



Construction and validation of clinical contents for development of learning objects

Construção e validação de conteúdos clínicos para desenvolvimento de objetos de aprendizagem
Construcción y validación de contenidos clínicos para desarrollo de objetos de aprendizaje

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ABSTRACT

Objective: to describe the process of construction and validation of clinical contents for health learning objects, aimed at patients in the treatment of head and neck cancer. **Method:** descriptive, methodological study. The development of the script and the storyboard were based on scientific evidence and submitted to the appreciation of specialists for validation of content. The agreement index was checked quantitatively and the suggestions were qualitatively evaluated. **Results:** The items described in the roadmap were approved by 99% of expert experts. The suggestions for adjustments were inserted in their entirety in the final version. The free-marginal kappa statistical test, for multiple evaluators, presented value equal to 0.68%, granting a substantial agreement. **Conclusion:** The steps taken in the construction and validation of the content for the production of educational material for patients with head and neck cancer were adequate, relevant and suitable for use in other subjects.

Descriptors: Nursing; Nursing Care; Validation Studies; Health Education; Head and Neck Neoplasms.

RESUMO

Objetivo: descrever o processo de construção e validação de conteúdos clínicos para objetos de aprendizagem em saúde, direcionados aos pacientes em tratamento do câncer de cabeça e pescoço. **Método:** estudo descritivo, metodológico. O desenvolvimento do roteiro e o *storyboard* foram fundamentados em evidências científicas e submetidos à apreciação de especialistas para validação de conteúdo. Verificou-se o índice de concordância, quantitativamente, e avaliaram-se qualitativamente as sugestões. **Resultados:** os itens descritos no roteiro foram aprovados por 99% dos especialistas peritos. As sugestões de ajustes foram inseridas, em sua totalidade, na versão final. O teste estatístico *kappa free-marginal*, para múltiplos avaliadores, apresentou valor igual a 0,68%, conferindo uma concordância substancial. **Conclusão:** os passos adotados no percurso de construção e validação do conteúdo para produção de material educativo destinado aos pacientes com câncer de cabeça e pescoço mostraram-se adequados, relevantes e passíveis de serem utilizados em outras temáticas.

Descritores: Enfermagem; Cuidados de Enfermagem; Estudos de Validação; Educação em Saúde; Neoplasia de Cabeça e Pescoço.

RESUMEN

Objetivo: describir el proceso de construcción y validación de contenidos clínicos para objetos de aprendizaje en salud, direccionado a los pacientes en tratamiento de cáncer de cabeza y cuello. **Método:** estudio descriptivo, metodológico. El desarrollo del guion y *storyboard* fueron fundamentados en evidencias científicas, y sometidos a la apreciación de especialistas para validación de contenido. Se verificó el índice de concordancia, cuantitativamente, y se evaluaron cualitativamente las sugerencias. **Resultados:** los ítems descritos en el guion fueron aprobados por 99% de los especialistas peritos. Las sugerencias de ajustes fueron inseridas en su totalidad en la versión final. El test estadístico *kappa free-marginal* para múltiples evaluadores presentó valor igual a 0,68%, confirmando una concordancia substancial. **Conclusión:** los pasos adoptados en el recorrido de

construcción y validación del contenido para producción de material educativo destinado a los pacientes con cáncer de cabeza y cuello se mostraron adecuados, relevantes y pasibles de ser utilizados en otras temáticas.

Descritores: Enfermería; Cuidados de Enfermería; Estudios de Validación; Educación en Salud; Neoplasia de Cabeza y Cuello.

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INTRODUCTION

A few years ago, cancer has been considered a chronic disease. This change has imposed new demands on patients and their families on, for example, managing their own care⁽¹⁾. New management models were developed, and the concept of self-management was adopted as an educational objective to be reached by patients affected by chronic diseases.

In this sense, self-management is a concept that includes the construction of skills that empower the patient, family member and / or caregiver to make decisions about aspects of the illness process. It is applicable to problems of different natures, be they biological, psychosocial or spiritual, in a relationship of respect and mutual planning between patient, their relatives and health team, preferably, interdisciplinary⁽²⁾.

Health education directed to the self-management of patients diagnosed with head and neck cancer is shown to favor adaptive processes, since this cancer generates, in the great majority of cases, irreversible structural, functional and aesthetic changes. Invariably, patients undergo multiple therapeutic procedures, surgeries, radiotherapy, and cytotoxic chemotherapy⁽³⁻⁴⁾. Depending on the advanced state of the disease at diagnosis, procedures may be aggressive and result in facial disfigurements, speech and swallowing changes, tracheostomy, prostheses and catheters. These conditions predict a worse quality of life and a higher prevalence of anxiety and depression symptoms, with significant impairment in the physical, practical, social and emotional domains⁽³⁻⁴⁾.

In the diagnostic phase, many initiate cancer treatment without awareness of the long-term repercussion of these sequels⁽⁵⁻⁶⁾. This lack of understanding makes the process of adaptation to the new reality even more complex. In this sense, evidence reinforces the importance of knowledge construction and the development of treatment skills, helping the patient and the family to adapt to the new conditions, making them active and participating in the process of illness^(2,7). However, it is essential that care be planned, individualized and humanized^(2,7).

Nevertheless, educating is not a simple task, therefore it includes the use of theoretical and methodological references of pedagogy, for which many health professionals are not prepared. From this analysis, it was considered opportune to select, from the science of pedagogy, tools for the construction of didactic material directed to patients with head and neck cancers and, to this perspective, validate clinical contents essentially necessary for the construction of learning objects. Thus, the concept of learning objects (OAs), defined as a digital resource to be used for teaching⁽⁸⁾, was introduced in this process to favor the division of educational contents into small parts, to be reused in different learning environments⁽⁸⁾.

For the development of OAs, it is necessary to define the relevant and important information that should be included in the instructional content. The educational objectives to be achieved by the target population must be carefully described. In addition, this content must be attractive, accessible and clear, as well as meaningful and consistent with the user's reality, as well as presenting a vocabulary appropriate to the target audience, stimulating it to reflection^(2,4,7). Next, a script of the learning object and a storyboard, composed of scenes, in the form of drawings, that translate the object, must be made. These drawings appear, sequentially, in a manner similar to a comic book. Its elaboration helps in the visualization of the final product, being able to reduce eventual errors⁽⁸⁻¹⁰⁾.

In view of the above, the purpose of this study was to describe the process of construction and validation of clinical contents recognized by specialists as essential for health learning objects, aimed at patients in the treatment of head and neck cancer.

METHOD

Ethical aspects

The present research was approved by the Research Ethics Committee of the Federal University of São Paulo - Plataforma Brasil. The expert experts who agreed to participate in the research signed the Free and Informed Consent Term. They were informed of the objectives of the study, the type of participation they wanted and that they could withdraw from participating in the study at any time if they so wished. They were also guaranteed anonymity and confidentiality regarding the information provided⁽¹¹⁾.

Design, place of study and period

It is a descriptive, methodological study (7), consisting of two stages: material development and validation, through a jury of expert experts. The site of idealization of the project was the Head and Neck Surgery Outpatient Clinic of the São Paulo Hospital - Federal University of São Paulo. The period was from November 2014 to February 2015.

Sample: professional eligibility criteria for jury composition of expert experts

Experts were chosen as those who met the criteria (adapted) proposed by Fehring⁽¹²⁾. It should be noted that the classification developed by Fehring⁽¹²⁾ refers to the North American reality, whose professional training differs from Brazilian, which implies possible inconsistencies when the criteria are transposed to the Brazilian reality of professional qualification, still very poor in many states of the country⁽¹³⁾. Thus, an adaptation was made in the present study, specifying, in the area of interest, health professionals who are part of the

multidisciplinary team in oncology and / or head and neck surgery. The minimum score established for participation was maintained in five points. The criteria were: master's degree (4 points); Master degree in the area of interest (1 point); publication of research relevant to the area of interest (2 points); publication of an article on the topic in an indexed journal (2 points); have a doctorate in the area of study (2 points); doctoral thesis in the study area (2 points); recent clinical practice, at least one year in the subject area (2 points); and have qualification (specialization) in the area of study interest (2 points). In the degree (masters and doctorate) criteria, the professional received additional points if, in addition to the title, this was also in the area of interest (oncology and head and neck surgery), favoring the constitution of a jury with in-depth professional experience in the area knowledge of the study.

The experts were selected by means of the snowball sampling⁽⁷⁾. After the appointment, the Lattes Curriculum was consulted to verify the expert's suitability for the selection criteria for this study. We selected 14 professionals, three nurses, three speech therapists, three doctors, two nutritionists, two dentists and one psychologist. Among the invited patients, 11 responded to the accepted questionnaire and completed the Informed Consent Form (EHIC), however, eight (n = 8) answered the questionnaire at the proposed time of 60 days, and the professions represented were: a nurse; a doctor; a dentist; three speech therapists; and a psychologist.

Study protocol

The study was developed in two stages: the first one was the construction of the script, to be validated, and the storyboard, containing the detailed description of the content to be worked, with the definition of scenes and the audios used. For the elaboration of the abovementioned materials, a set of suggested steps were followed for educational applications, namely: analysis and planning; modeling; Implementation; evaluation and distribution^(10,14). It should be emphasized that, in the present investigation, the analysis, planning and modeling stages were performed.

In the second stage, the content of the script and storyboard was validated by the jury of expert experts. Participants were instructed to complete the instruments composed of sociodemographic data, academic training, professional performance and validation instrument.

The validation instrument was elaborated considering the literature on validation studies^(4,15) and a data collection instrument present in a similar study, whose use was authorized by the author, upon written request⁽¹⁶⁾. The instrument was divided into four blocks: objectives, content, verbal language and topic inclusion, making a total of 28 closed questions classified in a Likert scale 0-5, 'strongly agree (CF)', 'agree (C)', 'Disagree (D)', 'Strongly Disagree (DF)' or 'Not Applicable (NA)'. At the end, there was free space for comments and suggestions.

Following the recommendations of the literature, in order to evaluate the comprehension and clarity of the items, the questionnaire was pre-tested, which was later distributed to the study subjects. The pre-test was performed with five

professionals, according to convenience, linked to the Oncology area, who read the questionnaire and were instructed to analyze comprehensibility, feasibility and readability. Suggestions have been incorporated into the research.

Analysis of results and statistics

The data obtained were compiled in the statistical software Statistical Package for the Social Sciences (SPSS), version 23.0. To determine the relevance of each item addressed in the validation instrument, the minimum agreement rate of 80% among the experts was considered⁽¹⁷⁾.

The free-marginal kappa concordance test was also applied to multiple evaluators, in order to measure the degree of agreement beyond what would be expected by chance alone. This measure of agreement has as maximum value one, which represents total agreement. Close values and even below zero indicate no agreement⁽¹⁸⁾.

RESULTS

Step 1: Building the storyboard and storyboard

The steps described in preliminary studies were used to construct the script and the storyboard^(9-10,14). In addition, a review of the literature was carried out, which included the selection of articles from periodicals and textbooks specific to the areas of interest. The Lilacs and Medline databases, with the combined descriptors 'head and neck neoplasia', 'nursing care' and 'health education', were selected, selecting five manuscripts from January 2010 to February of 2015^(5-6,19-22). The selected textbooks were published between 2008 and 2010, all related to the specialty of otolaryngology and / or head and neck cancers⁽²¹⁻²⁴⁾.

Construction

1) Analysis and planning: definition of objectives, content, target audience, possible types of OAs to be developed, when, where and how these OAs can be presented, resources needed for development, available budget and expected results^(10,14).

The concept of self-management and the Cognitivist Constructivist Theory, supported by the Freirean methodology, formed the axis of articulation of objectives with learning contents^(2,25-26). The choice of these concepts and references was justified by the principles of dialogicity, as a living exercise of dialogue, of the capacity of the adult being to be responsible for their care when properly informed and empowered, as well as the free will to choose their decisions⁽²⁶⁾.

2) Modeling: elaboration of content for the script and storyboard, whose purpose is to explain to the patient with head and neck cancer, their relatives and caregivers the stages of cancer treatment and the necessary care for the maintenance of health. From the general survey of relevant contents, three guiding sections emerged, in which the concepts of cancer and head and neck cancer, available treatments and hospital discharge were highlighted: specific care at home (see Chart 1).

Chart 1 – Selected contents after literature review to define the guidelines presented in the script, São Paulo, Brazil, 2016

Selected content	Justification
Presentation	It emphasizes the importance of the educational practice, with the purpose of developing individual and collective abilities to solve problems.
What is cancer and cancer of the head and neck -Risk factors -Main signs and symptoms -How is the diagnosis made	To inform the patient, family member and / or caregiver about cancer and head and neck cancer, with an approach that enables them to understand their disease, clarifying the implications and consequences of the established diagnosis ^(18,21-22) .
Treatments -Surgical treatment -Radiotherapy -Cytotoxic chemotherapy	Further clarification on the different types of treatment may assist in more conscious decision-making about the conditions, risks and benefits of each therapeutic modality ^(18-19,21-22) .
Hospital discharge: specific care at home -Higiene personal -Surgery wound care - Care with the tracheostomy - Care during enteral feeding - Care during radiation therapy: skin care, oral hygiene and preventive measures to reduce the side effects of radiotherapy -Cautions during chemotherapy: side effects, preventive measures to ameliorate the side effects -Situations in which the patient should seek the health service	Promotion of self-management behaviors and adherence to the therapeutic regime, in order to guarantee safety in the continuity of home care. Development of capacity to recognize potential problems, take action and identify situations in which to seek professional help ^(5-6,19-20,23-24) .

3) Implementation: proposition of the media to be used, having the option of choosing between brochures or booklets, videos, podcast and infographic. After definition, it will be necessary to format, include figures, sounds, images and animations, where relevant.

4) Evaluation: performing the tests for checking information and correcting errors of content and grammar.

5) Distribution: description of the strategies adopted to distribute the developed material.

Step 2: Content Validation

Characterization of expert group of experts

According to the Fehring classification⁽¹²⁾, adopted for the selection of expert experts, an excellent classification was observed. The evaluators scored between 7 and 12, with five professionals (62.5%) totaling 7 points; one professional (12.5%), 9 points; one professional (12.5%), 11 points; and a professional (12.5%), 12 points.

The specialists were mostly female (75%), aged 32-60 years ($M = 49$ years, $SD = 7.9$), with training time between 12 and 38 years ($M = 28$ years, $SD = 8.8$). The professional profile indicated seven masters, eight doctors and one postdoctoral. With regard to the current occupation, four professionals were dedicated exclusively to teaching and research and four practiced assistance activities. Of these, six work in private institutions and two in public institutions. All of them live and work professionally in the Southeast Region of Brazil.

Validation procedure of the script adopted

The answers given to the items of the evaluation instrument (objectives, content, verbal language and inclusion of topics)

were analyzed quantitatively. In the evaluation of the objectives, it was reported that the script was interesting, relevant and appropriate to the target audience. The block was composed of three questions, and all the evaluation items reached a Content Validity Index (IVC) of 100%, as shown in Table 1.

In the second evaluation block regarding the content, experts reported that it would be important to include the need for hand hygiene, food and utensils prior to the preparation of the enteral diet, as well as the correct packaging of homemade or industrialized diets after they have been opened. The block was composed of 14 evaluation items, and the CVI reached was 99.1%, as shown in Table 2.

In the third block, the experts evaluated the verbal language used in the material, so an expert recommended avoiding long sentences, to facilitate understanding. The block was composed of two evaluation items, and the CVI reached was 93.7%, as shown in Table 3.

The last evaluation block, intended to include topics, was composed of nine items. For the experts, the inclusion of topics was adequate, updated and in accordance with current scientific recommendations. The achieved IVC was 100%, as described in Table 4.

The instrument validation of the script, composed of four blocks, containing 28 items, made a total of 224 responses. There was no signaling of the 'strongly disagree' alternative. In addition, the Global Content Validity Index of educational technology was 99%⁽¹⁶⁾. The evaluation of the suggestions of the specialists were accepted, in their entirety, to adequacy of the contents, that is, the items hygiene of the hands, food and utensils during enteral feeding, as well as the correct packaging of the industrialized diets after open and on avoiding long sentences.

According to Landis JR and Koch GG⁽¹⁷⁾, the value of the free-marginal kappa statistic for multiple evaluators⁽¹⁷⁾ was evaluated by means of the free-margin kappa statistic. of substantial agreement.

Table 1 – Answers of the experts related to the validation of the script and storyboard of the educational material: objectives, São Paulo, Brazil, 2016

Questions	n = 8				
	SA (%)	A (%)	D (%)	SD(%)	NA(%)
a) The objectives are consistent with the educational practice of patients with head and neck cancer	6 (75.0)	2 (25.0)			
b) The objectives are consistent with the objects proposed in the research	7 (87.5)	1 (12.5)			
c) The objectives are adequate to be effective	6 (75.0)	2 (25.0)			
Total answers (N = 24)	19 (79.2)	5 (20.8)			

Nota: CF-Concordo fortemente; C- concordo; D- discordo; DF- discordo fortemente;NA- não se aplica.

Table 2 – Experts' answers related to the validation of the script and storyboard of the educational material: content, São Paulo, Brazil, 2016

Questions	n = 8				
	SA (%)	A (%)	D (%)	SD(%)	NA(%)
a) The content presented in the script and storyboard corresponds to the objectives proposed in the work	6 (75.0)	2 (25.0)			
b) The content facilitates the teaching-learning process in the thematic	7 (87.5)	1 (12.5)			
c) Content allows for understanding the theme	6 (75.0)	2 (25.0)			
d) The content follows a logical sequence	7 (87.5)	1 (12.5)			
e) The content on 'what is cancer' has all the information necessary to understand the pathology	4 (50.0)	4 (50.0)			
f) The content on the 'treatments' has all the information necessary for the basic understanding of the types of cancer treatments	6 (75.0)	2 (25.0)			
g) The content on the 'treatment of laryngeal cancer' has all the information relevant to the procedure	5 (62.5)	3 (37.5)			
h) The content on 'cervical lymph node dissection' has all the information relevant to the procedure	5 (62.5)	3 (37.5)			
i) The content on 'cancer of the oral cavity' has all the information pertinent to the procedure	6 (75.0)	2 (25.0)			
j) The content on 'surgical wound care' contains all the necessary steps for home care	7 (87.5)	1 (12.5)			
k) The content on 'tracheostomy care' includes all the necessary steps for home care	8 (100.0)				
l) The content on 'care with enteral feeding' has all the necessary steps for home care	6 (75.0)	1 (12.5)	1(12.5)		
m) The content on 'Head and Neck Radiotherapy' incorporates all information relevant to the treatment	6 (75.0)	2 (25.0)			
n) The content on 'Chemotherapy in the head and neck' incorporates all the information pertinent to the treatment	6 (75.0)	2 (25.0)			
Total answers: (N = 112)	85 (75.9)	26 (23.2)	1(0.9)		

Note: SA-Strongly agree, A-Agree, D-disagree, SD-Strongly disagree, NA-not applicable.

Table 3 – Validation experts' answers: verbal language, São Paulo, Brazil, 2016

Questions	n = 8				
	SA (%)	A (%)	D (%)	SD(%)	NA(%)
a) The verbal language used in the script and storyboard is accessible to the audience	4 (50.0)	4 (50.0)			
b) Verbal language is easy to assimilate	5 (62.5)	2 (25.0)	1(12.5)		
Total answers: (N = 16)	9(56.3)	6(37.5)	1(6.2)		

Note: SA-Strongly agree, A-Agree, D-disagree, SD-Strongly disagree, NA-not applicable.

Table 4 – Validation experts' answers: inclusion of topics, São Paulo, Brazil, 2016

Questions	n = 8				
	SA (%)	A (%)	D (%)	SD(%)	NA(%)
a) Objectives of the educational video	8 (100.0)				
b) Brief definition of cancer	7 (87.5)	1(12.5)			
c) Brief definition of head and neck cancer	8(100.0)				
d) Description of treatments for head and neck cancer: surgery	8(100.0)				
e) Description of the stages of surgical wound care	8 (100.0)				
f) Description of the stages of tracheostomy care	8 (100.0)				
g) Description of the stages of enteral feeding care	8 (100.0)				
h) Description of treatments for head and neck cancer: radiation therapy	8 (100.0)				
i) Description of treatments for head and neck cancer: cytotoxic chemotherapy	8 (100.0)				
Total answers (N = 72)	71(98.6)	1(1.4)			

Note: SA-Strongly agree, A-Agree, D-disagree, SD-Strongly disagree, NA-not applicable.

DISCUSSION

The choice of the theme for the construction and validation of the script and the storyboard, aimed at the development of learning objects, came from reflections about the impact of head and neck cancer on the lives of patients and their families, whether due to the changes caused by the anatomical and physiological changes caused by the treatment.

In this context, the promotion of educational activities becomes essential for the provision of treatment guidelines and self-management measures necessary to prevent or minimize their adverse effects, and learning objects are important tools to guide and systematize such actions^(2,7-8,27).

Health education materials, when proven scientifically validated and also adequately employed, that is, inserted and integrated into health care planning, are allies for the construction of health literacy in people, groups or populations⁽²⁷⁻²⁹⁾. Since correct concepts and behaviors related to care in health states, and especially disease, are properly prepared and conveyed in the population, a positive return is obtained over time in the epidemiological indicators⁽²⁸⁾. Therefore, the task of constructing and validating contents that conform the educational materials becomes relevant in a society that has a premium for reducing its incidence rates in diseases whose risk factors are related to social behaviors⁽²⁸⁾.

In the content selection phase, the literature review allowed for the listing of the contents and the construction of justifications, confirming the educational route. The modeling allowed the translation of the relevant information into a simple and easy to understand language. Images of real situations lived by the patients were inserted in the storyboard, favoring the interlocution between professional and patient. It is emphasized that the use of educational support methods during treatment favors the adaptation of the patient and his family to the new conditions and make them active and participating in the process of cancer sickness⁽²⁾.

Regarding the validation process, the diversity of expert professionals proved to be propitious, since it grouped evaluations of different specialties on the subject matter addressed in the material. It was, therefore, a multidisciplinary and complementary

work, as recommended by preliminary studies^(4,16). In this perspective, the multidisciplinary approach is fundamental in the treatment of patients, considering the complexity of the therapeutic modalities and possible complications that can occur.

In the validation of content of the educational material, the experts considered the proposed themes and contents relevant and timely for educational actions among patients, family members and caregivers. In the validation of content of the educational material, the experts considered the themes and proposed contents relevant and timely for educational actions among patients, relatives and caregivers. This stage ratified and validated the purpose of the script developed, the objectives to be achieved, the content of the themes, the verbal language used and the inclusion and structuring of the topics. The modifications suggested by the experts were accepted and carried out, because they contributed qualitatively and expressed the commitment of each professional with the effective educational action.

The health service must organize and prioritize health education geared to the needs of the population, using diversified teaching strategies that favor the interest and understanding of the population on the most diverse themes. For the effectiveness of the educational action, it should be considered that the technologies that dynamize the educational activities (individual or group) become relevant and necessary, especially when the goal is to instrumentalize the patient, family and / or caregivers for self-management and decision making^(2-3,8).

Considering that most patients with head and neck cancer have low levels of schooling and that, during cancer treatment, changes in lifestyle are necessary, especially when it comes to smoking cessation and alcohol use and in the adoption of habits healthy actions, actions that instrumentalize the search for support networks and that strengthen the patient and his / her relatives to face the challenges are essential for the quality of care and should be instituted early. In addition, it is usual that the demand for specific and complex care tends to increase during the treatment of patients with head and neck cancers, depending on the treatments used and the evolution of the disease itself⁽¹⁸⁾.

Therefore, the transmission of health information is most effective when its contents are specifically designed for a person or a population group and when the message is well delimited, highlighting the benefits (gains) and costs (losses) associated with the behaviors and decision-making. In addition, this information must be transmitted through teaching strategies diversified in didactic and technological terms that mobilize attention and motivate its use⁽²⁵⁻²⁶⁾.

Limitations of the study

Among the limitations of this study, we highlight the final conformation of the jury of experts and the absence of external validation. Although professionals from different areas were selected, including those of pedagogy and communication, these did not compose the final sample because they did not meet the established conditions. It is suggested that, in the selection process, the number of these professionals should be expanded to cover absences. Another weakness is the lack of validation of this material by the target population, which should be ratified in future studies.

Contributions to the area of Nursing, health or public policy

With respect to practical applicability, the study can contribute to the development of educational materials based on educational technology, which can be distributed via the world wide web, favoring access to information through computers and mobile communication devices, connected to the Internet, resulting in an important social contribution for patients and families treated throughout the national territory.

CONCLUSION

The realization of this study made it possible to present the process of constructing and validating a script and storyboard for the construction of learning objects, based on scientific knowledge, available in the current literature, as well as the suggestions of experts in the field of study, contributed to the final version of the material.

The methodology used was able to support the elaboration of attractive and comprehensive content, which can facilitate the elaboration of several learning objects such as brochures and booklets, videos, podcast and infographic among others.

The script and storyboard were validated according to objectives, content, verbal language and inclusion of topics, being considered relevant for the development of educational technologies to be applied to patients, family and care during the treatment of head and neck cancer.

Believing that no knowledge is finite and inflexible, it is proposed to carry out revisions of the contents of the educational roadmap, based on new scientific evidence and knowledge demands presented by the target audience and their companions.

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