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Developing Microsoft Access Based- E-Siska Learning Media for Vocational High School Students

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Abstract

This study aims to develop learning media for Microsoft access-based electronic archives applications and assess its effectiveness on 11th-grade students' learning outcomes at State Vocational High School 1 Surabaya. This development research uses an experimental approach to use the ADDIE model development method (Analyze, Design, Develop, Implement, Evaluate). The results of this research are known to average the results of expert validation of learning media by 94% with a very feasible category. The results of student responses obtained an average of 89% with an extreme category. The results of the N-Gain Score test were 59% with a fairly effective category and the results of the Independent Sample t-test with the results of $t_{observed}$ *(2.936) >* t_{table} *(1.671). Therefore, it can be concluded that the learning media for Microsoft access-based electronic archives applications effectively improves student learning outcomes.*

Keywords: Archive; Learning Media; Learning Outcomes

INTRODUCTION

Information technology rapidly develops to help human activities run well and efficiently. Information technology is frequently used across various sectors in Indonesia, including education. Through information technology, education management is more well-structured and effective to implement. Adopting information technology in education is needed to develop all its elements. Starting from the curriculum, methods, media to the administrative system used to adjust to field conditions in the digital era. Mei et al (2023) explained in their research that the education workforce is also responsible for applying digital technology to education, which can significantly impact students' learning experience. Digitalization of education is very influential for all elements of education, such as teachers who are proactive in using information technology to process material sources by utilizing interactive digital media to create active learning quality (Trends et al., 2020). as stated by Mahmudah & Pustikaningsih (2019) technology can help teachers manage material better and stay focused.

Teachers must develop engaging teaching tools for effective learning, including materials and media, to ensure students' optimal comprehension. (Gaol & Sitepu, 2020). Aisyah, I., & Srigustini (2023)) also stated in their research that the teacher is responsible for learning. Teachers are responsible for creating and designing learning using effective learning materials that can facilitate the learning process to achieve learning objectives. The creativity of making teaching materials produces a more conducive learning atmosphere. One of the efforts to conceptualize interesting teaching tools is using interactive learning media to teach in the classroom (Kustyarini, Utami, & Koesmijati, 2020). Learning media can be adapted according to the school situation, teachers, and students to support a responsive and understandable learning atmosphere for students

Learning media is a tool that provides information and can encourage students' thoughts, moods, interests, and progress. Learning media can improve the learning process that is planned, directed, and controlled (Suryani, 2019). This definition aligns with that expressed by D. R. Putra & Nugroho (2016) Media is a teacher's tool for supporting learning activities. Learning media is essential in supporting the teaching and learning process in the classroom. Thus, using learning media is a significant support to help teachers and students understand the subject. Reinforced by research by Putu Rissa Putri Intari Dewi et al (2022) argue that the media has the potential to expand students' knowledge, convey information in an attractive, reliable, easy-to-interpret way, package information concisely, and can inspire and engage students to be active in classroom learning.

In Vocational High Schools, teachers prepare their graduates to enter the workforce, requiring innovative learning media tailored to field needs (Pratama, Irfan, & Effendi, 2023). State Vocational High School 1 Surabaya, located in Surabaya, offers 10 concentrations taught using two curriculum types: the 2013 curriculum for the twelfth grade and the independent curriculum for the eleventh and tenth grades. One of these concentrations is office management, which comprises 10 classes, divided into 5 for the eleventh and tenth grades. The office management concentration includes learning elements in archive management, supporting students in exploring their future professions. Researchers observed a phenomenon within this component, specifically in objective 4.7, where teachers lack digital learning tools due to limited proficiency in information technology. Wardana et al (2022) identified obstacles in selecting learning media, attributing them to teachers who have yet to analyze essential competencies aligned with student skills. This is also explained by Setyani & Bukhori (2022) who state that the delivery of archiving management material requires digital learning media to assist students in applying digital archiving management procedures. In addition, the observation also shows that State Vocational High School 1 Surabaya has good facilities to support classroom learning. Learning media development in schools should align with the facilities and infrastructure available to ensure that the produced learning materials suit the school's conditions (Luh Andriyani & Wayan Suniasih, 2021). Aligned with Vocational High Schools' objectives, research by Widayaka, Windayani, Sisephaputra, Wardani, & Zulfikar (2022)aims to equip students with competitive skills for the workforce in accordance with the field of vocational science.

The element of archiving management is one of the characteristics of subjects in the concentration of office management expertise that distinguishes it from other concentrations of expertise. The element of archival management requires a model to the appropriate learning media to support the process of delivering the subject matter. Akbar & Iriantara (2022) Vocational High Schools aim to equip graduates with skills matching industry demands. State Vocational High Schools 1 Surabaya has office management concentration on learning objective 4.7 applying electronic or digital archive management procedures, which means that as a result of the archive management element, students can implement digital-based archive management to increase students' capabilities to compete in the world of industrial work. Fakaubun (2020) argues that archiving is fundamental in various company agencies. To manage the administration so that it is maintained, maximum practice is needed to ensure students' understanding of the practice of conventional and digital archival materials (Bramantya, 2020). Various kinds of digital media facilities can be used for learning media, but not all State Vocational High Schools 1 Surabaya that the internet network situation is not optimal, so digital media is needed that can be used without being connected to the internet network or offline.

Microsoft Access is a database application program that is not optimal if operated over the internet network (Sarwandi & Cyber Creative, 2017). This program is suitable for a learning tool that can be used offline. Komputer, W. (2014) defines Microsoft access as software in the form of data storage based on relationships between tables that users can utilize to create, create, and manage various types of data. Through Microsoft access, users can develop an easy and fast application for daily activities in an agency or organization. Research by Trirahayu et al (2023) also states that Microsoft Access has the advantage of creating an application development system that is precise, fast, sophisticated and offers various conveniences. Microsoft access is suitable for a database design program as a learning media for electronic archive applications (Lestari, Ningsih, Sopiah, Rahayu, & Islamy, 2022). Based on the needs of teachers to make digital learning media, Microsoft Access is an alternative digital learning media as a learning tool for students in the learning objectives of digital archive application. Andoyo & Rianto (2015) also stated that the database objects in Microsoft Access make it easy for teachers to design digital learning media designs used in archival practice for students in a simple and easy-to-understand manner. Fahmi, Yusuf, & Muchtarom (2021), explained that the application of digital-based learning media innovations is expected to create effective learning. Through the use of Microsoft Access, teachers can create digital learning media innovations in the form of applications that can be taught to students to operate digital archiving applications to produce an understanding of the optimal digital archiving application procedures in accordance with learning objective 4.7 on the elements of archiving management in the concentration of office management expertise through direct practice. In addition, the electronic archive learning media can stimulate students to participate in creating innovations in the field of digital archives.

Microsoft Access-based E-Siska learning media has several advantages in facilitating students' implementation of digital or electronic archiving procedures. Saeroji (2014) explains another benefit of digital archive learning media: innovative digital archive learning media can create a fun and interactive learning environment. This is also echoed by Wulandari et al., (2020), where students can directly practice applying archiving with digital systems. Through the digital archive application learning media, students understand digital archiving procedures supported by relevant learning media(Wirawan, Indrawati, & Rahmanto, 2017). The E-Siska application facilitates students in directly practicing implementing electronic archive management procedures to measure their understanding of the material. Practicing electronic archiving using Microsoft Access-based E-Siska learning media can measure students' learning outcomes in the psychomotor aspect by directly implementing the theory taught by the teacher. This aligns with Daryanes et al., who state that learning outcomes play a crucial role in the learning process as they determine students' success in the learning activities they conduct. The measurement of learning outcomes used in this research is the psychomotor aspect in the form of a practical test of electronic archiving management to improve student learning outcomes. . (2020) also explained in their research that learning by focusing on psychomotor aspects is crucial for skill development. In conclusion, the Microsoft Access-based E-Siska learning media developed by researchers effectively addresses the need for digital archive learning tools at State Vocational High School 1 Surabaya, fulfilling the learning objectives for applying digital archiving procedures in archive management.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Learning

Datu, Tumurang, & Sumilat (2022) explain in their research that learning is the change in learners' behaviour through active practice and experiences. Another perspective is provided by Irawan (2022)who defines learning as a process characterized by changes in individuals' knowledge, understanding, attitudes, behaviours, and skills. Puspitarini & Hanif (2019) also elaborate on learning as an activity to acquire knowledge, master specific skills, and shape learners' attitudes. This aligns with Firmadani (2020) view that learning is an interactive process between learners and learning resources. Learning requires a conscious, permanent process that alters behavior (Thobroni, 2016). The collective understanding of learning from these explanations suggests that it involves individuals' efforts to gain understanding, knowledge, positive attitudes, behaviors, and skills. Meanwhile, learning is a process to acquire specific knowledge and skills to improve self-capacity.

Learning Media

Trisiana (2020) explains that learning media are teaching aids that influence the learning climate, atmosphere, and environment conditioned and developed by teachers. Learning media are essential tools to develop an individual's knowledge (Wirawan et al., 2017). Another perspective is provided by Pahlevi et al (2023) who describe learning media as channels for delivering messages from sender to receiver, thereby capturing learners' attention and interest in the learning process to achieve learning objectives effectively. From various statements about learning media, it can be concluded that it serves as tools to assist teachers in developing instructional materials delivered to learners, making them more engaging and motivating learners to delve deeper into the subject matter, thus creating an interactive learning process.

Archival Management Element

Archival management is one of the subject elements taught to Vocational High School (SMK) students specializing in office management in phase F. It is also a productive subject characteristic of the office management concentration, equipping students for the workforce Puspasari & Rohmawati (2020) explain that archival management encompasses activities from creation, reception, collection, maintenance, to archives storage using specific strategies for easy retrieval. Alvintasari & Rosy (2020) define archival management as recording activities in various forms and social media platforms, in line with technological and informational advancements. From these perspectives, archival management can be considered the document management process from storage to swift and accurate retrieval.

Microsoft Access

Microsoft Access is a computer relational database application program for home users and small to medium-sized businesses (Sarwandi & Cyber Creative, 2017). According to the research conducted by Walidain et al (2022) on databases, they are systematic information organized and stored

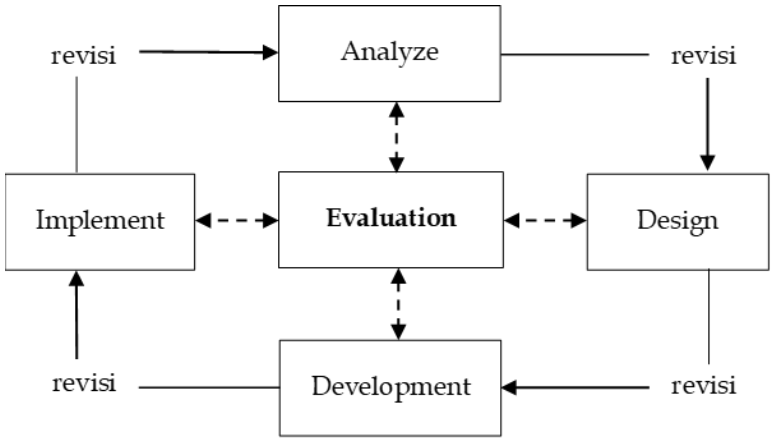
in computers, which can be analyzed by software to obtain information from existing databases. Muharlisiani et al (2018) explain that Microsoft Access primarily handles data manipulation processes and creates cloud computing-based systems, a type of instant information storage. From these perspectives, Microsoft Access is concluded to have features and utilities suitable for developing applications using databases as a media for electronic archive learning for eleventh-grade students specializing in office management at State Vocational High School 1 Surabaya.

Learning Outcomes

In her research, Nurrita (2018) explains that learning outcomes are the results provided to students through assessments after the learning process, evaluating knowledge, attitudes, self-skills, and observed behavioural changes. In line with the perspective of Habibah & Trisnawati (2022) learning outcomes result from lesson scores obtained from behavioural changes caused by learning activities, through cognitive, emotional, and psychomotor skills. Learning outcomes are the main target of a learning process, representing the output of the learning process (Wahono, Lin, & Chang, 2020). From these explanations, it can be concluded that learning outcomes are the result of students' learning process, assessed using specific evaluation methods to gauge student understanding.

METHOD

The study method is research and development using the ADDIE development model which stands for Analyze, Design, Development, Implement, and Evaluate, to generate a specific learning product (Rustandi, 2021). The research procedure involves an analysis stage to assess the needs in developing a product. The design stage aims to create a product design to students' requirements. Subsequently, the development stage incorporates application interface design based on validator guidance and feedback. The implementation stage involves limited trials in two classes, experimental and control groups. The evaluation stage, the final phase in the ADDIE development model, assesses the outcomes of the preceding stages. This phase uses an experimental approach to determine the effectiveness of learning media through pre-test and post-test results conducted by students using a quasi-experimental design with a non-equivalent control group format (Creswell, J.W., & Creswell, 2018). the stages of the ADDIE development model are shown in Figure 1.



Sumber: Hidayat & Nizar (2021)

Figure 1. ADDIE DEVELOPMENT MODEL STAGES

This study was conducted in two classes, and different treatments were given: the control and experimental groups. Firstly, both classes underwent a pre-test before receiving different treatments. Then, the process concluded with a post-test to evaluate learning outcomes. Through pre-test and post-test results, differences were observed in the treatments to improve student learning outcomes in the psychomotor aspect. The population of this study was 125 students from 11th-grade of Office Management concentration, State Vocational High School 1 Surabaya. The sampling technique used to test the developed learning media product was non-probability sampling with a purposive sampling method, which was selected based on specific considerations (Sugiyono, 2013). The research sample consisted 61 students, with 31 from 11th-grade of Office Management 1 and 30 from 11th-grade of

Office Management 4 assigned to the control group, and 30 from 11th-grade of Office Management 4 assigned to the experimental group, based on their average scores in archival management.

This study has two types of data: qualitative data obtained through validation results by content experts, media experts, and question experts, consisting of critiques and suggestions regarding the feasibility of the developed product, and quantitative data derived from students' pre-test and post-test results. Data were collected using pre-tests and post-tests, and documentation was analyzed using descriptive quantitative statistical analysis to provide a systematic, concise, and clear overview of the conditions encountered (Sholikhah, 2016). The data were taken from the validation results of the learning media, validated by content, media, and question experts, with interpretation based on the criteria for the level of learning media feasibility. Additionally, descriptive analysis is used to analyze data to determine median, mean, range, standard deviation, minimum, and maximum score. Before conducting parametric statistical analysis, data are first tested using the Levene Statistic for Homogeneity of Variance and the Kolmogorov-Smirnov test for Normality. Subsequently, the N-Gain Score test and Independent Sample-Test are conducted to assess the effectiveness of the learning media and research hypotheses (Wahab, Junaedi, & Azhar, 2021). The categories of N-Gain Score test values and interpretations of effectiveness are explained in Tables 1 and 2.

Table 1.
CATEGORIES OF N-GAIN SCORE TEST VALUES

N-Gain Score	**Category**
$g > 0,7$	High
$0,3 \leq g \leq 0,7$	Moderate
$g < 0,3$	Low

Sumber: Hake (1999)

Table 2.
INTERPRETATION CATEGORIES OF N-GAIN SCORE EFFECTIVENESS

Persentase (%)	**Category**
> 76	Effective
56 – 75	Effective enough
40 – 55	Less effective
< 40	Ineffective

Source: Adapted from Rahmi, Iltavia, & Zarista (2021)

The instruments used to collect data in this study are validation sheets from content experts, media experts, question experts, and student responses. The content expert validation sheet is used to obtain evaluations and feedback regarding the quality of the material within the E-Siska application. The media expert validation sheet is used to receive assessments and feedback regarding the design of the E-Siska application. The question expert validation sheet is used to collect evaluations and suggestions regarding the questions provided to students in the psychomotor aspect. The reason for asking students to respond is to know what they think about using the E-Siska application for learning. The assessment criteria used in expert validation assessments use a Likert scale developed into 5 (five) categories ranging from highly unsuitable to highly suitable, detailed as follows: 1) highly unsuitable (HU), 2) unsuitable (U), 3) somewhat unsuitable (SU), 4) suitable (S), 5) highly suitable (HS) (Riduwan, 2007). Student questionnaire sheets are used to obtain student assessments regarding the E-Siska application. The assessment criteria employed utilize a Likert scale developed into 4 (four) categories ranging from strongly disagree to strongly agree, detailed as follows: 1) strongly disagree (SD), 2) disagree (D), 3) agree (S), 4) strongly agree (SA) (Manisa, Aryati, & Marlina, 2018). The interpretation of data from the results of expert validation assessments and student responses is explained in tables 3 and 4.The interpretation of data from expert validation assessments and student responses is explained in Tables 3 and 4.

Table 3.
VALIDATION EXPERT ASSESSMENT INTERPRETATION

scoring	Interpretation
81% - 100%	very proper
61% - 80%	proper
41% - 60%	proper enough
21% - 40%	not proper

Source: Adapted from Riduwan (2007)

Table 4.
INTERPRETATION OF STUDENT RESPONSE ASSESSMENT

Interval score (%)	category
82% ≤ %NRS < 100%	Very strong
63% ≤ %NRS < 81%	Strong
44% ≤ %NRS < 62%	Weak
25% ≤ %NRS < 43%	Very weak

Source: Manisa et al (2018)

RESULT AND DISCUSSION

RESULTS

Analyze Phase

In the analyze phase, the researcher observed the Head of the Office Management Concentration at State Vocational High School 1 Surabaya to determine the needs analysis used to develop a product to achieve learning objectives 4.7 in phase F on archival management element. The observation results indicated the absence of digital media suitable to learning objectives and the students' interest in practicing electronic or digital archiving to optimize the learning process. From the analysis of teachers' and students' needs, it can be concluded that an electronic learning media relevant to the learning objectives for practicing electronic or digital archive management is required. The innovation of Microsoft Access-based E-Siska learning media helps teachers and students better understand electronic archiving procedures.

Design Phase

In the design phase, the researcher comprehensively designs the process of developing learning media, starting from material composition, gathering necessary materials, and creating the application product before validation and testing. The content of the E-Siska application consists of a main form with 4 features that students can use: a classification code feature to input index data and letter classification codes, an agenda feature for specifying the contents of incoming and outgoing letters, a disposition feature for creating distribution sheets for letters to be followed up, and a creator profile feature to display information about the creator of the E-Siska application. In designing the application, the researcher used Canva application to create designs within the application. After completing the application design phase, the researcher developed instruments to evaluate the product, which validated experts in content, media, and questions were assessed.

Source: Researcher's documentation, 2024

Figure 2. Main Page of The E-Siska Application

Figure 2 shows the main page interface of the developed E-Siska application. The design of this main page is visually appealing to stimulate students' interest in practicing electronic archiving.

Development Phase

In the development phase, the validation of learning media involves direct assessment by validators who are experts in content, media, and questions before the learning media is tested in the field. Subsequently, revisions are made to the learning media based on validation and feedback from expert validators. Below are the final results of the average validation scores for the feasibility of the E-Siska application learning media by content experts, media experts, and question experts:

Table 5.
Validation Results of the Suitability of the E-Siska Microsoft Access-Based Application Learning Media Based on Microsoft Access

Aspect	**Percentage**	**Interpretation**
Materials Expert	100%	very suitable
Media Expert	89%	very suitable
Question Expert	94%	very suitable
Average	**94%**	very suitable

Source: Data processed by the researcher, 2024

Based on these results, it can be concluded that the evaluation from content experts received a score of 100%, categorized as very suitable. Media experts scored 89%, which was also categorized as very suitable, and question experts was 94%, which was categorized as very suitable. The average score of the expert validation assessment was 94%, which was categorized as very suitable.

Implementation Phase

The implementation phase is conducted after the development phase, including The researcher conducted a limited trial on 31 students in Twelfth grade of Office Management 2 at State Vocational High School 1 Surabaya by distributing questionnaires consisting of statements related to cognitive, affective, and cognitive dimensions, which were filled out by students using a rating scale. This aims to gather and analyze the results of using to the Microsoft Access-based E-Siska lelarning media. The results of student responses to the Microsoft Access-based E-Siska application are presented in Table 6.

Table 6.
Student Responses to Microsoft Access-Based E-Siska Learning Media

Dimensions	**Indicators**	**Percentage**	**Category**
Cognitive	Content Comprehension	92%	Very strong
	Clarity of Study Instructions and Information	92%	Very strong
	Appearance Compatibility	87%	Very strong
Affective	Motivation	89%	Very strong
	Attractiveness	88%	Very strong
	Curiosity	90%	Very strong
Conative	Ask	87%	Very strong
	Respond to Questions	84%	Very strong
	Average	**89%**	**Very strong**

Source: Data processed by the researcher, 2024

Based on these results, the average of all response indicators is 89%, indicating that Microsoft Access-based E-Siska learning media on received a good response and was categorized as very strong.

Evaluation Stage

The evaluation stage is the final step in the ADDIE development model. In this stage, the researcher employs an experimental approach using a quasi-experimental design with a non-equivalent control group to determine the effectiveness and impact of the E-Siska application as a learning media on students' learning outcomes. Data were collected by evaluating students' skills in electronic

archiving practices in two classes: a control class that did not receive any treatment and an experimental class that received the treatment. Both classes were given a pre-test and post-test on the procedures for electronic archiving, with the primary difference being the type of digital learning media used. The researcher conducted a parametric analysis to test the effectiveness of the learning media and the research hypotheses. Parametric analysis requires the data to be normally distributed and homogeneous (Rismanto & Pahlevi, 2022). The results of the Homogeneity and Normality Tests are presented in Tables 7 and 8.

Table 7.
Results of The Homogeneity Test

Levene Statistic	df1	df2	Sig.	Keterangan
2.467	1	59	0,122	Homogen

Source: Data processed by the researcher, 2024

Table 8.
Results of The Normality Test

Class	Kolmogorov-Smirnov[a]			Description
	Statistic		Sig.	
Pre-Test_Experiment	.125	Normal	.200*	Normal
Post-Test_Experiment	.162	Normal	.054	Normal
Pre-Test_Control	.133	Normal	.175	Normal
Post-Test_Control	.147	Normal	.085	Normal

Source: Data processed by the researcher, 2024

Based on the results of the Homogeneity and Normality Tests in Tables 7 and 8, the data is declared homogeneous with a significance value of 0.122. The data is also normally distributed, as indicated by the significance values in the experimental class: 0.200 for the pre-test and 0.054 for the post-test, which are considered normally distributed. The control class has significance values of 0.175 for the pre-test and 0.085 for the post-test, normally distributed as they are greater than 0.05. In their research, Pratiwi & Setyaningtyas (2020) stated that data from Homogeneity and Normality tests are considered homogeneous and normal if the significance value is greater than 0.05. Furthermore, the pre-test and post-test results were analyzed descriptively using SPSS 25 software. The descriptive analysis results are explained in Table 9.

Table 9.
Descriptive Analysis Results

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Pretest_Experiment	30	52	32	84	60.33	12.491
Posttest_Experiment	30	23	70	93	84.00	7.278
Pretest_Control	31	41	44	85	62.61	13.032
Posttest_Control	31	48	45	93	77.97	12.004
Valid N (listwise)	30					

Source: Data processed by the researcher, 2024

From the data in Table 9, it can be concluded that students using Microsoft Access-based E-Siska learning media had a higher mean score, with an average of 60.33 on the pre-test and 84.00 on the post-test. In comparison, students using a learning media based on Microsoft Word had a mean score of 62.61 on the pre-test and 77.97 on the post-test. After conducting the descriptive analysis, the researcher did an N-Gain Score test to assess the effectiveness of the E-Siska application as a learning media. The results of the N-Gain Score test are presented below:

Table 10.
N-Gain Score Test Results

Class	*N-Gain Score*	Category
Experiment	0,59	Moderate
Control	0,36	Moderate

Source: Data processed by the researcher, 2024

From the results of the N-Gain Score test, the average N-Gain Score for the experimental class was 0.59 or 59%, categorized as moderate or sufficiently effective for implementation. The score for the control class was 0.36 or 36%, categorized as moderate or ineffective for implementation. After meeting the requirements, the Independent Sample t-Test can be conducted to evaluate the research hypotheses. The results of the Independent Sample t-Test can be seen in Table 11.

Table 11.
Test Results Of Independent Sample T Test

Class	t_{tabel}	df	$t_{observed}$	Desscription
Experiment Control	1,671	59	2,936	H1 is accepted

Source: data processed by researchers 2024

Based on the Independent Sample t-Test results, the $t_{observed}$ was 2.936 and the t_{table} was 1.671. Thus, this score is 2.936 > 1.671, which indicates that H1 is accepted, meaning that using the E-Siska application influences twelfth graders' learning outcomes at State Vocational High School 1 Surabaya.

DISCUSSION

Cerya et al (2022) explained that Learning media distributes messages and adapts to learning objectives through digital technology. E-Siska, based on Microsoft Access, offers an alternative learning tool.. Rosalin (2017) stated in her book that Microsoft Access is an example of electronic archival media, a database processing application. Sattar (2019) supported this perspective, highlighting Microsoft Access as a software application for archive storage. Amalia, A. T., & Panduwinata (2022) indicated that implementing electronic-based management information systems in archives improves retrieval effectiveness through innovative information system strategies. Saeroji (2014) highlighted the convenience of using Microsoft Office Access for e-archive applications. The Microsoft Access-based E-Siska learning media is a learning media for students to practice electronic archive implementation systematically. Its features, including classification codes linked to agenda sections and disposition details, facilitate efficient letter management. Apart from having these features, this application also has a precise document search feature by entering a classification code which makes it easy for students to operate the application in accordance with archive management procedures.

This study measures students' learning outcomes through the psychomotor aspect via skills tests involving electronic archive management. Yusuf (2015) explained that evaluating mastery of psychomotor learning can be done through performance demonstrations, skills tests, portfolios, or direct field practices. The psychomotor aspect is closely related to muscle activities resulting in body movements or parts of the body (Arikunto, 2021). This demonstrates that in the archive management practices carried out by students, learning outcomes are measured through the psychomotor aspect, resulting in skills such as electronic archive management. Farías & Sevilla (2015) found that practical experience boosts maturity and commitment to expertise. Mat Isa, Mustaffa, Joseph, & Preece (2020) state that psychomotor skills develop through practice-based learning, prepraring students for careers. Rojo-Ramos et al (2022) support this, affirming that practice improves intelligence through motoric actions. Therefore, this study uses a practice-based learning model to assess students' psychomotor learning.

The research shows that the average validation score for Microsoft Access-based E-Siska learning media is 94%, and it is categorized as highly appropriate as assessed by material, media, and question experts. Student questionnaires obtained an average score of 89%, categorized as very strong across three dimensions: cognitive, affective, and conative. Analysis of pre-test and post-test results shows that Microsoft Access-based E-Siska learning media demonstrates superior performance, with an average score of 84.00 compared to students using Microsoft Word-assisted applications, who obtained a score of 77.97. This highlights a significant difference of 6.03 between the two classes. These findings are further supported by research on developing a website-based electronic archive system by Mudana, Yasa, Trisnayanti, & Budiastra (2022), who showed a substantial average score difference of 13. The experimental class score was 87, while the control class was 74, indicating the effectiveness of digital archive learning media in achieving its objectives. Thus, developing digital archive Microsoft Access-based learning media was also carried out by Wirawan et al (2017). The average score difference between the control and experimental classes was 2.62; the control class scored 77.97, while the experimental class scored 80.59. Similar research was also conducted by Lestari et al (2022) which

resulted in the effectiveness of the learning media being 85% effective to use, so this is also proof that the E-Siska application learning media is effective.

This study aims to identify the E-Siska application development process, evaluate the feasibility of the E-Siska application, analyze the results of student responses and assess the effectiveness of learning media on student learning outcomes. The decision in this research is that H0 is rejected if the Independent Sample t-test calculation results show the t test value < 0.05 or $t_{observe}d > t_{table}$, meaning that H1 is accepted. On the other hand, if H0 is accepted, then the Independent Sample t-test calculation shows the t-test> 0.05 or $t_{observed} < t_{table}$ then H1 is rejected (Saputro, Trapsilasiwi, & Setiawani, 2021). Therefore, it can be concluded that the Microsoft access-based E-Siska learning media has proven to be quite effective in improving student learning outcomes for implementing electronic archive management practices for class XI MP students at SMK Negeri 1 Surabaya.management

CONCLUSION

The conclusion of this study indicates that the development of electronic archiving learning media products based on Microsoft Access in the archival management element received evaluations from expert validators in the category of very suitable, with an average score of 94% from expert validation. Thus, the electronic archive application also received positive responses from students through the distribution of response questionnaires with a score of 89%, categorized as very strong. Therefore, it can be concluded that Microsoft Access-based E-Siska learning media is quite effective, as evidenced by the researcher's analysis result of 0.59 or 59%, indicating it is effective enough in improving students' learning outcomes.

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