








CONSTRUCTION AND VALIDATION OF EDUCATIONAL TECHNOLOGY ABOUT ALCOHOL CONSUMPTION AMONG UNIVERSITY STUDENTS

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ABSTRACT

Objective: to build and validate educational technology about alcohol consumption among university students.

Method: a methodological study conducted between June 2015 and July 2019 in a public university of Amazonas, Brazil. Three stages were conducted: construction, content validation, and face validation. Content validation was carried out in two phases with 15 professionals, and face validation in a single phase with 91 students from four undergraduate courses of the university.

Results: the educational technology was named Alcohol Consumption among University Students and is available in print and as an e-book. It presented a Content Validity Index of 0.62 in the first phase, and of 0.95 in the second phase. As for appearance, the Semantic Validity Index was 0.89.

Final considerations: the manual showed to be valid for use among university students, and can contribute with educational interventions within this context in higher education institutions.

DESCRIPTORS: Educational Technology; Education in Health, Higher Education; Alcohol Abuse; Health Services for Students.

CONSTRUCCIÓN Y VALIDACIÓN DE TECNOLOGÍA EDUCATIVA SOBRE EL CONSUMO DE ALCOHOL EN ESTUDIANTES UNIVERSITARIOS

RESUMEN:

Objetivo: construir y validar tecnología educativa sobre el consumo de alcohol en estudiantes universitarios. **Método:** estudio metodológico, desarrollado entre junio de 2015 y julio de 2019, en una universidad pública del Amazonas, Brasil. Se realizaron tres etapas: construcción, validación de contenido y validación de aspecto. La validación de contenido tuvo lugar en dos fases con 15 profesionales, y la validación de aspecto se desarrolló en una única fase con 91 estudiantes de cuatro carreras de la universidad. **Resultados:** a la tecnología educativa se la denominó Consumo de Alcohol entre Estudiantes Universitarios y está disponible en los formatos de manual impreso y de e-book. Presentó un Índice de Validez de Contenido de 0,62 en la primera fase y de 0,95 en la segunda. En relación al aspecto, obtuvo un Índice de Validez Semántica de 0,89. **Consideraciones finales:** el manual demostró ser válido para ser usado con estudiantes universitarios, y puede contribuir con intervenciones educativas en este ámbito en instituciones de enseñanza superior.

DESCRIPTORES: Tecnología Educativa; Educación en Salud; Educación Superior; Abuso de Alcohol; Servicios de Salud para Estudiantes.

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INTRODUCTION

Educational technologies are a set of knowledge that makes it possible to prepare, apply and monitor an educational process. They can thus mediate health education actions, since they are instruments that ease the relationship between men/women and education so that they can build knowledge⁽¹⁾. Health education actions sustained by technologies empower human beings to experience their life phases in a healthier manner⁽²⁾.

The academic life period is a cycle of intense behavioral and lifestyle changes, in addition to being a phase that is prone to the acquisition of addictions, which frequently leads to risk factors for diseases. One of the most common addictions in youth is alcohol consumption. According to the World Health Organization (WHO), the Brazilian population older than 15 drinks nearly 7.8 liters of pure alcohol per capita annually, which is above the global mean (6.4 liters per person)⁽³⁾.

The decision to assess this theme is justified, among other aspects, by the fact that the use of alcoholic beverages by young people is associated with the development of chronic diseases and with risk behaviors, such as vehicle driving and involvement in traffic accidents, unprotected sex, violent acts, and propensity to suicide⁽⁴⁾. Educational interventions among university students propitiate changes in attitudes and favor the reduction in the number of risk behaviors. Both the individual and the group interventions, mediated by educational technologies, are spaces for the exchange of information and propitiate reflections on the process of living in the university context⁽⁵⁾.

A study conducted in Argentina identified that the percentage of alcohol consumption was 75.3% among university students⁽⁶⁾. Another study with university students from 24 countries of Asia, Africa, and the Americas showed that they consume five or more doses of alcohol in the events in which they participate⁽⁷⁾.

Multiple strategies can be implemented, both for health promotion in the university context and for the reconfiguration of healthy environments within the university community. However, it is necessary to go beyond these strategies and implement educational actions whose main axis is focused on lifestyles and conditions that favor students' health⁽⁵⁾.

Education in health is one of the most important strategies applied in relation to health problems, especially when mediated by educational materials that translate available knowledge into a clear language and that are appropriate to the reality of the population. Suggestions of health education actions and interventions mediated by educational technologies are recommended in several studies⁽⁸⁾.

This study sought to raise curiosity and attention on alcohol consumption, as well as to contribute to the self-care of young university students in relation to this matter. Thus, the objective was to build and validate educational technology about alcohol consumption among university students.

METHOD

A methodological research study, conducted in three stages: construction, content validation and face validation. It adopted a theoretical-methodological reference based on Pasquali's assumptions, consisting of the theoretical, empirical, and analytical poles. In this study, the theoretical pole focused on the theorization of the construct of interest; the empirical pole, on the application to reality; and the analytical pole, on the conduction

of statistical tests⁽⁹⁻¹⁰⁾. It was conducted between June 2015 and July 2019 in a public university of Amazonas, Brazil, in the Health Sciences College.

In the construction stage, the identification of the theme was based on the first narrative review in which a search on the Virtual Health Library database was conducted from June and July 2015, guided by the following question: Which are the harmful and deleterious health practices most commonly found among university students? Alcohol stood out among the emerging themes.

Once the focus theme was defined, an integrative review was conducted from June to July 2016, when the LILACS and MEDLINE databases were accessed. The descriptors used were alcoholism and self-care, and the keywords were university students and alcohol use. The product of the integrative review, named corpus, was analyzed using the Atlas.ti software, which allowed for the preliminary definition of the contents to be approached in the educational technology. Initially, a manual was developed in the print format, so as to favor the organization of content for the execution of the validation stage.

The content validation stage was carried out in two rounds, as a minimum Content Validity Index (CVI) of 0.70 was not obtained in the first round. The experts came from the Nursing, Mental health, Educational Technologies, Psychiatry, Psychology, Pedagogy, and Graphic Design areas, and were intentionally selected, by convenience, in the university, and according to their expertise on the theme. In order to expand that number, the snowball technique⁽¹¹⁾ was used, where each participant indicated from one to two experts from other higher education institutions.

Data collection with the experts was conducted between 2017 and 2018 by means of a validated instrument⁽¹¹⁾. The instrument was divided into two parts; the first included identification data of the specialists: age, gender, training area, time of training, position/job in the institution where they work, time of professional performance, and academic qualification; the second part included 22 specific questions, organized into three blocks: I Objectives, with five questions; II- Structure and presentation, with 12 questions; III- Relevance, with five questions. Each statement is answered by means of a Likert scale, with values from 1 to 4, with 1 for totally adequate, 2 for adequate, 3 for partially adequate, and 4 for inadequate.

The face validation stage took place in a single round, as the minimum CVI of 0.70 was reached. The study participants consisted of students from four health courses offered in the university: Nursing, Medicine, Dentistry, and Physical Education. All the participants were selected by intentional convenience sampling from a list of students enrolled in 2018 who were attending from the 4th to the 8th semester of the course.

Data collection with the target audience was conducted in 2019, using another validated instrument⁽¹¹⁾, which was divided into two parts; the first included student's identification data: university semester, gender, and age; whereas the second included 26 specific questions, organized into five blocks: I – Objectives, with three questions; II – Organization, with seven questions; III – Writing style, with six questions; IV – Aspect, with four questions; and V – Motivation, with six questions. Each statement is answered by means of a Likert scale, with values from 1 to 4, with 1 for totally adequate, 2 for adequate, 3 for partially adequate, and 4 for inadequate.

Figure 1 demonstrates the process of the research, with all steps of production and validation.

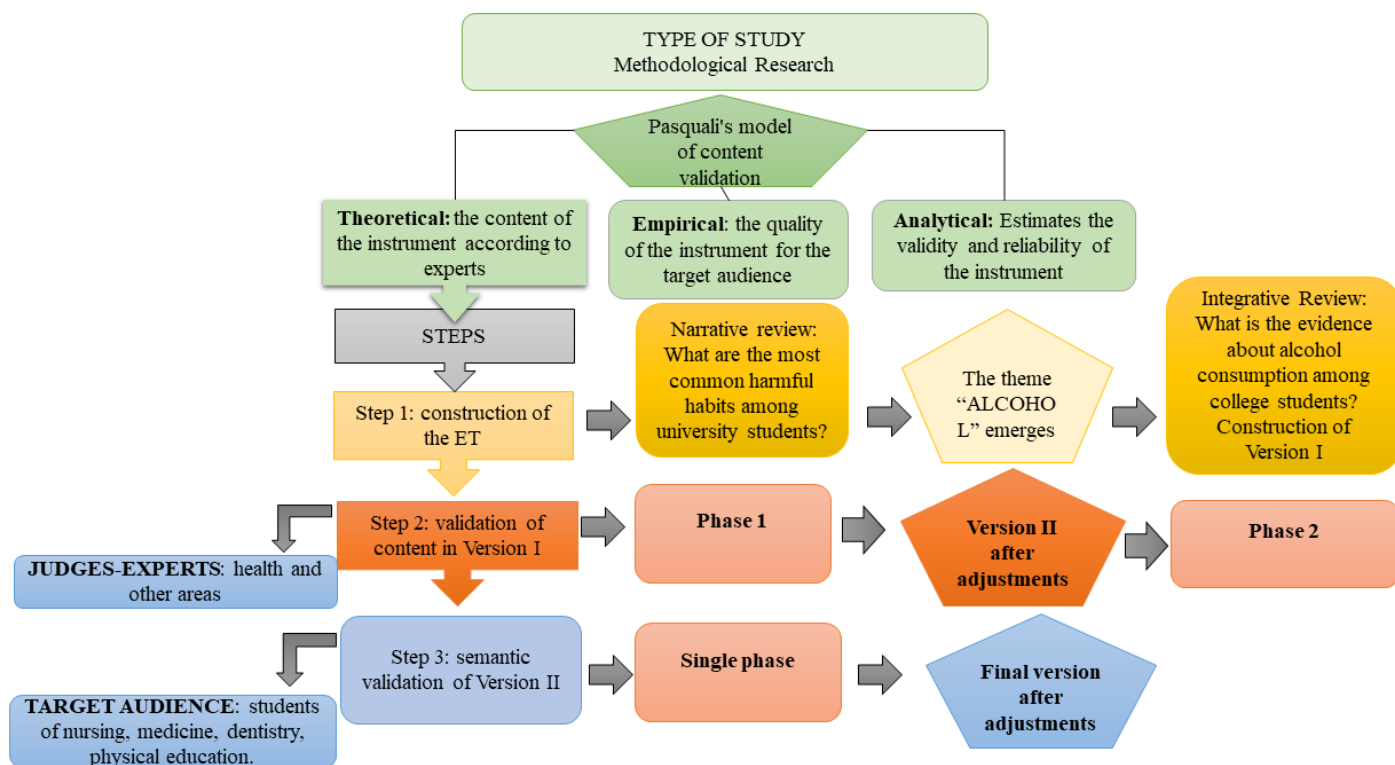


Figure 1 - Floechart of method. Manaus, AM, Brasil, 2019

All the participants were invited to participate by e-mail. Those who responded received the Free and Informed Consent Form. After formal acceptance, they received the instrument and the educational technology in a Portable Document Format (PDF) digital document.

The data were stored in an Excel spreadsheet. For the statistical analysis of the two validation rounds and of the single round with the target audience, a value equal to or higher than 0.70 was established for each item/block to be considered validated⁽¹¹⁾.

The study was submitted to the Research Ethics Committee of the State University of Amazonas and approved under opinion number 2,709,552.

RESULTS

Construction of the Technology

After reading the articles retrieved in the integrative review and analyzing the corpus using the Atlas.ti software, the following themes were identified: what is alcohol; epidemiology; patterns of alcohol consumption; alcohol use and university students; risk factors for alcohol use; and consequences of alcohol use. This set of themes was grouped into the category named "Alcohol consumption among university students".

Based on this category, the main topics of the first version of the manual were defined: what is alcohol, what the WHO say about harmful alcohol use, what does this has to do with me, a young university student, risk factors for the young population, health problems,

what care should I take, and where should I seek help. The manual was designed using clear and objective language⁽¹¹⁾ and included figures, which were subsequently improved by a graphic design team and an illustrator; moreover, the text underwent grammatical review. The first version of the manual, entitled "Harmful Alcohol Consumption among University Students", was structured into 13 pages and had 13 images.

Content validation

In the first validation stage, of the 15 specialists, 53.3% had a PhD degree, with a mean training time of 19 years, and 80% were professors in their areas of training/academic qualification.

A CVI of 0.62 was obtained in the first round. The participants indicated the following suggestions for improvement: changes in layout, representation, and colors of the cover; text corrections and reduced use of technical terms; inclusion of greater representativeness of races and genders in the images; changes in titles; and inclusion of contemporary images.

After the required adaptations, the second version of the manual had 23 pages and 32 images, with the following sections: What is alcohol? Alcohol consumption; University students and alcohol; Risk factors; Consequences of its use; and Harm reduction, in addition to two additional sections. In the second validation round, a total CVI of 0.95 was reached, being considered statistically valid (Table 1).

Table 1 - Content Validity Indexes of the first and second validation phases according to the instrument's blocks. Manaus, AM, Brazil, 2019

Items	Content Validity Index	
	1 st ROUND	2 nd ROUND
Block 1 – Objectives	0,49	0,93
Block 2 – Structure and presentation	0,63	0,95
Block 3 – Relevance	0,72	0,99
FINAL CVI	0,62	0,95

Source: The authors (2019).

Face validation

Of the 91 students who participated in the face validation stage, 27 were from Nursing, 36 from Medicine, 22 from Dentistry, and 6 from Physical Education. The age group varied between 19-21 years old (60.5%), 22-24 years old (28.6%), 25-27 years old (6.6%), and over 30 years old (4.3%). Regarding gender, 71.4% were female and 28.6%, male.

In the first and only phase, a total Semantic Validation Index (SVI) of 0.89 was reached, above the minimum recommended: 0.70 (Table 2).

Table 2 - Semantic Validation Indexes of the second stage according to the instrument's blocks. Manaus, AM, Brazil, 2019

Items	Semantic Validation Index 1 st ASSESSMENT
Block 1 – Objectives	0,92
Block 2 – Organization	0,87
Block 3 – Writing style	0,89
Block 4 – Aspect	0,87
Block 5 – Motivation	0,9
OVERALL TOTAL	0,89

Source: The authors (2019)

The students made suggestions such as: reduction in the number of pages; changes in cover layout; changes in the fonts used in the entire text; improvements in the organization of summary; use of more formal language. After the required adaptations, the third and last version of the manual has 20 pages and 10 images, and maintains the sections of the previous version.

The manual was registered in *Fundação Biblioteca Nacional* and is available in the repository of the State University of Amazonas⁽¹²⁾.

DISCUSSION

Studies on educational practices show that printed or digital educational materials contribute to the communication process, increasing adherence and understanding on the subject matter by the audience at which these materials are aimed. There are indications that written guidelines have been more effective than oral ones. It is also worth emphasizing the importance of developing a technology that has an understandable language for the target population and is visually attractive, so as to encourage reading. Dissemination of information is one of the best options to raise awareness of the community about their life habits; moreover, when aimed at alcohol consumption among university students, such information is a facilitator for qualification and health promotion in this population⁽¹³⁾.

A review study on consumption of illicit drugs, alcohol, and tobacco among university students found that the assessment of questions answered by "problem drinkers" among university students is discussed as a determining factor for the understanding of their characteristics. However, it is worth noting that the results are different, according to the Brazilian universities under study. Among other results, it was verified that 21.7% of the students experienced a sensation of loss of control before they stopped drinking, and 25.4% failed to do what was expected due to alcohol consumption⁽¹⁴⁾.

Alcohol consumption among university students has been targeted by several studies aiming to improve prevention programs for this population, since excessive alcohol use leads to many consequences, such as liver and cardiovascular diseases, as well as it increases the incidence of risk behaviors, such as violence, unprotected sex, and reckless driving⁽¹⁵⁾.

Educational technologies are products that emerge from processes materialized either from experience or from research. These technologies are applied as devices to mediate educational practices and have been constructed for different audiences: students, community, professionals. In the context of university students, there is a greater number of studies on the teaching-learning process and a lower number of studies on aspects of the academic everyday life of these students⁽¹¹⁾.

The effectiveness of the use of educational technologies among the university population as a comprehensive tool to improve motivation to quit health-harming habits is a new research field. It has been shown that new studies are needed, with longer follow-up assessments, together with consultations with the health staff that provides counseling and support for the withdrawal of different drugs and also of alcohol⁽¹⁶⁾, an initiative that is currently in the implementation phase in the university where this study took place.

The validation process of an educational technology is based on the premise that this process is crucial to assess the legitimacy and credibility of the designed instrument before it is disseminated and/or distributed to the target audience. Likewise, content validation is essential to assess the representativeness and clarity of each item of the technology, so that it is applicable to the target audience⁽¹⁰⁾. Validation is necessary through instruments that consider aspects related to content, structure, and organization⁽¹⁷⁾.

The results pointed to a diversity of areas of expertise among judges-specialists. Studies that performed the validation of educational technologies have ensured a wide diversity of professionals, which favors the qualification of the analysis and of the suggestions provided⁽¹⁸⁻²⁰⁾.

It is worth noting that assessment was conducted in two phases, because the minimum required value was not reached in the first phase. Validation studies favor the creation of reliable instruments that are attractive to the target audience, supporting the dissemination of safe information, since it is analyzed by a myriad of experienced professionals⁽¹⁰⁾, who assess the contents and the relevance of this information in the context of interest⁽²⁰⁾.

The incorporation of the contributions received strengthens the technical-scientific scope of the technology, since it contributes to increase the reach of the construct objectives, due to the incorporation of diverse expertise and different views, analyses and meanings on the manual and its impact on the health of the university students. Thus, these suggestions were essential for the qualitative improvement of content and appearance⁽²¹⁾.

Another aspect to be noted is the participation of the target audience in the validation process. The insertion of end users in the process ensures the proper approach with this population, since only the target audience is able to directly indicate what is lacking for them to identify with the material⁽²²⁾. By criticizing and/or collaborating with their understanding on what has been written and portrayed, university students can aid the authors in refining the technology, in order to avoid stigmas and preconceived images far from the reality of these young students, thus establishing this technology as a facilitator for education and dialog in health.

From the validation, it was possible to identify points to improve in the manual in relation to readability and presentation. The organization of a printed guide, with regard to the sequence of text, figures, and images, organization of messages, indication of important excerpts and ideas, use of colors, spacing, and type of letter, facilitates the readability of educational materials⁽²³⁾.

There is a section on the consequences of use, e.g., related to driving. The literature shows that male sex and younger age are characteristics that coincide with those associated with deaths by traffic accidents⁽²⁴⁾.

Considering that the manual was assessed as appropriate in the second phase of the first stage and in the single phase of the second stage, it emerges as a device for

education in health favoring the students' self-care and health. It is worth reinforcing the role of education in health as a health promotion strategy and that, among its objectives, is to enable users to construct critical thinking and also to visualize and adopt alternative ways to solve their problems by providing counseling and information focused on the adoption of new health habits and practices⁽²³⁾. From the perspective that health education is a device, it has the potential of promoting self-management, self-government of bodies and self-care in health⁽²⁴⁻²⁶⁾.

Another relevant aspect present in the final version of the manual is the association between alcohol consumption and cultural aspects. It is stated that its consumption has cultural determinants, and that we should not trivialize the analysis of use/abuse situations in which the very lives of young individuals starts to be at risk due to, among other aspects, the lack of actions that may contribute to a more autonomous consumption⁽²⁷⁾. This is why there was the need to build a device that mediates health education strategies.

The results emphasize the importance of addressing the topic of risk factors for alcohol consumption, which is related to individual freedom provided by access to the university, especially to students who leave small towns to study in large urban centers, as it is usually the case in the Brazilian state of Amazonas. These students can be influenced by external motivations, such as friends and family, and by internal motivations, such as need of belonging, curiosity, idleness, pleasure, and stressful situations such as financial difficulties, countless academic assignments, competitiveness, autonomy, increased responsibility, deprivation of family life, in addition to uncertainties with regard to their professional future⁽²⁸⁾.

Hence, based on the perspectives indicated in the validation processes of the manual, emphasizing elements of autonomy, this manual is believed to contribute to the creation of new identity-related nuances and to the constitution of active subjects⁽²⁵⁾. This is the desired perspective with the dissemination of the manual validated in this study.

It is important to note the limitation of the study, which is the non-participation of students from other areas of knowledge. It was decided to address students attending the Health College due to the direct relationship between the theme and the referred area of the students.

FINAL CONSIDERATIONS

The last version of the manual revealed to be a valid and appropriate device for use with university students. The suggestions provided in the content and face validation stages showed the importance of subjecting educational devices to validation processes.

This manual is intended to provide valuable information to this population, in order to produce questionings on their behaviors, awareness, and possible reduction of harms resulting from alcohol use.

It is also noteworthy that this construct allowed for the incorporation of the use of evidence-based educational materials that were subjected to processes of content and semantic validation so as to mediate health education practices and university students' awareness, with the purpose of encouraging approach and dialog with the target audience.

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Drafting the work or revising it critically for important intellectual content - VCGG, DSF, ET, ALOM

Final approval of the version to be published - MHMN



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