

Implementation of the Use of Authentic Assessments for Biology Teachers in Public High Schools in Makassar City

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Introduction

Assessment is often considered as one of the three main pillars that determine the success of a lesson. The three pillars are planning, implementation and evaluation. In the new paradigm, the teacher's role is not to be the main actor in learning anymore, but the teacher's role is to be a facilitator and motivator for student learning, especially in the classroom. Starting from this paradigm, the term assessment emerged. One form of assessment that emphasizes the three competencies above through an assessment that focuses on the learning process not on results is authentic assessment. Teacher perception is the process by which a person selects, interprets input information to create a meaningful picture of the world. This perception will depend not only on physical stimulation but also on the relationship between the stimulus and the field that surrounds it and on one's own condition. The selection of appropriate learning and according to the concepts being taught greatly influences the learning process. Learning needs to develop students' cognitive, affective and psychomotor aspects. If there is a change in students' attitudes and behavior, it can be said that students have learned. Biology as a science that has an important role in everyday life in particular and in the progress of science and technology in general. Authentic assessment is described as an assessment of the development of students because it focuses on their developing abilities to learn about the subject. While the reality is that there are still many schools that have difficulties faced by teachers in conducting due to limited time in observing social aspects or students' attitudes, writing assessment results, requires a lot of time to describe students' abilities (Darmawan et al, 2021). Assessments are carried out to find out several things, including getting information about students' learning outcomes or information about students' achievements. The results of this assessment can be used as reference material for feedback or feedback for teachers as material for reflection on learning activities that have been carried

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Abstract. *This study is quantitative descriptive research that aims to examine the biology teachers' perception on authentic assessment in SMAN (public senior high schools), the implementation of authentic assessment in Biology learning, and the inhibiting factors of Biology teachers in implementing authentic assessment at SMAN in Makassar City. The research population were 23 SMAN in Makassar City. Of the 23 schools, only 16 schools had teachers willing to be respondents or the sample of the study with the total of 35 Biology teachers at SMAN in Makassar city. Data collection techniques employed observation, questionnaires, and interviews. The results of the study reveal that the Biology teachers' perception on authentic assessment is categorized as Very Good, while the implementation of authentic assessment by Biology teachers at SMAN in Makassar City which includes the cognitive, affective, and psychomotor domains is categorized as Very Good as well, where the teachers assess the knowledge competency by giving written and oral assignments to students, in the affective domain the Biology teachers at SMAN in Makassar City assess each student during and after learning, and in the psychomotor domain the teachers conducts an assessment by giving project assignments, portfolios, and products to students both individually and in groups. The inhibiting factors encountered by Biology teachers in authentic assessment overall have similarities, namely limited time in assessing, lack of students' motivation in learning, and lack of availability of facilities and infrastructure in Biology Laboratory.*

Keywords: *Authentic Assessment, Perception, Assessment Implementation, Assessment Inhibiting Factors*

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out or as input for subsequent learning. This assessment activity can also answer the question of how good or successful the student's learning outcomes are. Achievement of competency by students can be demonstrated from the assessment process. Assessment is a statement based on a number of facts obtained which are useful for explaining the characteristics of someone or something. Assessment is an activity to provide a continuous and comprehensive overview of various information relating to cognitive, affective and psychomotor aspects of the process and results that students have achieved. Assessment focuses on students as the subject of learning activities and does not touch on other learning components in the slightest. Assessment can be interpreted as a systematic and continuous process of activities in order to collect regarding student learning processes and outcomes in order to determine the grades that will be given based on certain criteria and considerations. The assessment is carried out meaningfully, comprehensively, continuously and is based on the 2013 Curriculum based on Minister of Education and Culture Regulation Number 66 of 2013 concerning Educational Assessment Standards, namely authentic assessment (Widaningsih et al, 2021).

Authentic assessment of students includes attitudes, knowledge and skills competencies that are focused on assessing what students can do based on material they have understood, and are designed to assess students' abilities contextually. This form of authentic assessment motivates students to apply their knowledge in a creative and challenging way to demonstrate the understanding gained based on the material obtained in class (Nurhayati et al, 2023). Assessment is a main component that must be present in learning. The assessment is carried out by the teacher with the aim of knowing the level of students' mastery of the learning that has been given, as well as to see the teacher's level of success in providing teaching. This will enable teachers to further improve the teaching and learning process and the quality of student learning so that more satisfactory results will be obtained (Anggit, 2021).

Teachers face various obstacles in conducting assessments on learning based on the curriculum. Nuriana (2018) in her research stated that teachers experience difficulties in assessing because this attitude must be observed by the teacher when students are outside the classroom. This is an obstacle for teachers because the number of students is greater and it takes a long time. Teachers cannot observe students' attitudes one by one, especially in the realm of skills, for example in a laboratory that is inadequate for practicums and etc.

Authentic assessment has begin to be applied in high school learning. One of them is learning biology, but there are still many teachers who do not understand authentic assessment. Based on the results of Suatama's research, as many as 20 teachers out of 23 teachers at SMA 21 Semarang who filled out a questionnaire, 87 percent of teachers still had difficulty understanding how to assess. Deputy Minister of Education and Culture for Education, Musilar Kasim said that the training for teachers who implemented the curriculum did not meet expectations. There are still many teachers who do not understand the curriculum, because the training only focuses on understanding concepts so there are still many teachers who do not understand the curriculum assessment. So the author wants to conduct research to find out how to implement and carry out authentic teacher assessment, especially in Biology subjects in Makassar City, whether it has been carried out well and in accordance with government regulations which cover 3 domains in authentic assessment, namely in the cognitive, affective and psychomotor domains. The results of initial interviews conducted with several public high school biology teachers in Makassar City show that currently several teachers have carried out authentic assessments covering the cognitive, affective and psychomotor domains in Makassar City High Schools, and there are also several teachers who still do not understand about implementation of good authentic assessment.

The implementation of authentic assessment has actually been around since the Education Unit Level Curriculum (KTSP), but this has not been implemented optimally. This is due to the uneven distribution of teacher guidebooks for the authentic assessment implementation system. Teachers only know the basic meaning of authentic assessment, but do

not yet know how to apply it. Authentic assessment in the current curriculum is not appropriate and implemented well, this is due to teachers' lack of understanding about how to implement authentic assessment in the curriculum. Apart from that, teacher literacy towards the Curriculum greatly influences the implementation of the authentic assessment process (Minarti et al, 2023). So, the author carried out research entitled "Implementation of the Use of Authentic Assessment in Public High School Biology Teachers in Makassar City".

Research Methods

This research is a type of descriptive research. Data collection methods include qualitative data and quantitative data. This research data was collected using interview guide instruments and distributing questionnaires to collect qualitative data. Meanwhile, quantitative data is obtained using an assessment rubric in the form of assessment scores. The population in this study were all state high schools in Makassar City, totaling 23 schools and a sample of 35 biology teachers. The instrument in this research uses a questionnaire. The data collection techniques used were: observation, interviews and questionnaires. This observation aims to enable researchers to better understand the situation as a whole, so that they can obtain a holistic or comprehensive view. The questionnaire in this research was used to find out how authentic assessment is carried out by biology teachers and interviews were used to find out how teachers perceive authentic assessment and the inhibiting factors that exist in authentic assessment.

Qualitative data was analyzed based on interview results. Meanwhile, quantitative data is in the form of results in this research which were analyzed quantitatively. Quantitative analysis is carried out by (a) processing data per item by dividing the respondent's score per criterion by the ideal answer per criterion and multiplying by a constant; (b) processing the data as a whole is done by dividing the total number of respondents' scores per criterion by the total number of ideal scores per criterion and multiplying by a constant. The data analysis techniques used in this research are editing, tabulation, percentages and scoring. This research uses a measurement scale, namely the Likert scale. This scale assesses the attitudes and behavior desired by researchers by conveying several statements to respondents.

Results and Discussion

Based on the results of research that has been conducted in 16 public high schools in Makassar City with 35 respondents, the data obtained about the implementation of authentic assessment in learning from biology teachers is presented in the following table.

Table 1. Teacher Perceptions regarding Understanding Authentic Assessment of Biology Learning

Indicator variable	SS	S	KS	TS	STS	Total
Understand authentic assessment in the realm of knowledge	80%	20%	0%	0%	0%	100%
Understand authentic assessment in the realm of attitudes	71%	29%	0%	0%	0%	100%
Understand authentic assessment in the realm of skills	68%	32%	0%	0%	0%	100%
Authentic assessment is fairer than traditional assessment	86%	14%	0%	0%	0%	100%

Authentic assessment can equip students with abilities that meet the demands of the times	83%	17%	0%	0%	0%	100%
There is still a need to provide training for teachers regarding authentic assessment	66%	34%	0%	0%	0%	100%
There is still a need to provide training for teachers regarding authentic assessment	71%	29%	0%	0%	0%	100%

Based on table 1, are the results of the questionnaire recap given to teachers and then data analysis is carried out to obtain the results presented in table 2.

Table 2. Description of the Teacher's Understanding of Authentic Assessment

Description	Score
Minimum score	28
Maximum score	35
Mean	5,76
Std. Deviation	4,81
Percentage	94,8%

Based on table 2 data, the minimum score is 28, while the maximum score is 35 and the mean with a result of 5.76 so that it can be said that the teacher's perception of understanding authentic assessment is 94.8% which is categorized as Very Good.

Table 3. Implementation of Authentic Assessment of Public High School Biology Teachers in Makassar City in the Cognitive Domain

Indicator variable	Always	Often	Sometimes	Seldom	Never	Total
Carrying out student knowledge competency assessments	66%	31%	3%	0%	0%	100%
Prepare knowledge assessment instruments	63%	20%	17%	0%	0%	100%
Provide written test assessments to students	49%	34%	17%	0%	0%	100%
Provide oral test assessments to students	17%	49%	34%	0%	0%	100%
Include a knowledge assessment plan in the RPP	77%	20%	3%	0%	0%	100%
Attach the knowledge assessment format to the RPP	80%	14%	6%	0%	0%	100%

Based on table 3, are the results of the questionnaire recap given to teachers and then data analysis is carried out to obtain the results presented in table 4.

Table 4. Description of the Implementation of Authentic Assessment by Biology Teachers at State Senior High Schools in the Cognitive Domain

Description	Score
Minimum score	24
Maximum score	40
Mean	36,0
Std. Deviation	2,09
Percentage	90,1%

Based on table 4 data, the minimum score is 24, while the maximum score is 40 and the mean with a result of 36.0 so that it can be said that the teacher's perception of authentic assessment understanding is 90.1% which is categorized as Very Good.

Table 5. Implementation of Authentic Assessment of Public High School Biology Teachers in Makassar City in the Affective Domain

Indicator variable	Always	Often	Sometimes	Seldom	Never	Total
Conduct an attitude competency assessment	63%	34%	3%	0%	0%	100%
Carry out self-assessment on students	46%	37%	11%	6%	0%	100%
Prepare attitude assessment instruments	46%	43%	9%	3%	0%	100%
Include an attitude assessment plan in the RPP	80%	17%	3%	0%	0%	100%
Attach the attitude assessment format to the RPP	77%	17%	6%	0%	0%	100%

Based on table 5, are the results of the questionnaire recap given to teachers and then data analysis is carried out to obtain the results presented in table 6.

Table 6. Description of the Implementation of Authentic Assessment by Biology Teachers at Public Senior High Schools in the Affective Domain

Description	Score
Minimum score	12
Maximum score	30
Mean	5,61
Std. Deviation	4,38
Percentage	90,5%

Based on table 6 data, the minimum score is 12, while the maximum score is 30 and the mean with a result of 5.61 so that it can be said that the teacher's perception of understanding authentic assessment is 90.5% which is categorized as Very Good.

Table 7. Implementation of Authentic Assessment of Public High School Biology Teachers in Makassar City in the Psychomotor Domain

Indicator variable	Always	Often	Sometimes	Seldom	Never	Total
Carry out skills competency assessments	37%	46%	17%	0%	0%	100%
Prepare skills assessment instruments	46%	37%	14%	3%	0%	100%
Carry out student portfolio assessments	46%	23%	32%	3%	0%	100%
Carrying out variations in project techniques	49%	23%	23%	6%	0%	100%
Include the assessment plan in the RPP	80%	17%	6%	3%	0%	100%
Attach the skills assessment format to the RPP	77%	17%	6%	0%	0%	100%

Based on table 7, are the results of the questionnaire recap given to teachers and then data analysis is carried out to obtain the results presented in table 8.

Table 8. Description of the Implementation of Authentic Assessment by Biology Teachers at Public Senior High Schools in the Psychomotor Domain

Description	Score
Minimum score	16
Maximum score	40
Mean	33,8
Std. Deviation	2,38
Percentage	85,7%

Based on table 8, the minimum score is 12, while the maximum score is 30 and the mean result is 33.8, so it can be said that the implementation of authentic assessments in the psychomotor domain is 85.7% which is categorized as Very Good.

Discussion

This research was conducted at a public high school in Makassar City by giving questionnaires to 35 Biology teachers regarding the implementation of authentic assessment, whether it had been carried out in a complex manner covering 3 domains namely cognitive, affective and psychomotor for students. Implementation of the current curriculum assessment is more emphasis on authentic assessment as a whole covering attitudes, knowledge and skills competencies. In the implementation of an authentic assessment conducted by the teacher, various responses are bound to arise starting from the benefits obtained, the inhibiting factors encountered and the solutions used to overcome these problems and the teacher can be held accountable both in terms of techniques, procedures and results.

Implementation of authentic assessment in the knowledge domain, namely by writing tests when the learning material has been completed, the written tests that are usually carried out are daily tests, midterm exams and final school exams. Oral tests are carried out by biology teachers in various ways, namely, among others, carried out at the beginning of learning in the form of impromptu quizzes, or when there is a remedial if the students' written test scores are less than the KKM and oral tests which are carried out by calling students one by one or directly

some students come forward, the questions given to students are different, even though they are called together. Students work on assignments given by the teacher in groups or individually. Assessment of the skills of biology teachers using projects, products and portfolios, mind maps, and so on. In carrying out assessments of skills in project techniques, biology teachers usually give assignments in groups by presenting the assignments they make, assessments are carried out according to indicators that have been made, assessments are carried out by teachers or other groups. This is in accordance with the statement of Patongai et al (2021), which states that authentic assessment covers the cognitive, affective and psychomotor domains so it requires a more complex assessment than other assessments.

Assessment is an important part of the curriculum. It deals with techniques and procedures used by teachers to assess the student's growth and learning achievement. At the same time, it is also instrumental as a tool by which teachers get feedback for their instructional quality. Assessment can be conducted at different stages and in various ways. It can be done at the end of the learning process (summative evaluation or assessment of learning) and during the learning process (formative evaluation or assessment for learning). Assessment can also be done as a metacognitive tool whereby it becomes a process of learning (assessment as learning). Furthermore, assessment can be in the form of tests and non-tests. The assessment in the form of tests usually appears in the form of objective tests, written tests, and oral tests, while non-tests one can be done in various forms, such as observation, performance, assignments, presentations, seminars, and other authentic forms (Daud et al, 2023)

Authentic assessment is an assessment that reflects real or contextual situations in everyday life. Authentic assessment allows students to demonstrate their deep and applicable understanding of the subject matter, as well as demonstrate real-life skills. In ethnomathematics learning, authentic assessment can be carried out by providing assignments or projects that integrate mathematics with culture, such as measuring traditional objects or solving mathematical problems related to certain cultural practices (Achmad et al, 2022).

Authentic assessment pays attention to the balance between attitude, knowledge and skill competency assessments that are adapted to the development of students according to their level, authentic research aims to develop skills and competencies that are relevant to the world of work. The teacher must be able to make an assessment of these three aspects during the learning process and when learning has been carried out. Given the importance of implementing authentic assessments, teachers must be able to carry out all forms of assessment in learning. This statement is supported by the opinion of a biology teacher at a high school in Makassar when interviewed that authentic assessment is a good assessment system to implement because the teacher assesses the abilities of students as a whole, not only in the realm of students' knowledge but also in the realm of attitudes and skills of participants. students, who previously the teacher only saw from the cognitive aspect, who could have cheated on the exam and so on but was given a high score because he had not seen from the affective and psychomotor aspects but now, not only biology teachers but teachers of other subjects on average have do an authentic assessment.

One of the high school biology teachers in Makassar City, when interviewed also stated that with this authentic assessment which aims to evaluate students' abilities in real-world contexts, requires students to be active in applying their knowledge and skills to assignments, very helpful for teachers to be able to assess each student in learning. It cannot be separated from that, of course there are bound to be obstacles the teacher encounters in this authentic assessment process, for example students who are lazy and less active in the learning process, or students who talk and play around during the learning process. But all of that will definitely be recorded in the attitude assessment of the student concerned and will affect the final grade of the student.

The results of interviews with public high school biology teachers in Makassar, namely that they have several techniques for assessment, for example in the cognitive domain with oral, written tests and assignments. For written tests, we usually prepare questions and notify

students that the next meeting will be a test, whereas for oral tests, we make questions before carrying out the assessment. Then for the assignment technique, the teacher also makes it before carrying out the assessment and it is stated in the lesson plan. This is in line with the opinion of Arsita et al (2022), who state that authentic assessment is an evaluation process that involves various forms of measurement in the form of products and performance that reflect student learning, achievement, achievement, motivation and attitudes. The process of collecting information by the teacher about the development and achievement of learning carried out by students through various techniques that are able to reveal, prove or demonstrate precisely that the learning objectives have been truly mastered and achieved.

This is also in line with the results of an interview with one of the teachers at SMA Makassar City, namely that in assessing students, teachers tend to judge from the realm of students' attitudes because knowledge alone is not enough. Knowledge assessment techniques usually use written, oral and assignment tests, to assess the realm of attitudes consisting of 2, namely by looking at the spiritual and social attitudes of students while for assessing skills with portfolios, projects and so on. Likewise with the opinion of one biology teacher at another high school, who said that in assessing students, especially biology learning, teachers tend to judge from the realm of students' attitudes because knowledge alone is not enough. Knowledge assessment techniques usually use written, oral tests and assignments. To assess the realm of attitudes, you usually look at students' spiritual and social attitudes, while to assess skills, you usually assess portfolios, projects and so on.

As for the factors that become obstacles for teachers based on the results of interviews that have been conducted, it can be concluded that in carrying out authentic assessments, on average there are similar obstacles but the more common ones are limited time in assessing. This is because in authentic assessments there are many aspects that must be assessed, especially in the realm of skills, which take up a lot of time, for example during project and portfolio assessments. Apart from that, sometimes teachers are faced with something, for example an impromptu meeting which makes learning have to be postponed and assessments are delayed and this is also limited because teachers no longer assess students in the realm of attitudes one by one. This is in line with the opinion of Arsita et al (2022), who state that authentic assessment requires a lot of time, not all teachers are able to do it because there are too many students. Lack of student motivation in learning is also an inhibiting factor in assessment because based on interviews with respondents, information was obtained that learning biology involves a lot of memorizations so that students feel less interested, especially at the end of the learning hour where students start to lose concentration. Apart from that, there are several schools located on the outskirts of Makassar city which are close to the sea, where the majority of students' parents work as fishermen, which makes the average student have low motivation to study. Another obstacle factor is the lack of availability of facilities and infrastructure, especially in the Biology Laboratory. Considering the importance of this in carrying out psychomotor assessments, for example in practicums, this does not become a barrier for some teachers to carry out assessments by looking for solutions so that practicums can still be carried out. Obstacles in implementing assessments do not become an obstacle for teachers to carry out complex assessments in accordance with curriculum demands.

Conclusion

Based on the results of the research that has been done, it can be concluded that the perceptions of biology teachers at SMA Negeri towards authentic assessment in Makassar which include cognitive, affective and psychomotor domains are categorized as Very Good. The inhibiting factors encountered by Biology teachers in authentic assessment as a whole have similarities, namely limited time in assessing, lack of student motivation in learning, and lack of availability of facilities and infrastructure in the Biology Laboratory.

Reference

- Achmad et al, 2022. Authentic Assessment of the Independent Learning Curriculum in Islamic Religious Education Learning in Elementary Schools. *Journal of Educational Sciences* ISSN 2656 9063 Vol 4 No 4
- Anggit. Sholikhah, Marsudi. 2021. Authentic Assesement stragetgies in Learning During the Covid- 19 Pandemic at SDIT Al-Azharul'ulum. *Balikpapan State Polytechnic journal* ISBN 978-602-51451-3-2
- Arsita. Putri, Fathoni. Ahmad. 2022. Analysis of Teacher Barriers to Implementing Authentic Assessment in Elementary Schools. *Basicedu Journal* ISSN 2580 3735 Vol 6 No 4
- Darmawan, Ericka. 2021. *Biology Teaching and Learning Strategies. Magelang: Home Libraries*
- Daud et al, 2023. Complexities of Authentic Assesment Implementation English Learning at Rural Areas Based High School. *International Journal of Language Education* Vol 7 Number 3 ISSN 2548 8457.
- Melinda. Eliza, Tanjung. Febriani. 2021. Analysis of Implementing Authentic Assessment of Curriculum 2013 by High School Biology Teacher. *Journal of Biology Education Pelita Pendidikan* Vol 10 No 2 ISSN 2502-3217 Deliserdang North Sumatra
- Minarti et al, 2023. Implementation of Authentic Assessment of Biology Learning in the Independent Curriculum in State High Schools in Batang Regency. *Journal on Education* Vol 05 No 4 ISSN 2654-5497
- Nurhayati. 2023. *Authentic Assessment in Learning*. UNM Publishing Agency. Makassar
- Nuriana. Didin. 2018. Teacher Obstacles in Providing Assessment of Student Attitudes in the Learning Process Based on the 2013 Curriculum. *Journal of Islamic Elementary School* Vol. 2 (2), October 2018,51-62 ISSN 2579-5813 (Online)
- Patongai et al, 2021. Analysis of the Practicality of Instruments for Authentic Assessment of Ecosystem Materials in High Schools Viewed from the User Aspect. *Biogeneration Journal* Vol 6 No 1 2021 ISSN 2579-7085
- Widaningsih et al, 2021. Implementation of Authentic Assessment in Ethnomathematics Learning to Welcome Culturally Inclusive Education. *National Journal of Tadris Mathematics* UIN K.H Abdurrahman Wahid Pekalongan.

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