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IMPROVING COMMUNICATION SKILLS WITH E-MODULE ASSISTED SIMULATION FOR OFFICE MANAGEMENT STUDENTS OF SMK TEUKU UMAR SEMARANG

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Abstract

This study aims to develop an e-module–assisted simulation learning model to enhance the communication skills of Office Management students at SMK Teuku Umar Semarang, where existing learning practices do not employ simulation-based approaches, and the learning resources used are not yet aligned with students' needs. Using a Research and Development (R&D) design, the study adopts the 4D development model—Define, Design, Develop, and Disseminate—to produce and validate the proposed learning innovation. The subjects of this research were Grade XI students in the Office Management expertise competency. Product feasibility was assessed by two material experts and one media expert, followed by limited and extended trials to evaluate the e-module's effectiveness. The results show that current Communication in the Workplace learning does not provide sufficient opportunities for students to practice workplace communication and lacks integration with interactive digital resources. The developed e-module received a validation score of 96% from material experts and 100% from media experts, indicating strong feasibility for instructional use. Trial findings further demonstrated substantial improvements in student learning outcomes, with average N-Gain scores of 0.751 in the limited trial and 0.791 in the extended trial. In conclusion, the e-module is effective and suitable as a digital learning medium to support simulation-based instruction and strengthen students' communication skills. These results highlight the potential of technology-supported simulation models to enhance vocational education quality and better prepare students for workplace communication demands.

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INTRODUCTION

In the 21st century, effective communication is recognized as one of the four pillars of essential skills, alongside literacy, creative thinking and high productivity (Zahroh et al., 2022). The study by Makiyah et al. (2021) even placed effective communication as one of the five key skills that individuals should possess, alongside critical thinking, problem solving, creativity and collaboration. This shows that "communication is no longer just an additional skill, but a core competency needed in various industrial sectors."

However, many Vocational High School (SMK) graduates still face obstacles in professional communication skills. "Lack of practical communication experience, lack of simulation-based training at school, and learning methods that still tend to be theoretical" are the main causes. As a result, they often feel "less confident when they have to communicate with superiors, coworkers, or clients." E. Lee et al. (2022) also emphasized the need to improve specific skills, especially in dealing with differences in social interactions in the world of work. Recent data shows that the unemployment rate of SMK graduates reached 24.64% as of August 2024, indicating the importance of mastering soft skills such as communication to improve competitiveness.

SMK Teuku Umar Semarang, as a vocational school focusing on Office Management, is committed to preparing a ready workforce. However, observations show that there are obstacles in learning the elements of Communication in the Workplace. One of the main problems is "limited learning methods that are not fully practice-based, so students lack communication experience that is relevant to the world of work." Productive Office Management teachers even stated that the dominant learning method is "a combination of lectures and projects," although the main focus remains on projects. Wirabumi (2020)mentioned that "the lecture method provides less space for students to develop their creativity." In addition, another obstacle is teachers' lag in using IT, so digital learning has not been widely implemented (Setiati et al., 2021), although school facilities are adequate with Wi-Fi networks.

Furthermore, "the absence of fixed learning standards" is a crucial problem. Teachers must "search and compile teaching resources independently," causing variations in students' communication competency standards. Pramusinto et al. (2023) also attributed teachers' lack of time management skills to the disruption of learning activities.

To address the gap between theory and practice, innovative solutions are needed. Saeroji & Wirawan (2024) and Zahidah et al. (2023) agreed that the times demand innovation in learning models and technology utilization. The development of practice-based e-modules is a promising alternative. Diniyatushoaliha (2024) added the advantages of e-modules in reducing paper usage. U. Lee et al. (2021) also concluded that "technology-based simulation learning can be an alternative to overcome the limitations of practice and improve the quality of education".

The developed e-module will be equipped with interactive features such as learning videos, scenario-based question exercises, and audio features for telephone

conversation exercises. This is in line with the research of Musa et al. (2024) who mentioned that "technology integration plays an important role in increasing learner engagement through interaction and development of speaking skills with online assignment based." Fitriasih & Wulandari (2023) also emphasized the purpose of learning media as a tool that facilitates students and teachers. Sagge & Bacio (2024) added that technology is an essential component in modern education, allowing teachers to monitor students' progress in real-time. With features such as interactive quizzes and phone call simulations, students can practice communication in various workplace scenarios, making learning "more applicable and relevant to the needs of the world of work" (Rohmawati et al., 2023).

Based on the urgency of improving communication skills and the potential of simulation-based e-modules aligned with KKNI, researchers are interested in conducting research with the title "Improving Communication Skills with E-module Assisted Simulation for Office Management Students of SMK Teuku Umar Semarang

METHODS

This research is an R&D (Research and Development) study that aims to produce innovative products that can improve the communication skills of Office Management competency students. According to Zakariah (2020), research and development methods are research methods used to produce certain products and test the effectiveness of these products. This research uses the 4D (Four-D) development developed by Thiagarajan, which consists of four stages: Define, Design, Develop, and Disseminate. In the define stage, a needs analysis and curriculum review were conducted to determine the learning objectives and required competencies. The design stage involved preparing the structure, content outline, and initial layout of the e-module. During the develop stage, the e-module draft was subjected to expert validation by media experts and material experts to examine content validity, accuracy, and feasibility. The feedback, criticisms, and suggestions provided by the experts were the used as the basis for revising and improving the e-module. After revision, the product was tested with students to collect qualitative data (student responses, comments, and suggestions) and quantitative data (test results measuring communication skills). In the disseminate stage, the revised and finalized e-module was prepared for broader use.

The subjects in this study were students of the Office Management skills concentration of SMK Teuku Umar Semarang in the 2024/2025 academic year. The subjects of this study were grade XI students with a limited trial in one class with a total of 30 students and an expanded trial in two classes with a total of 60 students. While the source of data is the teacher who teaches the elements of Communication in the Workplace 1 person and the teacher who teaches Office Management class XI as much as 1 person.

In this study, researchers used interview, observation, questionnaire and test techniques. Data analysis in this study was carried out using descriptive quantitative

analysis. The questionnaire results from media experts and material experts were assessed using a Likert scale. The scores were then processed and converted into percentages to determine the minimum validation limit and the respondents overall scores. The data analysis was conducted with the help of Microsoft Excel.

RESULT AND DISCUSSION

Result

This research presents a comprehensive study on developing an electronic module (e-module) for enhancing workplace communication skills among vocational students at SMK Teuku Umar Semarang. The initial condition and needs analysis revealed significant gaps in learning resources and student engagement. Through questionnaire responses from 30 students in class XI MP 2, the study found that 67% of students lacked adequate handbooks, with 70% considering existing materials insufficient for their learning needs. Furthermore, only 7% of students actively sought additional learning materials beyond school-provided resources, indicating low initiative in accessing alternative learning sources. Despite these limitations, student interest remained high, with 90% expressing enthusiasm for workplace communication elements and 100% showing interest in learning through digital media and electronic modules.

The analysis of learning resources needs demonstrated critical deficiencies in current educational materials. While 60% of students reported that teachers had used e-modules in teaching, the implementation was inconsistent across learning activities. Student ability assessments showed mixed results, with 60% experiencing improved communication skills through current learning media, while 53% still faced difficulties understanding materials through existing teaching methods. These findings highlighted the urgent need for more effective, accessible, and engaging learning resources.

Table 1. Learning Resources Needs Analysis

Aspect	Yes	No	Percentage (No)
Students with handbooks	10	20	67%
Handbooks sufficient for learning	9	21	70%
Seeking additional materials	2	28	93%

Source: Processed Primary Data

The e-module design phase incorporated four key development activities. Benchmark test preparation involved creating comprehensive assessment tools including multiple choice questions covering 15 indicators of telephone communication competency and practical communication exercises evaluating students' oral skills through real workplace scenarios. Media selection was based on student characteristics and school infrastructure, with almost all students having mobile devices capable of accessing digital materials. The chosen format prioritized interactive principles with simple navigation, blue color scheme reflecting the Office Management program identity, and systematic

content organization including main page, quiz components, subject matter, practice references, assignments, and activity simulations.

The learning simulation design focused on real-world workplace communication contexts, emphasizing both oral and written communication skills aligned with industry ethics and standards. Simulation activities included incoming and outgoing telephone calls and completion of Telephone Message Sheets, designed for pair work with realistic administrative scenarios. The simulation assignments provided clear working instructions, specified required materials (phone, stationery, message sheets), and established expected outcomes including proper call handling, appropriate telephone etiquette, and accurate message documentation.

Expert validation involved two stages with material and media experts evaluating content and presentation quality. Initial validation yielded 79.2% feasibility from material experts and 100% from media experts. Following validator suggestions including typo corrections, image improvements, pretest question refinements, and addition of table of contents and audio features, the second validation achieved 96% from material experts while maintaining 100% from media experts, placing the e-module in the "very feasible" category.

Table 2. Expert Validation Results Comparison

Validator Type	Stage 1	Stage 2	Category
Material Expert	79.2%	96%	Very Feasible
Media Expert	100%	100%	Very Feasible

Source: Processed Primary Data

Limited trials conducted with 30 students demonstrated significant learning improvements. Pre-test scores ranged from 10-80 points, while post-test scores showed substantial increases ranging from 76-88 points. The N-Gain analysis revealed an average improvement of 0.751, categorized as "very high" effectiveness with 75.1% improvement rate. This initial trial confirmed the e-module's potential for enhancing student communication competencies.

Extended trials involving 60 students across two classes (XI MP 1 and XI MP 2) validated the consistency and scalability of the e-module's effectiveness. Class XI MP 1 achieved an average N-Gain of 0.783 (78.3% improvement), while class XI MP 2 reached 0.799 (79.9% improvement). The combined average N-Gain of 0.791 maintained the "very high" effectiveness category, demonstrating stable positive impact even with larger student populations.

Table 3. Learning Effectiveness Results

Trial Type	Sample Size	Average N-Gain	Category	Improvement Rate
Limited Trial	30 students	0.751	Very High	75.1%
Extended Trial	60 students	0.791	Very High	79.1%

Source: Processed Primary Data

The research developed a simulation-based learning model utilizing as digital learning media to enhance student's workplace communication skills. The final product integrated interactive features such as videos, practice questions, and simulation and locations. Validation results from media experts and material experts indicated that the e-module met the required feasibility standards. Student trial results further showed positive responses and improvements in communication skills, as reflected in the comparison between pre-test and post-test scores. These findings suggest that the e-module provides engaging and practically oriented educational content that supports the application of theoretical knowledge in real world contexts.

The study's findings indicate that interactive e-modules represent a viable solution for enhancing vocational education quality, particularly in developing essential workplace competencies. The consistent effectiveness across different student groups and class sizes suggests strong potential for broader implementation in vocational communication education. The integration of simulation-based learning with digital media technology creates authentic learning experiences that prepare students for professional communication demands in modern workplace environments.

Discussion

Current Learning of Communication Elements in the Workplace

Learning of Communication Elements in the Workplace at SMK Teuku Umar Semarang aims to enable students to communicate verbally over the phone and in person, as well as manage information according to professional standards, including speaking, listening and recording skills. However, in its implementation, learning is still dominated by theory and involves less interactive practice or simulation, leading to low student professional communication skills. Technology utilization is also limited to Google Drive and WhatsApp, even though most students have digital devices that have not been optimally used to support active learning. Therefore, it is necessary to develop innovative learning media such as simulation-based e-modules to support active learning, flexible, and relevant to the world of work.

Development of E-module-assisted Simulation Learning Model

This research developed a simulation learning e-module based on KKNI unit material "Performing Communication by Telephone", which was proven effective in improving students' communication skills and self-confidence (Fernández-Alcántara et al., 2025). This e-module is designed to be interactive for F-level Office Management students, accessible through a website (vercel app) using a device, laptop, or computer, making it flexible for self-study. The development process follows the 4D model (Define, Design, Develop, Disseminate). The Define stage shows the need for interactive media because students have difficulty understanding conventional materials. At the Design stage, the e-module was designed with pretest, material, video, post-test, and simulation features that resemble real practice. The e-module was validated by material experts (96% very feasible) and media experts (100% very feasible) after revision. Limited and

extended trials showed an increase in students understanding and communication skills with high N-Gain values of 0.751 and 0.791. These results indicate the effectiveness of the e-modules in supporting the improvement of communication skills in the digital era, although further statistical tests would be required to confirm the significance and effect size of these findings.

Feasibility of E-module-assisted Simulation Learning

The website-based interactive e-module was developed as a solution to communication learning at SMK Teuku Umar which is still theoretical and limited to Google Drive / WhatsApp. In accordance with Permendikbudristek number 12 of 2024, the curriculum encourages the use of technology to present learning resources that are not available in real life, giving teachers the freedom to innovate. This e-module aims to facilitate effective learning and improve students' communication skills. Its feasibility is proven through expert validation and student trials. Material expert validation increased to 96% (very feasible) and media 100% (very feasible) after improvements to pretest questions, visual illustrations, and navigation. Limited (N-Gain 0.751) and extended (N-Gain 0.791) trials showed an increase in students' understanding and skills, especially in oral communication and telephone etiquette. Simulation practices such as receiving and making phone calls in this e-module were found to contribute to an increase in students' confidence. This was measuring using a student response questionnaire and an observation rubric administered during the trials. The results showed that students reported higher levels of self-confidence when practicing communication tasks, which aligns with the findings of Reith-Hall & Montgomery (2022) regarding the benefits of role play in developing communication skills. Therefore, the e-module has potential value as a communication learning support for teacher and students.

CONCLUSION

The product developed in this study is an electronic module (e-module) as a learning medium for Communication elements in the Workplace. The development of e-modules was based on the needs analysis of students and teachers at SMK Teuku Umar Semarang and the results of observations of the learning process that had been taking place that teachers did not utilize interactive media. The e-module was designed as a tool to improve students' communication skills by integrating real simulations in telephone practice.

The feasibility of e-module-assisted simulation learning on Communication elements in the Workplace is categorized as very feasible based on the results of validation by material experts and media experts. The validation score from material experts reached 96% and from media experts reached 100%, which indicates that the product has met the criteria for use in learning. Limited and expanded trials showed a significant increase in learning outcomes with an average N-Gain of 0.751 and after an expanded trial of 0.791. Learners gave positive responses which can be seen from the ease of use, increased

understanding of the material and involvement in the simulation. Thus, e-modules are very feasible and effective to be used as learning media in improving communication skills of vocational students.

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