



Development of Science Digital Scrapbook as Authentic Assessment to Measure Learning Outcome of Junior High School Students

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Abstract. Learning during the COVID-19 pandemic has an impact on students' learning outcomes. Observation results in SMP 2 Dawe Kudus showed that students' learning outcomes in science subjects are still low. This school was chosen because of the location of the school in remote areas which resulted in not optimal use of digital devices for assessment in learning. The purpose of this study is to analyze the characteristics, feasibility, and profile of learning outcomes using digital science scrapbooks as authentic assessment to measure the learning outcomes of junior high school students on the theme of Additives and Addictive Substances. This study used a Research and Development (R&D) design with ADDIE model. The science digital scrapbook as an authentic assessment developed in this study was declared feasible to use based on the assessment of material experts and evaluations. The reliability coefficient values obtained from small-scale tests for essay questions, attitude assessment instruments, and skills assessment instruments were obtained 0.62; 0.84; and 0.38. Students' learning outcomes measured using a digital science scrapbook as an authentic assessment showed 83.3% of students were complete in the realm of knowledge, 100% completed in the realm of attitudes, and 100% completed in the realm of skills. The conclusion of this study is science digital scrapbook as an authentic assessment developed in this study was feasible to be used to measure the learning outcomes of junior high school students on additives and addictive substances concept.

Keywords: authentic assessment, science digital scrapbook, students' learning outcomes

Introduction

Learning during the COVID-19 pandemic is currently being implemented in a hybrid learning system. Hybrid learning is carried out in a way that half of students face to face at school and half are virtual at home. Such learning will have an impact on student learning outcomes, the impact is learning outcomes during the COVID-19 pandemic, many students are still under the KKM (Kriteria Ketuntasan Minimal) (Mulyani, 2020). Learning outcomes are a reference for achieving learning objectives (Siang et al., 2020). Learning outcomes are a process of interaction, learning and evaluation of learning that teachers do to students through the learning process (Syahputra, 2020). Student learning outcomes will improve, if students have the motivation to learn (Andriani & Rasto,

2019). One way to make students motivated to learn is to innovate in the form of assessment while measuring the three domains of student competence.

In reality, the researcher's initial study found that the average student learning outcomes in the science subject at SMP Negeri 2 Dawe Kudus were still below the KKM, for the KKM of science subjects at SMP Negeri 2 Dawe Kudus was 75. While The average student learning outcomes in science subjects at SMP Negeri 2 Dawe Kudus was still 53. So it is necessary to make variations in measuring student learning outcomes. According to Yusuf (2017), the types of assessments that can be used to measure learning outcomes are learning outcomes tests, competency-based learning outcomes assessments, alternative assessments, authentic assessments, and performance assessments. One type of measuring instruments that can be used is authentic assessment. Traditional assessment focuses on written and oral tests, while authentic still pays attention to skill competencies (Ghosh et al., 2017). Authentic assessment also focuses on the processes involved in developing an end product, rather than just on the end product itself (Karunanayaka & Naidu, 2021).

Authentic assessment has contextual characteristics. Contextual learning has the effectiveness of improving student learning outcomes (Sinaga & Silaban, 2020). Authentic assessment is appropriate to be applied to the theme of Additives and Addictive Substances in science learning in junior high schools. This is done as an effort to minimize the abuse of additives and addictive substances in students. Procedural, conceptual, and factual knowledge are the basic concepts in science learning materials for Additives and Addictive Substances (Silvia, 2018). The reason for the theme of Additives and Addictive Substances needs to be studied by students is because the National Science Examination for 2015-2019 on this theme shows the percentage of students who answered correctly in the low category (Kartina & Suciati, 2021). The reason for the theme of Additives and Addictive Substances needs to be studied by students is because the National Science Examination for 2015-2019 on this theme shows the percentage of students who answered correctly in the low category. The importance of this science learning theme is at the same time giving students knowledge about the dangers of additives and addictive substances due to the widespread consumption of cigarettes in students (Sari et al., 2019).

There was a significant positive relationship between authentic assessment strategies and students' academic (Butakor & Ceasar, 2021). This makes the assessment carried out by the teacher in the learning process on the theme is expected to direct students to be creative and innovate in applying their abilities. The creations and innovations of these students can be poured as the basis for teacher evaluation or assessment tools to provide assessments. Research that combines Authentic assessment with E-book learning media can demonstrate their deep understanding, higher-level thinking, and solving complex problems through task performance (Hussain & Khamis, 2019). Authentic assessment should improve students' ability to assess the quality of their competence (Ajjawi et al., 2019).

In order to make this form of authentic assessment attract more students' interest in learning, this research utilizes digital science scrapbook media. Science Digital Scrapbook is a digital media as an assessment containing writings, videos, photos and audio that are packaged attractively about the concept of science. The advantages of Science Digital Scrapbook are 1) Attractive, consisting of various photos, pictures, important notes, and others with some decorations. So it will look beautiful and attractive; 2) Realistic in presenting the subject matter, we can present an object that looks real through pictures or photos; 3) Being able to overcome the limitations of space and time, can be a solution to the many events or objects that are difficult to present directly and difficult to repeat (Prastiti et al., 2021). The downside is that it takes a relatively long time to make.

The use of authentic assessment in this study utilizes digital science scrapbooks through project assessment. Authentic assessment involves students in processes and evaluations that are meaningful to them, both now and in the future (Murphy et al., 2017). This is in line with the research that has been done by Safaroh & Dewi (2017), it is known that student learning outcomes measured using authentic project-based assessments that were developed showed that 100% of students showed the attitude they wanted to measure, 83% were complete in cognitive competence and 100% of students were complete in psychomotor competence. The use of scrapbooks in learning is supported by research conducted by Craft et al. (2016) that scrapbooks made by students individually or in groups are important for student learning experiences. When students plan scrapbook projects, students indirectly get skills to process information in digital form.

In previous research, Science digital scrapbooks were used as learning media made by teachers. Meanwhile, this research utilizes a digital science scrapbook as an authentic assessment that assesses three domains of competence. Students are directly involved in making Science digital scrapbooks. Scrapbooking makes the learning process more lively and interactive because students share with each other about their respective scrapbooks (Alfiah et al., 2018). In the process, students are indirectly expected to learn and master computerized technology in science learning. This study has a purpose, namely to analyze the characteristics and analyze the feasibility of digital science scrapbook as an authentic assessment to measure the learning outcomes of junior high school students with the theme of additives and addictive substances, and to describe the profile of learning outcomes of class VIII junior high school students on the theme of Additives and Addictive Substances which were measured using science digital scrapbook as authentic assessment.

Methods

This study used research and development methods (Research and Development) with the ADDIE model. This development model went through several stages, namely the analysis stage, the design stage, the development stage, implementation, and the evaluation stage. The location and time of this research was carried out in the odd semester of the 2021/2022 academic year at SMP Negeri 2 Dawe, Kudus. This school was chosen because of the location of the school in remote areas which resulted in not optimal use of digital devices for assessment in learning. The research subjects were students of class VIII SMP 2 Dawe Kudus. The research was carried out face-to-face with strict health protocols during the COVID-19 pandemic. The data collection methods used are documentation, observation, tests and non-tests, and questionnaires. The analysis stage is carried out analysis of the implementation of learning and analysis of the implementation of learning assessment, student analysis, concept analysis, task analysis, and analysis of learning objectives. After doing the analysis, then a digital scrapbook science assessment format was designed to be used as an evaluation tool for the science learning process on the theme of Additives and Addictive Substances. The development stage was carried out with expert validation and small-scale trials involving 10 students of class VIII G at SMP Negeri 2 Dawe Kudus. In the implementation stage, a large-scale trial was conducted involving 24 students of class VIII G in SMP Negeri 2 Dawe Kudus. The evaluation stage is carried out during the development process at each stage, from the analysis stage to the implementation stage.

The data collected in the study included quantitative data in the form of knowledge assessment sheets, skills assessment sheets, attitude assessment sheets, expert validation sheets, and student response questionnaires. The characteristic test on the assessment instrument is determined by finding the value of content validity using the Gregory

formula, criterion validity, reliability tested by Alpha Cronbach's formula, level of difficulty, and distinguishing power. The feasibility value obtained from the validation and evaluation of media experts is obtained by using the formula for the percentage of score acquisition. The digital scrapbook science instrument as an authentic assessment can be said to be feasible if the average percentage score of each validator is > 60 with valid and very valid category. Readability is used to test the feasibility of the assessment instrument. Readability is used to test the feasibility of the assessment instrument. The percentage of student eligibility in small-scale trials is obtained from the aspect percentage formula by (Millah, 2012). Authentic assessment is considered feasible to use if the interpretation is 61%.

Profile of student learning outcomes in the realm of cognitive and psychomotor competence is obtained by dividing the score obtained by the student by the total score, then multiplied by 100. The cognitive and psychomotor assessment criteria based on the school teaching and learning process are 75. If students get a score of 75, it can be said to be incomplete. If a student gets a score of 75, the student is included in the complete criteria. For affective learning outcomes, it is calculated by dividing the student's acquisition score by the total score, then multiplied by 4. These results can be categorized as follows 3.1 to 4.0 including very good, 2.1 to 3.0 including good, 0.81 to 2.0 including enough, and 0 to 0.80 not enough (Safaroh & Dewi, 2017).

Results and Discussion

Characteristics of Science Digital Scrapbook as Authentic Assessment

Discussion on the validity of the science digital scrapbook instrument as an authentic assessment includes construct validity and criterion validity. Construct validity aims to analyze empirically the instrument's ability to interpret the theoretical construct that underlies the preparation of the instrument (Waluyo et al., 2020). Construct validity is done by analyzing the instrument grid, questions or statements, and the rubric on the instrument. Construct validity according to Gregory (2013) is assessing instrument items to experts. In the calculation results, the construct validity value is obtained, namely 1. The validity value means that it can be included in the very high validity criteria. An assessment instrument item is said to have construction validity if the assessment instrument items built measure every aspect of thinking contained in the learning objectives and indicators of competency achievement (Supardi, 2015). The validity of the criteria in this study was calculated using the product moment person formula. The calculation of the validity of the criteria uses data from small-scale trials. The value of the validity of the criteria is presented in Table 2.

Table 2. Recapitulation of Criteria Validity

Intrument	r_{xy}	Criteria
Essay items	0.62	Hight
Attitude Assessment	0.84	Very Hight
Skill Assessment	0.38	Low

The validity value of the essay questions is included in the high category and the validity value of the attitude assessment instrument is included in the very high category. Meanwhile, the validity value of the attitude skills assessment instrument is included in the low category. The cause of the low validity of the skill assessment instrument is thought to be caused by the non-fulfillment of the meaningfulness aspect proposed by Kerlinger. Meaningfulness shows the instrument's ability to provide a balance of

measurements based on the importance of each phenomenon (Arifin, 2019). There are several factors that affect the value of the validity of the instrument, namely if the number of test samples is limited (<30 people), it will affect the magnitude of the correlation coefficient (Yusuf, 2017).

Reliability testing using the Cronbach Alpha test was carried out for instruments that had more than 1 correct answer (Yusup, 2018). In this study, the reliability value was obtained from the data from small-scale trials. Reliability is measured, namely essay questions, attitude assessment instruments, and skills assessment instruments. The instrument reliability values are presented in Table 3.

Table 3. Results of Reliability Test Analysis on Small-Scale Test

Instrument	Alpha Cronbach	Criteria
Essay items	0.63	Strong
Attitude Assessment	0.61	Strong
Skill Assessment	0.74	Strong

The reliability values in the three domains are included in the reliable category. Essay questions are classified as reliable because the tests that are tried on non-selected groups will show greater reliability than being tested on certain selected groups (Arikunto, 2016). Yusuf (2017) explains that the factors that influence reliability include 1) inappropriate item construction, 2) the length/shortness of instrument 3) subjective evaluation will reduce reliability, 4) inaccuracy time given, 5) existing capabilities in groups, 6) the size of the sample taken, 7) conditions and situations in the administration of measuring instruments.

The calculation of the difficulty level shows that there are four questions that are included in the easy category and one question that belongs to the medium category. The questions that are included in the easy category are questions number 1, 2, 3, and 5. While the questions that are classified as moderate are questions number 4. It can be seen that as many as four questions are classified as easy. Arikunto (2010) argues that a good question is a question that has a moderate level of difficulty. However, questions that occupy the easy criteria are not always correlated with something less good. The factors that can influence an item to be included in the easy criteria are that students have well understood the material for additives and addictive substances and the material being asked is according to what the teacher teaches (Anggraeni et al., 2020). The easy criteria questions are questions that can be done by all students, while the moderate criteria questions show that the upper and lower groups can answer the questions with the right proportions tepat (Wardany et al., 2017). According to Muluki et al. (2020), items that are included in the easy category, one of the possible follow-ups is: re-examining the factors that cause these items to be answered correctly by almost all testees. Next, the questions can be issued again on future learning outcomes tests and the items are retained for use on the test.

The discriminatory power of the items of the assessment instrument is the ability of the questions to distinguish between students who are smart or highly capable (upper group) and students with low abilities (lower group) (Supardi, 2015). The results of the calculation of discriminatory power on question number one are 0.05 with very bad criteria, question number two is 0.1 with bad criteria, question number three is 0.3 with sufficient criteria, question number four is 0.45 with good criteria, and question number five is 0.15 with bad criteria. Items that are classified as bad and very bad in distinguishing power are caused by many students who answer correctly on the item. The essay questions in this study as a whole can still be used. According to Hanifah (2017) questions that have a negative and zero discriminatory index are discarded because the

question cannot distinguish students who have high and low abilities. Based on this explanation, the essay questions in this study can still be used.

Eligibility of Instruments

The analysis of the validity of the evaluation instrument consists of the validity by material experts and evaluation experts. Validators as material experts and evaluation experts are science lecturers and teachers. The results of the analysis of validity calculations by material experts stated that the Science Digital Scrapbook instrument as an authentic assessment was very feasible to use. Validity by material experts includes aspects of feasibility and readability. Each of these aspects is further reduced in several indicators. The feasibility aspect consists of material and construction indicators, while the readability aspect consists of presentation and language indicators. The feasibility percentage of the two validators is 100%, while the readability percentage of the first validator is 100% and the second validator is 91.67%. The results of instrument validation by material experts are presented in Figure 1.

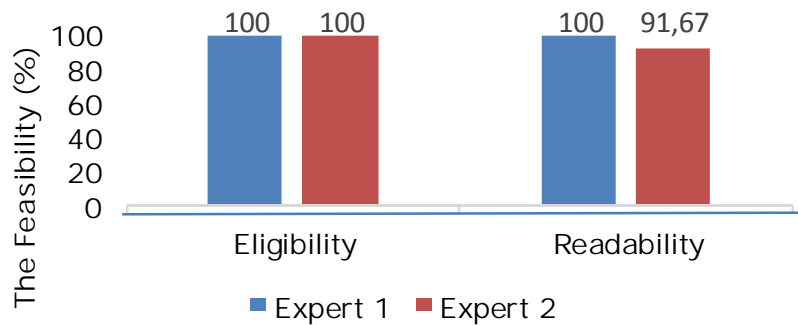


Figure 1. Consistency Profile of The Feasibility Evaluation Tools by Material Expert

Based on a validation questionnaire by a material expert, the two validators stated that the evaluation instrument in this study was feasible to use. The feasibility aspect consists of material and construction indicators. Material indicators include the suitability of Instruments with KD and material indicators. Construction indicators include clarity in formulating the subject matter and use of accurate problem illustrations related to everyday life. The readability aspect consists of presentation and language indicators. Presentation indicators include clarity in presenting images, graphs, and tables. The readability aspect consists of presentation and language indicators. Language indicators include the use of sentences that are effective and not ambiguous and the use of language in accordance with EYD. Suggestions and input from the first validator, namely that there is already a conformity of the instrument with KD and indicators, but the answers to questions number 1 and 2 are corrected. The second validator suggests adding a table to question number three.

Validity by evaluation experts includes aspects of feasibility, aspects of readability, and aspects of characteristics. Then for these aspects are derived in several indicators. In the aspect of feasibility there is construction, the readability aspect has presentation and language indicators, the characteristic aspect has objectivity and practicality indicators. The results of the calculation of the expert validity questionnaire, the feasibility aspect gets a percentage of 100% from the first validator and 100% from the second validator. The readability aspect gets a percentage of 75% from the first validator and 75% from the second validator. For the characteristic aspect, the first validator gives a percentage

of validity of 95.84% and the second validator gives 95.84%. The percentage diagram of instrument validation by evaluation experts is presented in Figure 2.

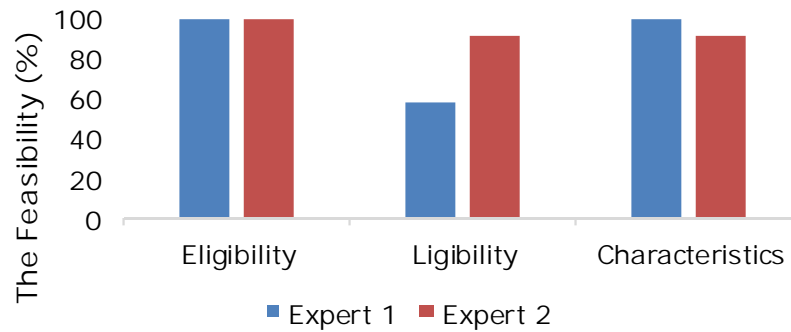


Figure 2. Consistency Profile of the Feasibility of Evaluation Tools by Evaluation Experts

The first validator provides input and suggestions, namely (1) It is advisable to have the identity of the scrapbook compiler, either on the cover or on the back page. Bibliography should also be added; (2) Digital scrapbook phrases should be italicized; (3) The sentence "Yesterday, Benny watched the news about his discovery" is corrected; (4) The picture in question number 5 is not clear (blur) and difficult to read; (5) The words "root turmeric" are replaced with turmeric; (6) There is a typo, it should be a synthetic dye, not a synthetic reporter; (7) The correct word "to consume" is "to consume"; (8) The word "bisa" is replaced with "dapat"; (9) The correct word "into" is "into"; (9) The first video transition at 11.20 minutes is not smooth, it should be fixed; (10) A summary is made on the video. The input and suggestions from the second validator are that question number 4 includes addictive substances, not additives, so questions 3 and 4 must be synchronized. The results of the input and suggestions from the validator then become a reference for improvements to the evaluation tool instrument.

Data analysis of the readability of the evaluation tool was obtained from student response questionnaires. Before the response questionnaire was filled out by students, the questionnaire had gone through a validation process by experts first. The validator is the Unnes Integrated Science lecturer. The percentage of validation is 85% with very feasible criteria to use. In the comments section, the validator also wrote that the student response questionnaire was feasible to use. Student response questionnaire sheets were filled out during small-scale trials. Results the calculation of the results of the readability analysis on the student response questionnaires obtained an average percentage of 81.87 which includes very good criteria.

Students are also enthusiastic in providing comments and suggestions on the evaluation tool in this study. Most of the students gave a positive response to the science digital scrapbook as an authentic assessment. The positive comments included those who stated that working on questions using the science digital scrapbook as an authentic assessment made it easier for students to work on evaluation questions, writing sentences on the Science Digital Scrapbook was clear and easy to understand, and using canva's easy-to-understand application features. In addition to positive comments, there are also suggestions from students, namely writing the same number of questions and there are also students who are using the canva application for the first time so they need to learn to understand the features of the application. After getting input and suggestions from students, then the next thing to do is correcting the wrong number of questions and a brief introduction to canva's features before students work on the

questions. In principle, Science Digital Scrapbook is a medium that has the ability to provide instructions to students to carry out certain activities related to the material being studied (Wusqo, et al., 2021).

Development of Science Digital Scrapbook Instruments as Authentic Assessment

The analysis was conducted to observe the teaching and learning process in science learning at SMP 2 Dawe Kudus. Enthusiasm, interest, and enthusiasm for student learning are included in the lack of learning during this COVID-19 pandemic. This can be seen from the student's discipline in collecting assignments and assessments. For the average student learning outcomes in science subjects at SMP Negeri 2 Dawe Kudus is still at 53. During the junior high school level until learning during the current COVID-19 pandemic, class VIII students have never made a presentation. The assessment model focuses more on the realm of cognitive competence, for the affective and psychomotor domains are indirectly ruled out.

Based on the results of observations made at SMP 2 Dawe Kudus, there are several points that need attention. The point is that students are less enthusiastic about learning because the learning and assessment methods are still conventional and seem monotonous. Utilization of science digital scrapbook as an authentic assessment can be used as an alternative solution to measure student learning outcomes. This science digital scrapbook leverages the canva app. The canva app can be used on both a smartphone and a computer. It is known that all students have devices in the form of android that can be installed with the canva application. The instruments that have been designed at this stage include the science digital scrapbook, rubrics and cognitive assessment sheets, affective rubrics and assessment sheets, and psychomotor rubrics and assessment sheets.

Science digital scrapbook as an authentic assessment using the canva app. the canva application is used to create science digital scrapbooks because of the ease of access both desktop and mobile (Wardhanie, et al., 2021). This application is also currently being used by the community (Anggraeny, et al., 2021). The science digital scrapbook includes material content that has been arranged in a coherent way, indicators, pictures with explanations to make it easier for students, and last but not least, question sheets that object to making students further develop their knowledge after studying the material presented (Wusqo, et al., 2021). The sections in the science digital scrapbook of this research, namely the opening page, the theme introduction video page, the question identity page, the question processing instructions page, and the question page.



Figure 3. Features on Science digital scrapbook

The digital science scrapbook as an authentic assessment contains a cover page, an introductory video page for the theme, a question identity page, an essay question page, a work instructions page, a student worksheet with scoring columns and teacher

comments, and an assessment guide page. Science digital scrapbook is a medium that is easily accessible through a smartphone, at least a smartphone that most students have. This ease of access is due to the use of the canva platform. The Canva platform can make it easier for students to understand lessons because this media can display text, video, animation, audio, images, graphics and others according to the desired display and can make students focus on paying attention to lessons because it looks attractive (Tanjung & Faiza, 2019).

An important point in authentic assessment is transparency in the assessment. Educators need to communicate the format and criteria for authentic assessment (Yusuf, 2017). This is realized by creating an assessment guide page and even being equipped with an assessment column. When students have finished working, the teacher can give an assessment of the three assessment areas in the assessment column contained in the science digital scrapbook. Digital science scrapbooks are appropriate for use in authentic assessment because of the use of technology, students are motivated to actively participate and interact during the learning assessment process (Robbia & Fuadi, 2020). The application of digital scrapbook science media is effective because it is right on target in the preparation of materials in accordance with the objectives that have been designed by educators (Aini & Wicaksono, 2021).

Profile of Student Learning Outcomes

Learning outcomes are results given to students in the form of an assessment after following the learning process by assessing the knowledge, attitudes, skills of students with changes in behavior (Nurrita, 2018). Student learning outcomes themselves are influenced by student learning motivation (Lao. et al., 2021). Students' learning motivation is fundamental to foster their will and learning ability (Safaruddin, et al., 2020). The domain of knowledge is assessed using essay questions. In the essay test, the scoring is based on the weight given to each item and the number of elements contained in the answer that is considered the most correct (Wati, 2016). Assessment in the attitude domain uses an attitude assessment sheet that is guided by the "Pancasila Student Character" aspect, the assessment in this aspect is carried out while students are working on projects and presentations. The domain of skills assesses the presentation process and product results made by students using the skills assessment sheet. Student learning outcomes measured using the science digital scrapbook as an authentic assessment that was developed showed that 83.3% of students completed the competency domain of knowledge, 100% of students showed good attitudes, and 100% of students completed the competency domain of skills.

In the realm of knowledge there are still 16.7% of students who have not completed. One of the factors that affect the achievement of student mastery to fulfill the KBM (Minimum Learning Completeness) is the quality of the assessment instrument used (Safaroh & Dewi, 2017b). The instrument used in this study is classified as good because it has gone through a process of expert validation and item analysis. Another factor that affects student learning outcomes in the cognitive domain is the level of ability in the domain of students' knowledge that differs from one another (Rizki, 2021). In addition to these two factors, conditions in the classroom show that distance learning during the covid pandemic has an impact on students' learning motivation. Students lack the motivation to learn when face-to-face learning is implemented in schools in Kudus Regency. In essence, student learning motivation affects student learning outcomes (Suryani, et al., 2020). Analysis of student learning outcomes profile shows that most students have completed the realm of cognitive competence. Learning outcomes in the cognitive domain of these students have increased after the implementation of science digital scrapbook. This is in accordance with the research results of Wusqo, et al. (2021)

that the use of science digital scrapbook can improve student learning outcomes in the cognitive domain in science learning in junior high school because it is a learning medium that attracts students' interest in the learning process. Prastiti, et al. (2021) explained that digital scrapbook media can build students' concepts in learning being taught. in the science digital scrapbook instrument as an authentic assessment essay questions were chosen because they have several advantages. in the science digital scrapbook instrument as an authentic assessment, essay questions were chosen because they have several advantages. The advantages of essay questions according to Supardi (2015) include: 1) being able to measure cognitive aspects; 2) can develop language skills both orally and in writing properly and correctly according to applicable rules; 3) can train reasoning, namely logical, analytical, and systematic thinking; 4) develop problem solving skills (problem solving).

Question number one is included in the indicators of analyzing the difference between natural and artificial sweeteners in foods and beverages. The student got a score of four because the student's answer could touch all the indicators in the assessment rubric. These indicators include natural sweeteners in the throat that do not feel dry after drinking it, and feel fresh in the throat. While artificial sweeteners in the throat feel dry after drinking. So that you will still feel thirsty, natural sweeteners are obtained from natural extracts, such as fruits, honey, and vegetables. Artificial sweeteners are obtained from the production of synthetic chemical preparations, natural sweeteners taste normal sweetness, artificial sweeteners taste bitter sweet up to tens or even hundreds of times the sweetness of sugar, and natural sweeteners tend to be more expensive. The price of artificial sweeteners is cheaper than the market price. Questions and results of science digital scrapbooks done by students can be seen in the Figure 4.



Figure 4. Question number 1 and one of the students' answers

Question number two is included in the indicator explaining the impact of using additives on health. The student got a score of four because the student's answer could touch all the indicators in the assessment rubric. These indicators include causing allergic reactions and tumor production when consumed in excessive amounts and for a long period of time. Questions and results of digital science scrapbooks done by students can be seen in the Figure 5.



Figure 5. Question number 2 and one of the students' answers

Problem number three is included in the indicator of finding solutions to substitute artificial additives. The student got a score of four because the student's answer could touch all the indicators in the assessment rubric. These indicators include natural preservatives that have the potential as noodle preservatives, including star fruit leaves, turmeric root, pomegranate sap and garlic. Questions and results of digital science scrapbooks done by students can be seen in the Figure 6.



Figure 6. Question number 3 and one of the students' answers

Question number four is included in the indicator explaining how addictive substances work in the body. The student got a score of three because the student's answer could

touch the three indicators in the assessment rubric. This indicator is to explain that a smoker will feel more excited. Questions and results of digital science scrapbooks done by students can be seen in the Figure 7.



Figure 7. Question number 4 and one of the students' answers

Question number five is included in the indicator explaining the impact of using addictive substances on health. The student got a score of three because the student's answer could touch the three indicators in the assessment rubric. These indicators are impaired brain function, dehydration, confusion and memory loss, hallucinations, seizures and death, and impaired quality of life. Questions and results of digital science scrapbooks done by students can be seen in the Figure 8.



Figure 8. Question number 5 and one of the students' answers

Affective skills from a process and learning outcomes emphasize how students behave and behave in their community (Supardi, 2015). The attitude domain results show 100% of students have a good attitude. Indicators on attitude assessment are independent, honest, creative, and critical reasoning. Of the four indicators, the critical reasoning indicator which has the smallest average score, on average students can only meet 3 aspects of the critical reasoning indicator. Aspects that most students have not met, namely explaining new things that are not yet known or using evidence when drawing conclusions. This means that students have not been able to dig deeper into the concepts of additives and addictive substances. Whereas students can be said to be able to reason critically if they are able to apply their knowledge to new conditions that they have never known (Lestari & Annizar, 2020). The initial two levels of the affective domain are receiving and responding, which include listening and speaking to others, respectfully (Mirza & Mahboob, 2021).

The percentage of completeness in the skill domain shows that 100% of students are complete. The assessment of research skills is based on presentations made by students and the science digital scrapbook products made by students. In the assessment of student presentations with indicators showing more ability, it shows that the average score is still low among other indicators. Most of the students on these indicators only meet two aspects. This aspect is to make the audience interested in exposure and improvisation in presenting the material. It was expressed by students and teachers that students had never made a presentation while studying at SMP 2 Dawe Kudus. When students were first admitted to junior high school, there was an outbreak of Covid 19, so learning was done online. During online learning, teachers rarely learn synchronously. This is because the signal is not stable at the school which is located on the slopes of Mount Muria. Research by Gunawan, et al. (2021) it was found that students' low argumentation skills had an impact on learning outcomes. Authentic assessment provides opportunities for students to perform authentic assignments that are interesting, useful, and relevant to students' lives (Abduh, et al., 2018). In authentic assessment, students are involved in a learning environment with activities aimed at applying their knowledge, stimulating their thinking and critical vision to solve real problems and practicing various ways to solve them (dos Santos, et al., 2019).

Conclusion

The science digital scrapbook as an authentic assessment is appropriate to measure the learning outcomes of junior high school students with the theme of additives and addictive substances. Student learning outcomes measured using science digital scrapbooks as authentic assessments show that students are complete in the realm of knowledge, the realm of attitudes, and the realm of skills.

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