Designing video based learning for nursing skills procedures video

D Sutrisno¹, B Buhari¹

¹ Jambi, Indonesia

Email: denysutrisno@gmail.com

Abstract. Blended Learning is a learning that combines face-to-face and online learning. In nursing practice courses, learning media about basic skills action procedures in nursing that can be accessed online is needed. Thus, it is necessary to design an instructional media containing action instructions for basic skills in nursing. The purpose of this research was to make video-based learning media as a guide to nursing procedures and to find out the results of the video-based learning media test. There were eight (8) stages in designing instructional media, namely: (1) writing video scripts, (2) taking video images, (3) editing videos, (4) validating, (5) revising, (6) uploading videos, (7) presenting videos to students, and (8) evaluating. This research was expected to produce teaching materials in the form of instructional video to support the lecturing process. The result of this study showed that the videos are very worthy.

1. Introduction

Instructional or learning videos are mostly used in online learning. By using instructional videos, students are able to know the steps or explanations of the concepts presented in the video. However, it is a challenge to make instructional videos that are accessible for students through devices [1]. The instructional videos must be uploaded so the students can access the video anytime and anywhere as long as they have internet connection to run the video.

Internet connection is not a rare thing in Indonesia these days. Although the quota price is relatively expensive, it can still be afforded by students. With the competition between internet service providers, prices are reasonable and can be enjoyed by students. Nowadays, most of the students use the internet for entertainment purpose more than educational purpose. This is because there are not enough educational videos shared on the internet compared to entertainment videos. The use of this internet facility must be maximized more for educational purpose. One way to maximize it is by adding more educational content needed by students to help them study.

One thing that can attract the students’ interest in accessing educational contents on internet is when they can see the benefits that the videos provide for them. Therefore, it is necessary to make educational content related to students, one of them is by making instructional videos related to the course taken by the students. A tutorial video have a different effect compared to the tutorial in manual practicum (printed book) [2]. In terms of content, the video has moving images and narrative sound while books only have stationary objects.

Lecturers as educators can apply learning methods that use online facilities. Then the lecturer provides educational content such as learning videos. This will make students access the educational content. This learning method is included in the blended learning method. Blended Learning is a learning that combines face-to-face and online learning. This learning has an advantage in increasing motivation...
With this learning method, students can utilize internet-based technology to obtain the knowledge needed to achieve course learning outcomes.

Instructional videos for blended learning can be obtained from instructional videos that have been circulating on the internet or made by the lecturers themselves. The disadvantage of using videos that from the internet is that the videos might not match the subject or material learned by the students. For example, for material regarding the use of a laboratory device, lecturers can use videos from the internet, but certainly, the video will not share the same situation as the laboratory they are in. These differences include brand differences, device specifications and so on. So, if different videos are used for learning, students will experience concept errors. Differences in brand and tool specifications will affect the layout of the buttons on the toolbar and the way they are used, even though they are the same. So, it is important for lecturers to make their own learning videos that are in accordance with the conditions of respective campus.

Learning in laboratory need many tools to support practicum activities. The use of instructional videos has not been maximized in STIKES Harapan Ibu Jambi. Students often look for videos on how to use certain tools on the internet before practicing. But what they encountered was tutorial videos with different tools that have different specifications from those provided in the campus laboratory. Making instructional videos by the lecturer is very necessary. Instructional videos proposed were made specifically to have a better educational environment than instructional videos in general [4]. In nursing practice courses, a learning media that explains basic skills action procedures in nursing that can be accessed online is needed. Thus, it is necessary to design instructional media containing action instructions for basic skills in nursing. This research is expected to produce teaching materials in the form of instructional videos to support the lecturing process.

2. Method

There were 8 stages in designing instructional videos, namely: (1) writing video scripts, (2) taking video images, (3) editing videos, (4) validating, (5) revising, (6) uploading videos, (7) presenting videos to students and (8) evaluating. Before uploading the video, the video was revised according to the validation results of the media and material experts. The revision process can be in the form of re-taking videos and also re-editing the video.

In obtaining data from expert validation, a questionnaire was used. This instrument was intended to assess the development products in the form of instructional video learning media. The form of the expert validation instrument grid and the material is shown in Table 1 and Table 2. This instrument uses Likert scale of measurement 1 to 5.

The Grid for writing a questionnaire according to the criteria for learning media as a form of assessment of interactive instructional media as in Table 3 [5]. This instrument also uses Likert scale of measurement 1 to 5.

| Criteria | Aspect | Items |
|----------|--------|-------|
| Media Quality Aspect | Displayed Video Quality | The suitability of the video image displayed with the material presented. |
| | | The suitability of the image / video size used with the media size. |
| | | The clarity of the image / video |
| | | The clarity of the pictures / videos can support the learning process |
| | Ease of Use | Easy to operation / use of video tutorial learning media |
| | | Easy to choose material to be studied |
| | Voice Clarity | Clarity of the use of sound effects |
| | | Voice clarity for creating engaging videos |
| Criteria | Aspect | Items |
|----------|--------|-------|
| Text Clarity / Readability | Selection of text colour and contrasting background so it is easy to read. | Match the font size of the background |
| | | Clarity of letterforms. |
| | | The correct use of capital letters |
| | | The use of text that is legible |
| Language Use Aspect | Quality of Language Usage | The use of language refers to the language guidelines |
| | | The accuracy of using and writing foreign languages |
| | | Clarity of words and terms used |
| | | Presentation of sentences in straightforward language that is easily understood |
| | Suitability of Sentence Placement | Distance settings used in each sentence |
| | | The suitability of the shape and size of the letters used |
| | | The suitability of word / sentence placement in the video |
| Media Layout Aspect | Video Presentation | The display quality of each slide |
| | | The quality of the background colour guides clearly |
| | | Animated quality in slide changes |
| | | Sound quality on video |
| | Layout | Alignment of the writing layout on the video |
| | | Clarity of appearance of the title in each subject |
| | | Appropriateness of proportions of images and writing on video |

**Table 2.** Grid of Material Experts Validation Instruments.

| Criteria | Aspect | Items |
|----------|--------|-------|
| Material Quality Aspect | Accuracy of Material Content | The accuracy of the contents of the drug administration by injection |
| | | The accuracy of the contents of the infusion material |
| | | The accuracy of the contents of the NGT installation material and feeding |
| | | The accuracy of the content of the patient's positions |
| | | The accuracy of the contents of the Keteter installation material |
| Material Completeness | completeness of the contents of the drug administration by injection | completeness of the contents of the infusion installation material |
| | | completeness of the contents of the NGT installation material and feeding |
| | | completeness of the contents of the patient positions |
| | | completeness of the contents of the Keteter installation material |
| Clutter of Material | Cluster of material in lectures | the material is presented in order from easy to difficult |
| Material Benefit Aspects | Material Benefits | Presentation of material in the video makes it easier for lecturers to teach |
| | | The presentation of material in the video makes it easier for students to understand the material |
| | | Presentation of the material can provide assistance for learning |
Criteria | Aspect | Items
---|---|---
 | Motivating quality | Presentation of the material can provide additional knowledge
 |  | Presentation of material can attract interest in learning
 |  | The presentation of the material made students listen well
 |  | Presentation of the material can foster curiosity
 |  | Presentation of material can increase student activity

**Table 3.** Grid of Students’ responses questionnaire.

| Criteria | Items |
|---|---|
| View Aspect | The video presentation is in accordance with the material being taught
 | Clarity on the video can be seen
 | The use of language in the video is easy to be understood
 | The use of language in the video is clear
 | The use of foreign languages in the video is easy to be understood
 | The use of fonts in the text on this video is clear
 | Legibility of the letters used
 | The choice of font colour contrasts with the background so that the text can be read
| Operating Aspect | Easy video tutorial media to use
 | The presentation of this video tutorial has been sorted from the easiest material to difficult material
 | Ease of selecting videos to study
| Benefit Aspects | Presentation of video tutorials can facilitate independent learning
 | The presentation of the video can attract attention that provides a stimulus to learn
 | The presentation of the voice can add enthusiasm to pay attention to the lesson
 | Video presentation can generate learning comprehension

The results of the validation by material experts and media experts are used as the basis to revise the media from the content to the appearance. The results of the validation of the experts are used as a measure of the appropriateness of the learning media to be tested in the field. The Validation Percentage Scale can be seen in Table 4. The percentage formula used is as follows:

$$\text{percentage eligibility} = \frac{\text{observation score}}{\text{full score}} \times 100\% \quad (1)$$

**Table 4.** Validation Percentage Eligibility Scale.

| Percentage Eligibility | Interpretation |
|---|---|
| 76 - 100% | Very Worth it |
| 56 - 75% | worth it |
| 40 - 55% | Sufficient |
| 0 - 39% | Not worth it |
3. Results and Discussion

The result of this study is in the form of an instructional video for nursing skills procedures. The first step in designing this tutorial video was writing the script. The script was written in Indonesian because the targeted audiences are Indonesian users. The script was made into several video scripts based on the tutorial that will be displayed. The video script is about drug administration by injection, infusion installation material, NGT installation material and feeding, the patient positions, and Keteter installation material. Each video had the same general pattern. The video has 2 important parts. The first part is preceded by a description of the introduction of the tools that are needed in procedure and the second part is an explanation of its procedure (step by step instruction).

The next step was the image capture process. The image was taken in the nursing laboratory at STIKES Harapan Ibu Jambi. Nursing skills procedures were demonstrated by the host. Each video was taken in one shot using three cameras with different angles. The imaging capture process taken in one week.

After that, the editing process was carried out. In the introduction of the tools section, it shows a video showing someone introducing the tools and how to use the tool properly. A snapshot of this section can be seen in Figure 1. This section explains an instrument to store the drug to be injected.

![Figure 1. Video snapshot of tools introduction section.](image1)

The other part is the explanation to do the procedures. In this section someone shows how to do procedure such as intracutan injection procedure. A snapshot of this section can be seen in Figure 2.

![Figure 2. Video snapshot of the explanation to do the procedures.](image2)
The edited instructional videos are given to validators. There are two expert validators and two material validators. The type of validation done was expert validation. The validator material checked the material on the video. As a result of this validation, there are minor changes that are made related to the narrative’s writing and voice. The result is shown in Figure 3 and Figure 4. The result for media expert validation was well worth it. The result for material expert validation was very worth it. After validation, the video was revised through the editing process.

Figure 3. Media expert validation result.

Figure 4. Material expert validation result.

Each section is also given a narrative that mentions each part. Providing narration is necessary so that the audience can hear and see the tools being introduced at the same time. The combination of images, arrows, name text, and narrative sound will provide a stronger understanding. The audience not only sees the picture but also listens to the narration. It is possible that the audience will also read the written text given in each scene. Learning by using videos can improve students’ cognitive abilities [6]. Through various activities such as watching, listening and reading, the audience will have a better understanding of the content conveyed by this Nursing Skills Procedures instructional video.

Moving images and narration are the highlight of the instructional video. The composition of moving images and narration is more than text. The text is only in the form of short sentences that reflect the steps being carried out. The text is minimized so that the audience will not be disturbed by the presence of the text. A lot of texts on the video make the audience focus on reading and do not focus on watching the important steps. So that short text will make the audience more focus on the video that contains steps in sequence. The use of text is still maintained with a little composition. The purpose of using text is to let the audience know the summary of steps being displayed by the learning video.
The instructional video was uploaded on Youtube platform on MediaNers TV Channel. It was a good idea to use the Youtube platform because students could watch on their mobile phone. A study [7] showed that video clips using mobile devices was a helpful tool that teaches student nurses about relevant clinical skills and improves learning outcomes.

After uploading, the video was shown to STIKES Harapan Ibu Jambi students with the total 65 students. The result of students’ responses was very worth it. The results of the feedback indicate that students could understand the material presented, thought the video display was good, were interested in participating in the learning, the video material was good enough and got the benefits of the learning video presented. This shows that this video is good enough to be used as a learning video. This is in line with a research that states that instructional videos provide positive results in terms of motivation and learning outcomes compared to ordinary pictures [8]. The use of instructional videos is needed to increase students’ motivation. Other studies [9] also show that watching video-based learning during students basic nursing skills’ training providing interest and motivation of students.

The results of the feedback obtained show that students still need an explanation from the lecturer. But even so, instructional videos can help lecturers in explaining the material [10]. The use of various learning media is needed by lecturers in providing repairs [11]. This can be done using instructional video as a complement to the blended learning method of learning to combine face-to-face learning.

4. Conclusion
This research resulted in a variety of instructional videos for nursing skills procedures learning. The video has gone through a refinement stage so that it can be used as a learning media.
For further research, it is expected to be able to make instructional videos that provide tutorials on the tools in the laboratory. Then the videos are collected and uploaded so that they can be used as teaching materials for learning in laboratory.

Acknowledgments
Greatest appreciation to Kemenristek BRIN for funding this research project and also to all colleagues of STIKES Harapan Ibu Jambi, who had contributed to the research data and developing the instructional video.

References
[1] Suarez Sarmiento A and Macias Lopez E 2012 Multimedia services and streaming for mobile devices: challenges and innovation 329
[2] van der Meij H and van der Meij J 2014 A comparison of paper-based and video tutorials for software learning Comput. Educ. 78 150–9
[3] Syarif I 2013 Pengaruh model blended learning terhadap motivasi dan prestasi belajar siswa SMK J. Pendidik. Vokasi 2
[4] Delen E, Liew J and Willson V 2014 Effects of interactivity and instructional scaffolding on learning: Self-regulation in online video-based environments Comput. Educ
[5] Pramudito A 2013 Pengembangan media pembelajaran video tutorial pada mata pelajaran kompetensi kejuruan standar kompetensi melakukan pekerjaan dengan mesin bubut di SMK Muhammadiyah 1 Playen J. Pendidik. Tek. Mesin 1 1–12
[6] Moemennasab M, Rahemi S, Ayatollahi A and Aeen M 2002 The effect of video-based instruction on students’ cognitive learning J. Med. Educ. 1
[7] Lee N-J, Chae S-M, Kim H, Lee J-H, Min H J and Park D-E 2016 Mobile-based video learning outcomes in clinical nursing skill education: a randomized controlled trial Comput. Informatics, Nurs. 34 8
[8] Pebriani C 2017 Pengaruh penggunaan media video terhadap motivasi dan hasil belajar kognitif pembelajaran IPA kelas V J. Prima Edukasia 5 11–21
[9] Arslan G G, Ozden D, Goktuna G and Ayik C 2018 A study on the satisfaction of students for the time spent watching video-based learning during their basic nursing skills’ training Int. J. Caring Sci. 11 427–36
[10] Sindu I G P and Paramartha A A G Y 2018 The Effect of the Instructional Media Based on Lecture Video and Slide Synchronization System on Statistics Learning Achievement SHS Web Conf. 42 00073
[11] Fahrurozi S K, Maryono D and Budiyanto C W 2017 The Development of Video Learning to Deliver a Basic Algorithm Learning IJIE (Indonesian J. Informatics Educ.) 1 135–42