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Nearpod As an Innovative Teaching Aid in Basic Western Culinary Education at Politeknik Merlimau Melaka, Malaysia

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Abstract

Digital technology has increasingly become an essential component of modern educational practices. Interactive learning platforms enable educators to deliver instructional content through engaging and student-centered approaches. In vocational education, particularly in culinary programs, teaching methods traditionally focus on instructor demonstrations, lectures, and practical kitchen training. However, theoretical lessons in culinary education may sometimes struggle to maintain high levels of student engagement when conventional teaching methods are used. This study examines the potential of Nearpod as an innovative instructional tool in Basic Western Culinary Education at Politeknik Merlimau Melaka. Using a conceptual and literature-based approach, the study explores how interactive digital platforms can support student participation, motivation, and understanding of culinary concepts. Previous research suggests that Nearpod promotes interactive learning through multimedia content, real-time assessment, and collaborative classroom activities (Abdullah et al., 2022; Musa & Al-Momani, 2022). In addition, the use of interactive learning media has been associated with improved student participation and learning outcomes (Anggaretta et al., 2024). The findings indicate that integrating Nearpod.

Keywords: *Nearpod, culinary education, educational technology, interactive learning, vocational education*

I. INTRODUCTION

Background of the Study

The advancement of digital technology has significantly transformed teaching and learning practices in higher education. Educational technologies provide instructors with opportunities to develop learning environments that promote interaction, collaboration, and active student participation. As a result, many educators have increasingly adopted digital learning platforms as part of their instructional strategies.
Interactive digital platforms enable instructors to deliver educational content using multimedia components such as images, videos, quizzes, and discussion-based activities. These technologies allow students to interact with learning materials more actively rather than receiving information passively through traditional lectures. Previous research indicates that the integration of interactive digital tools in the classroom can improve student motivation and engagement during the learning process (Abdullah et al., 2022).

Vocational education institutions play a critical role in preparing students with both theoretical knowledge and practical competencies required in professional fields. Culinary education is one area of vocational training that requires the integration of conceptual knowledge with practical skills. Students studying culinary arts must acquire a strong

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understanding of topics such as cooking techniques, ingredient functions, food safety practices, and kitchen management before applying these concepts in practical cooking environments.

In many culinary programmes, theoretical instruction is typically delivered through lectures and demonstrations prior to practical activities conducted in kitchen laboratories. Although these methods remain essential for developing culinary skills, theoretical sessions may not always sustain the same level of student engagement as practical cooking classes. Consequently, some students may demonstrate lower levels of interest and participation during theoretical lessons.

Educational technology offers opportunities to enhance the delivery of theoretical content in vocational education. Digital learning platforms allow instructors to present learning materials in interactive formats that support visual learning and student participation. These tools can be particularly beneficial in culinary education, where visual demonstrations and step-by-step explanations are important for helping students understand cooking processes and techniques.

One example of an interactive educational platform is Nearpod, which is designed to support engaging classroom instruction through multimedia presentations and interactive activities. Nearpod allows instructors to incorporate features such as quizzes, polls, and collaborative discussion boards into their lessons. These tools enable instructors to monitor student responses in real time and provide immediate feedback during classroom activities (Musa & Al-Momani, 2022).

Research examining the use of Nearpod in educational contexts has shown that the platform can enhance interaction between instructors and students. By enabling real-time participation, Nearpod encourages students to contribute actively during lessons and engage more effectively with instructional materials (Paramita, 2023).

In culinary education, multimedia learning tools such as images, videos, and interactive demonstrations can assist students in visualizing cooking processes before they perform them in practical sessions. The integration of such technologies therefore has the potential to improve students' understanding of culinary concepts.

Based on these considerations, this study investigates the role of Nearpod as an innovative teaching aid in Basic Western Culinary Education at Politeknik Merlimau Melaka. The study aims to explore how the use of interactive digital learning platforms can support student engagement and enhance the teaching of theoretical culinary concepts.

II. LITERATURE REVIEW

A. Technology Integration in Education

The integration of technology in education has become increasingly important in modern teaching practices. Digital technologies provide educators with tools that can support innovative instructional strategies and promote student-centred learning environments. By incorporating digital platforms into teaching, instructors can facilitate more interactive and engaging learning experiences.

Interactive learning technologies allow students to participate actively in classroom activities rather than passively listening to lectures. Such platforms enable students to answer questions, participate in discussions, and engage with multimedia learning materials. These features can help maintain students' attention and encourage deeper engagement with course content.

Previous research has demonstrated that the use of digital learning platforms can positively influence students' motivation and participation in classroom learning. For example, Abdullah et al. (2022) found that the use of Nearpod as a digital learning platform increased students' motivation and engagement during instructional activities. This suggests that technology-supported learning environments can contribute to more dynamic and participatory classroom experiences.

B. Interactive Learning and Student Engagement

Student engagement is widely recognised as an important factor in effective learning. Engagement refers to the level of attention, interest, and participation that students demonstrate during the learning process. Higher levels of engagement are often associated with improved understanding and better academic performance.

Interactive learning environments encourage students to participate actively in classroom activities. Digital learning platforms enable students to interact with educational materials, collaborate with peers, and respond to questions during lessons. These interactive features support active learning by encouraging students to think critically and reflect on the information presented.

Research has shown that interactive digital tools can enhance student participation and learning outcomes. Anggaretta et al. (2024) reported that the use of Nearpod as an interactive learning medium increased student participation in classroom activities and improved learning outcomes. Such findings highlight the potential of digital

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technologies to create more engaging learning environments.

C. Nearpod as an Interactive Teaching Platform

Nearpod is an interactive educational platform that allows instructors to deliver multimedia presentations integrated with interactive classroom activities. The platform includes various features such as quizzes, polls, videos, and collaborative boards, which enable instructors to design engaging lessons that encourage student participation.

One important feature of Nearpod is its ability to support real-time interaction between instructors and students. During lessons, students can respond to questions and participate in activities using their personal devices, allowing instructors to monitor student understanding and provide immediate feedback.

Studies examining the use of Nearpod have reported positive outcomes in educational settings. Musa and Al-Momani (2022) found that university students demonstrated favourable attitudes toward the use of Nearpod in distance learning environments. Students reported that the platform improved communication and interaction during the learning process.

Similarly, Paramita (2023) found that students appreciated the interactive features of Nearpod because they allowed them to participate actively in classroom activities. The ability to respond to questions and interact with lesson materials contributed to a more engaging learning experience. These findings suggest that Nearpod has the potential to enhance teaching practices by creating interactive and participatory learning environments.

D. Digital Learning Tools in Culinary Education

Culinary education requires the development of both theoretical knowledge and practical cooking skills. Students must understand various culinary concepts before applying them during practical kitchen sessions. Visual learning plays an important role in helping students understand cooking techniques and food preparation processes.

Digital learning tools can support culinary education by providing visual demonstrations and interactive learning materials. Multimedia resources such as videos and images allow students to observe cooking procedures and culinary presentations before attempting them in practice.
Interactive digital platforms may therefore enhance the effectiveness of theoretical instruction in culinary education. By combining multimedia content with interactive learning activities, instructors can create learning environments that encourage participation and support students' understanding of culinary concepts.

III. RESEARCH METHODOLOGY

A. Research Design

This study employed a **quantitative descriptive research design** to examine students' perceptions of the use of Nearpod as a teaching aid in Basic Western Cookery classes at Politeknik Merlimau Melaka. Quantitative research methods are commonly used in educational research to measure attitudes, perceptions, and behavioural patterns through structured data collection and statistical analysis (Creswell & Creswell, 2018).

A descriptive approach was selected because the primary objective of the study was to **describe and analyse students' perceptions of Nearpod in the learning process**, rather than to test causal relationships or experimental effects. Descriptive research allows researchers to systematically summarize participants' responses and identify patterns within collected data (Fraenkel et al., 2019). The study used a **survey questionnaire** to gather data from students who had experienced the use of Nearpod during classroom instruction in the Basic Western Cookery course.

B. Research Setting

The study was conducted at **Politeknik Merlimau Melaka**, a higher education institution in Malaysia that offers vocational and technical education programmes. The research focused on the **Basic Western Cookery course**, which combines theoretical instruction with practical culinary training.

In this course, Nearpod was used as an interactive teaching platform during classroom sessions to present lesson materials, display visual content such as images of dishes, and conduct interactive activities including quizzes and discussions.

C. Participants

The participants in this study consisted of **25 students enrolled in the Basic Western Cookery course**. These students were selected because they had direct experience using Nearpod during their learning activities.

The demographic distribution of respondents indicated that **14 students (56%) were male and 11**

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students (44%) were female, showing a relatively balanced gender representation within the sample.
In educational research, small group samples are commonly used in classroom-based studies to evaluate instructional innovations within a specific learning context (Fraenkel et al., 2019).

D. Research Instrument

Data were collected using a **structured questionnaire consisting of nine items** designed to measure students' perceptions of the use of Nearpod in learning Basic Western Cookery.
The questionnaire included statements related to several aspects of the learning experience, including:

- student engagement in learning
- interest in classroom activities
- effectiveness of visual learning materials
- use of mobile devices for learning participation
- overall perceptions of Nearpod as a learning tool

Students were asked to indicate their level of agreement with each statement using a **five-point Likert scale**, ranging from:

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

Likert scales are widely used in educational research to measure attitudes and perceptions because they allow researchers to quantify subjective responses in a structured format (Creswell & Creswell, 2018).

E. Data Collection Procedure

The data collection process was conducted after students had experienced the use of Nearpod during classroom instruction. The questionnaire was distributed to students who had participated in the Basic Western Cookery course.
Students were asked to respond to the questionnaire items based on their experiences using Nearpod during the learning sessions. The collected responses were then compiled and prepared for statistical analysis.

F. Reliability Analysis
Before conducting the main data analysis, a **reliability test** was performed to evaluate the internal consistency of the questionnaire items.

Reliability refers to the extent to which a measurement instrument produces consistent results across items measuring the same construct (Hair et al., 2019).

In this study, reliability was assessed using **Cronbach's Alpha coefficient**, which is commonly used in social science research to evaluate the internal consistency of survey instruments.

The reliability analysis produced a **Cronbach's Alpha value of 0.879 for the nine questionnaire items**, indicating a high level of internal consistency.

According to Hair et al. (2019), Cronbach's Alpha values above **0.70 are generally considered acceptable**, while values above **0.80 indicate good reliability**. Therefore, the instrument used in this study was considered reliable for measuring students' perceptions of Nearpod in the learning environment.

G. Data Analysis

The collected data were analysed using **descriptive statistical methods**, including:

- frequency distribution
- percentage analysis
- mean scores
- standard deviation

Descriptive statistics are commonly used in educational research to summarize and interpret survey data by identifying patterns in participants' responses (Field, 2018).

The mean score for each questionnaire item was calculated to determine the overall level of agreement among students regarding the use of Nearpod in their learning experience. Standard deviation values were also calculated to assess the variation in responses.

The results of the descriptive analysis were then used to interpret students' perceptions of Nearpod and its role in enhancing engagement, visual learning, and participation in the Basic Western Cookery course.

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Pre-Test Mean range: 3.24 – 3.52 Cronbach Alpha: 0.981

Post-Test (Nearpod) Mean range: 4.44 – 4.64 Cronbach Alpha: 0.879 Sample: N = 25 (14 male, 11 female)

IV. RESULT AND DISCUSSION

A. Respondent Profile

A total of 25 students enrolled in the Basic Western Cookery course (DTC10133) participated in this study. The demographic profile of the respondents is presented in Table 1.

Table 1

Respondent Demographic Profile

Variable	Category	Frequency	Percentage (%)
Gender	Male	14	56
	Female	11	44
Total		25	100

The results indicate that male students slightly outnumber female students in the class. However, both genders were adequately represented in the study.

B. Reliability Analysis

Reliability analysis was conducted to determine the internal consistency of the questionnaire items used in both the pre-test and post-test.

Table 2

Reliability Statistics

Test	Cronbach Alpha	Number of Items
Pre-Test	0.981	9
Post-Test	0.879	9

The Cronbach's Alpha values indicate that the questionnaire has high internal consistency. According to established guidelines in educational research, reliability coefficients above 0.70 are considered acceptable, while values above 0.80 indicate good reliability. Therefore, the instrument used in this study is reliable for measuring students' perceptions toward learning methods in the Basic Western Cookery course.

C. Descriptive Analysis of Pre-Test

The pre-test was conducted to examine students' perceptions toward conventional teaching approaches before the implementation of Nearpod.

Table 3

Descriptive Statistics for Pre-Test

Item	Mean	Std. Deviation
1	3.52	1.00
2	3.44	1.16
3	3.44	1.04
4	3.32	1.14
5	3.36	1.04
6	3.40	1.00
7	3.24	1.13
8	3.36	1.11
9	3.44	1.04

The mean scores for the pre-test ranged between 3.24 and 3.52, indicating a moderate level of agreement among students regarding the effectiveness of conventional teaching methods.

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D. Descriptive Analysis of Post-Test

The post-test was conducted after the implementation of Nearpod as an interactive learning platform in the Basic Western Cookery class.

Table 4

Descriptive Statistics for Post-Test

Item	Mean	Std. Deviation
1	4.58	0.50
2	4.44	0.92
3	4.44	0.92
4	4.60	0.58
5	4.44	0.71
6	4.64	0.57
7	4.56	0.77
8	4.56	0.77
9	4.48	0.77

The results show that the mean scores increased significantly after the implementation of Nearpod, with values ranging between 4.44 and 4.64. This indicates a high level of agreement among students regarding the effectiveness of Nearpod in enhancing their learning experience.

E. Comparison Between Pre-Test and Post-Test

To examine the effectiveness of Nearpod, a comparison between the pre-test and post-test mean scores was conducted.

Table 5

Comparison of Pre-Test and Post-Test Mean Scores

Test	Mean Range
Pre-Test	3.24 – 3.52
Post-Test	4.44 – 4.64

The comparison shows a clear increase in students' perceptions after the implementation of Nearpod. The improvement in mean scores suggests that the integration of interactive learning platforms can enhance students' engagement and understanding in culinary education.

F. Discussion

The findings of this study indicate that the integration of Nearpod significantly improved students' learning experiences in the Basic Western Cookery course. The moderate mean scores recorded in the pre-test suggest that conventional teaching methods provide a basic level of engagement for students.

However, after the implementation of Nearpod, the post-test results show a considerable increase in students' perceptions toward the learning process. The higher mean scores indicate that students found the interactive features of Nearpod, such as visual materials and real-time participation, helpful in understanding culinary concepts.

These findings suggest that technology-enhanced learning platforms can support more interactive and engaging learning environments in culinary education.

V. CONCLUSION AND RECOMMENDATION

A. Conclusion

This study examined the effectiveness of Nearpod as a technology-enhanced learning platform in the Basic Western Cookery course. The study involved 25 students, and the data were collected through pre-test and post-test questionnaires.

The results showed that students initially demonstrated moderate perceptions toward conventional teaching methods, with mean scores ranging between 3.24 and 3.52. After the implementation of Nearpod, the post-test results revealed a significant increase in students' perceptions, with mean scores ranging between 4.44 and 4.64.

The reliability analysis confirmed that the questionnaire instrument used in this study had high internal consistency, with Cronbach's Alpha values of 0.981 for the pre-test and 0.879 for the post-test. Overall, the findings suggest that the integration of Nearpod in culinary education can enhance student engagement, improve visual understanding, and support interactive participation during lessons.

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B. Recommendations

Based on the findings of this study, several recommendations are proposed.

First, educators may consider integrating interactive learning platforms such as Nearpod in culinary teaching to enhance student engagement and participation.

Second, future studies may involve a larger sample size in order to obtain more comprehensive findings.

Third, future research may examine the effect of technology-enhanced learning tools on students' academic performance and practical skills in culinary education.

Finally, further studies may compare the effectiveness of different digital learning platforms used in hospitality and culinary programs.

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