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Original Article

Construction of a video about condom use for deaf and hearing people*

Construção de vídeo sobre uso dos preservativos para surdos e ouvintes

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ABSTRACT

Objective: to build assistive technology, in video format, for deaf and hearing people about sexual health and condom use. **Methods:** methodological study consisting of the stages of pre-production, production and post-production. In pre-production we built the script, storyboard and scenes, following the principles of Lev Semenovich Vygotsky's Theory of Learning. In production there was the development of the animation and recording of the scenes by the Libras interpreter. In post-production the final editing of the video took place. **Results:** the video "Condom: learn to use correctly", lasting nine minutes and 25 seconds discusses the sexual and reproductive system of man and woman; mode of action, benefits and care with the use of condoms. Given the scarcity of educational materials on the subject, accessibility resources were used to build a video for deaf and hearing people. **Conclusion:** the construction of the video as an assistive technology directed to the deaf was successfully accomplished.

Descriptors: Educational Technology; Condoms; Persons with Hearing Impairments; Nursing.

RESUMO

Objetivo: construir tecnologia assistiva, no formato de vídeo, para surdos e ouvintes sobre saúde sexual e o uso do preservativo. **Métodos:** estudo metodológico constituído das etapas de pré-produção, produção e pós-produção. Na pré-produção construiu-se roteiro, storybord e cenas, seguindo os princípios da Teoria da Aprendizagem de Lev Semenovich Vygotsky. Na produção houve o desenvolvimento da animação e gravação das cenas pelo intérprete de Libras. Na pós-produção ocorreu a edição final do vídeo. **Resultados**: o vídeo "Preservativo: aprenda a usar corretamente", com duração de nove minutos e 25 segundos discorre sobre o sistema sexual e reprodutivo do homem e da mulher; modo de ação, benefícios e cuidados com o uso do preservativo. Diante da escassez de materiais educativos sobre o tema, empregaram-se recursos de acessibilidade para construir um vídeo para surdos e ouvintes. **Conclusão:** a construção do vídeo como tecnologia assistiva dirigida aos surdos foi realizada com êxito.

Descritores: Tecnologia Educacional; Preservativos; Pessoas com Deficiência Auditiva; Enfermagem.

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Introduction

Condoms are an inexpensive, feasible, and practical contraceptive method that is used worldwide in the sexual lives of men and women, serving the dual function of preventing the transmission of sexually transmitted infections/human immunodeficiency virus (STI/HIV) and unplanned pregnancy[1].

It is the duty of the state to provide accessible information to all about contraceptive methods to promote the responsible and equal exercise of their rights, however, deaf people present difficulties in the acceptance and correct use of these devices, due to the inhibition caused by communication barriers in their insertion in health promotion programs[2].

There is a consensus in the literature about the relevance of disseminating the theme of sexuality in all cultures and social levels, highlighting the need for school and family participation in the sexual education of the deaf[3].

Prejudices existing in society are reflected in the health care of this public, being described as insecure, reserved, reckless, impulsive and nervous, stigmatizing and neglecting the sexuality of deaf people. Often, families do not understand aspects related to sexual and reproductive health of the deaf, being the social media and friends the main sources of information about this issue[4].

In a research carried out in Ghana, two-thirds of deaf participants were largely unaware of the consequences of unprotected sex[5]. A cross-sectional study in the Philippines showed that deaf students casually talk about sexual experiences with their peers, do not use condoms, and have inadequate knowledge about the nature and transmission of sexually transmitted infections[6].

Moreover, the deaf rarely seek health services for prevention and health promotion, being observed the prevalence of care in the curative scope, due to communication barriers between deaf and health professionals[7].

Given the specificity of the deaf culture, primarily related to communication, coupled with the myths and taboos involved in the issue of sexuality, it is necessary to broaden the view to integrate inclusive educational practices, considering it is unlikely that their needs are met by programs for the population in general. Thus, it is necessary to use inclusive communication through a visuospatial language, being characteristic of the use of the Brazilian Sign Language (Libras)[8].

It is notable the difficulty of adapting educational materials for deaf people directed to the use of condoms, especially those without formal education, representing a problem for health care for this population. Thus, the nurse, by developing accessible educational materials supported by appropriate technological tools, can promote effective guidance, clarifying doubts or fears, minimizing social taboos, and promoting autonomy and favorable attitudes.

Among the educational technologies described in the literature, with the purpose of offering care based on effective results, the educational video stands out as a tool most used by this population, due to its dynamics, presenting benefits in the teaching-learning process[9].

Thus, in order to focus on inter and intrapersonal relationships in a positive perspective of disability, in order to transmit content with equity of information, this study was based on the Learning Theory proposed by Vygotsky. This theory, besides favoring new positions in respect to deaf people, as subjects co-responsible for their learning process; enhances aspects not deficient, being the deafness compensated by the interaction with various instruments, having the sign language a preponderant role in this process, being, therefore, influenced by sociocultural aspects[10].

Therefore, the educational technology built can be used in teaching and extension in the training and qualification of human resources for Health, in schools, during health care, websites focused on education or social networks. In this sense, it is expected that the

dissemination of the technology built will strengthen the sexual and reproductive rights of deaf and hearing people. In this sense, the objective of the study was to build assistive technology, in video format, for deaf and hearing people about sexual health and condom use.

Methods

This is a methodological study with the purpose of developing, evaluating, and improving educational strategies[11], consisting of three stages for video applications, namely: pre-production (Planning), production (Filming), and post-production (Editing)[12].

In pre-production, the script was built, an instrument composed of writing the synopsis or general summary of what will be presented in the video; a script with a succinct, understandable description of how the actions evidenced in the video scenes will be developed, and; the Storyboard, sequential drawings of the scenes to be elaborated.

The script composition was based on Vygotsky's Theory of Learning, which considers learning as a social-historical process. Five main axes of this theory were advocated for the development of the script's story: Zone of Proximal Development (ZDP) in a perspective in which the learner (deaf) has previous experience and the teacher is the facilitator; Mediation, illustrating the relationship of the learner with the world either by signs (cultural experience) or by instruments (communication through libras); Completeness, seen holistically, treating the social, cultural individuals and not only focusing on disability; Compensation, brought in a social way, with the overcoming of disability through inclusive education and; Plasticity, which involved the adaptive process of the subject in society for the development of intelligence, facilitating the teaching-learning process[10].

It is noteworthy that the content present in the script was built based on official reference documents established by the Ministry of Health, World Health Organization and Brazilian Federation of Gynecology and Obstetrics Associations. It presented 21 scenes, divided into seven parts according to the exposed content: Introduction; Sexually Transmitted Infections; Male and Female Anatomy and Physiology; Benefits of Condoms and Male and Female Condoms.

In the second stage, characterized as production, the script was recorded in Brazilian Sign Language (Libras) by an interpreter born in Fortaleza, Ceará, Brazil, with experience in the area, because she works in a public university of the state of Ceará during Languages/Libras graduation, and audio, in order to allow communication with listeners, so that the video meets the criteria of universal design contemplating deaf and hearing people. Libras interpreters used neutral-colored clothes, without prints, so as not to divert attention during the performance of the movement.

It is noteworthy that the recording and editing of the video for Libras and audio for Portuguese occurred in a professional studio, with Chroma Key background to facilitate the animation montage. We adopted dark yellow subtitles to allow greater efficiency in reading. It is noteworthy that there was synchronization between image, sound and subtitles.

The video was produced in animation format, by a specialist in the field of cartoons for the adaptation of the characters and selection of scenarios. The classic animation was used, which consists of hand drawings on a transparent film, with figures one by one, with few changes so that, on the screen, the final drawings gain movement. This step relied on a professional designer and video editor.

In the third stage, called post-production, the animated scenes were edited and organized, including those translated into Libras and audio of the scenes presented. In addition, Portuguese subtitles were inserted simultaneously to facilitate communication with listeners and deaf people with bilingual education.

The study was conducted according to the ethical precepts of research involving human beings

and received approval from the Research Ethics Committee of the Federal University of Ceará under opinion No. 2,533,100/2018.

Results

The educational video was called *Condom: learn how to use it correctly*, aimed at deaf and hearing people of both genders, and discussing how the body works, in order to facilitate understanding of the mode of action, benefits, and care with the use of condoms.

A fictitious situation was created in which a couple that acquired Sexually Transmitted Infection (STI) wants to know how they acquired it and how they can prevent themselves against this infection. Thus, the couple seeks assistance in the health service, and the nurse discusses the topics selected from the manuals on sexual and reproductive health. See below, the synopsis: a deaf couple that contracts Sexually Transmitted Infections wants to know ways of prevention and seeks guidance through a Nursing Consultation.

The script argument was developed based on the content developed and followed the logical sequence of a fictional situation for understanding about condoms, being portrayed below, a story with three characters: Bruno, Leticia, and Nurse, who are presented by a narrator in a basic health unit. The narrative is based on a nursing consultation, which discusses reproductive anatomy and physiology, use of the male condom (packaging, opening, position, and place for disposal), aiming at the prevention of Sexually Transmitted Infections and unplanned pregnancy.

To prepare the script, we paid attention to the development of short sentences, active voice, and linearly, in order to meet the peculiarities of the target audience, using the guiding axes of Vygotsky's theory, corroborating the learning of deaf people, as seen in Figure 1.

Thus, after the analytical elaboration with Vygotsky's assumptions, the script was structured and organized in seven blocks and 21 scenes, with details of the information, characters, and scenarios (Figure 2).

Favorable axes	**Story of the script about condom use**
Proximal development: teaching-learning process	Couple is apprentice and nurse facilitator, allows for differentiated learning.
Mediation: relation of signs and instruments	Interaction, communication, spatial language, manual alphabet, and inclusion of knowledge.
Integrality: humanization of education	Holistic needs met social, sexual, emotional, and communicative; provides learning about condom use.
Compensation: overcoming and evolving	Deafness compensated by sign language in the learning process.
Plasticity: adaptation, evolution and intelligence	Deaf people are smart, learning support to sexual and reproductive health, social equity.

Figure 1 – Development of the script associated with the axes of Lev Vygotsky's Theory of Learning. Fortaleza, CE, Brazil, 2020

Blocks	Scenes
1. Introduction	1. Images of heterosexual and homosexual couples talking, strolling, dating; represents scenes of reality related to the sexuality of young people and adults.
	2. Narrator asks about knowledge about STI prevention and invites to watch the video.
	3. It introduces the characters, Bruno and Leticia, a couple with STIs who want to learn about preventing these infections.
	4. Animation of the Health Unit reception consisting of a counter, attendant, educational posters fixed on the wall, and benches around it.
2. Sexually Transmitted Infections	5 e 6. Animation demonstrates stages of the nursing consultation.
	7. Image represents a virus or bacteria. Narrator explains what STIs are.
	8. Animator shows figure of STI viruses and bacteria.
3. Masculine anatomy and physiology	9. Description of the male reproductive system shows the organs and their functions; dynamic images highlight structures and facilitate the understanding of technical terms such as ductus deferens.
4. Anatomy and feminine physiology	10. The organ and functions of the female reproductive system are described. Explains through dynamic images the fertile period and the process of fertilization.
5. Mechanism of action and care	11. Introduces the two types of condoms and barrier mechanism for preventing STIs and unintended pregnancy.
	12. Screen with list of benefits and images.
	13. It maintains the strategies of scene 12 and presents condom care.
6. Male condom	14. Screen shot of the male condom and description about the form and material of this contraceptive method.
	15 and 16: Animation showing how to use the male condom, highlighting the validity and integrity of the packaging, and describing how to put the condom on.
7. Female condom	17. Image of the female condom, description of the material and format.
	18. List of benefits and explanation of each item.
	19. Description of how to use the female condom.
	20. Encouragement to seek guidance from health professionals in case of doubts about STIs and condom use.
	21. Demonstrate how satisfied the couple was with the guidance they received.

STIs: Sexually Transmitted Infections

Figure 2 – Final version of the scenes from the educational video script. Fortaleza, CE, Brazil, 2020

The final version of the video resulted in nine minutes and 25 seconds of duration, stored in MP4 file, with 720P resolution and composed of animations, audio narration and Libras. The viewing window of the Libras interpreter occupied approximately 1/6 of the screen size, which allows highlight and visibility for the sign language. Figure 3, below, illustrates the main scenes of the educational video.

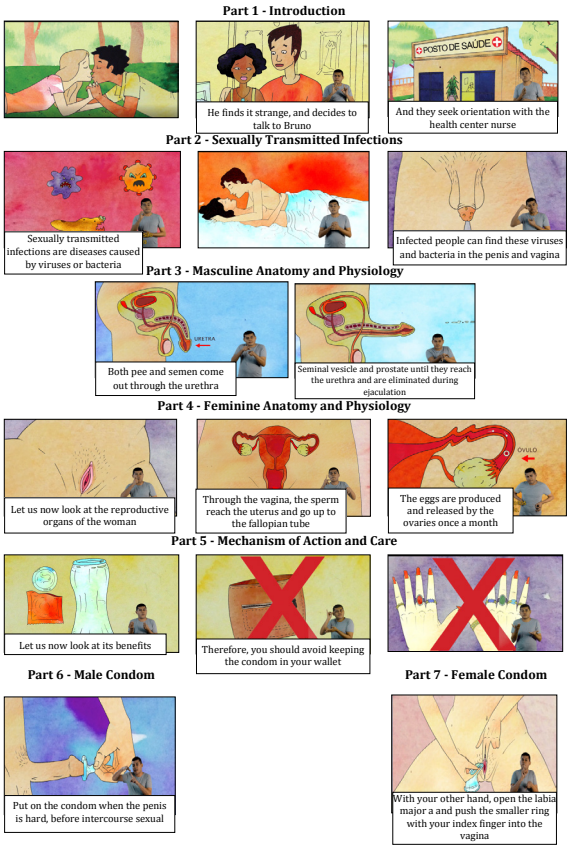

Figure 3 – Illustration of the main scenes of the video according to the seven blocks of the script. Fortaleza, CE, Brazil, 2020

Discussion

The study presented as a limitation the non-generalization of the findings, because sign language is not universal, suffering modifications depending on each region or country. Thus, it is expected that this research may lead to the development of intervention studies in order to evaluate the effectiveness of this audiovisual technology in different regions and cultures for this population.

This study contributes to the development of educational materials based on educational technology for deaf and hearing, which can be applied to different teaching strategies, resulting in an important contribution to health promotion and autonomy of the subjects. Moreover, the construct produced by this study helps nurses in their clinical practice, considering that it can be used in sexual and reproductive health education strategies for deaf and hearing people

The campaign published by the World Health Organization called Nursing Now brought reflections about the empowerment of nurses in the insertion of health practices in all populations[13]. Thus, the understanding of the modes of communication is essential to the understanding of the deaf culture, as well as for the development of educational technologies in health, especially in the field of sexual and reproductive health.

For health education to be effective, it is essential to construct content designed specifically for a person or population group, respecting cultural aspects. In addition, it is important that the text be well delimited, highlighting the benefits (gains) and costs (losses) associated with behaviors and decision-making. This information should be transmitted through diversified teaching strategies in didactic and technological terms that mobilize attention and motivate its use[14]. Thus, the content of the constructed video describes beyond the mode of condom use since it contemplates its benefits and consequences of incorrect use or non-use of the method.

The association of the Vygotskian theory to the story of the script sought to interconnect the potential and actual knowledge of the deaf. Thus, the purpose of the script of the educational video was to provide an ideal scenario capable of attracting the interest, curiosity and motivation of viewers through a story to share best practices of nursing on male and female condom use, facilitating the understanding of the theme.

Although knowledge about condoms and STI transmission risks cannot predict self-efficacy about prevention measures[15], the conscious use of this barrier method is understood as a right that supports contraceptive choice with knowledge, experience, and necessary clarity.

A research conducted in 2,735 primary health care units in the state of São Paulo found that 56.8% of the services offered in these health institutions are focused on sexual and reproductive health, with a fo-

cus on prevention of sexually transmitted infections and family planning[15]. However, it is known the incipiency of some health services regarding the deaf, which hinders the access of this clientele to human and material resources offered by such services, highlighting the need to address such a relevant topic with this audience.

The use of health-specific terms needs to be carefully analyzed so that the use of educational technologies is feasible and avoids wasting human and material resources on dissemination, as well as the distribution of poorly understood content. Consulting the target audience during the construction of the content is valid to avoid these problems. In the constructed video it was necessary to use some technical terms, being carried out a detailed description and illustrations in animation for better understanding.

Authors of an educational video on genetic counseling for the deaf suggest that before building technologies for health education, the functional health literacy of the target audience should be investigated, in order to know their ability to understand information in order to make appropriate decisions regarding self-care[16]. This can be investigated by assessing the ability to understand a text with health information, in addition, the use of instruments such as the *Test of functional health literacy in adults* (TOFHLA) can measure this knowledge [18], but should, however, be adapted to the deaf for better application of the resource.

In addition, they reaffirm that the use of different illustrations and digital media supports learning. They emphasize that they should present a consistent and normal rhythm with frequent pauses, so that the viewer can process the information while the graphics or text are being displayed in the video[16]. Thus, consistent with the literature, this media technology used similar strategies in order to facilitate learning.

The apprehension of health information for the deaf considers, in addition to the mode of communication, the sign language, that is, their literacy in health. Thus, even if the information is available in Libras, these may be difficult to understand by the target audience, given the low functional literacy in health of this population. It is noteworthy that this factor is not restricted to the level of education, but to reading habits in the health field[17].

It is noteworthy that the bilingual approach used in the video, sign languages and Portuguese, are presented as favorable in the construction of educational technologies, considering that the deaf are familiar with verbal language, because they live in a society of listeners. This statement is verified as evidenced in a randomized clinical trial with 150 deaf people that evaluated the knowledge of deaf people in both modes of presentation of online technology on genetic counseling, monolingual and bilingual, and found that the bilingual approach contributed more to the access of information of deaf users with low education than a monolingual approach[18].

Digital educational materials enable the integration of different resources, among them, verbal and non-verbal, being considered ideal for deaf people. Thus, the use of these technological resources can build a privileged space of knowledge for these people, corroborating the formation of critical and autonomous users, who discover and create their own answers. Authors state that educational tools for this audience should concentrate images, signs and colors, due to their communication being essentially visual[19].

Although information about condom use is widely disseminated in the media, not all of it considers settings and target populations, as well as interventions based on scientific evidence, making such information inconsistent.

The scarcity of information on the sexual and reproductive health of the deaf is related, besides the distorted view of society in general, to the language skills presented by health professionals who, most of the time, do not know Libras and, mainly, to the lack of communication with parents, both due to the difficulty of using the language, and to their reluctance to

address the issue with their children during adolescence.

Therefore, making male and female condoms available and providing knowledge about their use are relevant strategies for sexual health of the population. Meanwhile, the constructed video is a technological resource that presents scientific support to be used in different scenarios for the promotion of knowledge in sexual and reproductive health, including deaf people with the listeners.

Conclusion

This research built an educational video about sexual health and condom use with duration of nine minutes and 25 seconds, with the purpose of promoting health, providing learning about male and female condoms. It was concluded that the construction of the video as an assistive technology directed to the deaf was successfully accomplished.

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Collaborations

Áfio ACE and Leite SS contributed to the conception and design, writing of the article, relevant critical review of the intellectual content, and final approval of the version to be published. Carvalho ALRF contributed to the relevant critical review of the intellectual content. Almeida PC contributed to data analysis and interpretation. Rebouças CBA and Pagliuca LMF contributed to the final approval of the version to be published.

References

1. Ruan F, Fu G, Yan Y, Li Y, Shi Y, Luo L, et al. Inequities in consistent condom use among sexually experienced undergraduates in mainland China: implications for planning interventions. BMC Public Health. 2019; 19:1195.doi: https://doi.org/10.1186/s12889-019-7435-4
2. Naseribooriabadi T, Sadoughi F, Sheikhtaheri A. Barriers and facilitators of health literacy among d/deaf individuals: a review article. Iran J Public Health [Internet]. 2017 [cited Jan 13, 2021]; 46(11):1465-74. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5696685/
3. Guimarães VMA, Silva JP. Sexualidade e surdez: uma revisão sistemática. Psicol Ciênc Prof. 2020; 40:e201645. doi: https://dx.doi.org/10.1590/1982-3703003201645
4. Guimaraes VMA, Santos F, Santos BFS, Silva JP. Surdez e sexualidade: uma análise a partir das representações sociais de universitários surdos. Estud Pesqui Psicol. 2019; 19(2):387-405. doi: https://doi.org/10.12957/epp.2019.44280
5. Mprah WK, Anafi P, Yeaboah PYA. Exploring misinformation of family planning practices and methods among deaf people in Ghana. Reprod Health Matters. 2017; 25(50):20-30. doi: https://doi.org/10.1080/09688080.2017.1332450
6. Gomez MGA, Geneta ALP. Curbing the risks: toward a transdisciplinary sexual health literacy program for young adults who are deaf and LGBT+. Sex Disabil. 2020; 39:195-213. doi: https://doi.org/10.1007/s11195-020-09637-0
7. Terry DR, Lê Q, Nguyen HB. Moving forward with dignity: exploring health awareness in an isolated deaf community of Australia. Dis Health J. 2016; 9(2):281-8. doi: https://doi.org/10.1016/j.dhjo.2015.11.002
8. Oliveira QM, Figueiredo FJQ. Educação dos surdos no Brasil: um percurso histórico e novas perspectivas. Rev Sinalizar. 2017; 2(2):173-96. doi: https://doi.org/10.5216/rs.v2i2.50544
9. Galindo Neto NM, Áfio ACE, Leite SS, Silva MG, Pagliuca LMF, Caetano JA. Technologies for health education for the deaf: integrative review. Texto Contexto Enferm. 2019; 28:e20180221. doi:https://dx.doi.org/10.1590/1980-265x-tce-2018-0221

10. Vygotsky LS. The collected works of L.S. Vygotsky: the fundamentals of defect ology (abnormal psychology and learning disabilities). New York: Springer; 2011.

11. Polit DF, Beck CT. Fundamentos de pesquisa em Enfermagem: métodos, avaliação e utilização Porto Alegre: Artmed; 2011.

12. Kindem G, Musburger RB. Introduction to media production: from analog to digital. Boston: Focal Press; 2005.

13. Barton AJ. 2020: International year of the nurse and midwife. J Nurs Educ. 2020; 59(1):3-4. doi: https://doi.org/10.3928/01484834-20191223-01

14. Hortense FTP, Bergerot CD, Domenico EBL. Construction and validation of clinical contents for development of learning objects. Rev Bras Enferm. 2018; 71(2):306-13. doi: http://dx.doi.org/10.1590/0034-7167-2016-0622

15. Nasser MA, Nemes MIB, Andrade MC, Prado RR, Castanheira ERL. Assessment in the primary care of the State of São Paulo, Brazil: incipient actions in sexual and reproductive health. Rev Saúde Pública. 2017; 51:77. doi: https://doi.org/10.11606/s1518-8787.2017051006711

16. Boudreault P, Wolfson A, Berman B, Venne VL, Sinsheimer JS, Palmer C. Bilingual cancer genetic education modules for the deaf community: development and evaluation of the online video material. J Genet Couns. 2018; 27(2):457-69. doi: https://doi.org/10.1007/s10897-017-0188-2

17. Chehuen Neto JÁ, Costa LA, Estevanin GM, Bignoto TC, Vieira CIR, Pinto FAR, et al. Functional Health Literacy in chronic cardiovascular patients. Ciênc Saúde Coletiva. 2019; 24(3):1121-32. doi: https://doi.org/10.1590/1413-81232018243.02212017

18. Palmer CGS, Boudreault P, Berman BA, Wolfson A, Duarte L, Venne VL, et al. Bilingual approach to online cancer genetics education for Deaf American Sign Language users produces greater knowledge and confidence than English text only: a randomized study. Disabil Health J. 2017; 10(1):23-32. doi: https://doi.org/10.1016/j.dhjo.2016.07.002

19. Nakpong N, Chanchalor S. Interactive multimedia games to enhance the emotional intelligence of deaf and hard of hearing adolescents. Int J Instruct. 2019; 12(2):305-20. doi: https://doi.org/10.29333/iji.2019.12220a