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Development of an Educational Video as a Teaching Resource in Health Product Projects

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ABSTRACT

Introduction: The strengthening of the Unified Health System requires educational and research institutions to propose innovative ideas in processes and products. **Objetivo:** The aim of this study was to develop and validate an audiovisual media as a teaching resource in the creation of technological projects for the health area. **Methodology:** This is a study of the development of educational technology, covering stages of pre-production, production and validation studies. It occurred in the context of the Physiotherapy course of the State University of Pará and counted as research participants with students of the 3rd and 4th year of the Physiotherapy course and with professionals in the area of health education, acting as expert judges. **Results:** As results of the review study, concepts, attributes and product design steps were defined. The exploratory-descriptive study demonstrated the need to improve competencies related to the creative conception of projects and forms of representation. **Conclusion:** The results of the initial studies based on the composition of the script and the production of the educational video. In the process of content validation and semantic validation of educational video, content validation index of 86% and semantic validation index of 97% were obtained, being considered valid and appropriate for use as a teaching resource in the creation of health product projects.

KEYWORDS

Medical sciences. Educational technology. Health.

Desenvolvimento de um Vídeo Educacional como Recurso de Ensino em Projetos de Produtos para Área da Saúde

RESUMO

Introdução: O fortalecimento do Sistema Único de Saúde requer das instituições de ensino e pesquisa a proposição de ideias inovadoras em processos e produtos. **Objetivo:** O objetivo do estudo foi desenvolver e validar uma mídia audiovisual como recurso de ensino na criação de projetos tecnológicos para área da saúde. **Metodologia:** Trata-se de um estudo de desenvolvimento de tecnologia educacional, abrangendo etapas de estudos pré-produção, produção e validação. Ocorreu no âmbito do curso de Fisioterapia da Universidade do Estado do Pará e contou com participantes da pesquisa com estudantes do 3º e 4º ano do curso de Fisioterapia e com profissionais da área de ensino em saúde, atuando como juízes especialistas. **Resultados:** Como resultados do estudo de revisão foram definidos conceitos, atributos e etapas de projeto de produtos. O estudo exploratório-descritivo demonstrou necessidade de aprimoramento nas competências relacionadas à concepção criativa de projetos e formas de representação.

Conclusão: Os resultados dos estudos iniciais embasaram a composição do roteiro e a produção do vídeo educacional. No processo de validação de conteúdo e validação semântica do vídeo educacional, obtiveram-se Índice de Validação de Conteúdo de 86% e Índice de Validação de Semântica de 97%, sendo considerado válido e adequado ao uso como recurso de ensino na criação de projetos de produtos em saúde.

PALAVRAS-CHAVE

Ensino da medicina. Tecnologia educacional. Saúde.

Desarrollo de un Vídeo Educativo como Recurso Didáctico en Proyectos de Productos Sanitarios

RESUMEN

Introducción: El fortalecimiento del Sistema Unificado de Salud requiere que las instituciones educativas y de investigación propongan ideas innovadoras en procesos y productos. **Objetivo:** El objetivo de este estudio era desarrollar y validar un medio audiovisual como recurso didáctico en la creación de proyectos tecnológicos para el área de salud. **Metodología:** Este es un estudio del desarrollo de la tecnología educativa, que abarca etapas de estudios de preproducción, producción y validación. Ocurrió en el marco del curso de Fisioterapia de la Universidad Estatal de Pará y contó como investigador con estudiantes de 3º y 4º año del curso de Fisioterapia y con profesionales del área de educación para la salud, actuando como jueces expertos. **Resultados:** A medida que se definieron los resultados del estudio de revisión, se definieron conceptos, atributos y pasos de diseño de productos. El estudio exploratorio-descriptivo demostró la necesidad de mejorar las competencias relacionadas con la concepción creativa de los proyectos y las formas de representación. **Conclusión:** Los resultados de los estudios iniciales apoyaron el la composición del guión y la producción del vídeo educativo. En el proceso de validación de contenidos y validación semántica de vídeo educativo, se obtuvo un índice de validación de contenido del 86% y un índice de validación semántica del 97%, siendo considerado válido y adecuado para su uso como recurso didáctico en la creación de proyectos de productos de salud.

PALABRAS CLAVE

Ciencias médicas. Tecnología educativa. Salud.

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- **Availability of data and material:** The final product generated in the study is available at: <https://youtu.be/EQitauDL5ZM>
- **Author's contributions:** Conceptualization, Data Curation, Validation, Writing - original draft: Alves, J. C. R.; Investigation, Visualization, Writing - revision & editing: Falcão, L. F. M.; Formal Analysis, Supervision, Methodology, Project Management: Normando, V. M. F.

1 Introduction

Scientific and technological innovations drive the development of new technologies in the field of healthcare to meet social demands and improve the provision of care. Strengthening the unified health system requires educational and research institutions, particularly those fostered by public resources and by innovative ideas to develop processes and products (OLIVEIRA; RODAS, 2017; SANTOS; GOLDSTEIN; RABELLO, 2016).

Active learning methodologies play a fundamental role in health education by enabling communication between the university, service, and community, enabling consistent intervention in these realities. They can be a means of guiding pedagogical practice committed to the development of competencies in students, aiming at their intellectual autonomy (FERNANDES *et al.*, 2014; CALDARELLI, 2017).

Among strategies of active methodologies, we highlight project-based learning (PjBL), which is a resource that enables project management to structure learning exercises. In addition, when linked to research and laboratory experiments, learning through projects can improve students' attitudes and impact their choice of professional and academic activities (COSTA-SILVA *et al.*, 2018).

The application of technologies in the educational environment has several advantages, such as facilitating the understanding of the contents, respecting the student's learning time, and the possibility of feedback. Among the modalities of technologies, audiovisual scans such as videos, simulations, animations, video classes, virtual experiments, audios, applications, learning environments, Internet pages, and educational games have educational applicability (GÓES *et al.*, 2015; TEIXEIRA; MOTA, 2011; ROCHA, 2019).

Educational videos are multimedia modalities with wide possibilities of dissemination and access and have been used in several pedagogical experiences. Their relevance and applicability in the teaching-learning process is well demonstrated by the combination of various elements, such as images, text, and audio, in a single knowledge promotional tool (DALMOLIN *et al.*, 2016).

Technological development in the form of products is essential in all fields of education. Products are designed based on the design and integration of educational and product technological processes, which can increase and deepen knowledge, thus leading to the development of alternatives for more efficient health solutions (SIQUEIRA *et al.*, 2014).

This study aimed to build and evaluate an educational product as a teaching resource for the development of technological products in the field of healthcare. It is expected that the improvement of teaching-learning strategies will lead to the training of students in developing product projects, as well as foster development of technologies in public health.

2 Methodology

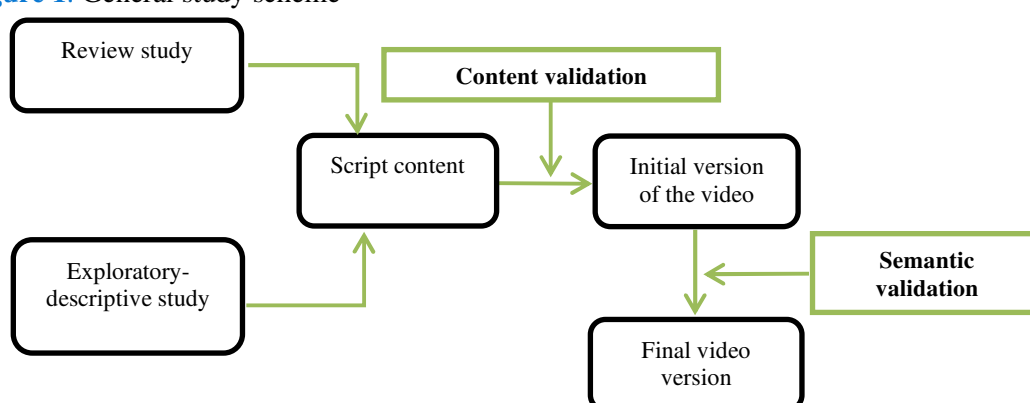
This study was conducted on students from the physiotherapy course of the Pará State University (UEPA). The study was approved by the Research Ethics Committee of the UEPA under opinion no. 3.497.251. The participants voluntarily agreed to participate in the study and signed an informed consent form. This was an educational product development study, conducted in three stages: pre-production (review and exploratory-descriptive studies), production, and validation of audiovisual media.

The study included expert supervisors from the field of health education and third- and fourth-year students from the physiotherapy course at the UEPA. It involved experts who were professionals, possessing at least two of the following criteria adapted from Benevides et al. (2016):

- Has at least three years' experience of teaching in the health domain
- Have papers published in journals and/or events in health education
- Have papers published in journals on educational technology in health
- Has been an Expert, *lato sensu* and/or *stricto sensu*, in the field of health education
- Has been a member of a scientific society in the field of health education

For the target audience, third- and fourth-year students from the physiotherapy course at UEPA were invited, with no limit on age and regardless of gender. Students who had graduated from design were excluded. The study was conducted in the following stages, as illustrated in Figure 1: (a) Literature review; (b) Exploratory-descriptive study on competencies; (c) Production of audiovisual media; and (d) Content validation and semantics by expert supervisors and the target audience.

Figure 1. General study scheme



Source: Own author, 2020.

2.1 Review Study

To gather general technical-scientific content for educational products, a literature review was conducted on the main concepts related to the theme ‘product projects’, such as basic concepts, relevant design, methodological models, and project attributes, with emphasis on the most appropriate components of products for health applications.

This study referred to resources such as PubMed, Lilacs, and Google Scholar, using keywords such as ‘project methodology’, ‘project methods’, ‘product design’, ‘health products’, ‘health technology’, and ‘assistive technology.’ The most relevant methodological models were selected, and through a comparative analysis of the processes, a consensual model was defined for the study.

2.2 Exploratory-Descriptive Study

To analyse the levels of competency of students in the development of products, an exploratory-descriptive study was conducted taking a quantitative approach. The researcher first sought to establish contact with the participants, aiming at a greater familiarity with fact or phenomenon without any interference (LYRA; SOUZA; COSTA, 2019).

The study was conducted in the following stages: (a) adaptation of a competency assessment instrument, (b) project creation activity in PjBL, (c) making the evaluation instrument available to students, and (d) analysis of evaluation data. There were 29 third-year students in the physiotherapy course.

The self-assessment instrument Scale Learning Based on Distance Education (ITBP/HEaD) developed by Garbin and Dainese (2013) was adapted for this study. The adapted instrument consisted of a 22-item form using a 5-point Likert format (0 = non-existent to 4 = optimal). The data obtained would result in a percentage index of competencies, which is expressed as follows: $\text{Index \%} = (\text{total score} / \text{the number of items} \times 4) \times 100$. The items of the instrument were grouped into competency domains presented in Chart 1.

Chart 1. Domains of competences and related items in the instrument

Competencies and related items	
Motivation and Initiative (1, 2, 5, 6, 7)	Problem analysis (11, 13, 14)
Creativity (7, 8, 9, 12)	Identification of needs (14, 15)
Teamwork (3, 4, 5, 6)	Definition of requirements (16, 17, 18, 19, 21)
Critical thinking (2, 3, 4)	Definition of processes (20, 22)
Content integration (9, 10, 11)	Acting ability (8)
Communication capability (3, 4, 5, 8)	

Source: Adapted from Garbin and Dainese, 2013.

The PjBL activity consisted of identifying problems by teams (four to six students in a team) in community assistance scenarios in an outpatient school unit of the UEPA. The teams were accompanied by teaching advisors for the development of technological innovation projects, including the construction of prototypes and presentation of an article.

The evaluation instrument was made available on Google Forms, and the extraction of the form data was generated and downloaded using the Excel spreadsheet app. Further, a quantitative analysis of the data was conducted using descriptive statistics with calculation of percentages, means, and standard deviation.

2.3 Audiovisual Media Production

The production team included the main researcher, his advisors, and a video editing professional. Based on the content gathered in the previous stages, a script was constructed to describe the textual and audio-narrative content presented in the media, information on the duration of each scene, and the graphic and visual elements.

After content validation of the script, the educational video was conceived. An analysis of creative concepts and a semiotic study was done to guide the art direction. Creative concepts guided the definition of aesthetic styles through images and videos retrieved from public repositories. A semiotic study was conducted to define the graphic elements to be used. Digital production of the video was performed in CorelDRAW 2018 and Adobe After Effects.

2.4 Script Content Validation

Content validation of the script was performed by six experts from the field of health education. The Health Educational Content Validation Instrument (HECVI), constructed and validated by Leite et al. (2018), was used for ~~validation of educational content in health~~. It included 18 items divided into blocks: objective (goals and purposes), structure/presentation (organisation, strategy, coherence, and sufficiency), and relevance (significance, impact, motivation, and interest).

To assess the items and calculate the results, the Content Validity Index (CVI) was used, which included the proportion of experts in agreement on aspects of the instrument and its items, allowing the analysis of each item individually and the content as a whole. This method employed a Likert scale with a value from one to four (1 = inadequate, 2 = partially adequate, 3 = adequate, and 4 = fully adequate) (ALEXANDRE; COLUCI, 2011).

The score was calculated by the sum of agreement of the items marked with '3' or '4.' Items that received scores of '1' or '2' had to be reviewed (TEIXEIRA; MOTA, 2011). The result from 0 to 100 of the CVI was calculated by the sum of the answers considered adequate (3 and 4), divided by the total sum of answers, and multiplied by 100. The CVI greater than or equal to 70% was considered valid.

2.5 Semantic Validation of Educational Video

Semantic validation of educational videos was done by third- and fourth-year students from the physiotherapy course at the UEPA, who performed the curricular units of Professional Skills II and III, respectively, to ensure previous involvement with the theme that focused on educational products.

An adapted version of the questionnaire by Rosa et al. (2019) was used for the audio-imagery validation of the target audience's educational technology. It consists of 18 items, which is divided into three blocks (content, audiovisual, and characters). In this study, the character block was replaced by a motivation block. The adapted instrument is called *Semantic Validation Instrument in Health (SVIH)*.

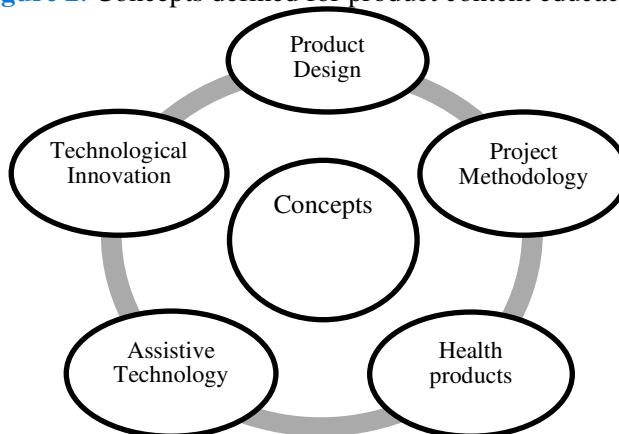
To analyse the results, the same method of calculating the CVI was used for content validation, which is called the Semantic Validation Index (SVI). Similarly, a SVI greater than or equal to 0.70 was considered valid.

3. Findings

3.1 Review Study

According to the reviewed references, significant concepts that would be addressed in the educational product were selected, as shown in Figure 2.

Figure 2. Concepts defined for product content educacional



Source: Survey data, 2020.

- **Technological innovation:** This is a solution to a technical problem through novelty or improvement. It results in new or significantly improved products, processes, or services involving technology (BRASIL, 2016).
- **Product design:** This is a field of knowledge intended for the creation and development of products and objects for human use. It usually refers to tangible or three-dimensional products (FARIAS, 2018).

- **Health products:** This refers to materials, accessories, or devices used in medical, dental, and physical therapy procedures, among others, for the prevention, diagnosis, treatment, rehabilitation, and monitoring of patients (LUZ; SOUSA; OLIVEIRA, 2020).
- **Project methodology:** This is a guide for the processes and steps to be followed for problem-solving using a product. The guide consists of methods, techniques, and tools (SMYTHE; PRADO; SMYTHE JR, 2016).
- **Assistive technology:** This refers to products developed for individuals with disabilities or reduced mobility or for the elderly, which improves functionality, autonomy, quality of life, and social inclusion (GARCÍA; ITS BRASIL, 2017).

Product attributes are the determining characteristics for success in the development of a product design and for achieving established objectives. Chart 2 presents the main attributes related to products used in the field of healthcare.

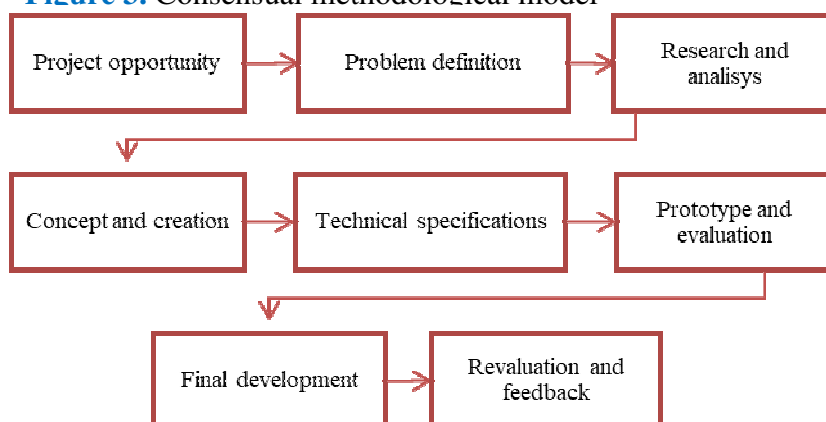
Chart 2. Product attributes pointed out in the review study

Attributes	
Originality	Ergonomics
Functionality	Safety
Design needs	Viability
Usability	Graphic representation
Aesthetics	Organization of the project

Source: Survey data, 2020.

Five methodological models were selected for the study: three classic models with great application in design (Bonsiepe, Munari, and Löbach) and two current models with application in the field of health, Merino (2014) and Casagrande (2016). Based on an analysis of the models, a consensual methodological model was defined for this study, as represented in Figure 3.

Figure 3. Consensual methodological model



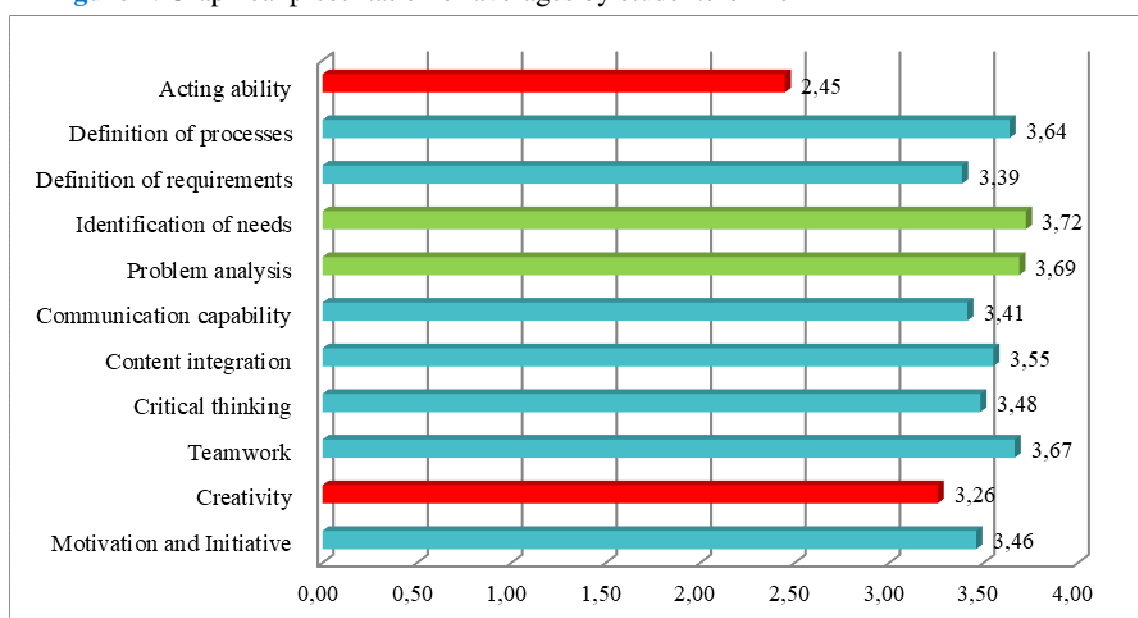
Source: Survey data, 2020.

3.2 Exploratory-Descriptive Study on Competencies

A total of 29 third-year students from the physiotherapy course met the inclusion criteria of the study. The study sample presented a total mean of 86.86%, the competency index calculated by the instrument with a standard deviation of 9.20, which is within the optimal concept; the highest value was 100, and the lowest value was 69. The distribution of students among the concepts of the index was 7 (24.14%) for the good concept and 22 (75.86%) for the optimal concept.

Figure 4 presents the results from 0 to 4 of the items grouped under competencies, with better evaluation averages for problem analysis (3.69) and the identification of user needs (3.72). By contrast, the competencies with the lowest mean self-assessment were creativity (3.26) and representation ability (2.45).

Figure 4. Graphical presentation of averages by students' skills



Source: Survey data, 2020.

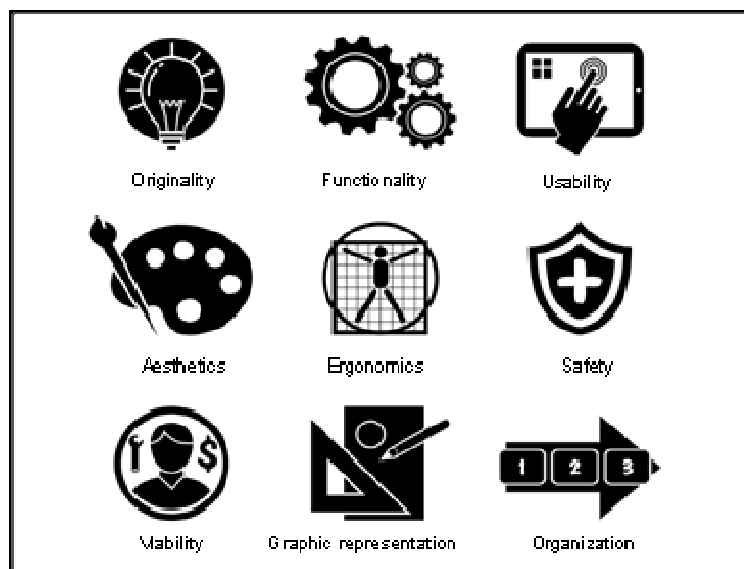
3.3 Audiovisual Media Production

Based on the pre-production studies, specific content was defined and directed to the construction of the audiovisual media script. The script presents the main information of the video, such as the title, audience, and approximate total duration. It was divided into six parts: presentation, basic concepts, project attributes, project steps, closure, and credit sessions.

The study of concepts and creative styles used words (nouns, verbs, or adjectives) related to the general concepts of the project, which underwent a selection to reduce the concepts of ideas most related to the project. Therefore, concepts such as 'technology', 'geometry', and 'movement' were obtained.

The semiotic study resulted in the production of icons that were representative of product attributes and project stages. The use of simple forms was prioritised to facilitate recognition of symbols and their associations with the themes they represented. Examples of generated icons are shown in Figure 5.

Figure 5. Iconographic representation of product attributes



Source: Survey data, 2020.

The resulting product consisted of an animation video of typographies, icons, vector symbols, and images organised in 27 scenes, with a total duration of 5 min and 09 seconds. The title of the educational video was ‘Product Design Methods in the Field of Health.’ The educational video was registered with the National Film Agency (ANCINE) and can be accessed in its full version through the link <https://youtu.be/EQitauDL5ZM>.

3.4 Script Content Validation

The sample of expert judges comprised three volunteers with training in physiotherapy (one in medicine, one in dentistry, and one in nutrition), six judges with an academic doctorate degree and two with a master’s degree. The health teaching activity duration ranged from seven to 22 years. The experts’ answers to the **HECVIIVCS** and calculation of the general CVI by blocks and individual items are shown in Table 1.

Table 1. Judges' responses to the HECVI and results of the general CVI and by blocks

Valuation	1 (I)	2 (PA)	3 (A)	4 (FA)	CVI
Block 1- Objectives	2	3	10	14	0.8
Block 2- Structure/Presentation	2	2	16	40	0.93
Block 3- Relevance	1	4	3	10	0.72
Total	5	10	29	64	0.86

Legend: (I): Inadequate, (PA): Partially adequate, (A): Adequate, (FA): Fully adequate.
Source: Survey data, 2020.

Based on the results presented in Table 1, the evaluated script in the objective block had a CVI of 80%. The highest score was for the item 'adequate to the teaching-learning process' (100%), and the lowest was for the item 'encourages behaviour change' (50%).

In the structure and presentation blocks, the CVI was 93%, with the highest scores on items related to language adequacy and presentation sequence (100%) and the lowest score on information objectivity (67%).

The relevance block had a CVI of 72%, with the highest score on 'contribution to knowledge in the area' (83%). The lowest score in the block was for items referring to the 'learning stimulus' and 'interest in the theme' (67%).

The overall evaluation of the roadmap yielded a general CVI of 86%. Thus, considering these results, the proposed script was validated by expert supervisors and could be used for the production of educational videos after inserting changes.

3.5 Semantic Validation of Educational Video

The participants were 14 volunteer students: six junior and eight senior students from the physiotherapy course, with a mean age of 21.9 years. The students' responses to the SVIH validation form and calculation of the general SVI and by blocks are shown in Table 2.

Table 2. Target audience responses to SVIH and results of the general SVI and by blocks

Valuation	1 (I)	2 (PA)	3 (A)	4 (FA)	SVI
Block 1- Content	0	1	23	60	0.98
Block 2- Audiovisual presentation	1	3	30	64	0.96
Block 3- Motivation	0	3	16	51	0.95
Total	1	7	69	175	0.97

Legend: (I): Inadequate, (PA): Partially adequate, (A): Adequate, (FA): Fully Adequate.
Source: Survey data, 2020.

The evaluated educational video reached a 40% SVI block of 98% of the target audience. Scores ranged from 93% for the item ‘The way content is presented in the video is inviting for those who watch it’ to 100% for the item ‘Information and content are presented in a clear and understandable way’.

In the audiovisual presentation block, the SVI was 96%, with a variation from 93% to 100% among the items related to the clarity and accessibility of the text and adequacy of colour contrast in the video. The motivation block reached an SVI of 95%, with scores ranging from 93% for items related to motivation and initiative and critical thinking to 100% for the item ‘The material is appropriate for the profile of the target audience’.

The overall evaluation of the educational product obtained a general SVI of 97%. Thus the proposed educational video was validated by the target audience and can be used as a teaching technology.

4 Discussion

In the exploratory-descriptive study of students’ competencies, the total mean competency index was positive. This result can be explained by a remarkable efficiency of the teaching method in structuring the resolution of real problems related to the creation of services or product development, thus making this structuring an effective learning process (MEURER *et al.*, 2017).

The groupings in the represented competencies demonstrated a good evaluation of the identification and analysis of problems and definition of the user’s needs. This result represents processes used for students in physiotherapy through teaching methodologies such as PjBL and in the curricular contents of the course.

Regarding the identification of problems, Villardi, Cyrino and Berbel (2015) state that the student must identify difficulties, failures, contradictions, discrepancies, and conflicts that can configure a problem. Students must have knowledge obtained from other sources, and when confronted with real information, they should be able to problematise and articulate the situation with their existing knowledge.

The positive evaluation of identifying user needs is justified by the programmatic content of the Curricular Unit of Professional Skills III in physiotherapy, in which one of the objectives is to:

Enable the student to develop various skills focused on professional practice with regard to technical-professional, interpersonal, and multidisciplinary aspects, aiming at clear, effective, and ethical conduct that prepares the future professional to the main health needs of the population (PPP/UEPA, 2016, p. 92).

However, students' competencies, which were self-assessed lower, were creativity and representation skills, both related to curricular contents not commonly addressed in health courses but which are of great importance in the context of product creation activities.

Creativity is an important tool in the development of new products and should be integrated into the design process. Therefore, it is recommended to use means that encourage the project team to develop as many ideas as possible to solve a problem (CARRETTA, 2019).

In the field of health, aspects related to the representation of graphic symbols in projects remain restricted. The authors in a study on representation in the design process of assistive products observed several possibilities of organisation of concepts and design stages but with a small incidence of graphic representations (SMYTHE; PRADO; SMYTHE JR., 2016).

Considering these results, design methods related to creativity and representation skills were emphasised in the selection and definition of the specific content of educational products. These findings were added to the results of the reviewed study with a consensual methodological model, along with basic concepts on the theme and product attributes.

The technical and scientific content obtained was used in the composition of the script of the educational video. The script is an indispensable tool in the production of an audiovisual educational piece because it allows prior evaluation of specialists in relation to the quality of the content of the material to be developed (RAZERA *et al.*, 2014).

In relation to the audiovisual media production process, there is a growing need for studies on creative processes in the construction of digital media. The authenticity and aesthetic aspects of visual messages, as well as public acceptance, can be favoured through the knowledge of hypermedia creative processes (COELHO *et al.*, 2017).

It is perceived that, in the field of health education, a considerable number of teachers still lack pedagogical training and instrumentalisation for the development of educational technologies that provide greater dynamism and interactivity, such as multimedia pieces, which stimulate sensory learning, for example, educational videos (LIMA *et al.*, 2019).

In relation to the product validation process, the content of the product provided a good evaluation of the objectives. However, some difficulty was still found in the 'behaviour change' item because, among other reasons, the practical application of product creation activities remains incipient in most health courses (SILVA *et al.*, 2017).

The use of validated educational technologies attributes greater quality to the teaching-learning process and highlights the coherence of the information presented in meeting the proposed objective, becoming an important tool for interaction with the target audience (ALBUQUERQUE *et al.*, 2016).

In terms of structure and presentation, the content evaluation was considered positive, but with room for improvement of the ‘objectivity of information’ item, which can be explained by a great complexity of the addressed content. In a study on the production and validation of educational videos in health, Rosa et al. (2019) stated the following:

The content addressed in audiovisual technology with the potential to sensitise the target audience needs to be understood by anyone, which is clear in its technical and scientific approach (p. 12).

The effectiveness of educational videos can be maximised by combining this modality with content. By using the audio/verbal and visual/pictorial channels to convey information and adjusting the type of information to the most appropriate channel, teachers can increase the cognitive load used in a learning experience (BRAME, 2016).

Regarding relevance, the content also presented a good evaluation, and the lower scores on the ‘learning stimulus’ and ‘interest in the theme’ may indicate a need to increase motivation for the theme in the evaluated content.

The evaluation process involving students is essential for improving the educational product, as it consolidates the importance of technology for teaching. Students’ participation can support new pedagogical practices and propose a redefinition on how to construct knowledge when it is considered necessary (GÓES *et al.*, 2015).

In terms of validation by the target audience, the information was considered coherent and understandable. According to Galdino et al. (2019), the vocabulary used in educational materials must be consistent with the message that is intended to be transmitted and suitable for the audience for whom the content is intended.

In the block on audiovisual presentation, the target audience’s semantic evaluation pointed out that diagramming, composition of the scenes, lighting, and framing are adequate but signaled a possible need for improvement in the ‘color adequacy and contrast’ item, which can be explained by the aesthetic complexity of the adopted styles.

The illustrations used were considered appropriate with reference to the space for comments that the video can draw attention to, with the images and examples of the application. Similarly, in a study by Góes et al. (2015), the participants agreed that the use of animated resources such as videos, sounds, and animations helped the user understand the information and facilitated meaningful learning.

The use of animations in educational videos is important because it awakens the attention of students, making the content more attractive and surpassing video classes only with the narrative or with the teacher as the protagonist of the material. This allows the feature to be used in different ways, especially in learning support environments for motivation, such as knowledge and information (LIMA *et al.*, 2019; RAZERA *et al.*, 2014).

The use of audiovisual resources in video format can represent a sophistication in the teaching-learning relationship for an audience increasingly immersed in the virtual world, as through this resource, it is possible to efficiently capture the attention of the public and arouse their curiosity about the addressed themes (RODRIGUES JÚNIOR *et al.*, 2017).

The incipient exploration of this theme in the field of health education was the main objective of this study. To verify the applicability of audiovisual media as an additional resource in the teaching-learning process; there is a need for studies involving the production of multimedia educational technologies in the health domain.

5 Conclusion

Through this study, opportunities for improvement in product development content were identified in the physiotherapy course in the UEPA. In the investigation of competencies, competencies related to the analysis of problems and needs of the user received a better evaluation than those related to the creative development of projects and forms of representation. Through the gathered contents and considering the identified needs, audiovisual media were developed in video format. The process involved pedagogical aspects, such as attractiveness and cognitive load, as well as the fundamentals of audiovisual production. Content validation of the script by expert supervisors made it suitable for application in audiovisual production. The educational video was evaluated by the target audience, and the findings were consistent with its applicability as a teaching resource

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