

Enhancing the Pastry Making Skills of Grade 11 TVL Learners in Bread and Pastry Production Using Instructional Videos

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Abstract

Recognizing the challenges in skill acquisition through traditional teaching methods alone, the research explored the effectiveness of video-based instruction in improving learners' performance, engagement, and confidence in executing pastry-related tasks. This study aimed to enhance the pastry making skills of Grade 11 Technical-Vocational-Livelihood (TVL) learners in Bread and Pastry Production through the integration of instructional videos as a supplementary teaching tool. Utilizing a descriptive quantitative research design, the study assessed the effectiveness of video-based instruction by comparing the results of a pre-skill test and a post-skill test administered to the same group of learners. The instructional videos featured step-by-step demonstrations of fundamental pastry making techniques, which were used as supplementary materials during lessons. Data gathered from the pre- and post-skill assessments were analyzed to determine improvements in students' performance. Findings revealed a significant increase in post-skill test scores, indicating that the use of instructional videos positively contributed to the development of the learners' pastry making skills. The results highlight the value of multimedia resources in vocational education, particularly in reinforcing technical competencies. The study recommends the integration of instructional videos into the teaching strategies for Bread and Pastry Production to support skill enhancement and learner engagement.

Keywords: Technical Vocational Livelihood, Instructional Videos, Intervention, Pastry-making Skills, Bread and Pastry Production

INTRODUCTION

The Technical-Vocational-Livelihood (TVL) track of the K to 12 curriculum equips Filipino learners with competencies essential for employment, entrepreneurship, or further technical studies. Under this track, Bread and Pastry Production NC II plays a vital role in developing students' skills in baking and pastry preparation as aligned with TESDA Training Regulations. Competencies in this course require learners to demonstrate mastery through hands-on performance tasks rather than through theory alone.

However, traditional demonstrations often pose challenges, particularly in large classes and resource-limited school environments. Learners may struggle to follow complex procedures when demonstrations are conducted only once or when visibility is limited. This can hinder the development of essential skills required for NC II qualification.

Instructional videos offer a promising solution. Grounded in Mayer's Cognitive Theory of Multimedia Learning and Dale's Cone of Experience, video-based teaching allows

learners to repeatedly view, pause, and analyze procedures, improving knowledge retention and procedural mastery. Allison (2015) found that 85% of K–12 educators used instructional video technology to enhance learning, while Mendoza, Caranto, and David (2015) found that video-based materials increase student creativity, collaboration, and motivation. Purnamasari (2015) emphasized the importance of instructional methods in developing attitude, knowledge, and skills, while Hutchinson (2013) stressed that learning materials embody a teaching-learning context's goals and that choosing appropriate materials is essential for effective instruction. The integration of multimedia in technical-vocational education aligns with global trends in using digital tools for practical skills training, as videos specifically benefit performance-based subjects by providing consistent, repeatable demonstrations that support learner autonomy and mastery (Krukru, 2015; Zhang et al., 2006).

At Lasip National High School, performance tests and Most Essential Learning Competencies (MELCs) analysis revealed that Grade 11 TVL learners performed poorly in Core Competency 2: Prepare and Produce Pastry Products. This highlighted the need for supplementary visual learning materials to reinforce skill acquisition. Despite the growing body of literature supporting video-based instruction in general education, there remains limited local evidence on its effectiveness specifically in enhancing pastry making skills among TVL learners, revealing a gap that this study sought to address.

This study aimed to enhance the pastry making skills of Grade 11 TVL learners in Bread and Pastry Production using instructional videos at Lasip National High School during the school year 2024–2025. Specifically, it sought to answer the following questions: (1) What is the level of pastry making skills of Grade 11 TVL learners in Bread and Pastry Production before the intervention? (2) What is the level of pastry making skills of Grade 11 TVL learners in Bread and Pastry Production after the intervention? (3) Is there a significant difference between the levels of pastry making skills of the Grade 11 TVL learners in Bread and Pastry Production before and after the intervention?

METHODS

Research design

This study employed a descriptive quantitative research design using a one-group pre-test/post-test approach. This design was appropriate for the study as it aimed to establish whether there was a significant difference in the level of pastry-making skills of the Grade 11 TVL learners before and after their exposure to instructional videos as an intervention in Bread and Pastry Production.

Participants and Sampling

The participants of this study were 45 Grade 11 TVL (Culinary Arts) learners enrolled during the school year 2024–2025 at a public secondary school in Lingayen III District, Pangasinan. Total enumeration/universal sampling was used, as all learners belonged to the intact class handled by the researcher and were included in the study.

Instrument

A content-validated performance assessment rubric was used as the primary tool to score learners' pastry making skills during the pre-test and post-test. Scores were interpreted

using the following scale: 90–100 (Outstanding), 85–89 (Very Satisfactory), 80–84 (Satisfactory), 75–79 (Fairly Satisfactory), and below 75 (Poor).

Content validity was established by three expert evaluators from SDO Pangasinan I (a Master Teacher I, a Head Teacher III, and a Principal IV), who rated the rubric using a validation tool adapted from Bokhart (2013) across 10 indicators on a 5-point scale (1 = Not Valid to 5 = Very Highly Valid). The rubric obtained a mean rating of 4.97, interpreted as "Very Highly Valid."

The instructional videos used as the intervention (approximately 32 minutes, in English) were quality-assured by the same evaluators using a four-factor Quality Assurance Tool (Content, Format/Technical Design, Presentation and Organization, and Accuracy and Up-to-dateness). All four factors met or exceeded the required passing scores, and the videos were recommended for use in public schools with minor revisions.

Data collection

Data were gathered through a pre-test and post-test performance assessment. The pre-test was administered prior to the intervention to determine learners' baseline pastry making skills. Instructional videos featuring step-by-step demonstrations of fundamental pastry making techniques were then used as supplementary materials during lessons. After the intervention, a post-test was administered using the same performance assessment rubric to measure changes in learners' skills.

The research proposal, the performance assessment rubric, and the instructional videos used as the intervention were reviewed, validated, and quality-assured by the Schools Division Research Committee of the Schools Division Office I Pangasinan prior to implementation (Approval/Control No. [insert reference number]). The conduct of the study was likewise endorsed by the school head of Lasip National High School. Prior to data collection, informed consent forms were distributed to and signed by both the parents/guardians and the Grade 11 learner-respondents, explaining the purpose of the study, the procedures involved, and their right to voluntarily participate or withdraw at any time without penalty. Only learners with signed parental/guardian consent and learner assent were included in the pre-test, intervention, and post-test activities.

Data analysis

Mean and standard deviation were used to determine the level of pastry making skills of the Grade 11 TVL learners before and after the intervention. A paired sample t-test was used to determine whether there was a significant difference in the learners' mean scores before and after their exposure to the instructional videos. Data were analyzed using the Microsoft Excel.

RESULTS

This section presents the level of pastry making skills of the Grade 11 TVL learners in Bread and Pastry Production before and after their exposure to the instructional videos, as well as the significant difference between their levels of pastry making skills before and after the intervention.

Table 1. Level of Pastry Making Skills of Grade 11 TVL Learners Before the Exposure to the Instructional Videos

Score Range	Frequency	Percentage	Descriptive Equivalent
90–100	0	0.00%	Outstanding
85–89	0	0.00%	Very Satisfactory
80–84	6	13.33%	Satisfactory
75–79	13	28.89%	Fairly Satisfactory
Below 75	26	57.78%	Poor
Total	45	100%	—

Mean = 71.64 Standard Deviation = 5.70

The pre-test was conducted to assess the initial level of pastry making skills among Grade 11 TVL learners before the integration of instructional videos as an intervention. The results revealed a clear need for instructional support. Out of 45 learners, a majority of 26 (57.78%) scored below 75, falling under the "Poor" category, indicating that most learners struggled to perform even the basic competencies in bread and pastry production prior to the intervention. Additionally, 13 learners (28.89%) achieved scores in the 75–79 range, categorized as "Fairly Satisfactory," showing partial mastery of the required skills but still needing reinforcement and guidance. Only 6 learners (13.33%) reached the "Satisfactory" level (80–84), while none scored in the "Very Satisfactory" (85–89) or "Outstanding" (90–100) ranges. The mean score was 71.64, with a standard deviation of 5.70, supporting the need for innovative and engaging instructional strategies such as instructional videos to help enhance learners' understanding, skill acquisition, and overall performance in the subject.

Table 2. Level of Pastry Making Skills of Grade 11 TVL Learners After the Exposure to the Instructional Videos

Score Range	Frequency	Percentage	Descriptive Equivalent
90–100	34	75.56%	Outstanding
85–89	8	17.78%	Very Satisfactory
80–84	3	6.67%	Satisfactory
75–79	0	0.00%	Fairly Satisfactory
Below 75	0	0.00%	Poor
Total	45	100%	—

Mean = 92.16 Standard Deviation = 4.28

The post-test was administered after the implementation of the instructional videos to assess their effectiveness in enhancing students' pastry making skills. The results show a remarkable improvement in learner performance compared to the pre-test. A majority of learners, 34 out of 45 (75.56%), achieved scores within the "Outstanding" (90–100) range, indicating that most learners substantially enhanced their pastry making skills after the intervention. Additionally, 8 learners (17.78%) reached the "Very Satisfactory" (85–89) level, while 3 learners (6.67%) attained a "Satisfactory" (80–84) performance. Notably, no learners scored in the "Fairly Satisfactory" (75–79) or "Poor" (below 75) categories. The

mean score increased to 92.16, with a lower standard deviation of 4.28. These results strongly suggest that the use of instructional videos was effective in enhancing the pastry making skills of the learners.

Table 3. Difference on the Level of Pastry Making Skills of Grade 11 TVL Learners Before and After Their Exposure to the Instructional Videos

Test	N	Mean	SD	t-value	p-value
Pre-test	45	71.64	5.70	-21.11	1.19×10^{-24}
Post-test	45	92.16	4.28		

Mean Difference = 20.52

Table 3 presents the comparison of the pastry making skills of Grade 11 TVL learners before and after their exposure to instructional videos. Prior to the intervention, learners had a mean score of 71.64 (SD = 5.70), suggesting moderate performance with some variability. After the intervention, the mean score significantly increased to 92.16 (SD = 4.28), indicating both an improvement in skill level and greater consistency in performance among learners. The increase of 20.52 points in the mean score indicates a substantial improvement in learners' performance following the intervention. A paired sample t-test was conducted to determine whether this difference was statistically significant. The t-statistic value was -21.11, and the two-tailed p-value was 1.19×10^{-24} , which is significantly less than the standard alpha level of 0.05. Thus, there is a significant difference in the level of pastry making skills of Grade 11 TVL learners in Bread and Pastry Production before and after their exposure to the instructional videos.

DISCUSSION

The findings of this study demonstrate that the use of instructional videos had a positive and measurable effect on enhancing the pastry making skills of Grade 11 TVL learners. The substantial increase in mean scores, from 71.64 to 92.16, together with the statistically significant t-test result, indicates that video-based instruction likely provided learners with more consistent visual and practical exposure to pastry making procedures, increased student engagement, and helped reinforce procedural knowledge. This is consistent with Mayer's Cognitive Theory of Multimedia Learning and Dale's Cone of Experience, which posit that audiovisual materials support deeper retention and mastery of skills compared to demonstration alone.

These results affirm the findings of Allison (2015) and Mendoza, Caranto, and David (2015), who reported that instructional videos increase learner motivation, engagement, and creativity. They also support Krukru (2015), who noted that instructional materials significantly contribute to achievement when used appropriately, and Zhang, Zhou, Briggs, and Nunamaker (2006), who found that interactive video enhances learning effectiveness. The marked reduction in the number of learners falling under the "Poor" and "Fairly Satisfactory" categories after the intervention, from 39 learners combined in the pre-test to none in the post-test, suggests that instructional videos were particularly beneficial in addressing the needs of lower-performing learners who may have struggled to follow live, one-time demonstrations.

This study is limited by its use of a single-group pre-test/post-test design without a comparison or control group, which limits the ability to attribute the improvement in learners' scores solely to the instructional videos, as other factors such as repeated practice, maturation, or the novelty of the intervention may have also contributed. The study was also conducted with a relatively small sample of 45 learners from a single school and section, which may limit the generalizability of the findings to other contexts. [Insert additional limitations, such as duration of the study or instrumentation constraints, as applicable.]

CONCLUSION

The findings of this study indicate that Grade 11 TVL learners' pastry making skills were significantly enhanced following their exposure to instructional videos, as evidenced by the marked increase in mean scores from the "Poor" and "Fairly Satisfactory" range in the pre-test to predominantly "Outstanding" and "Very Satisfactory" levels in the post-test. This directly answers the study's objective of determining whether instructional videos could enhance learners' pastry making skills in Bread and Pastry Production. It is therefore concluded that instructional videos are an effective supplementary teaching strategy for developing technical and vocational competencies that require precise, repeatable, step-by-step demonstration.

It is recommended that teachers of Bread and Pastry Production and other performance-based TVL subjects integrate instructional videos into their teaching strategies to support skill enhancement and learner engagement, particularly for competencies that are difficult to demonstrate repeatedly in a live classroom setting. Future researchers may consider employing a quasi-experimental design with a control group, a larger and more diverse sample, and a longer intervention period to further validate these findings and to explore the sustained retention of skills over time.

Acknowledgments

The researcher wishes to express heartfelt gratitude to all those who contributed to the successful completion of this study. Sincere thanks are extended to the Almighty God for the strength, wisdom, and guidance throughout the course of this research. Deep appreciation is given to the school principal of Lasip National High School, Dr. Joyce V. Arce, for her unwavering support and encouragement in the conduct of this study, and to the Schools Division Research Committee of SDO Pangasinan I for reviewing, validating, and quality-assuring the research proposal, instrument, and instructional videos used in this study. Special thanks go to colleagues at Lasip National High School for their invaluable insights, constructive feedback, and guidance in the development and completion of this research. Gratitude is also extended to the Grade 11 TVL Bread and Pastry Production learners who willingly participated in the study, and to their parents for their support and cooperation.

Conflict of Interest

The author declares no conflict of interest in the conduct and publication of this study.

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