Revolutionizing Assesment Techniques in Economics Education: Android-Based CBT Assessment System As an Innovative Approach for Evaluating Students‘ Learning in Economics

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Abstract. This research discusses the revolution in economic education assessment techniques through the development of an Android-based CBT (Computer Based Testing) assessment system. This innovative approach aims to increase effectiveness in evaluating students' economic learning. This article explains the important role of an Android-based CBT assessment system in providing an interactive and interesting learning experience for students. We also review the integration of CBT assessment techniques with relevant economics learning materials to enrich students' understanding. Case-based assessment methods are also introduced as an integral part of this system, providing students with the opportunity to apply economic concepts and theories in real situations. With the combination of Android technology and an innovative assessment approach, it is hoped that students will be more actively involved in economic learning and have a deeper understanding. The research results state that (1) The interview guide used in the research has a validity level of 75%. (2) The results of the teacher and student response questionnaire regarding the use of Android-based CBT in Economics learning show positive responses from both groups, with a good average response. (3) The application of Android-based CBT in Economics learning provides a number of significant benefits, including increased efficiency in testing, instant feedback, and automatic measurement. (4) The validity of evaluation instruments and tools is very important in ensuring that the assessments carried out are relevant and accurate in accordance with learning objectives. (5) The effectiveness of using Android-based CBT in Economics learning depends on how this technology is integrated into the curriculum, training support, and ensuring that its use is in accordance with learning objectives. (6) Android-based CBT can have a positive impact in improving efficiency, accuracy, interactivity, student learning outcomes, and more adaptive learning in Economics subjects. (7) The results of the teacher and student response questionnaire show good interest and satisfaction with the use of CBT technology in economic learning.

Keywords: Assessment, CBT, Android, Innovative, Economics.

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1 Introduction

Economic education is an important part of equipping the younger generation with a deep understanding of relevant economic principles. In an effort to increase the effectiveness of learning in this field, innovative and revolutionary assessment techniques are becoming increasingly important in an ever-changing economic world. One of the key aspects of learning is effective assessment techniques to measure students' understanding and abilities in the field of economics. In an effort to revolutionize assessment techniques in economics education, this article proposes the use of an Android-based Computer-Based Testing (CBT) assessment system as an innovative approach.

In a rapidly evolving economic world, it is important to ensure that economics education provides students with a deep and relevant understanding. Economic education not only teaches theoretical concepts but also involves practical application and contextual understanding in the real world. One important factor in improving the quality of economics education is the assessment techniques used to evaluate students' understanding and abilities. Traditionally, assessments in economics are often based on conventional written tests, such as multiple-choice exams or essays. However, in facing the complexity and dynamics of the current economic world, a more innovative and revolutionary assessment approach is needed. Innovative and revolutionary assessment techniques can enrich students' learning experiences by utilizing new and exciting technologies and methods. In economics education, this may include the use of computer technology, mobile applications, or web-based platforms to measure students' understanding and abilities in a more interactive, responsive, and measurable way. The statement before is in line [1]that online-based assessment innovation is very interesting to use as an evaluation tool in learning.

By using innovative and revolutionary assessment techniques, economics education can provide a more interesting and relevant learning experience for students. In addition, this assessment technique can also provide educators with more accurate and comprehensive information to improve teaching methods and ensure a deep understanding of economic concepts. In today's digital and technological era, economics education needs to continue to adapt to new developments in technology and assessment methods. By adopting innovative and revolutionary assessment techniques, the world of education can better prepare students to face the challenges and opportunities in an ever-evolving economic world. Curriculum development must be able to direct and form students who are ready to face the Industrial Revolution era with an emphasis on the fields of Science, Technology, Engineering, and Mathematics (STEM), as well as character[2].

Technology has played an increasingly important role in education. Technological advances have opened up new opportunities to change the way we learn and teach. In the context of economic education, technology can provide innovative solutions to increase the effectiveness and accuracy of student assessments. The use of an Android-based CBT assessment system in

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[1] Kuncahyono, K., Kumalasani, M. P., & Aini, D. F. N. Pengembangan Instrumen E-Test Sebagai Inovasi Penilaian Berbasis Online di Sekolah Dasar. JINoP (Jurnal Inovasi Pemebelajaran), 5(2), 155-169(2019)

[2] Lase, D. Pendidikan di era revolusi industri 4.0. SUNDERMANN: Jurnal Ilmiah Teologi, Pendidikan, Sains, Humaniora dan Kebudayaan, 12(2), 28-43(2019).

economics education provides a number of significant benefits. First, this approach provides flexibility for students, as they can take exams anywhere and anytime using their mobile devices. It allows for independent learning and adaptive assessment according to each student's needs and level of understanding. Second, the Android-based CBT assessment system allows for immediate feedback after students complete the exam. With automatic analysis, students can see results and direct evaluation of their understanding. That feature helps students to improve their understanding in real time and accelerates the learning process. Third, by using an Android-based CBT assessment system, teachers can manage and analyze assessment data efficiently. Teachers can view students' overall progress, analyze trends, and adjust teaching methods according to students' individual needs. This statement is supported[3], who states that the positive impact of applying technology in the education sector is more efficient in terms of time, costs, logistics, and other institutional problems, while the negative impact is that technology can change people's lives. Apart from having a positive impact, this also has a negative impact on changes in behavior, ethics, norms, rules, or morals of life that conflict with the ethics, norms, rules, and morals of life that exist in society[4]

CBT assessment techniques with relevant economic learning materials offer an innovative and effective approach to evaluating student understanding. In the CBT assessment technique, exam questions are prepared using computer technology, and students answer them via electronic devices such as computers, tablets, or smartphones. The advantage of integrating CBT assessment techniques with economics learning materials is the combination of accurate assessments and relevant learning materials. By using computer technology, students can access exam questions specifically designed to reflect the economic concepts they are learning. It can able to ensure that students are tested with questions that are appropriate to the learning material and can comprehensively measure their understanding. The integration of CBT assessment techniques with relevant economic learning materials also allows for immediate feedback to students. After completing the exam, students can view the results of their assessment as well as an analysis of the strengths and weaknesses of their understanding. It provides opportunities for better reflection and improvement so that students can enrich their understanding of economic concepts. This opinion with the statement that CBT training activities are able to increase students' knowledge and abilities in understanding the process and workings of the UNBK system and application[5].

Based on the problems stated first, the researcher wants to increase effectiveness in evaluating students' economics learning, see the important role of the Android-based CBT assessment system in providing an interactive and interesting learning experience for students, and review the integration of CBT assessment techniques with relevant economics learning materials to enrich it. student understanding.

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[4] Jamun, Y. M. Dampak teknologi terhadap pendidikan. Jurnal Pendidikan dan Kebudayaan Missio, 10(1), 48-52.(2018)

[5] Arianti, B. D. D., Kholisho, Y. N., Ismatulloh, K., Wirasasmita, R. H., Uska, M. Z., Fathoni, A., & Jamaluddin, J. Pelatihan Computer Based Test (CBT) Ujian Nasional Untuk Siswa SMK di Lombok Timur. ABSYARA: Jurnal Pengabdian Pada Masyarakat, 1(1), 22-3.(2020).

2 Method

The research method applied in this research uses an Android-based CBT assessment system as an innovative approach to evaluating students' economic learning. The conceptual framework aims to increase effectiveness in the evaluation process of student economics learning. In this context, the role of an Android-based CBT assessment system is very important because this system provides a more interactive learning experience and allows the integration of CBT assessment techniques with economic learning materials. This research was conducted at SMK Negeri 14 Medan, class XI, involving 118 students. The instruments used in this research include questionnaires, interviews, and observations. The data collection procedure involved several stages, starting from testing the Android-based CBT assessment system, filling out questionnaires by students, interviews with students and teachers, to classroom observations. The data analysis used is descriptive statistical analysis, which is used to provide an in-depth picture of the data that has been collected. This research process refers to the method described, where quantitative research methods were chosen because they are suitable for describing a broad population based on data samples, as well as testing various types of hypotheses, including descriptive, comparative, associative, associative comparative, and structural hypotheses. The steps in this research follow the guidelines set[6].

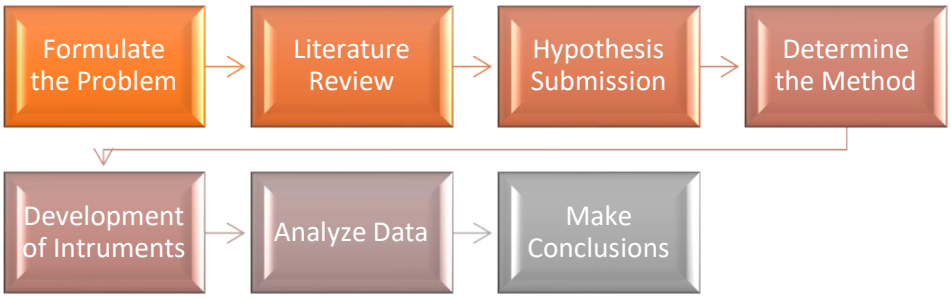

Fig. 1. Research Steps

3 Results

Research on the Android-based CBT assessment system used in Entrepreneurship learning at SMK Negeri 14 Medan. This research data was obtained from interviews with economics subject teachers. There were eight teachers interviewed. Apart from interviews, research data was also obtained from questionnaires given to teachers and students, with the following results.

[6] Sugiyono. Metode Penelitian Kuantitatif Kualitatif dan R&D (M.Dr. Ir. Sutopo, S.Pd (ed); ke2 ed).(2021).

Table 1. Results of Interview Guide Validation

No	Validated Aspects	Validator		Score	%
		1	2		
1	Suitability of questions to the test given.	3	3	6	75,00
2	Interview questions can be used to strengthen answers regarding the use of Android-based CBT assesments.	3	3	6	75,00
3	Conformity of questions with indicators.	3	3	6	75,00
4	Questions can be revealing	3	3	6	75,00
	Total	12	12	24	75,00

Based on Table 1, the total score is 24 out of 32 points, which is equivalent to 75%. These results indicate that this interview guide has good validity in measuring the four validated aspects. With a high validity value, this interview guide can be relied on to ensure that the questions asked in the interview are in accordance with the desired objectives and are able to reveal relevant information related to the use of Android-based CBT assessments.

Table 2. Teacher Response Questionnaire Validation Results

No	Validated Aspects	Validator		Score	%
		1	2		
1	Instructions for using the questionnaire are clearly stated	4	3	7	87,50
2	Statement sentences are easy to understand and do not give rise to multiple interpretations.	3	3	6	75,00
3	The statement items use good and correct Indonesian sentences.	3	3	6	75,00
4	The statement items use communicative sentences.	3	3	6	75,00
5	Suitability of statements with Android-based CBT assessment indicators.	3	3	6	75,00
6	The submitted statement can reveal information about the use of Android-based CBT assessments.	3	3	6	75,00
	Total	19	18	37	77.08

The total score was 37 out of 48 possible points, which is equivalent to 77.08%. These results indicate that this teacher response questionnaire has good validity in measuring the six validated aspects. This questionnaire is considered effective in collecting responses from teachers regarding the use of Android-based CBT assessments clearly and in accordance with the specified indicators.

Table 3. Student Response Questionnaire Validation Results

No	Validated Aspects	Validator		Score	%
		1	2		
1	Instructions for using the questionnaire are clearly stated.	4	3	7	87,50
2	Statement sentences are easy to understand and do not give rise to multiple interpretations.	3	3	6	75,00
3	The statement items are use good and correct Indonesian sentences.	3	3	6	75,00
4	The statement items use communicative sentences.	3	3	6	75,00
5	Conformity of statements with Android-based CBT	3	3	6	75,00

	assessment indicators.				
6	The submitted statement can reveal information about the use of the Android-based CBT assessment being implemented.	3	3	6	75,00
	Total	19	18	37	77.08

The total score was 37 out of 48 possible points, which is equivalent to 77.08%. These results indicate that this student response questionnaire has good validity in measuring the six validated aspects. This questionnaire is considered effective in collecting responses from students regarding the use of Android-based CBT assessments clearly and in accordance with the specified indicators.

Implementing Android-based Computer-Based Testing (CBT) assessments in Economics learning can provide various benefits, such as increased efficiency in testing, more accurate measurements, and a more interactive learning experience. This assessment is applied in the Mid-term exams (UTS) and Final Semester Exams (UAS), with teachers being able to use the Android-based CBT application to prepare UTS exams and UAS exams, which can be accessed by students online. In this exam, students can answer a number of questions related to the economic topics they have studied. CBT apps can provide instant feedback to students once they have finished answering, helping them understand the material better. By implementing Android-based CBT in Economics learning, teachers can utilize technology to enhance students' learning experiences and better measure their progress. It also enables learning that is more adaptive and responsive to individual student needs in often complex subjects such as Economics.

Table 4. Android-based CBT Assesment

No	Test Form	% Passed	% Not Passed
1	Middle-Test	46.23	53.77
2	Final Test	76.19	23.81

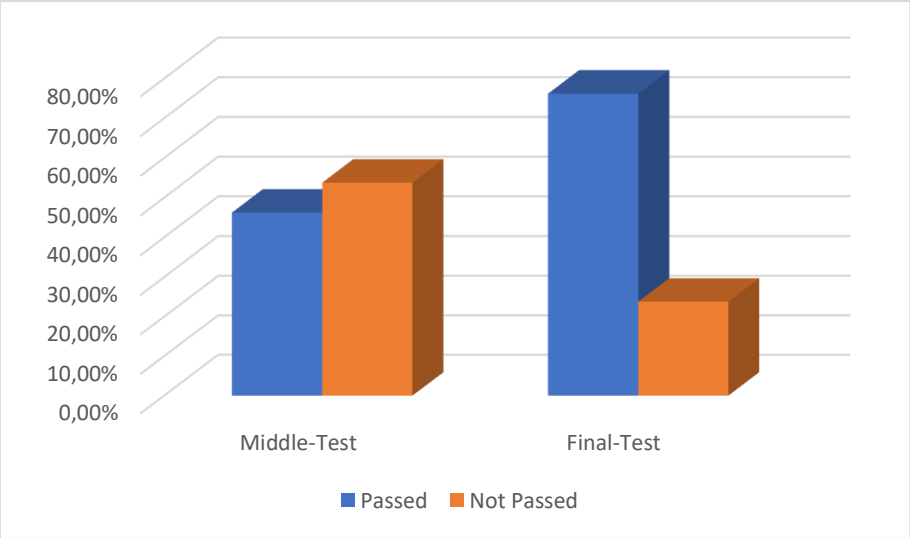

Fig. 2. Android-based CBT Assesment

With these various advantages, Android-based CBT assessment can improve efficiency, effectiveness, and quality of learning in Economics subjects. It also helps students develop relevant technology skills and prepares them for an increasingly digital work environment. The following are the advantages of Android-based CBT assessment.

Table 5. The Advantages of Android-based CBT Assesment

No	Advantage	Android-based CBT
1	Time and Place Flexibility	√
2	Instant Feedback	√
3	Automatic Measurement	√
4	Question Variations	√
5	Customization	√
6	Student progress monitoring	√
7	Use of multimedia	√
8	Data Management Efficiency	√
9	Time and Resource Savings	√
10	Easy update	√
11	Save costs and energy	√
12	Score is known automatically	√
13	Does not use paper	√
14	More effective and Efficient	√
15	The assessment is objective	√

Based on Table 5, the Android-based Computer-Based Testing (CBT) assessment has a number of significant advantages in the context of education and measurement, showing that, in general, there are 15 advantages of online exam applications used according to economics teachers. Furthermore, the Android-based CBT assessment combines Android-based CBT technology in education so we can improve the quality of teaching and measurement in a variety of subjects, including Economics.

While Android-based CBT can provide benefits in terms of efficiency and consistency in assessment, it needs to be acknowledged that this method may not always be able to comprehensively measure all relevant aspects of Economics learning, especially aspects involving practical skills, social interactions, and understanding of the global context. Therefore, the use of CBT must be well adapted to the specific learning objectives in Economics subjects.

Table 6. Disadvantages of Android-based CBT Assesment

No	Disadvantage	Android-based CBT
1	Limited access to technology	√
2	Fraudulent Tendencies	√
3	Not suitable for all materials	√
4	Dependency on internet connection	√
5	Social isolation	√

6	Difficulty monitoring the examination process	√
7	Constraints on creative content	√
8	Losing qualitative aspects	√
9	Obstacles against students with disabilities	√
10	Technical problem	√
11	The questions are typed one by one	√

Based on Table 6, although it has a number of advantages, it also has disadvantages in the context of economics learning. In general, there are 11 disadvantages of online exam applications. According to economics teachers, such as in economics learning, there are a number of obstacles that need to be considered in using Computer-Based Testing (CBT) assessments. Android based. First, there are limitations in measuring qualitative aspects that are often related to Economics, such as economic behavior or social impact. These aspects are difficult to measure accurately through CBT exams because they often require in-depth analysis or qualitative assessments that cannot be replicated in a digital format. CBT may have difficulty assessing practical skills that are important in the study of Economics, such as data analysis, business planning, or investment decision-making. This assessment often requires practical applications, which are difficult to realize in the CBT exam format, which tends to focus more on theoretical knowledge. CBT also tends to focus on assessing correct or incorrect answers and is less able to assess student creativity in formulating solutions or strategies in an economic context. It can affect the development of creative thinking in Economics learning. Taking this into account, educators and curriculum designers need to combine various evaluation methods that are more appropriate to the learning objectives in Economics subjects.

The effectiveness of Android-based Computer-Based Testing (CBT) assessment in Economics learning refers to the extent to which the use of this technology has succeeded in achieving learning objectives in Economics subjects efficiently and effectively. It includes the ability of CBT to measure students' understanding, skills, and achievement in an Economics context, as well as the positive impact resulting from its use.

Table 7. The effectiveness of Android-based CBT Assesment

No	Effectiveness	Android-based CBT
1	Flexibility in scheduling	√
2	Instant Feedback	√
3	Automatic measurement	√
4	Question variations	√
5	Customization	√
6	Student progress monitoring	√
7	Use of multimedia	√
8	Data management efficiency	√
9	Time and resource savings	√
10	Easy update	√

Based on Table 7, in general, there are ten effectiveness of online exam applications used according to economics teachers. Android-based CBT can increase the effectiveness of Economics learning by providing more accurate measurements, faster feedback, and greater flexibility for students. However, it is important to ensure that the use of CBT is integrated effectively into the curriculum and supported by appropriate training for teachers and students.

The teacher's response to the Android-based Computer-Based Testing (CBT) assessment in Economics learning is the response or view given by the teacher regarding the use of CBT technology in assessing and learning Economics subjects. Teacher responses can vary widely but generally reflect how teachers feel about this assessment method. Teacher and student responses may change over time with further experience with Android-based CBT in Economics learning. Adequate support, training, and open communication between all parties can help address concerns and maximize the benefits of using this technology in Economics education.

Table 8. Teacher responses to Android-based CBT Assessment

No	Aspect	Percentage	Category
1	Positive Response	76	Good
2	Interested and Open	75	Good
3	Skeptical or Worried	78	Good
4	Requires additional tracking	75	Good
Average		76	Good

Based on Table 8, the results of the teacher's responses to the Android-based CBT assessment in economics learning are in a good category, with an average of 76%. So, it can be concluded that the teacher response questionnaire to the Android-based CBT assessment was stated to be practical. The student response questionnaire aims to find out their assessment of the Android-based CBT assessment system in economics learning. The results of the student response questionnaire using the Android-based CBT assessment can be seen in the following table.

Table 9. Teacher Responses to Android-based CBT Assesment

No	Aspect	Percentage (%)	Category
1	Positive Response	78	Good
2	Interested in the use of technology	75	Good
3	Skeptical or Worried	77	Good
4	Needs adaptation	76	Good
Average		76,5	Good

Based on Table 8, the results of student responses to the Android-based CBT assessment in economics learning are in a good category, with an average of 76.5%. So, it can be concluded that the student response questionnaire to the Android-based CBT assessment was stated to be practical.

4 Discussion

The interview guide used has a validity of 75%. This shows that the guidelines are effective in measuring the four aspects that have been validated, namely "Conformity of Questions to the Test Given" as well as other aspects. With a high validity value, this guideline can be relied on

to ensure that the questions in the interview are in line with the desired objectives. The teacher response questionnaire also has a good level of validity, reaching 77.08%. The validation results show that this questionnaire is effective in measuring the six aspects that have been validated, including clear instructions for using the questionnaire and the suitability of statements with Android-based CBT assessment indicators. The validation results of the student response questionnaire also reached a good level of validity, namely 77.08%. This indicates that this questionnaire is also effective in measuring the six aspects that have been validated, including clear instructions for using the questionnaire and conformity of statements with Android-based CBT assessment indicators. Overall, both the interview guide and teacher and student response questionnaires have an adequate level of validity. This means that these tools can be relied on to collect the information needed in the context of using Android-based CBT assessments. Learning evaluation with these tools can be considered effective based on valid, reliable, relevant, representative, practical, discriminatory, and specific criteria mentioned[7].

The application of Android-based Computer-Based Testing (CBT) assessments in Economics learning brings a number of significant benefits. The main benefit discovered through implementing this technology is increased efficiency in the testing process. Teachers can easily use the Android-based CBT application to prepare for Mid-Term exams (UTS) and Final Semester Exams (UAS), which can be accessed online by students. Teachers are not busy calculating student learning outcomes scores because the application can display the scores for each student automatically[8]. In this exam, students are given the opportunity to answer a number of questions related to the economic topics they have studied.

Additionally, the CBT app provides the ability to provide instant feedback to students after completing an exam. This feedback helps students understand the material better, allowing them to see their mistakes and improve their understanding. In addition to efficiency in exam preparation and instant feedback, Android-based CBT technology also eliminates the need for manual calculations by teachers. Exam results are recorded automatically, which not only improves assessment accuracy but also speeds up the assessment process. Teachers can easily access student grades automatically without having to spend time calculating scores manually. The student learning experience also becomes more interactive with Android-based CBT. Students can take exams more comfortably and have easier access. Teachers can take advantage of interactive features in the app to make exams more interesting, encouraging student engagement in the learning process.

The assessment results presented show the success of implementing CBT in the Mid-Semester Examination (UTS) and Final Semester Examination (UAS). The percentage of students passing the UAS reached 76.19%, while the percentage who did not pass was 23.81%. In UTS, 46.23% of students passed, and 53.77% of students did not pass. This indicates that CBT technology has made a positive contribution to improving student learning outcomes. As

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[7] Nikmah, S. Z. Sistem Penilaian Computer Based Testing (CBT) Sebagai Media Evaluasi Pembelajaran Peserta Didik MI (Studi Multi Situs MI Perwanida Blitar dan MIN 11 Blitar) (Doctoral dissertation, IAIN Tulungagung). (2019).

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stated[9], the feasibility of a computer-based test-based learning evaluation tool on trading company adjustment of journal material at SMA Negeri 1 Puri Mojokerto is very feasible based on validation from experts which includes material feasibility and suitability media. Validation by experts also supports the feasibility of CBT-based learning evaluation tools in Economics material. With the implementation of Android-based CBT, Economics learning becomes more adaptive and responsive to individual student needs, especially in subjects that are often complex, such as Economics. The application of Android-based CBT technology has brought many positive benefits to Economics learning at SMK Negeri 14 Medan. These include improved efficiency, accuracy, interactivity, student learning outcomes, and the possibility of more adaptive learning.

The application of Android-based Computer-Based Testing (CBT) assessments in Economics subjects brings a number of advantages that have a significant impact. These advantages make an important contribution to increasing the efficiency, effectiveness, and quality of learning in these subjects. In the context of using Android-based CBT, it is clear that its application can have a positive impact on student development, improve the quality of learning, and prepare students to face a work environment that is increasingly dominated by digital technology, as stated[10]This model using multi android development tools has been shown to be more efficient compared to education using Android SDK only. Using effective Android smartphone applications with meaningful learning activities for vocabulary learning for young students is highly recommended, as emphasized[11].

The use of Android-based Computer-Based Testing (CBT) in the context of Economics learning provides a number of important benefits, especially in increasing efficiency and consistency in assessments. Android-based CBT is a valuable tool for improving efficiency and consistency in the assessment of Economics learning. However, it is important to recognize the limitations of this technology in measuring certain aspects of these subjects, always consider learning objectives, and seek appropriate alternative evaluation methods if necessary. With a wise approach and appropriate adjustments, CBT can be an effective tool in the Economics learning process. Thus, education in Economics subjects can become more holistic and comprehensive. Some of the obstacles explained are similar to the research results of [12]that the weakness of using this application is when there is internet signal interference, in accordance with the opinion[13]that the weakness of the e-exam application is that infrastructure must be available, such as cellphones, credit, quota data, WiFi networks, and stable internet networks.

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[9] Pamungkas, N. T. S., & Hakim, L. Pengembangan Alat Evaluasi Berbasis Computer Based Test (CBT) pada Materi Jurnal Penyesuaian Perusahaan Dagang di SMA Negeri 1 Puri Mojokerto. Jurnal Pendidikan Akuntansi (JPAK), 7(1). (2019).

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[13] Duha, T., & Fanaetu, M. Analisis Aplikasi Pembelajaran Daring Selama Covid19 Di Lingkungan Stie Nias Selatan. PARETO: Jurnal Riset Bisnis dan Manajemen, 6(2), 1-6.(2021).

The effectiveness of Android-based Computer-Based Testing (CBT) assessment in Economics learning refers to the ability of this technology to achieve learning objectives in Economics subjects efficiently and effectively. Android-based CBT has significant potential to increase the effectiveness of Economics learning. This is due to its ability to provide more accurate measurements, faster feedback, and greater flexibility for students. However, it is important to understand that the effectiveness of CBT is highly dependent on factors such as the integration of technology in the curriculum, training support for teachers and students, and ensuring that the use of CBT is in accordance with learning objectives in Economics subjects. With the right efforts, Android-based CBT can be a valuable tool in achieving better learning outcomes in Economics subjects. This finding is in accordance[14] that students' interest in learning independently and the learning process is more effective and efficient, so there is an increase in the quality of learning. This is also in line [15]that the development of effective online mobile-based test assessment instruments based on student test results is in good criteria with an average of 80.67.

The teacher's response to the use of Android-based Computer-Based Testing (CBT) assessment in Economics learning is a response or view that reflects the teacher's attitude towards this assessment method. This response includes teachers' feelings and opinions regarding CBT technology used in assessing and learning Economics subjects. These teacher responses can provide insight into how teachers feel about implementing this technology in their learning environment. The results of the teacher response questionnaire to Android-based CBT in Economics learning showed positive results, with an average response of 76. This indicates that the majority of teachers responded well to the use of this technology in assessment. Some aspects measured in the questionnaire include teachers' positive responses to technology, interest in using technology, teachers' concerns or uncertainty related to the use of CBT, and the need for additional training. Likewise, the results of the student response questionnaire to Android-based CBT in Economics learning also showed positive results, with an average response of 76.5. Students showed interest in the use of this technology in learning, and students' concerns or uncertainty regarding this technology appeared to be minimal. They also recognized the need for adaptation and additional training, but overall, student responses to the use of CBT in Economics learning can be considered good. The results of teacher and student response questionnaires show that the use of Android-based CBT assessments in Economics learning received positive responses from both groups. Teachers and students showed interest in this technology and had few concerns. Awareness of the need for additional training and adaptation was also highlighted. This indicates that the implementation of Android-based CBT in Economics learning is considered practical and can provide positive benefits for teachers and students in achieving their learning goals. The discussion above ithat teachers and students provide positive responses and make it easy to find exam results quickly through the use of online-based applications.

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5 Conclusions

1. The interview guide used in the research has a validity level of 75%. This indicates that the guidelines are effective in measuring validated aspects, such as the suitability of questions to a given test.
2. The results of the teacher and student response questionnaire regarding the use of Android-based CBT in Economics learning showed a positive response from both groups, with a good average response.
3. The application of Android-based CBT in Economics learning provides a number of significant benefits, including increased efficiency in testing, instant feedback, and automatic measurement. This also helps improve student learning outcomes.
4. The validity of evaluation instruments and tools is very important in ensuring that the assessments carried out are relevant and accurate in accordance with learning objectives.
5. Although Android-based CBT has many benefits, it also needs to be acknowledged that there are several limitations, such as the difficulty in measuring qualitative aspects of Economics and practical skills that are difficult to measure via digital format.
6. The effectiveness of using Android-based CBT in Economics learning depends on how this technology is integrated into the curriculum, training support, and ensuring that its use is in line with learning objectives.
7. Android-based CBT can have a positive impact in improving efficiency, accuracy, interactivity, student learning outcomes, and more adaptive learning in Economics subjects.
8. The results of the teacher and student response questionnaire showed good interest and satisfaction with the use of CBT technology in economics learning.

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