Effectiveness of Edpuzzle-Based Learning Videos in Oriental Food Preparation

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Article Info	Abstract
	The low achievement of practical learning in food preparation, particularly in the topic of oriental food management, has been a concern. Previously, oriental food preparation was taught through live demonstrations, as there were no learning videos aligned with the learning achievement standards (CP) and learning objectives (ATP). Additionally, students who were positioned at the back of the class often had difficulty clearly observing the teacher's demonstration. Thus, there is a need for a solution in the form of developing an interactive learning video media based on the Edpuzzle application. This study aims to test the effectiveness of Edpuzzle-based learning videos on psychomotor skills in preparing oriental food. The research method used a quantitative approach with a two-group pretest-posttest design. The instruments used included pre- and post-test assessments as well as an evaluation sheet. Data were analyzed using normality tests, homogeneity tests, T-tests, n-gain tests, and user feedback questionnaires. The results showed that the use of video led to a significant improvement in students' skills, with a moderate effectiveness category based on the N-gain test results. Additionally, user feedback indicated that the video was practical and suitable for use in learning. Based on these results, it can be concluded that the developed learning video is effective as a media tool for teaching oriental food preparation, as evidenced by the improvement in pretest and posttest scores, categorized as moderate. This research is beneficial as a learning medium for culinary students, particularly in the area of oriental food preparation, and can enhance student learning outcomes.

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INTRODUCTION

As the digital era advances, the use of technology in education has become increasingly important. Technology-based learning media not only facilitates access to information but also enhances the quality and efficiency of learning. One form of technology-based learning media is video media integrated with interactive applications such as Edpuzzle. The development of video learning media based on the Edpuzzle application is considered capable of improving students' psychomotor skills, particularly in fields that require hands-on practice, such as oriental food preparation. This suggests that video learning media can be an effective alternative in teaching skills that require visualization and clear instructions (Yunita, D. K., 2024).

Interactive video-based learning, as provided by applications, has its own advantages in helping students understand complex concepts and improve motor skills (Dewani, 2024). One such application is Edpuzzle. Edpuzzle allows the integration of various interactive elements, such as quizzes and additional explanations, which help students understand the material more deeply. This is supported by Suyitno (2019), who states that interactive learning media can facilitate students' understanding of abstract and complex concepts through a dynamic and engaging learning experience. By using Edpuzzle, learning videos can be customized to better meet students' needs, and the interactivity in the video can assist students in critical and analytical thinking throughout the learning process (Sundi et al., 2020).

Psychomotor skills, according to Anderson (2021), involve students' ability to perform physical movements that require coordination, precision, and dexterity. In the context of oriental food preparation, psychomotor skills include the ability to master cooking techniques, cutting, mixing, and processing ingredients correctly. Bloom, in his taxonomy, also emphasizes the importance of developing psychomotor skills as one of the key domains in learning, alongside cognitive and affective skills. Therefore, interactive video media based on the Edpuzzle application can serve as an effective tool in supporting the development of these skills, as it provides step-by-step visualizations that are very useful in the practical learning process.

Skills such as oriental food preparation require learning methods that allow students to master skills through structured hands-on practice. With the development of video media based on the Edpuzzle application, students are not only provided with theoretical knowledge but also trained to practice psychomotor skills directly and independently. Based on the author's observation at SMK Negeri 1 Bawen, students are still facing difficulties in practical learning related to oriental food preparation and presentation. For example, the preparation process is still not in accordance with expectations, performance results are suboptimal, and food presentation is not neatly arranged.

Interviews conducted by the researcher with the teacher responsible for oriental food subjects at SMK N 1 Bawen revealed that both the teacher and students felt that the current learning model, which is based solely on direct demonstration, tends to make students feel bored, and the practical results were not maximized. Therefore, based on the interview results, the teacher expects an innovative learning method to be applied in oriental food preparation practice. This research will delve deeper into the "Development of Edpuzzle-Based Video Learning Media for Psychomotor Skills in Oriental Food Preparation."

METHODOLOGY

This research uses a quantitative approach with a pre-experimental design, specifically the Two Group Pretest-Posttest Design. This design is used to determine the effectiveness of the use of Edpuzzle-based video learning media on psychomotor skills in oriental food preparation. In this design, participants are given a pretest before receiving the treatment, and after the learning process is completed, they are given a posttest to observe any differences in learning outcomes.

The study was conducted at SMK Negeri 1 Bawen, in the culinary department. The subjects of this study were 30 students from the experimental class and 30 students from the control class, all from the X culinary class at SMK

Negeri 1 Bawen, who were enrolled in the oriental food preparation course.

The research process consists of three main stages. The first stage begins with the administration of a pretest to both the control and experimental classes to assess their initial understanding of the oriental food preparation material. During this pretest, students will prepare oriental dishes in groups according to their initial knowledge. Next, in the second stage, participants receive the treatment, which is learning using Edpuzzle-based video media. This media was previously developed to support interactive digital learning. During several training sessions, participants study the material, follow the practice guidelines, and then prepare oriental dishes again in groups. The use of mobile-based applications as a learning tool has proven to improve flexibility and active participation of participants in project-based learning activities (Nugroho & Widyaningrum, 2022). Finally, in the third stage, a posttest is administered to evaluate the improvement in participants learning outcomes.

The instruments used in this study include: (1) an assessment sheet with indicators of psychomotor skills assessment covering various aspects relevant to oriental food preparation competencies, such as ingredient preparation (cutting, mixing, etc.), the use of cooking tools, cooking techniques (frying, boiling, stir-frying, etc.), and food presentation. Each aspect is rated using a rubric with a scale of 1-4: Not Good (1), Fair (2), Good (3), and Very Good (4). This sheet was validated by experts in culinary arts and educational assessment before use. The assessment is conducted during hands-on oriental food preparation practice, with observers consisting of teachers or assistants who have been trained.

Data were analyzed using statistical techniques. Before testing effectiveness, the pretest and posttest data were tested for normality using the Shapiro-Wilk test and homogeneity of variance using Levene's Test. If the data are normally distributed and homogeneous, an Independent Sample t-Test is used to observe significant differences between pretest and posttest scores. Additionally, the effectiveness of the Edpuzzle-based video media is also analyzed using the N-Gain Score, calculated based on the improvement in each participants score. The N-Gain value is categorized as low (< 0.3), moderate ($0.3–0.7$), and high (> 0.7). Data from the questionnaires were analyzed descriptively by calculating the mean and percentage of responses to obtain an overview of participants perceptions of the practicality and effectiveness of the video media used.

RESULTS AND DISCUSSION

Results
A. Development Results
   a) Analyze
   b) Analyze is the initial phase in research and the ADDIE model development. Steps in this phase include analyzing the curriculum, ATP analysis, and analyzing the needs in learning, as well as observing a learning activity, reviewing the references used in the lesson to identify weaknesses in students achievement of specific learning objectives.
   c) Design
   d) In the design phase, the researcher developed an interactive video media based on the Edpuzzle application to improve skills in oriental food preparation.
   e) Development
   f) The development phase involves developing learning media that will be used to enhance students skills.
   g) Implementation
   h) The implementation phase is where the developed media is applied in the learning process.
   i) Evaluation
   j) The evaluation phase involves analyzing the effectiveness of the developed learning media.

B. Results of Media Feasibility Testing Based on Edpuzzle Application

The feasibility testing phase aims to assess whether the developed video media is suitable for use or if it requires further improvements. The media was assessed by experts in media and content, who provided feedback through a

validation process. The feasibility of the media was confirmed through the results of feedback surveys, which indicated that the media is suitable for use in this research. The validators for this test consisted of three media experts and experts working as lecturers and teachers. Below are the results of the feasibility test by media and content experts:

Table 1. Media Feasibility Test Results

Validator	Average Score	Comments
Media Expert	3.95	Suitable
Content Expert	4.02	Very Suitable

Based on the table above, it can be seen that the media is suitable for use, based on the feasibility assessment by content and media experts. Additionally, the media was also tested for practicality, and the results showed that the media is practical to use for improving student skills in oriental food preparation. The effectiveness of the media was then tested. Below are the results for the pretest and posttest scores for both the experimental and control classes.

C. Experimental and Control Class Results

1. Experimental Class

Table 2. Experimental Class Scores

No	Posttest Scores			No	Pretest Score		
	Score	N	%		Score	N	%
1.	70-75	20	67%	1.	70-75	0	-
2.	76-80	10	33%	2.	76-80	0	-
3.	81-85	0	-	3.	81-85	0	-
4.	86-90	0	-	4.	86-90	24	80%
5.	91-95	0	-	5.	91-95	6	20%
6.	95-100	0	-	6.	95-100	0	-
	Total	30 students	100%		Total	30 students	100%

2. Control Class

Table 3. Control Class Scores

No	Pretest Score			No	Posttest Scores		
	Score	N	%		Score	N	%
1.	70-75	10	33%	1.	70-75	0	-
2.	76-80	20	67%	2.	76-80	0	-
3.	81-85	0	-	3.	81-85	15	50%
4.	86-90	0	-	4.	86-90	15	50%
5.	91-95	0	-	5.	91-95	6	-
6.	95-100	0	-	6.	95-100	0	-
	Total	30 students	100%		Total	30 students	100%

After obtaining the pretest and posttest scores, a prerequisite test was conducted with normality and homogeneity tests. The results were obtained using SPSS software as follows:

D. Prerequisite Test

The first prerequisite test is the normality test, conducted using the Shapiro-Wilk test with a significance level of 0.05. The significance values for the experimental class in the Shapiro-Wilk test were 0.870 and for the control class, it was 0.770.

The Shapiro-Wilk test was chosen because the sample size in this study is less than 100. Data is considered normally distributed if the significance value is greater than 0.05. For the experimental class (0.870 > 0.05), the data is normally distributed, and for the control class (0.770 > 0.05), the data is also normally distributed. It can be concluded that the posttest data for both the experimental and control classes are normally distributed. Next, the homogeneity test was

conducted using Levene's Test. The results of the homogeneity test using SPSS software show a significance value of 0.111 > 0.05, meaning the data is homogeneous. Therefore, the posttest data for the experimental and control classes come from groups with equal variances. To test if there is a significant difference between the pretest and posttest scores, a Paired Sample t-Test was conducted. This test was used because the data comes from the same group and was analyzed before and after the treatment. The calculation of thitung and ttabel yielded a value of thitung > ttabel (3.440 > 1.812), which indicates that the average posttest score for the experimental class is higher than the average posttest score for the control class.

E. Impact on Students

Based on the psychomotor assessment of students, the following results were obtained. The planning aspect scored an average of 4.5, indicating that students were generally very capable of systematically preparing the work steps before starting the practice. The hygiene and sanitation aspect scored an average of 4.2, showing that almost all students consistently maintained cleanliness during the practice. The process aspect had the lowest score, 4, indicating that most students followed the work procedures accurately, used tools effectively, and demonstrated good technical skills. The results aspect scored an average of 4.5, indicating that almost all students produced neat work products in accordance with standards. The time aspect scored an average of 4.5, showing that most students completed the practice within the allocated time. The "mise en place" aspect scored 5, showing that all students were accustomed to preparing tools and materials before starting the practice, reflecting good preparation and discipline. Overall, the observation results indicate that student psychomotor skills are in the "very good" category. The most prominent aspect was mise en place, while the process aspect needs improvement, which can be achieved through consistent practice and reinforcing work procedures during the practice sessions.

F. N-Gain Test

To measure the improvement in skills in oriental food preparation, the effectiveness analysis was carried out using the N-Gain Score calculation.

Table 5. Average N-Gain Score Results

Indicator	Average Pretest	Average Posttest	N-Gain	Category
Student Learning Outcome	78.4	89.7	0.52	High

Based on the table above, the experimental class had an average pretest score of 78.4 and an average posttest score of 89.7. The N-Gain score for the experimental class, which used Edpuzzle-based video media, was 52%, with a "moderate/effective" improvement criterion. It can be concluded that the use of Edpuzzle-based video media is effective in improving students competencies/learning outcomes.

Discussion

The effectiveness of Edpuzzle-based video learning media was measured by comparing pretest and posttest results of psychomotor skills. The analysis indicated a significant improvement in skills after using the media. Research by Hidayat et al. (2023) supports this finding, showing that Edpuzzle-based video learning media effectively enhanced learning outcomes on topics like temperature and expansion. Similarly, research by Agussalim et al. (2023) demonstrated that the use of Edpuzzle media in graphic design learning at SMK Negeri 2 Bone significantly improved learning results. Both studies highlight the role of interactive video media, such as Edpuzzle, in improving performance.

In this study, the psychomotor assessment covered six main aspects: planning, hygiene and sanitation, work process, work results, time accuracy, and mise en place. These aspects were observed using an observation sheet during the practice. The assessment results showed that most of the participants were rated as "very good," especially in the mise en place aspect, which reflects readiness and independence in starting the practice after using Edpuzzle-based video learning media. This media has proven to have a positive impact on practical skills because it presents work steps in a clear and systematic way,

making it easier to understand and replicate the process.

This finding aligns with Handayani and Ernawati (2024), who argue that tutorial videos can improve readiness and technical skills in culinary practices. Additionally, Rosmiaty and Rahmah (2020) found that computer-based media significantly enhance psychomotor skills in vocational high school participants. However, the work process aspect showed the lowest score, indicating the need for additional reinforcement of procedure habits and ongoing technical training. Research by Handayani et al. (2021) also supports this, noting that optimal psychomotor skill development requires both engaging interactive media and teacher involvement in providing direct feedback during practice.

The effectiveness of Edpuzzle-based video learning media goes beyond visual presentation of material. Its interactive features encourage active participation during the learning process. Edpuzzle enables teachers to insert questions, comments, and quizzes into the video, which helps strengthen memory, reflection, and analysis of the displayed work steps. This makes the learning process more focused and goal-oriented, helping participants develop conceptual understanding before beginning practice. This interactivity sets Edpuzzle apart from conventional video media, as individuals are not simply passive viewers but active participants in the learning process, contributing to deeper learning.

The success in the mise en place and time accuracy aspects shows that interactive video learning is effective in fostering systematic and efficient work habits. By clearly presenting the sequence of steps, participants have a visual guide to follow and repeat as needed. This is essential in psychomotor skills learning, such as oriental food preparation, where the sequence and technique are key to achieving successful results. Additionally, Edpuzzle caters to visual and kinesthetic learning styles, which are common among vocational high school participants, particularly in the culinary field. As a result, this media becomes a relevant solution for addressing differences in learning styles and improving the quality of practical skill mastery.

This study introduces an innovative approach to culinary learning, especially in oriental food preparation, by using Edpuzzle as interactive learning media. Edpuzzle allows for the integration of tutorial videos with interactive questions, which not only provide information visually but also encourage active participation throughout the learning process. So far, research on Edpuzzle has primarily focused on theoretical subjects like science or language. This study expands the use of Edpuzzle to practical skills (psychomotor), specifically in the culinary field, an area that has not been extensively studied.

CONCLUSION

The use of Edpuzzle-based video learning media in oriental food preparation materials is suitable for use in classroom learning, as demonstrated by the feasibility test results from content and media experts. The average score from content experts was classified as very suitable, and the average score from media experts was also classified as very suitable. The Edpuzzle-based video learning media developed is practical for use in teaching oriental food preparation in class X Culinary at SMK Negeri 1 Bawen.

The use of Edpuzzle-based video learning media in oriental food preparation materials is effective for teaching, as indicated by the comparison of pretest and posttest scores for psychomotor skills, which showed a significant improvement, classified as very good. In addition, based on the N-gain score test results, there was an improvement in pretest and posttest scores, categorized as moderate.

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