Adaptation strategy of authentic assessment in online learning during the covid-19 pandemic

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Abstract. The crisis caused by the Covid-19 virus has a far-reaching impact on education, as schools have been closed since March 2020 in many countries around the world. However, despite certain limitations, the current situation demands action, so that the educational process for students around the world is not affected at all, including the assessment process. To make it effective, assessments must be active and authentic in online education. The problem is, until no, no instructional designs have been found for authentic online assessments. Thus, this study aimed to create an authentic assessment strategy adapted from the current implementation. In general, the method used in this research was development research compiled through surveys and developed qualitatively. The results showed that the forms of assessment that can be done were: doing a written test with case study questions or analysis provided in the online platform; online discussions with peer assessments as well as assessment of activeness by teachers; writing papers and analyze case studies including conducting reviews and criticisms. In principle, online teaching and learning can be delivered either asynchronously or synchronously. In the asynchronous assessment method, which is not done in real-time, assignments, and portfolios can be used to assess students’ knowledge and skills. The synchronous assessment method is carried out in real-time during online teaching and learning process.

1. Introduction

Currently, the world is experiencing a Covid-19 pandemic. The crisis caused by the Covid-19 virus has a far-reaching impact in the education sector, as schools have been closed since March 2020 in many countries around the world [1]. However, despite certain limitations, the current situation demands action so that the educational process for students around the world is not affected at all [2]. Learning can be done online through various platforms. In education, assessment is very crucial both online and offline. Given, currently, there is a pandemic that does not allow face-to-face learning. To make it effective, assessments must be active and authentic in online education [3].

The characteristics of authentic assessment are divided into three groups to help develop standards for defining authentic assessment. First, to make it authentic, assessments must be realistic, performance-based, and cognitively complex. Second, students must defend answers, products, and learn to work collaboratively. Third, the assessment must be formative. Finally, students should be informed about the grading criteria, which includes several indicators for assessment. Ideally, the result is mastery. Although all assessments may not contain all of these parts, designers need to take these developed definitions into account in making authentic assessments for their courses. When students are given an authentic assessment, the emphasis is on the process as well as the product [4]. Authentic assessment allows the instructor to assess higher-order thinking, unlike traditional assessments which focus on memory facts.
and other surface knowledge. By making authentic assessments, instructors can measure learning process, learning progress, and learning products [5].

The problem is, until now, no instructional design has been found for authentic online assessments. Many teachers also face difficulties in carrying out authentic assessments during face-to-face learning process. In order to adequately prepare students for authentic Assessment, teachers must modify their teaching methods by combining innovative methods into their teaching pedagogy [6]. Thus, it is necessary to have an authentic assessment design that is adapted from the current implementation, so that the teacher will be easier to apply.

Therefore, this study focuses more on the authentic assessment design adapted from the implementation that has been done by the teacher. The purpose of this research is to make an authentic assessment reference that can be done during online learning. Hence, the results of research can be carried out extensively for teachers in providing assessments in online learning.

2. Method

In general, the method used in this research is development research. According to Borg and Gall, development research is a research conducted to develop an educational product [7]. Meanwhile, Sugiyono argues that research and development is a method used to obtain a particular product result and test the effectiveness of the product. [8]. Meanwhile, according to Soenarto, development research aims to produce and develop prototypes, designs, learning materials, media, strategies, educational evaluation tools in learning [9]. Based on the opinions of experts above, in this study, the development method used is to create an authentic assessment design for online learning with steps, as shown in Figure 1.

![Figure 1. Research Stage.](image)

The research stages carried out in this study are:

1. Literature study regarding authentic Assessment and Assessment in online learning. Literature Review is a description of the theory, findings and other research materials obtained from reference materials to serve as the basis for research activities to develop a framework for thinking.
2. The field study was carried out through a survey method of Malang State University lecturers regarding the currently implemented authentic Assessment. Lecturer at the state university of Malang was chosen as the respondent because it is one of the pilot project universities for authentic assessment.
3. Description of findings and analysis of research results

3. Result and Discussion

3.1 Authentic Assessment VS Traditional Assessment

There are some fundamental differences regarding authentic assessment when compared to traditional assessment. The most widely used traditional assessment tools are multiple-choice tests, true/false tests, short answers, and essays. However, there are many shortcomings, the most crucial of which is not being able to ascertain a student's ability with certainty, whether the student guessing or using his abilities [10]. Assessment tools that are considered more authentic are portfolios, independent projects,
journals/scientific papers. That way, students express their knowledge of the material in their way using their abilities [10].

Meanwhile, according to Wiggins (1993) there are some fundamental differences between authentic assessment and traditional assessment. Authentic assessment emphasizes direct examination of student performance. It requires students to be more active and effective with the knowledge gained. The students will be given various kind of tasks. The teacher will note whether students can make comprehensive crafts, performance, or answers. The authentic assessment will help teacher to achieve validity and reliability by emphasizing and standardizing assessment criteria based on the products. The validity test' must simulates the real world. It involves unstructured challenges that help students practice seeing complicated things [11].

Meanwhile, traditional assessment relies on items that are indirect in nature. It only reveals whether students can recognize, remember or pair what has been learned. Conventional tests are usually limited to pencil and paper also one-answer questions. Conventional tests usually only ask students to choose or write the correct response for the questions. Traditional testing standardizes the 'item' and one 'correct' answer to each question. The validity test is determined by matching items with curriculum content. Traditional tests are more like exercises and are static [11].

Ewing (1998) states a warning regarding the implementation of authentic Assessment. Some of the factors that should be taken into consideration are: (1) authentic assessment may not be suitable to all cases; (2) the original assessment must be credible, publicly supported, and accepted legally; (3) expectations are sometimes too high; (4) generalizations from authentic assessments may be unrealistic because the tasks are sometimes impractical and too many; (5) the costs and inefficiencies of developing and implementing an assessment tool may be too high (both in terms of money and time). From this discussion, Ewing concluded that authentic assessment will not replace traditional assessment methods, but there is a future for such methods, provided the conditions are right, and the problems that exist in using the method can be addressed [11].

Hence, it can be concluded through expert opinions that there are fundamental differences between authentic Assessment and traditional Assessment, as shown in Table 1 below.

| No | Authentic Assessment | Traditional Assessment |
|----|----------------------|------------------------|
| 1  | Assessment tools that are considered more authentic are portfolios, independent projects, journals / scientific papers | The most widely used traditional assessment tools are multiple-choice tests, true/false tests, short answers, and essays |
| 2  | Authentic Assessment emphasizes direct examination of student performance. | Traditional Assessment relies on indirect items. |
| 3  | Requires students to be more active and effective with the knowledge gained. | Only reveals whether students can recognize, remember or match what has been learned. |
| 4  | Students are given various kinds of tasks. They were noting whether students can make crafts, performance, or answers that are comprehensive. | Conventional tests are usually limited to pencil and paper, one-answer questions. |
| 5  | Achieve validity and reliability by emphasizing and standardizing assessment criteria according to a variety of products. | Conventional tests usually only ask students to choose or write the correct response for whatever reason. Traditional testing standardizes the 'item' and one 'correct' answer to each question. |
| 6  | The “validity test” must depend on whether the test simulates the real world. | The validity of the test is determined by matching items with curriculum content |
It involves unstructured challenges that help students practice seeing complicated things. Traditional tests are more like exercises and static.

3.2 Current Implementation

The development of authentic Assessment has been carried out in various countries, including Indonesia through education-based tertiary institutions. The Educational Personnel Education Institute (LPTK) is a university that has the task of preparing professional teachers, educators, and future generations of the nation. [12]. Therefore, this field study on the implementation of authentic assessment takes samples of Lecturers at the State University of Malang. A total of 296 respondents are asked to fill out a closed-ended questionnaire regarding the implementation of authentic assessment. The results can be seen in Table 2.

| No | Assessment Criteria | Average Score (%) | Information |
|----|---------------------|--------------------|-------------|
| 1  | The form of Assessment that is often carried out by lecturers according to lecturers and students | 88.1 | Test and Non-test writing test |
| 2  | The form of the test is most often carried out according to lecturers and students | 89.8 | Problem cases or analysis |
| 3  | Test difficulty levels according to Lecturers and Students | 71.8 | Problem cases or analysis |
| 4  | The form of non-test Assessment is most often carried out according to Lecturers and Students | 66.8 | Independent tasks |
| 5  | The most frequent individual assignments according to lecturers and students | 54.4 | Do the exercises |
| 6  | The most frequent group assignments according to lecturers and students | 79.9 | Make a paper |
| 7  | The form of Assessment that can provide real experiences to students according to the lecturer | 78 | Project assignment |
| 8  | Assessment that is relevant to the latest topics in the student learning environment | 91.9 | Cognitive aspects (knowledge) |
| 9  | The implementation of assessments currently being carried out helps students gain, change or develop skills, attitudes, ideals (ideals), appreciations (awards) and knowledge (knowledge) | 52.1 | Strongly agree |
| 10 | As a lecturer, provide feedback (discuss) the results of the Assessment that has been done | 56.05 | rarely |

Based on the table above, almost all of the principles of authentic assessment have been fulfilled, such as giving various assignments, carrying out it holistically, and providing real experiences to students. The teachers have rarely done the feedback from the assessment process. Hence, there is essential to be evaluated for the assessment process in the future—this good implementation faces challenges when learning has to be done online. With a variety of technological tools available, online teachers are limited only by their creativity and imagination. Innovative and effective online assessments including discussion forums, individual or collaborative projects, portfolios, self-assessments, peer
evaluations, simulations, and quizzes should be instructor-driven [3]. For this reason, authentic assessment strategies in online learning will be discussed in the next sub-chapter.

3.3 Assessment in Online Learning
There are various possible ways to carry out assessments in online learning, such as opening online discussion forums. Discussion forums allow students to post messages online and interact with each other as well as with instructors. However, online discussion forums should be designed to encourage the exchange of important and relevant information. Interaction with peers must be carefully designed to increase the bond between students and improve the quality of the learning.

Apart from that, project assignments can also be done online. Collaborative projects might be challenging, but it can be designed as part of an assessment for learning outcomes and also encourages collaboration in learning [3]. Projects can use online tools via multiple platforms.

Online teaching and learning in principle can be delivered either asynchronously or synchronously. In the asynchronous assessment method, which is not done in real-time, assignments and portfolios can be used to assess knowledge and skills. Portfolios are collected through pages or platforms that allow teachers to provide feedback on assignments that have been done by students [13]. Meanwhile, the synchronous assessment method can be used to reproduce traditional assessment methods as well as authentic assessment. An example of a traditional assessment is multiple-choice questions (one best, one correct, extended match, etc.) can be administered online to students on a predefined and scheduled date each week. [13]. Authentic assessment can be done using an oral test in real-time as well as a presentation or performance monitored online. There are several online platforms available for Assessment. Institutions can use LMS such as MOODLE with various trademarks.

The forms of assignments that also can be done is collaborative writing of scientific papers through an online word processor. For example, the teachers might use Google Classroom, Zoho, Dropbox. Meanwhile, for the multimedia presentations, teacher might use platforms that allow infographic and interactive presentations such as Beautiful.ai, Slides.com, Piktochart.com. Quizzes, polls and surveys. It can be set up online in minutes via EasyPolls, SurveyMonkey, Typeform. Games and simulations, for example, PhET interactive simulation, National Geographic Kids. The teacher also might use chat and video conferencing (depending on bandwidth and access), for examples: FaceTime, Microsoft Teams, and Zoom (International Baccalaureate Organization, 2020).

Summey (2019) formulates an authentic assessment strategy for online learning according to the BLOOMS hierarchy [14].

Figure 2. Online assignment strategy according to the BLOOMS hierarchy (Source: Summey, 2019).
It shows, if authentic online assessment is possible both formative (informal, unstructured) and summative (formal, structured), it just needs adjustments when adopting an assessment strategy. There needs to be an adaptation that is soft and easy under the existing implementations. Hence, the next sub-chapter will discuss the suitability of assignments or adaptable assessments.

3.4 Analysis
In this chapter of analysis, there will be more emphasis on the suitability of field studies with literature studies that have been carried out in order to find the best adaptation strategy for the authentic assessment process in online learning process. In order to facilitate the presentation, the results of the analysis can be seen in Table 3 below.

| Authentic Assessment can be carried out according to a literature study (informal/formative) | Authentic Assessment can be carried out according to a literature study (Formal/Summative) | Current Authentic Assessment | Forms of adaptation that can be done |
|---|---|---|---|
| -Simulation | -Collaborative Research Projects | -Mixed Test and Non-Test | -Conduct written tests with case study questions or analysis provided in the online platform |
| -Case study | -Miss | -Write test with a portion of case study questions or analysis |
| -Friendly Review | -Presentation | -Independent tasks By working on the questions |
| -Summary & Reflection | -Multiple-choice exams and short answers | -Create a paper |
| -Report | -Review / Criticism & Reflection | -Project tasks |
| -Simulation Lab | -Analyze | -Assessment of all aspects |
| -Case study | | |
| -Online discussion | | |
| -Interactive tutorial | | |
| -game | | |
| -Survey | | |
| -100 words summary | | |
| -Digital Flash Card | | |
| -Online test | | |

The form of adaptation done above is based on the implementation that has been conducted, so that teachers do not have difficulties and can focus more on learning process without thinking about new and unfamiliar assessment strategies. However, as explained above, several face-to-face online methods can be adopted.

Therefore, online assignments are collected through an online platform with a particular deadline. The assignment can be conducted as written tests with case study questions or analysis provided in the online platform; online discussion with peer assessments as well as assessment of activeness by teachers; writing a paper; analyzing case studies including review and criticism.
Table 4. Authentic Assessment Adaptation Strategies in Online Learning.

| Authentic Assessment can be carried out according to a literature study (informal/formative) | Authentic Assessment can be carried out according to a literature study (Formal/Summative) | Forms of adaptation that can be done | Platform |
|---|---|---|---|
| -Conduct written tests with case study questions or analysis provided in the online platform | -Can be done in virtual synchronous (online) so that teachers can monitor the process of students in doing assignments | -Students collect through an online platform with a particular deadline | Synchronous: Facetime, skype, zoom, Google Meet |
| -Online discussion with peer assessments as well as Assessment of activeness by teachers | Can use the synchronous method so that all participants in the study group can be active and build interaction | | Asynchronous: Google Classroom, LMS, and MOODLE |
| -Create a paper | -Students collect through an online platform with a particular deadline | Synchronous: Facetime, skype, zoom, Google Meet |
| -Analysis of case studies including review and criticism | Can use the asynchronous method to convey the results of the analysis | -Students collect through an online platform with a particular deadline | Asynchronous: Google Classroom, LMS, and MOODLE |

4. Conclusion

There are various possible ways to carry out assessments in online learning. The form of adaptation can be based on the implementation that has been conducted, so that teachers have no difficulties and can focus more on learning process without thinking about the new and unfamiliar assessment strategies. Forms of assessment that can be done are conducting written tests with case study questions or analysis provided in the online platform; online discussions with peer assessments as well as assessment of activeness by teachers; writing papers; and analyze case studies including conducting reviews and criticisms. In principle, online teaching and learning can be delivered either asynchronously or synchronously. In the asynchronous assessment method, which is not done in real-time, assignments and portfolios can be used to assess the students’ knowledge and skills. The synchronous assessment method is carried out in real-time, which is during the online learning process. Furthermore, there needs to be an evaluation of the implementation of the online authentic assessment.

References

[1] Huber S G and Helm C 2020 COVID-19 and schooling: evaluation, assessment and accountability in times of crises-reacting quickly to explore key issues for policy, practice and research with the school barometer Educ Assess Eval Account 1-34
[2] Ali W 2020 Online and Remote Learning in Higher Education Institutes: A Necessity in light of COVID-19 Pandemic Higher Education Studies 10 16
[3] Gray D M et al 2013 Authentic Assessment in Online Education EDTECH 512
[4] Idham F I, Nadrun and Darmawan 2015 The Use of Authentic Assessment in English Writing Skill to The Eleventh Grade Students e-Journal of English Language Teaching Society (ELTS) 3
[5] Fitriani 2017 Implementing Authentic Assessment of Curriculum 2013: Teacher’s Problems and Solutions Getsempena English Education Journal (GEEJ) 4
[6] Bao W 2020 COVID-19 and online teaching in higher education: A case study of Peking University Hum Behav Emerg Technol 2 113-5
[7] Bhattacherjee A 2012 Social Science Research: Principles, Methods, and Practices, (Tampa, Florida, USA: University of South Florida)
[8] Sugiyono 2016 Metode Penelitian Kuantitatif, Kualitatif, dan R&D (Bandung: Alfabeta)
[9] Kurniawan A M 2017 Pengembangan Buku Ajar Microteaching Berbasis Praktik untuk Meningkatkan Keterampilan Mengajar Calon Guru. In: Seminar Nasional Pendidik dan Pengembang Pendidikan Indonesia,
[10] Susani R G 2018 The Implementation of Authentic Assessment in Extensive Reading International Journal of Education 11 87
[11] Nasab F G 2015 Alternative versus Traditional Assessment Journal of Applied Linguistics and Language Research 2 165-78
[12] Bhakti C P and Mryani I 2016 Strategi LPTK dalam Pengembangan Kompetensi Pedagogik Calon Guru Jurnal Pendidikan 1 98-106
[13] Khan R A and Jawaid M 2020 Technology Enhanced Assessment (TEA) in COVID 19 Pandemic Pak J Med Sci 36 S108-S10
[14] Summey D 2019 Authentic assessment strategies for online learning.