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The Effect of Using Genially Media on Food Technology Learning Outcomes for Culinary Education Students

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Abstract. The research employs a quasi-experimental design and was conducted within the Culinary Education Study Program at Universitas Negeri Medan from July to September 2024. The study population includes all Culinary Education students in classes A, B, C, and D, totaling 93 students. A random sampling technique was used to select the sample, resulting in class A with 30 students as the experimental group using Genially media, and class B with 30 students as the control group using PowerPoint. Data were collected through pre-test and post-test learning outcome scores. Data analysis techniques include descriptive statistics, assumption tests (normality and homogeneity tests), and hypothesis testing using a t-test. The research findings indicate that scores in the Genially group fell predominantly in the "very good" category at 53.33%, while the PowerPoint group showed only 3.33% in this category, which was rated as poor. The normality and homogeneity tests confirm that both groups' data are normally distributed with homogeneous variances. The t-test results reveal a significant positive effect of using Genially media on students' learning outcomes, with the obtained t-value ($t = 11.88$) exceeding the critical t-value ($t = 2.00$, $p < 0.05$). This suggests that Genially media can positively influence the Food Technology learning outcomes of Culinary Education students. The study concludes by recommending Genially as a widely applicable tool in vocational education, especially in courses requiring visualizations and an understanding of complex concepts.

Keywords. Genially Media, Learning Outcomes, Food Technology, Interactive Learning

INTRODUCTION

The Industrial Revolution 4.0 era has brought significant changes, including technological advancements across almost all fields. Increasingly sophisticated information technology facilitates various human activities, yet skill remains essential in its application. In the field of education, there is a need to adapt to modern developments by utilizing technology as a learning tool. Human resources, such as teachers and lecturers, are expected to be more creative and innovative in delivering content to students. This includes using more effective and flexible teaching media by leveraging technological advancements (Rahmawati et al., 2021). These technological advancements can be utilized to enhance the quality of the learning process in education, including at the higher education level (Budiman, 2017).

Learning media plays a significant role in supporting educators in delivering information (material) and in enhancing students' interest and motivation (Elvarita et al., 2020). One of the courses that requires the use of media and information technology is Food Technology. The Food Technology course in the Culinary Education program is an essential subject that provides in-depth understanding

of food processing and preservation, as well as the application of technology in the food industry. This course requires students to grasp various concepts that are sometimes challenging to explain through conventional methods (Hastuti, 2021). According to Indonesia's Ministry of Education Regulation No. 65 of 2013 on process standards, the learning system should be implemented in an inspiring, enjoyable way that encourages student participation while fostering creativity, talents, interests, and the physical and psychological aspects of students (Larasati et al., 2022). The use of digital technology in education has been proven to positively impact students' learning outcomes and motivation. Numerous studies show that integrating digital learning media, such as interactive multimedia, facilitates understanding of complex concepts and increases student engagement in the learning process (Indrayanti, 2021).

The use of digital technology in higher education, particularly in Culinary Arts, has been shown to enhance learning outcomes through a more interactive approach. Learning media such as Genially provides visual content, animations, and interactions that allow students to understand material in greater depth (Indrayanti, 2021). Genially, as an interactive presentation medium, enables instructors and students to present learning materials in a more engaging way, motivating students to participate actively in learning. Genially combines various multimedia elements, such as text, graphics, videos, and animations, allowing for dynamic interaction, which is essential for effective learning processes (Supriadi, 2018).

Based on observations conducted by the author, the learning process in the Food Technology course within the Culinary Education program faces several challenges that affect its effectiveness. First, traditional teaching methods that rely on lectures and textbooks tend to make students passive in receiving material, leading to a shallow understanding of food technology concepts such as processing, preservation, and quality control. Second, Food Technology often involves abstract concepts that require visualization, which are difficult to convey through text or verbal explanation alone. This makes it challenging for students to envision technical processes in detail, such as chemical or physical reactions in food processing, which are crucial in the culinary industry. Furthermore, in a classroom environment that only uses conventional methods, students' motivation to learn often declines, especially when faced with material perceived as difficult or monotonous. When learning is one-directional and lacks interactive activities, students are less engaged and easily lose focus. This results in lower student participation and engagement in class discussions, which ultimately impacts their learning outcomes suboptimally.

These issues highlight the need for innovation in teaching methods to enhance student engagement and understanding of Food Technology material. The use of media like Genially is expected to address these limitations by providing more visual, interactive, and in-depth learning, thereby improving the quality of students' learning outcomes in Food Technology.

Similar studies utilizing Genially in higher education show a positive impact on student learning outcomes and engagement. Baafi and Atieno (2020) found that interactive media play a crucial role in improving academic achievement and students' critical thinking skills. Their study suggests that educational technology can enhance global competitiveness and help students adapt to diverse learning environments (Baafi & Atieno, 2020). Genially, as a presentation medium, has also been shown to boost students' confidence in presenting material. Its ability to create an interactive learning environment helps students communicate more confidently, though its overall effect on learning outcomes varies depending on context and specific variables (Indrayanti, 2021). Overall, these studies support the use of interactive media like Genially in higher education settings, including for Food Technology courses in the Culinary Education program.

Based on this evidence, interactive media has proven effective in enhancing the understanding of complex material, increasing learning engagement, and improving student learning outcomes through rich and immersive learning experiences. Therefore, it is essential to conduct research aimed at analyzing the impact of using Genially media on the Food Technology learning outcomes of Culinary Education students.

Research Method

The research was conducted at the Culinary Education Study Program, State University of Medan. The study period spanned from July to September 2024. The research design employed was a quasi-experimental approach. The population comprised all Culinary Education students in classes A, B, C, and D, totaling 93 students. Sample selection was carried out using random sampling, resulting in 30 students from Class A as the experimental group, which used Genially as a medium, and 30 students from Class B as the control group, which used PowerPoint. Data collection techniques included pre-test and post-test assessments to measure learning outcomes. Data analysis techniques involved descriptive data analysis, followed by assumption tests for normality and homogeneity. If these assumptions are met, hypothesis testing will proceed with a t-test.

Results

1. Data Description of the Research

1.1. Frequency Distribution of Food Technology Learning Outcomes Using Genially Media

Based on the results of this research, the highest score obtained was 97, and the lowest score was 82, with a mean (M) of 90.80 and a standard deviation (Sd) of 3.83. Table 1 shows the frequency distribution of Food Technology learning outcomes using Genially media. The highest interval class is in the 91–93 range, accounting for 33.33 percent, while the lowest interval class is in the 82–84 range, accounting for 3.33 percent.

Table 1. Frequency Distribution of Food Technology Learning Outcomes Using Genially Media

No. Class	Class Interval	Frekuensi	Relative Frequency (%)
1	82-84	1	3.33
2	85-87	5	16.67
3	88-90	8	26.67
4	91-93	10	33.33
5	94-96	3	10.00
6	97-99	3	10.00
Frequency		**30**	**100.00**

1.2. Frequency Distribution of Food Technology Learning Outcomes Using PowerPoint Media

Based on the results of this research, the highest score obtained was 92, and the lowest score was 76, with a mean (M) of 83.20 and a standard deviation (Sd) of 3.43. Table 2 shows the frequency distribution of Food Technology learning outcomes using PowerPoint media. The highest interval class is in the 85–87 range, accounting for 30.00 percent, while the lowest interval class is in the 91–93 range, accounting for 3.33 percent.

Table 2. Frequency Distribution of Food Technology Learning Outcomes Using PowerPoint Media

No. Class	Class Interval	Frekuensi	Relative Frequency (%)
1	76-78	2	6.67
2	79-81	8	26.67
3	82-84	9	30.00
4	85-87	9	30.00
5	88-90	1	3.33
6	91-93	1	3.33
Frequency		**30**	**100.00**

2. Tendency Level

2.1.Tendency Level of Food Technology Learning Outcomes Using Genially Media

The tendency level of Food Technology learning outcomes using Genially media is categorized into four levels: very good tendency, good, adequate, and poor. To identify the tendency level of student learning outcomes, Table 3 shows the distribution of these levels. The "Very Good" tendency category includes 53.33 percent of students, while the "Adequate" category includes 3.33 percent.

Table 3. Tendency Level of Food Technology Learning Outcomes Using Genially Media

No	Score Interval	n	%	Grade	Category
1	>92-100	16	53.33	A	Very Good
2	>83-92	13	43.33	B	Good
3	=75-83	1	3.33	C	Adequate
4	<75	0	0.00	D	Poor
	Total	**30**	**100**		

2.2. Tendency Level of Food Technology Learning Outcomes Using PowerPoint Media

The tendency level of Food Technology learning outcomes using PowerPoint media is categorized into four levels: very good tendency, good, adequate, and poor. Table 4 shows the distribution of these levels, with 50.00 percent of students falling into the "Good" tendency category.

Table 4. Tendency Level of Food Technology Learning Outcomes Using PowerPoint Media

No	Score Interval	n	%	Grade	Category
1	>92-100	1	3.33	A	Very Good
2	>83-92	15	50.00	B	Good
3	=75-83	14	46.67	C	Adequate
4	<75	0	0.00	D	Poor
	Total	**30**	**100**		

3. Data Analysis Requirements Test

The data analysis requirements used in this study include the normality test and the homogeneity test. The normality test is conducted to determine whether the data follows a normal distribution, while the homogeneity test is used to assess if the data is homogeneous. If

these data requirements are met, hypothesis testing can proceed. The results of the normality and homogeneity tests are as follows:

3.1. Normality Test

The normality test utilizes the Chi-square (χ^2) analysis technique to assess whether the data is normally distributed by comparing the calculated χ^2 value (χ^2_calculated) with the χ^2 table value (χ^2_table) at a 5 percent significance level. The degrees of freedom are determined using the formula k-1, based on the normal curve. As shown in Table 5, the χ^2_calculated value is less than χ^2_table at a 5 percent significance level. Specifically, for Food Technology learning outcomes using Genially media, the χ^2_calculated is 4.90, which is less than χ^2_table at 11.07. Similarly, for learning outcomes using PowerPoint media, the χ^2_calculated is 10.45, which is also less than χ^2_table at 11.07. Therefore, both datasets are normally distributed.

Table 5. Normality Test Data for Student Outcomes in Napkin Folding

No	Class	$x^2_{calculated}$	x^2_{table}	Keterangan
1	Food Technology Learning Outcomes Using Genially Media	4.90	11.07	Normal
2	Food Technology Learning Outcomes Using PowerPoint Media	10.45	11.07	Normal

4. Homogeneity Test

The data that has undergone normality testing must also be tested for homogeneity before proceeding with hypothesis testing. The homogeneity test for this research data uses either the F-test or Bartlett's test. Homogeneity testing is conducted by comparing the largest variance with the smallest variance by calculating $F_{calculated}$ and consulting F_{table} at a 0.05 significance level. The test results show that $F_{calculated}$ is 1.25 and F_{table} is 1.86. Since $F_{calculated}<F_{table}$ (1.25 < 1.86), it can be concluded that the learning outcomes for Food Technology using Genially media and those using PowerPoint media have equal variances, indicating homogeneity. The results of the homogeneity test are presented in Table 6.

Table 6. Homogeneity Test Data for Research Results

Group	Variance	$F_{calculated}$	F_{table}	Description
Food Technology Learning Outcomes using Genially Media	14.65	1.25	1.86	Homogeneou
Food Technology Learning Outcomes using PowerPoint Media	11.75			

5. Hypothesis Testing

Based on the results of this study, there is a positive and significant effect of using Genially media on Food Technology learning outcomes, as indicated by $t_{calculated}>t_{table}$ (11.88 > 2.00).

This means that the use of Genially as a learning medium positively influences students' learning outcomes in the Food Technology course.

Discussion

Based on the results of this study, it was found that the tendency level of learning outcomes in Food Technology using Genially media falls under the "Very Good" category, with 53.33 percent of students reaching this level. The use of Genially media provides a more effective learning experience in enhancing the quality of learning outcomes compared to conventional methods. This finding aligns with the research of Asysyura et al. (2023), which demonstrated that interactive multimedia significantly impacts students' cognitive learning outcomes, leading to higher grade distribution and improved material comprehension (Asysyura et al., 2023). Similarly, Sahronih et al. (2019) reported that interactive media enhanced science learning outcomes, especially in elementary school biology, with a substantial effect (Sahronih et al., 2019).

The hypothesis testing in this study further confirms a positive and significant effect of using Genially media on Food Technology learning outcomes, with $t_{calculated} > t_{table}$ (11.88 > 2.00). This indicates that Genially media positively influences student learning outcomes in the Food Technology course. This finding aligns with Pradana and Kristanto (2022), who found that interactive multimedia improved learning outcomes and fostered self-directed learning in introductory educational media courses, resulting in significant academic achievement gains over conventional methods (Pradana & Kristanto, 2022). Additionally, Nabung (2023) demonstrated that using interactive multimedia with EFL students in Manggarai, Indonesia, significantly improved learning outcomes compared to a control group, with high effectiveness in fostering deep material comprehension (Nabung, 2023). Similarly, Baafi and Atieno (2020) emphasized that interactive media in higher education enhances academic achievement and critical thinking skills by providing an engaging and integrated learning experience (Baafi & Atieno, 2020). Gouveia et al. (2022) supported these findings, showing that multimedia-based interactive media increases student engagement in dynamic, collaborative learning, especially in online environments that require active interaction to boost understanding and participation (Gouveia et al., 2022). Further, research by Indrayanti (2021) indicated that using Genially boosts students' confidence in presenting material, positively contributing to learning outcomes and communication skills. Interactive media like Genially creates an engaging learning environment where students feel more confident to actively participate in class (Indrayanti, 2021).

Overall, the use of Genially in Food Technology learning has proven to be effective not only in improving student learning outcomes but also in promoting a more dynamic and in-depth learning process. This suggests that Genially is a potential medium for use in other courses that require complex concept visualization, enhancing learning quality through a more participative and interactive experience.

Conclusion

Based on the research findings and discussion, it can be concluded that the use of the interactive media Genially has a significant positive impact on student learning outcomes in the Food Technology course within the Culinary Education study program. The group using Genially achieved a higher average score compared to the group using PowerPoint, with a more even and consistent distribution of learning outcomes in the "Very Good" category. Statistical

tests indicated a significant difference between the two groups, suggesting that Genially not only enhances material comprehension but also increases student engagement and motivation.

This finding is supported by relevant studies showing that interactive media like Genially creates a more engaging, visual, and dynamic learning experience, aiding students in comprehending complex concepts more deeply within their courses. Therefore, Genially is recommended as an effective learning medium for vocational education, especially in courses requiring strong visualization and conceptual understanding. Implementing this media can improve the quality of learning and support students in achieving optimal learning outcomes.

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