digitally literate, including (Gilster, 1997) namely Internet Searching, Hypertextual Navigation, Information Content Evaluation, Knowledge Composition.

Application of Digital Literacy in Schools

According to the Complete Indonesian Dictionary, the word application comes from the word "apply" which means interpreter, engraved, then becomes the word "applicant" which means the person who applies, while "application" means installation or application. Implementation in other terms is implementation, which means the use of equipment in work, implementation, processing until it is realized, embodiment (Daryanto, 2011). The application of digital literacy in schools requires teachers as facilitators not only to utilize existing learning resources in schools such as relying only on textbook reading materials, but are required to study various learning resources, such as magazines, newspapers, the internet and digital media. It is very important to apply it, so that what is learned is in accordance with the conditions and developments of the world (Mulyasa, 2011).

Utilization of learning resources in learning has a very important meaning, in addition to complementing, maintaining, and enriching the repertoire of learning, learning resources can also increase student activity and creativity, so that the maximum utilization of learning resources, provides accuracy in exploring various types of knowledge in accordance with field of study, so that digital literacy learning will always be "up to date", and able to keep up with the acceleration of technology and art in an increasingly global society. So that by implementing digital literacy in schools, students can obtain various information in a broader and deeper scope so as to increase students' insights and help students complete their tasks in finding information from digital content that is appropriate, accurate, and in a relatively short time. The application of digital literacy involves students' skills in evoking new media and experiences from the internet (Mulyasa, 2011). Digital literacy in schools can be included in several subjects such as Language, Social Sciences (IPS), Natural Sciences (IPA), computers, and other subjects. For example, in language subjects there are several skills that students must master such as reading, listening, and writing. When connected with digital literacy, reading, listening and writing skills are carried out using digital media such as computers, the internet (blogs, social media, the web), and mobile phones (Mulyasa, 2011). The Ministry of Education and Culture explains the indicators of implementing and utilizing digital literacy in schools as follows:

Class Base: Number of digital literacy training attended by school principals, teachers and education staff; The intensity of application and utilization of digital literacy in learning activities; and the level of understanding of school principals, teachers, education staff, and students in using digital media and the internet. Then, School Culture Base: Number and variety of digital-based reading materials and visual aids; Frequency of borrowing digital themed books; The number of activities in schools that utilize technology and information; The number of presentations of school information using digital media or websites; Number of school policies regarding the use and use of information and communication technology in the school environment; and The level of utilization and application of information and communication technology in terms of school services (for example, e-reports, financial management, dapodik, utilization of student data, school profiles, etc.) Community Base Number of facilities and infrastructure that support digital literacy in schools; and The level of involvement of parents, communities and institutions in the development of digital literacy.

METHOD

This research method uses a quantitative approach with R&D (Research and Development) used in this study. R&D (Research and Development) is a strategy for creating an invention and examining the creation (Sugiyono, 2019). The location of the research will be carried out in 2 public high schools in the Central Jakarta area, SMA Negeri 5 Jakarta and SMA Negeri 27 Jakarta. The researcher chose to study at SMA Negeri 5 Jakarta and SMA Negeri 27 Jakarta because these schools have IT (Information Technology) learning facilities. This research was conducted from July to August 2023. Based on slovin's calculations, the sample who became respondents in this study was adjusted to a total of 172 students or around 42% of the total class XI IPS students at SMA Negeri 5 Jakarta and SMA Negeri 27 Jakarta, This is done to facilitate data processing and for better test results. Samples were taken based on probability sampling technique. simple random sampling, in which the researcher provides equal opportunities for each member of the population (high school students) to be selected as a random sample without regard to the strata in the population itself. How to collect information in this research and development using test techniques and questionnaires. The test is used to assess digital literacy assessment instruments. Meanwhile, the created questionnaire will be assessed by an expert validator before the implementation of small-scale trials and digital literacy development trials. After being declared valid by the expert validator, testing the validity and reliability categories of each question item was carried out. Question construction is realized by setting a question grid using a Likert scale.

RESULT

Large-scale trials are the next step after improving the results of small-scale trials. The purpose of this trial is to find and identify various weaknesses, weaknesses or errors that may occur in media products. Prior to final production, the data obtained from these trials are analyzed and used as input for making changes.

The collection of facts in this large-scale trial was realized using an instrument in the form of a questionnaire. Questionnaires are used to obtain facts in the form of student scoring regarding the assessment tool developed. In the large-scale trial, 172 students of class XI SMA were the object of the trial. Data from large-scale trials are listed as follows.

TABLE. RESULTS VALIDITY OF LARGE GROUP TRIALS

Question Items	R-Calculate	R-Table	Conclusion
Ke 1	0.493	0.1497	Valid
Ke 2	0.594	0.1497	Valid
Ke 3	0.570	0.1497	Valid
Ke 4	0.496	0.1497	Valid

Ke 5	0.579	0.1497	Valid
Ke 6	0.536	0.1497	Valid
Ke 7	0.570	0.1497	Valid
Ke 8	0.566	0.1497	Valid
Ke 9	0.459	0.1497	Valid
Ke 10	0.450	0.1497	Valid
Ke 11	0.510	0.1497	Valid
Ke 12	0.594	0.1497	Valid
Ke 13	0.434	0.1497	Valid
Ke 14	0.648	0.1497	Valid
Ke 15	0.506	0.1497	Valid
Ke 16	0.643	0.1497	Valid
Ke 17	0.389	0.1497	Valid
Ke 18	0.228	0.1497	Valid
Ke 19	0.648	0.1497	Valid
Ke 20	0.594	0.1497	Valid

Testing the validity of the items is carried out with the help of the SPSS application. The digital literacy assessment instrument was distributed by 172 class XI students of SMA Negeri 5 Jakarta and SMA Negeri 27 Jakarta. So that the r table used to draw a decision is 0.1497. If the validity score of each item is above r count (0.1497) then the item is valid, but if the validity score for each item is below r count (0.1497) then the item is invalid. The distribution of item items on the digital literacy assessment instrument at SMA Negeri 5 Jakarta and SMA Negeri 27 Jakarta which were declared valid was all 20 items because all items had a score of r count above r table. Apart from that, in the large group trials, reliability testing of the products being developed was also carried out. The following shows the results:

TABLE RESULTS RELIABILITY OF LARGE GROUP TRIALS

Reliability Statistics

Cronbach's Alpha	N of Items
.874	20

Testing the validity of the items is carried out with the help of the SPSS application. The digital literacy assessment instrument was distributed by 172 class XI students of SMA Negeri 5 Jakarta and SMA Negeri 27 Jakarta. So that the r table used to draw a decision is 0.1497. If the validity score of each item is above r count (0.1497) then the item is valid, but if the validity score for each item is below r count (0.1497) then the item is invalid. The distribution of item items on the digital literacy assessment instrument at SMA Negeri 5 Jakarta and SMA Negeri 27 Jakarta which were declared valid was all 20 items because all items had a score of r count above r table. Apart from that, in the large group trials, reliability testing of the products being developed was also carried out. The following shows the results.

Results Make the Final Product

This final product is a digital literacy assessment tool that has been made by researchers. Thus, the researcher is now in the final stages of a project to create a digital literacy assessment tool for high school students. A digital literacy assessment tool that can be relied upon to assist the learning assessment process in high school, especially for class XI students, will be produced through the stages

of refining and manufacturing a product that has gone through a process of testing and revising from various parties. The final product produced is a digital literacy assessment instrument with a total of 20 questions that have been revised according to suggestions from experts and from trials that have been carried out.

DISCUSSION

Development of a Digital Literacy Assessment Instrument for High School Students

The test instrument produced is based on the Borg and Gall development model, which consists of conducting preliminary research, developing the initial product, carrying out product validation, conducting trials, and making the final product, according to the description of the research results that have been described. This research was conducted in only 5 stages due to time and cost constraints. Preliminary research stages are useful in recording the need for digital literacy assessment instruments for high school students. At this stage the researcher conducted a field survey at the research location. Next is collecting literature studies that support the development of digital literacy assessment instruments. Thus, in this study the gathering of facts was realized by finding a literature review based on related articles. After the information gathering stage, the next stage is developing the initial product. Designing digital literacy assessment instruments that will be developed according to digital literacy dimensions and indicators. Furthermore, a research instrument was designed that was used to measure the quality of the digital literacy assessment instrument.

After the initial product development stage, the next stage is realizing product validation. The digital literacy assessment instrument is assessed for feasibility by experts. Obtaining the eligibility score of this digital literacy assessment instrument is useful in order to obtain the weaknesses contained in the digital literacy assessment instrument which will be used in small group trials and large group trials. After the validation was realized, each expert presented suggestions and input so that the assessment tool would be further developed. Based on the acquisition of validation by linguists, content and instruments, a validity value of 90.28% was obtained; 91.67% and 90.97% which are very valid criteria (SV). Next, small group and large group trials were realized. In the small group trial it was found that the items on the digital literacy assessment instrument were declared valid and reliable as many as 20 items with a score of r count above r table (0.1497) and the reliability of the digital literacy assessment instrument was 0.972. In the large group trial it was found that the items on the digital literacy assessment instrument were declared valid and reliable as many as 20 items with a score of r count above r table (0.4973) and the reliability of the digital literacy assessment instrument was 0.874.

The final stage is making the final product. At this stage, it is realized that improvements to the digital literacy assessment instrument have been carried out which have gone through the trials and improvements from several parties. These results are supported by a previous study by Bariah (2019) with the results of the research namely making a design for developing an online-based assessment instrument using the Borg & Gall development model. In line with this, it is also supported by research realized by Sartika et al., (2020) with the results of the research namely the success in developing an instrument for assessing the performance of the 2013 physics practicum curriculum using the Borg & Gall development model.

Results of the Validity and Reliability of Digital Literacy Assessment Instruments

Results of the Validity of the Digital Literacy Assessment Instrument for Students

The test is considered valid if it provides the right information and can be used to achieve certain goals. One way to test the validity of the assessment instrument is to compare the calculated r value obtained with the help of the SPSS program with the r table value at the 5% significance level.

The total item items in this observation were 20 multiple choice questions which were examined by 172 students in the large group test, so that the rtable showed the number 0.1497. If the r count obtained is above 0.1497 then the item is valid, but if the r count is below 0.1497 then the item is invalid.

The results of this study are supported by the theory from Widodo et al., (2022) which states that a high validity score indicates that the assessment tool has the accuracy needed to evaluate the attributes that are the target of measurement. Sourced from the acquisition of information analysis on the item items of the digital literacy assessment tool, there were 20 item items which were decided to be valid or worth 100% of the item items because they had a score of r count above 0.1497. Question items that are determined to be valid can be listed in the question bank and can be reused. In line with this, it is also supported by research conducted by Febliza (2020) that all questions on the digital literacy questionnaire for schools, teachers and students were declared valid, but there were 13 questions which were decided to have low and very low validity categories. Besides that, it is also supported by research conducted by Murti & Sunarti, (2021) that a scientific literacy test tool made based on local wisdom has very good theoretical validity, both in terms of mathematics ri, construction, and language, with an average percentage of 89.82%. Furthermore, the results of the empirical validity test, which included the level of difficulty of the items, discriminating power, reliability, and item validity, reached 56.25%, or 9 out of 16 items were declared empirically feasible. Based on the explanation above, it can be concluded that the digital literacy assessment instrument for high school students is stated as a question that has very good value in terms of validity because the total number of valid questions is 20 items in all (100%).

Results of the Reliability of the Digital Literacy Assessment Instrument for Students

If a test always gives the same result to different groups at different times, the test can be considered reliable. If the Cronbach Alpha item value is more than 0.60, the item is considered reliable. Examination of the reliability of digital literacy assessment instruments in large groups that have been realized using SPSS software assistance shows a result of 0.874 above 0.60. So that the research instrument is declared reliable. The high reliability score depends on the number of valid question items. This is supported by the opinion of Arikunto, (2019) which states that a test is declared valid but not reliable, and conversely, a valid test is usually reliable. Therefore, the more valid test items, the greater the reliability value. In addition, it is also supported by research realized by Febliza (2020) that the reliability score of the digital literacy questionnaire for schools, educators and students fulfills a reliability score above 0.6. In line with this, it is also supported by a study realized by that Dewi et al., (2020) this high-order thinking skills scoring tool is very reliable with a reliability score of 0.84.
Based on the explanation above, it can be summarized that the digital literacy assessment instrument has met the quality of the questions in terms of reliability.

CONCLUSIONS

From the acquisition of studies that have been obtained, it can be concluded that the steps for developing digital literacy instruments for students start from the stages of realizing previous studies, developing initial creations, carrying out creation validation, realizing trials and producing final creations. In the previous study step, a field survey was carried out at the research location and collecting literature that supported the development of a digital literacy assessment instrument. At the initial product development stage, a research instrument was designed with a grid used to measure the quality of the digital literacy assessment instrument. At the stage of realizing product validation, the digital literacy assessment instrument was assessed for feasibility by experts with the results of validation by language experts, content and instruments respectively obtaining a validity value of 90.28%; 91.67% and 90.97% which are very valid criteria (SV). At the stage of realizing the

trial, namely small group and large group trials to obtain validity and reliability values for students. Lastly is to make the final product. The digital literacy assessment instrument has fulfilled the validity and reliability of students. It is known from the small group trials that the items on the digital literacy assessment instrument are declared valid and reliable as many as 20 items with a score of r count above r table (0.1497) and the reliability of the digital literacy assessment instrument is 0.972. Meanwhile, in the large group trial it was found that the items on the digital literacy assessment instrument were declared valid and reliable as many as 20 items with a score of r count above r table (0.4973) and the reliability of the digital literacy assessment instrument was 0.874.

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