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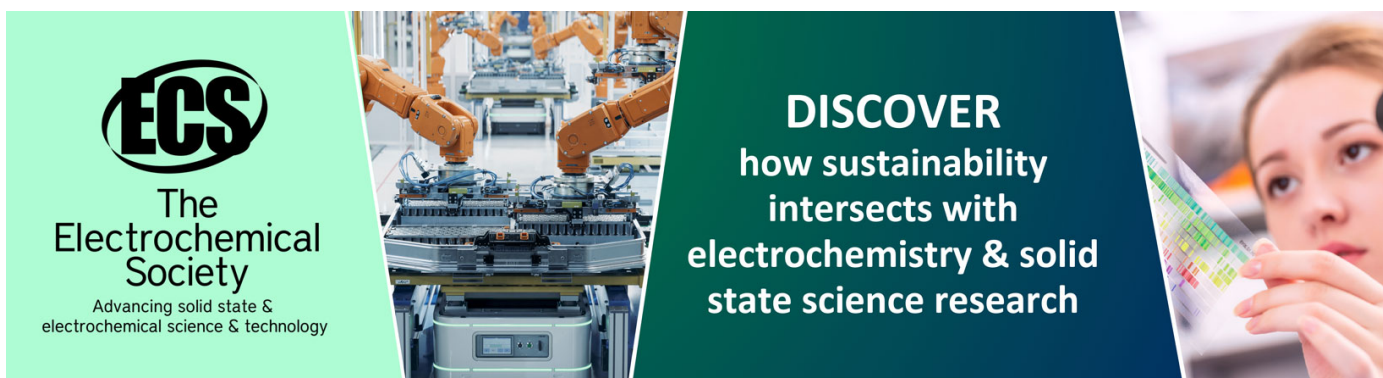
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The development of an engaging demonstration video for making shredded chicken

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Abstract. The research aims at developing a learning video to make shredded chicken and testing its feasibility. This video demonstrates the steps of product making. This research can be categorized as research and development (R&D) with a 4D model (Define, Design, Develop, and Disseminate). The video was taken with multiple camera angles and completed with text annotation, picture, animation, music, and voice lay-over. The were collected through interviews and questionnaires for feasibility testing. The data were analyzed using quantitative descriptive analysis. The stage of define was a needs analysis, while the design stage consisted of testing recipes, scriptwriting, selection of presenters, talents, dubber, and the video team and preparing tools and materials. The develop stage covered the process of shooting, recording, editing, and feasibility test by two material experts and a media expert. Meanwhile, the disseminate stage referred to the feasibility test among 30 students of State Vocational High School 1 Cangkringan, and the video dissemination was done through the YouTube channel. The feasibility test result based on the material experts was 90.96%, based on the media expert was 98.96%, and from the students was 85.35%, respectively. It means that this video is declared very suitable to be used as a learning medium.

1. Introduction

The utilization of information and communication technology (ICT) in the 21st century is becoming a household name. The rapid development of ICT facilitates students to get new experiences, especially in their learning process. As the subject of education, the learning process must focus on the students' character and circumstance. The current condition of students, including Vocational High School (VHS), belongs to generation Z. This generation was born from 1995 to 2010 who are good at visualization. They choose to read an e-book from their gadget instead of the traditional ones [1]. This generation is very fond of the digital world, and they tend to prefer the individual, engaging, and visual learning process [2]. The changes in learning based on this ICT's development have been a central issue in the 4.0 era's education.

The characteristic of educational 4.0 can be seen from artificial intelligence [3] and digital technology in learning. This system aims to produce graduates who are experienced and adaptable to ICT [4]. The use of ICT in the learning process is mandatory, requiring teachers to be more innovative in using learning media, such as learning video as one of the ICT-based learning media.

The advantages of learning video include a) its open and flexible material structure that can be started, stopped, and played back at any time [5], b) its ability to describe the real situation of a process, phenomenon, and event, c) its ability to integrate other media like text or images, and e) its ability to help understanding and memory of material content for students who have low reading skills [6]. The use of instructional videos can develop students' self-confidence and skills. Also, it can help students to carry out practical activities.



One of the practical subjects in VHS of Processing Agribusiness on Agricultural Products is Animal Processing Products. This subject requires instructional videos to achieve knowledge and skills competencies. Several learning videos in this area include making chicken nuggets, beef meatballs, beef sausage, pressure cooked milkfish, crispy milkfish, fish crackers, ice cream, and yogurt. However, the instructional videos on meat processing and preservation as one of the competencies in this course are still limited.

Chicken meat contains 18.20 grams of protein, 25 grams of fat, and 404 kcal per 100 grams [7]. Meat is prone to be damaged due to its microbial activity. In order to improve shelf-life, meat needs to be processed and preserved. Shredded chicken and shredded beef are some of the popular products. There are many videos on making shredded chicken available on YouTube. Most of the videos use a slicer to separate the meat from the cooking oil. Spinners are usually used to make shredded floss at large capacities. Meanwhile, making shredded chicken in The Animal Processing Products subject is usually performed in a small capacity. Besides, most videos on making shredded chicken only show tutorials to create the products and do not provide the introductory session. Some videos also ignore hygiene standards. Some videos show poor language instruction with low resolution, and there is no visual display that can attract viewers' attention, such as animation, color composition, and caption. It can be concluded that the videos of shredded chicken that are currently available do not meet the criteria of a useful and engaging learning video.

Therefore, a learning video in the form of a demonstration video for shredded chicken making needs to be developed. This video contains a product introduction, production, and explanation of shredded chicken's critical points. This video is designed to meet the media preference of generation Z. This article will describe how to develop an engaging video of shredded chicken making for Animal Processing Products subjects and its feasibility testing.

2. Methods

2.1. Research Methods

This study employed a research and development (R & D) type with the 4D model, including define, design, develop, and disseminate [8], as presented in Figure 1.

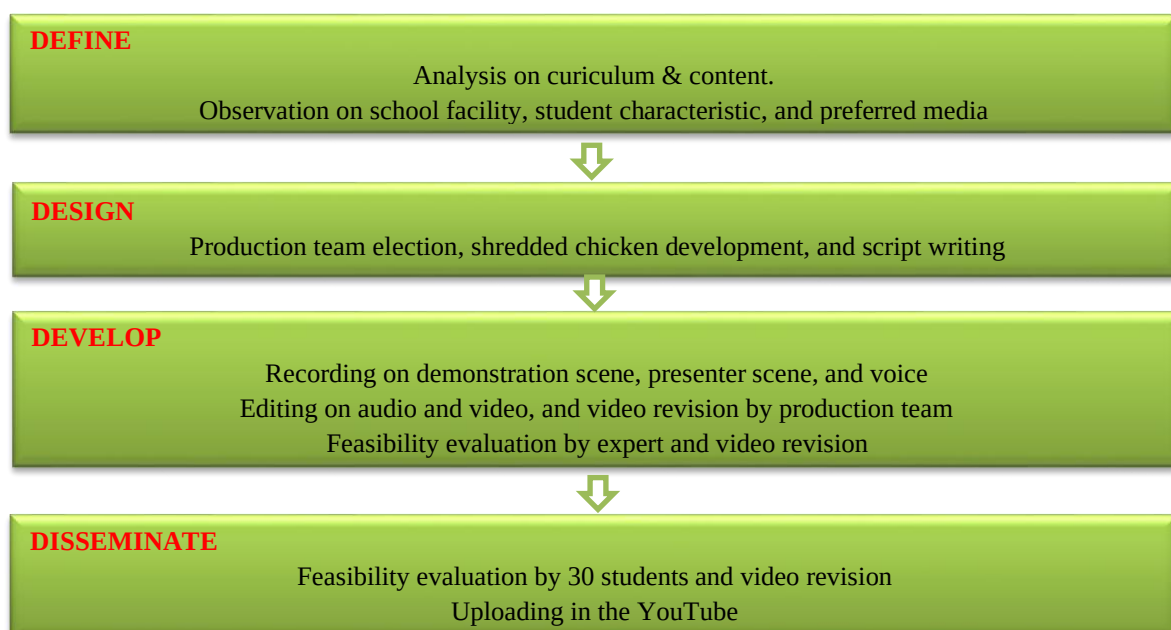


Figure 1. Research steps to develop a learning video.

2.2. Feasibility Analysis

The research instrument included the questionnaire of video feasibility among material experts, media experts, and potential users. The aspects assessed by the material experts covering learning, content, benefit, and usage, while the media experts evaluated several aspects, namely media, usage, and benefit. The potential users then considered the learning, media, content, benefit, and usage aspects. Two material experts, one media expert, and 30 students of State Vocational High School 1 Cangkringan as potential users assessed the video feasibility. The instruments were evaluated using the Likert scale of 1 to 4. Score 1 was very unfeasible, 2 was unfeasible, 3 was feasible, and 4 was very feasible. The instrument was also provided with an open questionnaire to collect the feedback needed for video improvement.

2.3. Data Analysis

The data obtained from the material experts, the media experts, and the potential users were then analyzed with descriptive quantitative. The following formula calculated the percentage of the feasibility test:

$$\text{Feasibility percentage} = \frac{\text{Total score}}{\text{Total of the maximum score}} \times 100 \% \quad (1)$$

The percentage of the feasibility was converted into the category by referring to the interval scale data conversion to ordinal, as shown in Table 1 [9].

Table 1. Interval scale data conversion to the ordinal scale.

Feasibility percentage (interval scale)	Feasibility Category (ordinal scale)
75-100%	Very feasible
50%-75%	Feasible
25%-50%	Unfeasible
0-25%	Very unfeasible

3. Result and Discussion

The demonstration video of shredded chicken making consisted of 3 parts, opening, content, and closing. The opening section contained raw material introductions, making techniques, and packaging techniques. The content section covered the preparation of tools and materials, making process, packaging process, and determining the product's expiration time. The closing section included the evaluation and conclusion of the developed video. This video was designed to have good audio and eye-catching visuals to attract the attention of Generation Z. The video development process is described in detail below.

3.1. Define

The define stage was the stage of gathering various information and identifying problems in learning. The observations were performed at State Vocational High School 1 Cangkringan as a VHS majoring in Agribusiness Processing of Agricultural Products. This school had used the revised 2013 curriculum that emphasized on student-centered learning. However, the use of visual media in the learning process was still limited in which the learning process only used text media, product making instruction, pictures, and presentation media. The students of this school were also dominated by generation Z, who preferred digital media for their learning process [2]. Audio-visual based learning media is very suitable for generation Z characteristics. The Animal Processing Products subject should be provided with demonstration videos to explain the product making sequences. However, there is currently no video available for processing chicken into shredded chicken.

3.2. Design

The video for making shredded chicken was designed using a demonstration concept. This method was considered useful for training by showing the sequences for making the product in detail [10]. The first

step was to determine the chicken shredded recipe. The frying and draining shredded chicken technique was needed to be optimized to produce an appropriate color and dry texture product. If the frying took too long, the shredded chicken mixture would absorb much oil.

The next step was preparing the video script. The video script was used as a guide in video recording. The video script contained the scene number, number of taking, duration, visual source, visual insertion, narration, location, and description. The visual insertion for presenter scenes consisted of text, image, 2D animation, and effect types [11]. The sentences in the script were made as simple as possible to avoid long and complicated sentences. The vocabulary must be easy to understand. After the completion of scriptwriting, the material and media experts evaluated the script feasibility. The script was revised 7 times. The script revisions were related to sentences that should be simple, not monotonous, and easy to understand. The file insertions, such as font types, captions, and 2D animations, were also revised. The layout of the text caption and animation also needed to be adjusted. The font type and size were also revised so that potential users could easily read the text in the video. Scriptwriting was the most crucial and challenging part of video making. Video recording and editing would run smoothly if the script were easy to understand [10] [12].

3.3. Develop

This stage contained the video production process. There were two parts in this stage, i.e., shooting and editing. Variations in shooting and angle techniques are used to avoid monotonous scenes [10]. The shooting process used long shoot (LS), medium shot (MS), close up (CU), and eye level techniques. The shooting process of video utilized a Sony HXR-NX100 camera. This camera had a single Exmor R sensor with a Full High-Definition (HD) resolution of 1920 x 1080 at 60p. Lighting used the Kino Flo 6-bank LED Lighting support for maximum outcomes. The sound recording process was applied to the voice-over technique. A wireless Boya BY WM8 clip-on microphone recorded the narrator's voice. The process of setting up the camera and shooting support equipment lasted two hours.

These videos were delivered by the presenter, demonstrator, and narrator. The presenter delivered the opening and closing parts, while the demonstrator and narrator demonstrated shredded chicken making in the content section.

The demonstration scene's shooting process was carried out at the Chemical Laboratory, Universitas Negeri Yogyakarta (UNY). The materials and tools for making shredded chicken were prepared before shooting the demonstration scene. The time needed to prepare the tools and materials was 2 hours, while the demonstration scene recording spent 4 hours. Meanwhile, the shooting process for presenters and narrator was recorded at the TV Laboratory UNY. This process lasted for 4 hours. The presenter's background used a green screen to make the editing process more efficient. The editing process combined videos, text captions, images, animations, music background, effects, transitions, and the narrator's voice.

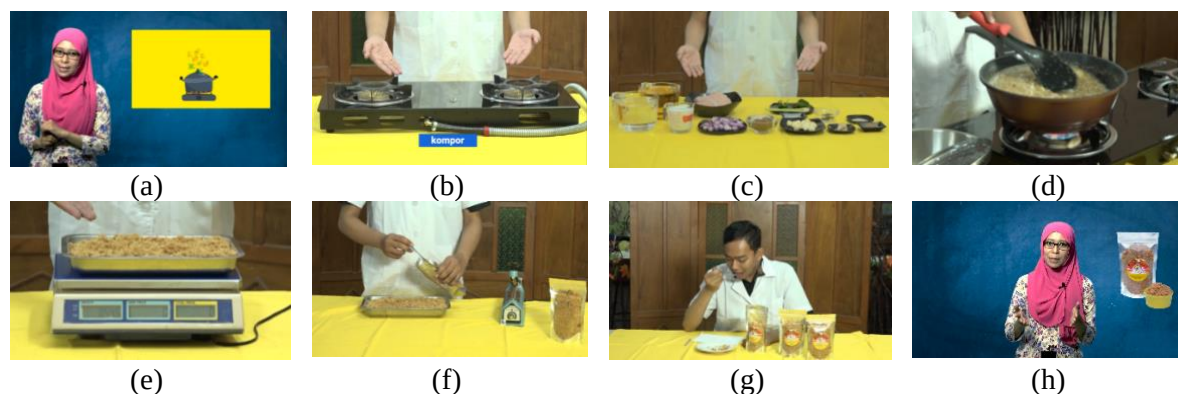


Figure 2. The video captures include (a) opening section, provided with 2D animation, (b) tools preparation, (c) material preparation, (d) production process, (e) yield calculation, (f) packaging, (g) organoleptic evaluation, and (h) closing section.

The video editing process was performed with Adobe Premier pro CC 2017 software. The duration of the developed video was 13 minutes and 46 seconds. The video was revised five times based on the production team's internal evaluation. The duration was too long, so that it was cut to avoid boredom. The narrator's voice in 3 scenes was re-recorded to match the scenes in the video. The adjustment of text captions, textbox color, and animation was applied in the presenter session to emphasize the message delivered. The video background at the introduction and closing section was equalized. During the tools and materials preparation, the camera angle was changed from MS recorded by the first camera to CU recorded by the second camera to make it clearer and more attractive. The noise in some scenes was reduced. The URL of the image taken from the internet source was informed at the end of the video. After going through the revision process, the video got 12 minutes and 18 seconds duration in mp4 format. The screen capture video can be seen in Figure 2.

Figure 2 shows various shooting techniques. LS was used in Figure 2(c) to record the equipment and materials in a full view. The MS technique was shown in Figure 2(a), 2(b), and 2(h). The MS retrieval technique was from the top to the waist of the presenter sessions. CU was designated in Figure 2(d) to show a critical point in the product-making process so that students could get a more detailed visualization of crucial processes. The eyes level technique was in Figure 2(f) and 2(g). The eye-level captured scene was parallel to the object so that the object was the same size as the subject.

The text annotations were applied to verify the tool name, the name, and size of the material, as shown in Figure 2(b). Text annotations were also added to the presenter's session. The presenter's session was given an image in Figure 2(h) and animation, as in Figure 2(a) to clarify the message. The video's animation was also applied to avoid a monotonous impression and attracted the user's attention.

The video of shredded chicken making was then evaluated for its feasibility by the material and the media experts. The data on the feasibility test by the two material experts can be seen in Table 2. According to the material expert, the developed shredded chicken video can be categorized as very feasible, with an average 90.96% score.

Table 2. The results of the feasibility assessment from the material experts.

Aspects	Mean Feasibility Score	Category
Learning	92.86%	Very Feasible
Content	88.46%	Very Feasible
Benefit	87.50%	Very Feasible
Usage	95.00%	Very Feasible
Total	90.96%	Very Feasible

Material experts suggested that the flavor section's organoleptic test should be carried out shortly after the package was opened. This video demonstrated a sensory test on the shredded chicken's flavor after moving it from the package to the plate. The material experts' feedback will be carried out on the next video development since the retaking process was impossible due to the funding limitation.

The material experts also provided suggestions to add the sample of yield calculations and the real example to determine the expiration dates. The video at 07:48 had presented the yield formula and, in 09:51 had shown the table of expiration determination. The duration of the learning video was already 12 minutes and 18 seconds. If an example of a detailed yield calculation and an expiration time determination was added to this video scene, the video duration could be longer. The video duration must also be considered because it was related to memory and concentration abilities. An effective video tutorial duration was 10-15 minutes [13], or closer to 10 minutes, was highly recommended.

The material expert also mentioned that the presenter's session background should be more attractive, and the demonstrator's hand was recommended to be removed because it reduced the viewers' focus. Both comments were included in the media quality aspect. However, the material experts' questionnaire did not cover the assessment on the media quality aspect. Therefore, these suggestions should be confirmed with the media expert's questionnaire. When assessing the video script's feasibility, the media expert suggested that the demonstrator's hand pointed at the materials. Based on the results of the media expert's assessment in Table 3, the media quality gained 96.88%, while the overall score of the video

feasibility was 98.96%. Therefore, the media expert considered that the media quality of the video was very feasible.

Table 3. The results of the feasibility assessment from the media expert.

Aspects	Mean Feasibility Score	Category
Media	96.88%	Very Feasible
Usage	100.00%	Very Feasible
Benefit	100.00%	Very Feasible
Total	98.96%	Very Feasible

Moreover, the media expert highlighted the inconsistency of lighting in the video. This appearance was because of the limited available tools. These suggestions will be considered for future video making by investing more in better lighting quality. The media expert also commented on the presenter's voice, which sounded hoarse on one of the scenes, and the intonation was not suitable in the other scenes. The media expert pointed out that intonation must be clear to make it more understandable. The narrative voice can clarify the concept being conveyed in the video [14]. This suggestion will be taken into consideration for the recording process in the next video development. Here, the director should pay attention more thoroughly to the recording process, both audio and visual. Several scenes that were not optimal yet should have been re-recorded. For the next video recording process, the team will recruit an assistant director to improve the taking scene process.

3.4. Disseminate

The video was then evaluated for its feasibility among prospective users in the disseminate stage. According to them, the video was considered as very feasible, with a percentage of 85.35%. The assessment results among potential users can be seen in Table 4.

Table 4. The results of the feasibility assessment from the students.

Aspects	Mean Feasibility Score	Category
Learning	83.67%	Very feasible
Media	86.04%	Very feasible
Content	85.00%	Very feasible
Benefit	85.84%	Very feasible
Usage	86.17%	Very feasible
Total	85.35%	Very feasible

Here, the students also commented that the class atmosphere became less conducive when the learning video was applied. It agrees with one of the video's effectiveness, which is independent and can be used individually [6]. Not only can the instructional video media be accessed in the classroom, but it can also be used anytime and anywhere. The videos were uploaded on the YouTube channel of Boga UNY in the URL of <https://youtu.be/IxQUwe4VcpY>. YouTube platform is suitable for media sharing YouTube because it has good resolution quality [15]. The copyright of the video is valid until November 25, 2069.

4. Conclusion

This study developed a demonstration video on shredded chicken making and evaluated the video's feasibility. This video showed the sequences for shredded chicken making. The demonstrator and the narrator explained the production steps. This video was also provided with introduction content in the opening section, as well as conclusions and evaluations in the closing section. The presenter delivered the opening and closing sections. The opening and closing sections were provided with text annotations, images, animations, effects, and transitions to support visualization. The demonstration section was also combined with text annotations. The music background was used to reduce noise and attract students' interest. This video had a duration of 12 minutes and 18 seconds in mp4 format. Based on the feasibility test results, this video can be categorized as very suitable to be used as a learning medium. We

recommend the video to be embedded in the learning management system. Future studies should be performed to study the video's effectiveness in the flipped-classroom design.

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