Original Article

Construction and validation of an educational video on foot reflexology

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Received: 11/28/2016.
Accepted: 09/13/2017.
Published: 12/31/2017.

Suggest citation:
Silva NF, Silva NCM, Ribeiro VS, Iunes DH, Carvalho EC. Construction and validation of an educational video on foot reflexology. Rev. Eletr. Enf. [Internet]. 2017 [cited __/__/__];19:a48. Available from: http://doi.org/10.5216/ree.v19.44324.

ABSTRACT

The aim of this study was to construct and validate an educational video about foot reflexology. A methodological study was conducted at a higher education institution in southeastern Brazil, where the video pre-production, production and post-production stages were performed, followed by an evaluation of content understanding and comprehensiveness. The duration of the final version of the educational video is 12'7" (12 minutes and 7 seconds). The experts considered it an educational resource that presents the theme in a clear and objective way. The students considered it a proper educational material and showed good acceptance. The stages adopted for video construction and validation produced a clear, objective and proper educational material. Further studies should evaluate the impact of an educational video on the construction of foot reflexology knowledge.

Descriptors: Instructional Films and Videos; Massage; Health Education; Nursing Care.

INTRODUCTION

The aim of this study was to encourage the use of new supporting strategies, policies and resolutions that propose the adoption of integrative and complementary practices in health[(1)]. These practices include foot reflexology, which aims to balance the body functions by pressing specific points of the feet[(2)].

Foot reflexology is considered a simple and easy therapy, and studies on its use have been encouraged. The results of such studies suggest that this practice may increase the availability of care strategies and, consequently, improve the quality of care[(1-3)].

In this context, and considering the perspective of comprehensiveness required from health

professionals, some researchers encourage the inclusion of integrative and complementary practices in health care programs, with a view to holistic professional training and the availability of care strategies[4]. In addition, trends in this field may have an impact on the health professional-patient relationship and the future of holistic care[2].

However, there is a lack of discussions and studies that support a methodology to teach such practices[5]. The approach to this theme in our environment, if any, occurs sporadically through lectures, seminars and optional disciplines, now enabling deep knowledge of health professionals. Thus, innovative strategies should be adopted to promote teaching and support learning consolidation[4].

The need to provide health students with knowledge for the implementation of foot reflexology justifies the development of an educational video in this area. Therefore, the aim of this study was to construct and validate an educational video about foot reflexology.

METHOD

This is a methodological study of longitudinal design, with a descriptive analysis[6], conducted at a higher education institution in southeastern Brazil, from January 2015 to August 2016.

The video pre-production, production and post-production stages were performed[7], followed by an evaluation of content understanding and comprehensiveness.

Pre-production

The pre-production stage was based on three steps: video script development, storyboard development, and video validation by experts[7].

At first, the script was based on the knowledge of the authors and findings of an integrative review, conducted in January and February 2015, based on the following guiding question: “What knowledge on foot reflexology has been produced?”. The search was performed in the CINAHL, PUBMED, SCIENCE DIRECT, and WEB OF SCIENCE databases using the keyword ‘foot reflexology’.

In order to guide the creation process, the script was constructed as a 2-column table. The first column described the content corresponding to each future scene, and the second described the characters and/or audiovisual resource to be used (such as images, scenes, animation, texts, narration, and background sounds), which originated the video storyboard, comprising 45 scenes, and was sent to the analysis of five experts with experience in foot reflexology.

For the storyboard analysis by the experts, an instrument was developed, adapted according to the criteria proposed by López[8], and addressing items related to content congruence and the pertinence of script topics.

Production

The production, which was the second phase of the study, consisted in the implementation of the ideas

from the pre-production stage (storyboard) and was conducted in four steps: rehearsal of scenes with the actors, shooting, narration, and development of images and animation[7].

After the rehearsal with the actors and relevant adjustments to achieve good technical quality, shooting was performed, and the narration was inserted in the video in a laboratory equipped with the physical structure and technological recording resources. In this step, a technical team specialized in audiovisual resources provided proper lighting to ensure better angles for good quality images.

Two authors represented the roles of a nurse and a patient to demonstrate the procedure while the video was shot. The narrative inserted in the video was performed voluntarily by an employee of the educational institution where the study was conducted, and it occurred in a favorable environment for audio recording.

For images and animation development, the copyright legislation for the resource use and reproduction was observed[9]. Third-party images were obtained from the website of Creative Commons, a non-profit organization that allows the sharing and use of creativity and knowledge through free legal instruments[10]. The other images and video animation were developed using Adobe Illustrator® and Adobe Flash®.

Post-production

The third stage of the study, post-production, comprised two steps: video editing and validation by experts[7].

In video editing, adjustments were made to the recording of scenes and narration, with the inclusion of images, texts and animation in the video, when Adobe Premiere® and Adobe Audacity® were used.

After video editing, the video content (narration, images, animation and shooting) was transferred to the DVD (Digital Versatile Disk) format using Avid Liquid Pro® version 7; and then submitted to five experts with experience in educational health resources. They evaluated the educational material, using an instrument adapted according to the criteria proposed by López[8]. The validation consisted in the experts identifying in the video the content specified in the instrument and if such insertion was desirable in the video. They also evaluated the environment, the performance of the actors and the execution of the study procedure.

Evaluation of content understanding and comprehensiveness

Health students evaluated the video in terms of content understanding and comprehensiveness.

The inclusion criteria of this study were: being regularly enrolled in the educational institution where the study was conducted, and having the approval in the discipline of Anatomy, since the technique involving the application of foot reflexology requires knowledge of foot anatomy.

This study adopted the snowball sampling technique, that is, the participants recruit other participants[6]. Then, a randomly chosen student, after being evaluated according to the eligibility criteria for

study participation, watched and evaluated the video. Next, the student was asked to recruit another one, and so on, until 10 students were recruited.

The evaluation of content understanding and comprehensiveness was based on a study conducted by Braga[11]. After watching the video, the students attributed a score, using a 0-10 scale, to each topic addressed: concept of integrative and complementary practices; use of integrative and complementary practices; and, in relation to foot reflexology: concept and history, purposes, situations in which it should not be used, location of reflex zones in feet, preparation for application, and techniques.

As a complementary analysis, the students evaluated the audiovisual quality of the material, and the number of times it would be necessary to watch the video for the acquisition of knowledge.

Ethical aspects

To ensure the rights of all participants and comply with the requirements of Resolution 466 of the Ministry of Health[12], this study was submitted to the Human Research Ethics Committee of the Ribeirão Preto College of Nursing (EERP-USP), under protocol no. 1.196.372. In addition, the video actors signed an authorization for use of image; the narrator signed an authorization for use of voice; and the experts and the students signed an informed consent form in duplicate.

RESULTS

The construction and validation of the educational video, including the stages of pre-production, production, post-production, and evaluation of content understanding and comprehensiveness, took 18 months, from January 2015 to July 2016.

The suggestions of the experts and students who participated in the study were discussed among the authors and accepted, when relevant.

Pre-production

After an integrative literature review, information was extracted from 27 articles and two books for the script construction. The script was divided into 41 scenes and the video storyboard was created.

Five experts participated in the storyboard validation. They were all female, namely four physical therapists and one nurse, with a mean age of 40.8 years (SD=4.8); mean length of training of 18.2 years (SD=7.1), and mean length of professional practice of 18.2 years (SD=7.07). In foot reflexology, the experts had a mean length of practice of 8.6 years (SD=5.6) and all of them had publications related to this therapy.

In the evaluation of content congruence, all experts considered the storyboard information comprehensible, with logical sequence, and language of easy assimilation, appropriate to the target audience.

Concerning the relevance of topic inclusion, the five experts mentioned the concept and use of integrative and complementary practices were presented. In the items related to foot reflexology – purpose,

situations where it is not used, start, location of foot zones, preparation, and application technique – the experts reported all these items were addressed in the storyboard; however, one expert highlighted the definition of this therapy was not clear, which led to adjustments in this item.

Production

After the storyboard validation by the experts, tests were conducted with the actors, which totaled four hours.

Shooting of scenes and the video narration were conducted on two consecutive days. On the first day, after the end of shooting and narration, the authors gathered to check for any adjustments in lighting and audio. On the following day, new video shooting and narration were conducted.

Regarding the development of images and animation, 14 third-party images were obtained and included in the video, and 26 images and animations were created.

Post-production

To improve the video quality, regular meetings were held with the technical team specialized in audiovisual resources, totaling 16 hours for video editing. After the necessary editing, the video was submitted to the experts for validation.

The five experts who participated in the video validation were female and had a mean age of 39.4 years (SD=1.41). Regarding their professional training, three were nurses and two were physical therapists, with a mean length of training and professional practice of 16.8 years (SD=1.41). Regarding the time spent in educational health facilities, the experts presented a mean of 6.6 years (SD=1.41), and most of them (three experts) reported having publications related to the therapy.

Table 1 shows the items evaluated by the experts in the educational video validation.

In view of the agreement among the experts who evaluated the video, the audiovisual technique, the environment, the characters, and the study procedure were adequate and suitable for the target population.

After the validation by experts and adjustments to the video, the duration of the final version of the video was 12 minutes and 7 seconds.

Figure 1 shows some scenes from the final version of the educational video.

Table 1: Distribution of items related to the educational video evaluated as 'present' and 'desirable' by the experts (n=5). Ribeirão Preto, SP, Brazil, 2016.

Items	Present (n=5)	Desirable (n=5)
Audiovisual technique		
Initial identification of the content to be displayed.	5	5
Lighting required for proper observation of scenes.	5	5
Audio required to hear the narrator's voice.	5	5
It enables, when desired, to return and replay any part of the scenes.	4	5
Environment		
The environment reflects the daily practice of nursing care.	5	5
The environment and material for therapy application are addressed.	5	5
Simplification of the reality in the laboratory does not interfere in the therapy fidelity to be displayed.	5	5
Characters		
The video language is comprehensible to the target audience.	5	5
The narrator's voice is clear.	5	5
The narrator's voice tone is suitable.	5	5
Study procedure: foot reflexology		
The video content allows the understanding of the following items:		
Concept of integrative and complementary practices.	5	5
Use of integrative and complementary practices.	5	5
Concept of foot reflexology.	5	5
Purpose of foot reflexology.	5	5
Situations in which foot reflexology should not be used.	5	5
Start of foot reflexology.	5	5
Location of foot reflex zones.	5	5
Preparation for the application of foot reflexology.	5	5
Techniques of foot reflexology.	5	5
All techniques of foot reflexology are presented.	5	5
The stages of therapy application are clear and can be identified.	5	5
The video is based on a content published in the literature.	5	5

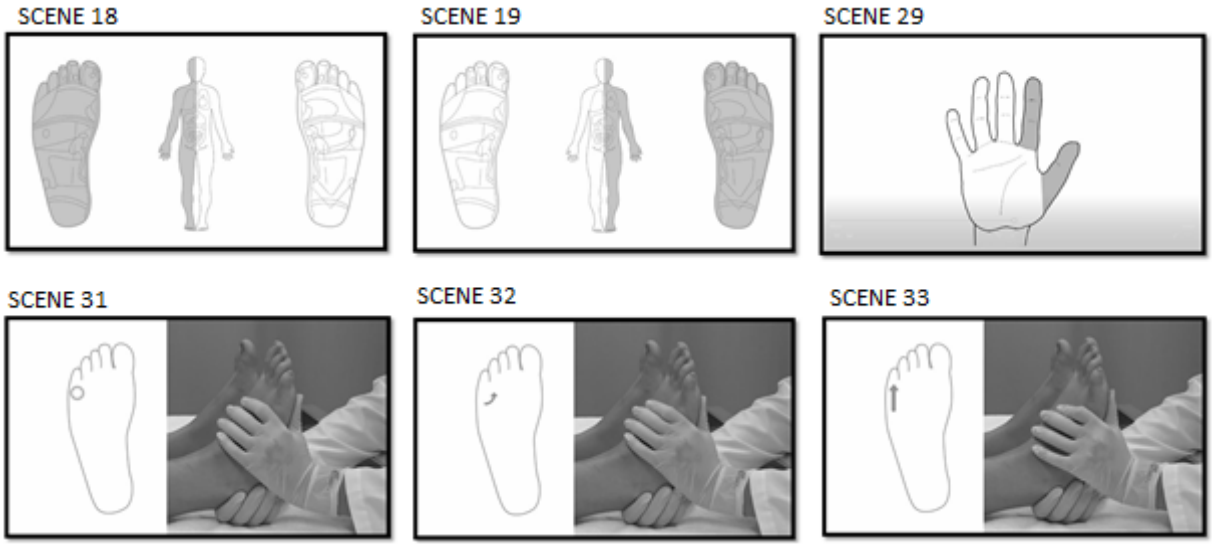

Figure 1: Scenes extracted from the final version of the educational video.

Evaluation of content understanding and comprehensiveness

The understanding and comprehensiveness of the video content were evaluated by 10 health students. They were regularly enrolled in the educational institution where the study was conducted; three of them were in the 5th term; one in the 6th term; and six in the 7th period of the nursing program. Most of

them (eight students) were female; mean age of 21.9 years (SD=0.71).

The students attributed scores from 7 to 10, mean score of 9.3 (SD=0.53), which indicates good understanding and comprehensiveness of the video content.

Three students mentioned the need to watch the video only once for the acquisition of knowledge, while seven claimed that watching the video twice would provide a better understanding.

Regarding the video quality, scores of 9 and 10 were attributed, indicating clarity and objectivity of the educational material.

DISCUSSION

Studies involving the construction and validation of educational videos in health[13-19], as well as this study, were based on the methodology proposed by Fleming, Reynolds and Wallace[7], whose steps contribute to the construction of a material that provides information to its target audience.

Some educational videos were developed to provide guidance to oncology patients undergoing chemotherapy[11,13], promote a link between an HIV positive mother and her child[14], provide guidance on oral hygiene to patients on chemotherapy[6], support students for puncture and heparinization of a fully implanted catheter[17], provide guidance on medication administration technique[18], and provide guidance to caregivers of children with cleft lip and palate[19]. No studies related to the construction and validation of educational videos on foot reflexology were found.

The use of educational videos favoring the acquisition of knowledge and the grasp of information confirmed in this study was also observed by other authors when evaluating other themes[13-19]. These authors state that the tool offers other advantages related to encouraging the active participation of patients in the health-disease process and patient reintegration into daily activities[13-14]. It is also a beneficial strategy for the teaching-learning process[15-16], an educational supporting tool that facilitates the technical knowledge to students on a certain theme[17]. In addition, it allows greater preparation and confidence for the performance of the procedures, as this therapy helps self-control and promotion of safety[18]. Other authors also agree that the video improves knowledge acquisition, which further confirms the benefits of using this resource[19].

The video can also be used with other educational strategies, such as realistic simulation. In a study, for example, simulated situations were presented to students through videos and, when compared with face-to-face didactic teaching, the results demonstrated better student performance[20]. Besides the evidence that suggests the benefits of using the video in educational activities, this tool presents a high cost-effectiveness ratio[20]. Despite the expenses related to the experts and the audiovisual resources required for the tool development, no expenses with materials and products are required when using this resource, as observed in simulated situations and training of practical skills.

Regarding the video duration, according to recommendations, this type of didactic tool should not last more than 15 minutes, considering that, after this period, it is difficult to keep the attention of viewers[7]. In

this sense, the final version of the video developed in this study is consistent with the recommendations found in the literature, since its duration is 12 minutes and 7 seconds.

Regarding the method for the construction and validation of an educational video, the stages of pre-production and production are fundamental for the development of quality material[11,14]. The video storyboard should be based on the scientific literature and the observations of people with real experience in the theme. In addition, the participation of a technical team, specialized in audiovisual resources, is crucial to produce the video scenes[11].

The near-zero disagreement among the experts and the evidence of good understanding and comprehensiveness of the video content may be related to the methodological rigor applied to this study.

Therefore, the educational video on foot reflexology was considered a quality educational strategy, which was also highlighted in studies involving the development of videos as didactic resources[13-19].

Since the constructed educational video is not a public domain tool, the controlled accessibility to this material is a study limitation.

CONCLUSION

The pre-production and production stages allowed the construction of the proposed video on foot reflexology. The duration of its final version is 12 minutes and seven seconds.

In the post-production stage, the results indicated absence of disagreement among the experts who evaluated the video and, according to the evaluation of health students, the content of the educational material presents good understanding and comprehensiveness.

Based on the analysis of experts and students, the video introduces the theme of foot reflexology and presents the criteria required for the application in the target audience, such as clarity and objectivity.

Further studies could measure the impact of the educational video addressing foot reflexology on the construction of knowledge for health students.

Considering videos as a didactic tool, the proposed material can act as a facilitator of the teaching-learning process of health students. This educational resource can be used to introduce foot reflexology, encourage studies in this area, and increase the possibilities of future health professionals in the field of integrative and complementary practices.

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