Video development for make-up puff pastry

A T Pambudi and A A Anggraeni*
Culinary Science Study Program, Faculty of Engineering, Universitas Negeri Yogyakarta, Indonesia

*andian_ari@uny.ac.id

Abstract. Generation Z has a preference for individual learning using information and communication technology. Generation Z prefers digital audio-visual media to verbal media. The study aimed to develop a demonstration video in the subject of make-up puff pastry for Pastry and Bakery course and assess the video feasibility. This study was a research & development (R & D) approach using 4D (define, design, develop, and disseminate) models. Problem, student, and curriculum analysis was performed in the define stage. Video scripting and the production team selection were performed in the design stage. Develop stage consisted of video shooting, video editing, video revision, and assessment. The shooting was accomplished using Sony A6000 16-50 mm camera, Bestluck New Pro F600 lighting with ellipsoidal reflector, Libee 650EX tripod, and Zhiyun Crane V2 stabilizer. Voice was recorded using Boya Clip-on wireless microphone. The audio was edited using Adobe Audition 2017 and the video was compiled using Adobe Premiere pro CC 2017. In the disseminate stage, the video was uploaded to YouTube channel Boga UNY. Based on the feasibility assessment by 2 material experts, a media expert, and 31 potential users, the video was considered very feasible as learning media.

1. Introduction
The students in vocational high school (VHS) nowadays are generation Z, who was born between 1995-2010. Generation Z has been familiar to use ICT (information and communication technology). To learn new knowledge, they have better an understanding when watching the video than verbal explanation (podcast) or text reading. When reading material is necessary, they prefer reading activity which can be accomplished on a smartphone or tablet. They always prefer to practical things. They have a unique and different way of thinking. They try to understand the concept before the teachers describe the material. They carefully observe the process before they do it themselves [1]. Consequently, the teachers must be able to understand their characteristics to facilitate their learning process.

The 21st-century teachers must be innovative and creative in using various learning strategies, act as a facilitator, motivator, and inspirator during the learning process, as well as emphasize the student-center learning [2]. Indonesian teachers realize that ICT must be integrated into 21st-century education. However, their knowledge to apply ICT into the learning process is still low [3]. This condition urges teachers to explore ICT based learning, such as video-based learning.

The most preferred learning media for generation Z is audio-visual media such as video, especially for demonstration purposes [1]. Depending on video type and how the instructor uses the video, a video may be able to manage three learning domains, i.e. cognitive, affective, and psychomotor [4]. The learning videos have some advantages, such as to demonstrate a process realistically and interestingly [5], to be controlled individually, i.e. pause, replay, zoom [6], to clearly explain the process and stage,
to overcome the learning limitations in place and time, to share messages and perceptions, to enhance learning ability and skills [7,8], and to be integrated into interactive learning media and active learning strategies [8]. Making learning video contains several difficulties and must meet the specific criteria.

Puff pastry is a yeast-free pastry product containing many alternating layers of dough and pastry margarine, such as corset or butter. Puff pastry has a high degree of difficulty [9]. Students often find some difficulties to understand text recipes. To help the student to comprehend the production steps in recipes, it is important to visualize the recipes directly through teacher demonstration or indirectly through demonstration video [7].

Many demonstration videos on puff pastry making delivered in Indonesian language are available on YouTube. Those videos have already used good lighting. However, the camera didn’t move and camera angle variation was limited. A combination of camera angles is necessary to avoid students’ boredom [10]. Those videos were not provided with annotation to ease students’ learning. Those videos demonstrated an advanced level of puff pastry make-up techniques that were not easily understood by VHS students. VHS students need basic concepts such as puff pastry introduction, the reason for material and process selection. A demonstration video on how to make puff pastry with the English method for beginner has been developed [11]. This video contained dough making, scaling, mixing, make-up, baking, and serving. However, the material introduction and the explanation of make-up techniques in the video are still limited.

The demonstration video to support puff pastry material and various make-up types need to be developed. This video contains material that has not been included in the previous video, i.e. failure cases in puff pastry making and various make-up techniques. This article describes the development of demonstration video for make-up puff pastry and the feasibility analysis of the video.

2. Methods

2.1. Methods
This study employed the Research and Development (R&D) design with the 4D (define, design, development, and disseminate) model [12].

2.2. Feasibility analysis
The feasibility analysis instrument consisted of a closed and open questionnaire for the material experts, the media expert, and the potential users. Each closed questionnaire contained 30 questions. The material expert questionnaire covered the aspects of learning, material, benefit, and usage. The questionnaire for media expert included the aspects of the media, benefit, and usage. Meanwhile, the questionnaire for potential users comprised of learning, material, media, benefit, and usage. The open questionnaire was used to provide thorough suggestions to revise the video. The research instrument was validated through the construct validity test. The feasibility analysis was conducted by 2 material experts, a media expert, and 31 students of the twelfth grade of VHS 2 Godean as potential users.

2.3. Data analysis
The instrument used a 1 - 4 Likert scale with a scale of 1 for “very unfeasible”, 2 for “unfeasible”, 3 for “feasible” and 4 for “very feasible”. The data were analysed descriptively using formula (1).

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\text{Feasibility percentage} = \frac{\text{Total score}}{\text{Total maximal score}} \times 100 \%
\] (1)

The feasibility percentage was converted from interval to ordinal data scale categorization as presented in Table 1 [13].
3. Results and discussion

3.1. Define
The define stage consisted of the problem, students, and curriculum analysis. The observation was
carried out at VHS 2 Godean. The results of problem analysis indicated that the learning media in this
school were limited to verbal text media, such as hand-outs, books, and powerpoint presentations. The
internet was still underutilized. Some teachers considered that internet usage could create some
constrains among students [14]. Based on the students’ analysis result, their behaviour was following
the characteristics and the learning styles of generation Z. They tended to work using the internet, have
low reading skills, and be easily bored with the conventional teaching method. The results of the
curriculum analysis showed that this school used curriculum, which promoted active learning and ICT
utilization, though it had not been optimally implemented. It was due to the lack of facilities and the low
ICT skills among teachers [14], as well as the expensive and difficult processes of video making [15].
The demonstration videos in Pastry and Bakery course were limited. The current video of puff pastry
making focused on the process of dough making using the English method with 1 make-up technique
[11].

Therefore, the demonstration video in make-up puff pastry was necessary to be developed. The
content in the video focused on several make-up techniques in puff pastry making. The video combined
the text-overlay presenter session and demonstration session. The text-overlay types were usually used
to summarize important points, highlight keywords, and visualize content [15]. Text-overlays used
visual annotations to ease the students to remember the content [16]. The step-by-step product making
required detailed visualization in the demonstration session, which is preferred by generation Z [1].

3.2. Design
This video was comprised of the puff pastry function, puff pastry classification, failure case analysis,
tools, ingredients, dough-making procedure, and 5 methods of make-up puff pastry. The text material
feasibility was analysed by the material expert [15]. The material was then converted into a video script.
The video script was developed using table contained scene number, shot number, take number, visual
source, narration, music, and duration. The video consisted of presenter session and demonstration session.
The narration in the presenter session was delivered by the presenter. The demonstration session
was performed by an actor/actress and the narration was delivered by the dubber. To write a good
narration, careful consideration should be made to convert writing style language to normal conversation
style [10]. The sentences should not use complex sentences to facilitate better understanding. The
sentences in the demonstration scene should avoid flashback sentences. The demonstration scene should
be arranged in sequence. Flashback scenes should also be avoided. After the scriptwriting had been
accomplished, it was then evaluated by the material and media expert. The material expert analysed the
script from the content view to ensuring the narration and demonstration process was accurate. The
media expert analysed the oral language style, flashback sentences, and flashback scenes. Based on both
expert suggestions, the video script was then revised 6 times. Video scriptwriting was the most difficult
part of video production. The video script should be written thoroughly because it was the blueprint of
video production. The video script was the guidance for video recording and editing. A good video
script would save funds and effort and avoid retaking recording.

The production team was formed by considering material expertise, video production skill,
instructional design experience, and video project managerial skill [15]. The presenter was selected

| Feasibility Percentage (Interval Scale) | Category (Ordinal Scale) |
|---------------------------------------|-------------------------|
| 0% - 25%                              | Very unfeasible          |
| >25% - 50%                            | Unfeasible               |
| >50% - 75%                            | Feasible                 |
| >75% - 100%                           | Very feasible            |

Table 1. Interval scale data conversion to ordinal scale.
based on the good looking face, facial expression, eye contact with the camera, ability to explain the material in front of the camera, and ability to memorize the narration to avoid improvisation during recording [15]. The presenter’s articulation should not contain any local dialect. The presenter didn’t have adequate knowledge about puff pastry making. Thus, before the recording session, the presenter should perform 3 days of individual exercise to maintain eye contact with the camera and memorize the script narration. The presenter didn’t need to be the puff pastry instructor so that the script should have been approved by the material expert. The dubber selection was based on good articulation, clear voice, and no local dialect. To avoid students’ distraction on the demonstration step, the presenter or the actor/actress should not show in the demonstration scene [17]. The audience should focus their attention on how to do the process making. The actor/actress would be shot from chest to waist so that the actor/actress’s facial expression was not an important consideration. The actor/actress was chosen based on his/her ability to demonstrate various make-up techniques in puff pastry.

3.3. Develop
The shooting and editing process was carried out by the production team. The video production equipment was selected based on budget, needs, and efficiency. The production equipment was rented from popular video utilities rental shop in Yogyakarta. The camera was the Sony A6000 16-50 mm. It was a semi-professional mirrorless camera, updated with Hybrid AF system and Bionz X processor. It had 25 contrast-detect and 19 phase-detect points covering approximately 92% of the sensor. It supported full high-definition video recording at 1920 x 1090 at 60p. The physical dimension was compact and light-weighted so that the camera operator could move easily. It was provided with a built-in stereo microphone and a mono speaker. However, the microphone quality was not good to reduce noise. An external microphone and recorder were necessary. The voice was recorded using Boya Clip-on wireless microphone. To stabilize the image, Libec 650EX tripod was used to record the presenter session. The lighting was Bestluck New Pro F600 with an ellipsoidal reflector. Zhiyun Crane V2 was used as a stabilizer to produce smooth movement. The shooting for both presenter and demonstration session was located in the Pastry Laboratory, Universitas Negeri Yogyakarta (UNY). One-day prior shooting session, puff pastry ingredients, and tools preparation were necessary. The presenter background and puff pastry making table were cleaned, organized, and naturally set. This process required 5 working hours. Before shooting sessions, recording equipment preparation for 3 hours was needed to prepare a camera angle, lighting, and microphone. The in-frame area settings should be carefully estimated because it determined the aesthetic value and effectiveness of the demonstration process. The video production only used a single camera with one camera operator. However, multiple takes were recorded to deliver different angles of the same scene [10]. To reduce single-shot, various angle techniques were needed, i.e. eye level, high angle, low angle, medium shoot (MS), and close up (CU) [6].

The editing process combined videos, voice recordings, annotations, transitions, and music. The video editing was performed using Adobe Premiere pro CC 2017. The annotations or overlay text were shortly written to emphasize the material [17]. The draft video was then discussed by team members majoring in puff pastry and multimedia production. Based on the team’s discussion, several suggestions need to be applied. The annotation position should be moved so that it didn’t cover the main object. The text case was revised using the upper case. Typo texts were corrected. Font color should consider color contrast with the background color. The font size was enlarged for better reading. Noise coming from screaming and object falling was reduced using Adobe Audition 2017. Objects that were not supposed to enter the scene were corrected by zooming and cropping. The transitions between make-up technique sections were slowed down so that the audience can read carefully. The URL of the image, background, and music source should be carefully written in the end of the video to respect copyright. The video was revised 3 times until all the team members considered that the video was very appropriate to be used as a learning media. The editing process was complex and time-consuming to meet the audience requirement.
The video used the mp4 format with a duration of 13 minutes and 24 seconds. Video capture is presented in Figure 1. The introduction and closing sections were delivered by the presenter (Figure 1a). The demonstration sections were performed by the actress and the voice-over dubber (Figure 1b, Figure 1c, Figure 1d, Figure 1e, and Figure 1f).

Figure 1a shows the use of eye-level angle, MS, and annotations when the presenter explained the introduction of puff pastry. Similar views are also used in the conclusion section. The presenter session was shot using a tripod. Figure 1b uses a high angle and annotations on the tools and ingredients. This section is also employed the stop motion techniques. Figure 1c demonstrates the dough making process which employed the right camera panning technique. Figure 1d shows an example display of the failure case section. This section uses the bottom up (tilt-up) camera panning. Figure 1e shows the make-up puff pastry turn over technique shot with the high angle and side-view angle. In this section, the camera moves using a stabilizer. Figure 1f shows the low angle and CU on the creme horn make-up technique section.

![Image](image_url)

**Figure 1.** Video capture consisted of a) the introduction section, b) tools and ingredient preparation section, c) dough making section, d) failure case analysis section, e) turnover make-up technique section, and f) creme horn make-up technique section.

The video feasibility assessment was evaluated by material experts and a media expert. According to material experts, the feasibility of the video was 97.9%, consisting of 4 aspects as follows: learning 100.0%, material 96.7%, benefit 100.0%, and usage 100.0%. The material experts were pastry lecturer in Culinary Science study program UNY and pastry teacher di VHS 2 Godean. The first material expert suggested that the corsvet term should be replaced with pastry margarine, while the second material expert agreed with the use of corsvet term. Puff pastry dough could be made from butter using the scotch technique. The corsvet term was chosen to anticipate students’ confusion due to the use of many terms. The second material expert suggested changing the term of bread flour to high protein flour. Nevertheless, the first material expert agreed with the bread flour term. The bread flour term was the same as high protein flour. The different opinions from both material experts might be due to the different references used by each expert.

Based on the feasibility assessment by a media expert, the video feasibility was 95.8%, consisting of 3 aspects: media 96.1%, benefit 91.7%, and usage 96.9%. The media expert suggested that the lighting in the baking process should be brighter. The background used in the presenter section (Figure 1a) was also considered less attractive because many objects were shot in the background. The presenter session was located in the kitchen to drive the audience to the practical atmosphere in the kitchen. Nonetheless, it distracted the audience’s focus on the material being delivered [15]. To overcome this problem, the
annotation in the presenter session used a black shape box to darken the kitchen background. Based on media expert suggestion, the dubber volume was increased to produce clearer sentences articulation.

3.4. Disseminate
The video feasibility assessment by the potential users showed a result of 91.2%. It was consisted of 5 aspects, namely learning 93.0%, material 94.4%, media 90.6%, usage 92.3%, and benefit 91.3%. The assessment of the media aspects by the potential users (90.6%) was smaller than the media experts' assessment (95.8%). The students perceived that learning videos were similar to commercial videos. The learning videos were not demanded to be made in high videography techniques [15]. However, if the videography technique was set aside, the students can be less attracted to the video. The efforts to make students more interested in the material rather than videography was very important [15]. Based on the feasibility assessment, the video was declared very feasible. The video can be accessed through YouTube because this site has interesting features and good quality. The video was uploaded to the Boga UNY channel, in https://youtu.be/s0oss2m5mDY.

4. Conclusion
The demonstration video of make-up puff pastry has been developed with a duration of 13 minutes and 24 seconds and divided into 7 parts as follow: puff pastry function, puff pastry classification, failure case analysis, tools, ingredients, puff pastry dough making and make-up puff pastry methods. The video feasibility assessment by the media experts, the media expert, and the students as the potential users showed the scores of 97.9%, 95.8%, and 91.2%. Consequently, the demonstration video was very feasible to be used as the learning media in Pastry and Bakery course.

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