Revista da Escola de Enfermagem da USP
ISSN: 0080-6234
reeusp@usp.br
Universidade de São Paulo
Brasil

Pinheiro de Oliveira, Paula Marciana; Freitag Pagliuca, Lorita Marlena
Avaliação de tecnologia educativa na modalidade literatura de cordel sobre amamentação
Revista da Escola de Enfermagem da USP, vol. 47, núm. 1, febrero, 2013, pp. 205-212
Universidade de São Paulo
São Paulo, Brasil

Available in: http://www.redalyc.org/articulo.oa?id=361033324026

How to cite
Complete issue
More information about this article
Journal's homepage in redalyc.org

Scientific Information System
Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal
Non-profit academic project, developed under the open access initiative

Assessment of an educational technology in the string literature about breastfeeding*

AVALIAÇÃO DE TECNOLOGIA EDUCATIVA NA MODALIDADE LITERATURA DE CORDEL SOBRE AMAMENTAÇÃO

EVALUACIÓN DE TECNOLOGÍA EDUCATIVA EN LA MODALIDAD LITERATURA DE CORDEL SOBRE AMAMANTAMIENTO

Paula Marciana Pinheiro de Oliveira[1], Lorita Marlena Freitag Pagliuca[2]

ABSTRACT

The goal of this study was to assess educational technology in the string literature about breastfeeding. The study was conducted between March and September 2009 by breastfeeding experts and experts on string literature. A psychometric model was adopted as the theoretical-methodological framework. For data collection, an instrument was used to assess the content about breastfeeding and the string literature rules. The analysis was based on comparisons of the notes and critical reflections of experts. Ethical guidelines were followed during the study. After the assessments, the educational technology was adjusted until all of the experts agreed. The assessment of educational technology can reduce obstacles to information dissemination and can lead to improvements in quality of life.

DESCRIPTORS

Literature
Breastfeeding
Evaluation
Technology
Nursing care

RESUMO

Este trabalho objetivou descrever o processo de avaliação de tecnologia educativa, com relação aos aspectos de conteúdo e literatura de cordel sobre amamentação. Foi realizado de março a setembro de 2009, com juízes especialistas em conteúdo e literatura de cordel, e como referencial teórico-metodológico adotou-se o Modelo da Psicometria concretizando o polo teórico. Na coleta de dados utilizou-se instrumento para avaliar conteúdo e regras da literatura de cordel. A análise foi feita mediante comparações das anotações dos juízes e reflexão crítica. Respeitaram-se os aspectos éticos. A tecnologia educativa recebeu ajustes após pareceres até sua aprovação pelos juízes, e as contribuições foram válidas por colaborar com o processo de avaliação da tecnologia. Avaliar tecnologias educativas para disponibilização é uma forma de favorecer a redução dos possíveis fatores encontrados como obstáculos e, com isso, melhorar a qualidade de vida.

DESCRITORES

Literatura
Aleitamento materno
Avaliação
Tecnologia
Cuidados de enfermagem

RESUMEN

Se objetivó describir el proceso de evaluación de recursos educativos, en los aspectos referidos a contenido y literatura de cordel, acerca de amamantamiento. Estudio realizado de marzo a setiembre de 2009, con evaluadores especialistas en contenido y literatura de cordel. Se adoptó como referencial teórico-metodológico el Modelo de la Psicometría, concretizando el polo teórico. Para la recolección de datos, se utilizó un instrumento para evaluar el contenido y reglas de la literatura de cordel. Análisis efectuado mediante comparaciones de las notas de los evaluadores y reflexión crítica. Se respetaron los aspectos éticos. La tecnología educativa recibió ajustes luego de su evaluación y hasta la evaluación de los expertos; las contribuciones fueron válidas por considerarse que colaboran con el proceso de evaluación de la tecnología. Evaluar recursos educativos para su disponibilización es un modo de facilitar la reducción de posibles factores considerados obstáculo, y así mejorar la calidad de vida.

DESCRIPTORES

Literatura
Lactancia materna
Evaluación
Tecnología
Atención de enfermería

* Taken from the thesis "Avaliação de uma tecnologia assistiva sobre amamentação para pessoas cegas", School of Pharmacy, Dentistry and Nursing, Universidade Federal do Ceará, 2009.

[1] RN, MSc in Nursing, Ph.D. Candidate in Nursing, Graduate Nursing Program, Nursing Department, Universidade Federal do Ceará; CNPq grantee; Fortaleza, CE, Brazil; paulamarciana@yahoo.com.br [2] RN, PhD in Nursing, Full Professor, Nursing Department, Universidade Federal do Ceará; Pesquisadora CNPq; Fortaleza, CE, Brazil; pagliuca@ufc.br

Português / Inglês
www.scielo.br/reeusp

Received: 05/12/2011
Approved: 05/09/2012

INTRODUCTION

The availability of health care technology has been widely discussed and is related to how people engage with their environment[1]. Like other health care areas, nursing uses technologies to deliver care to their clientele and to promote autonomy and independence. These technologies are used for health education within and outside of institutional environments.

Technology is used in daily work to facilitate tasks that were historically impossible[2]. Technology constructs knowledge that socializes people and attends to the needs of a social group; technology can solve previously identified problems that are specific to a community[3].

As multiprofessional team members who serve as health educators and promoters, nurses use several technologies for health promotion, maintenance and recovery. Nurses practice the art of care with creativity and competency. Therefore, nurses need to participate in the creation, development and assessment process of educational materials. Their participation can enhance other nursing team members' motivation and can improve educational technology that promotes nursing and produces practical knowledge[4].

The publication of previously constructed technologies should be encouraged. Health professionals can use these technologies during consultations and to develop health education strategies to promote health and prevent disease. However, these technologies must be assessed to guarantee their efficiency and validity.

Technology assessment can be conceptualized as a process that determines whether an intervention has reached its intended goals[5]. The assessment should guide practitioners' actions in the intended sector and determine which activities are appropriate and feasible for the stated objectives. Technology assessment is an important and complex process, and continuous reflection is required before it can become an effective tool[6].

Health technology assessment (HTA) is a process that determines the consequences of health technology use. HTA can comprise clinical, economic and social aspects of a health technology. Health technologies are understood as medicines; equipment and technical procedures; organizational, educational, information and support systems; and health care protocols for a population[7].

This study assessed educational technology in the form of string literature about breastfeeding. This format was chosen for the following reasons: string literature about breastfeeding is publicly attractive because it uses rhyme, and the literature serves as an instrument for health education. As a form of mass communication, historians[8] suggest that string literature emerged on the Iberian Peninsula and spread to the Brazilian Northeast at the end of the 19th century. The booklets appeared in Fortaleza during Nogueira Accioly's oligarchy.

This study addresses string literature about breastfeeding[9], which serves as an important form of health education. Breastfeeding is considered to be healthy, and string literature can encourage the practice. However, in considering whether to encourage breastfeeding, each family's reality must be considered. Research on health education related to breastfeeding is rare, so there is an urgent need to develop further research in the area.

According to some studies, the early interruption of breastfeeding can be motivated by a mother's lack of knowledge about the practice. Nurses' encouragement of breastfeed is important. Studies suggest that breastfeeding offers countless advantages, including the reduction of child mortality rates[10].

According to the Brazilian Ministry of Health, 97% of children in Brazil start breastfeeding in the first hours of life, but the average duration of breastfeeding is 29 days[11].

The theme of health education about breastfeeding is important for the Brazilian population; the humorous approach of the string literature can enhance the public's understanding about the importance of breastfeeding. The population requires education that uses innovations, technological advances and significant themes to prioritize their needs.

Technology constructs knowledge that socializes people and attends to the needs of a social group; technology can solve previously identified problems that are specific to a community.

To assess the educational technology of string literature about breastfeeding, the theoretical framework of a psychometric model was adopted. Psychometric models involve constructing psychological tests that are based on three primary hubs: theoretical, empirical and analytic. The theoretical hub develops theory about the psychological object for which a measurement instrument and items are to be constructed. In the empirical or experimental hub, the application phases and techniques of the pilot instrument are defined and information is collected to assess the instrument's psychometric quality. In the analytic hub, statistical analysis procedures are applied to achieve a valid, precise and standardized instrument[12].

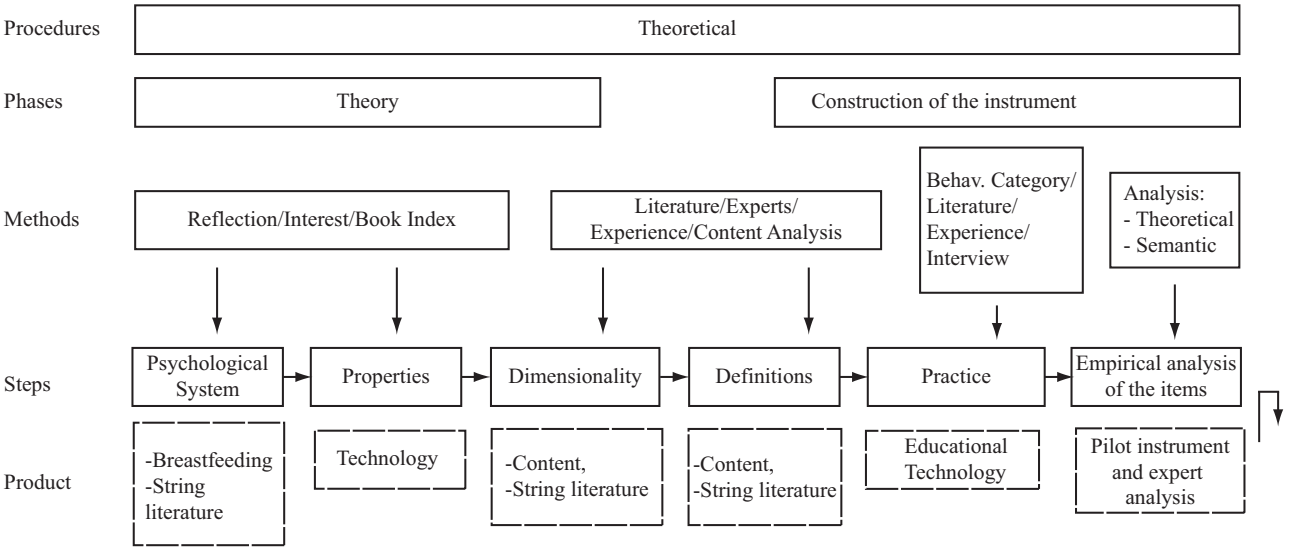
The aim of this research was to apply the theoretical hub, including the description of the educational health technology assessment process, to the string literature about breastfeeding.

METHOD

The methodological proposal followed criteria that were established in psychometric models for constructing instruments that measure subjective phenomena. The theoretical hub, which corresponds to the first phases of assessing construct validity, was adapted to evaluate an educational technology[12]. This study describes the health technology

assessment process for promoting health education about breastfeeding. For this study, the psychological object is the educational technology.

In Figure 1, the adapted model is displayed for the elaboration and assessment of the educational technology. The phases that were used in this study are indicated in bold.



Source: Pasquali (1999).

Figure 1 - Theoretical procedures in the elaboration of a health care technology.

The present study assessed an educational technology about breastfeeding. The educational technology was a string literature that describes a preliminary publication titled, *Breastfeeding at work*[9]. Figure 1 corresponds to the study's reflection, interest, book consultation and index elaboration methods. The steps develop the psychological system for and the properties of an educational health technology in the form of string literature. The string literature consists of 44 sextains and six-verse strophes that are arranged as follows: the second, fourth and sixth verses rhyme, and the first, third and fifth verses are free verses[8].

The string literature is presented in categories that are discussed in relation to the relevant theoretical frameworks: 1. Breast milk composition; 2. Myths and taboos about breastfeeding; 3. Professional and family views about breastfeeding; 4. Advantages of breastfeeding for the child; 5. Advantages of breastfeeding for the mother and family; 6. Communication in health care. The text is available at www.labcomsaude.ufc.br.

Six judges assessed the construction of the theoretical hub. Three content judges were breastfeeding specialists, and three judges were experts on string literature. The subsequent steps included definitions and a measure of dimensionality, which was followed by the assessment and empirical analysis of the items. The judges completed their assessments when they considered the construct to be appropriate for developing a pilot test for the target population.

The research was conducted using the researcher and subjects' private e-mails between March and September 2009. After receiving an invitation that explained the research objectives, the judges who confirmed their participation received the assessment instruments, which were later returned. Their suggestions were accepted, the adjustments were made and the technology was resubmitted for analysis; the judges reassessed the technology until there were no more adjustments to incorporate.

The inclusion criteria for the breastfeeding content judges stipulated that each judge had a PhD degree, had developed a thesis and dissertation on the theme, had published papers on the theme and had at least three years of practical experience[13]. For the string literature judges, each judge held a *lato sensu* graduate degree and was experienced in the elaboration and publication of string literature. All judges were available to participate in the research.

Two instruments were elaborated for the judges' analyses. One instrument was related to content about breastfeeding, and the other instrument was related to string literature. The content evaluation instrument was divided into three topics. The first topic highlighted the composition of breast milk, myths and taboos about breastfeeding, the importance of the father, family and professional considerations, the advantages of breastfeeding for the child, the advantages of breastfeeding for the mother, encouragement for breastfeeding, changes in behavior and attitudes about breastfeeding and institutional stimulus for encouraging breastfeeding.

The second topic appropriated the educational technology to the proposed age range for women and men. The topic included scientific corrections for the information to eliminate discrimination and prejudice, and the language

was developed to clearly and specifically target the public. The second topic ensured that the text was an adequate length, the sequence of the proposed content was logical and the concepts were interrelated.

The third topic determined whether the technology illustrated the key aspects about breastfeeding that needed to be reinforced. The topic also determined whether the technology facilitated learning in different contexts, such as hospital, residential and outpatient contexts. The topic clarified the target public for issues related to breastfeeding practice, the encouragement of breastfeeding and breastfeeding themes that needed to be emphasized for the family as a whole.

The string literature experts used an assessment instrument that considered whether the theme was appropriate for any community; the adequate booklet length; the correct rhyme use; the appropriate number of syllables in the verse; and the use of the first, third and fifth free verses and the second, fourth and sixth rhymed verses.

The data were then analyzed in the same order as they were collected, starting with the content and ending with the string literature; pictures were used to present the assessment. The discussion was based on the available literature about breastfeeding.

The project was submitted to the research ethics committee at the Universidade Federal do Ceará (Protocol 21/2009). Ethical and legal guidelines for research were followed, and all subjects signed informed consent forms.

RESULTS

Six judges, including three content judges and three string literature judges, evaluated the study. To preserve the experts' anonymity, the content and string literature judges were coded in numerical order by the evaluation phases (i.e., J1, J2 and J3).

Evaluations by the breastfeeding content judges

All judges in this phase were female and held a Ph.D. degree. The judges were instructed to adjust the care technology (CT) and to complete the assessment instruments. Relevant suggestions were accepted and submitted for reassessment regardless of whether they came from the majority. Chart 1 displays the initial content assessment of the first topic.

Chart 1 – Assessment of the instrument items in topic 1 by the content experts - Fortaleza, CE, 2009.

Item	Assessment
1.1 The composition of breast milk is highlighted.	Appropriate with revisions (3)*
1.2 Myths and taboos about breastfeeding are clarified.	Totally appropriate (2); Appropriate with revisions (1)
1.3 The importance of the father, the family and professional life are highlighted.	Totally appropriate (3)
1.4 Advantages of breastfeeding for the child are highlighted.	Totally appropriate (3)
1.5 Advantages of breastfeeding for the mother are highlighted.	Totally appropriate (3)
1.6 Topics that encourage breastfeeding are covered.	Totally appropriate (3)
1.7 Changes in behavior and attitude are encouraged.	Totally appropriate (2); Inappropriate (1)
1.8 Breastfeeding is encouraged by institutions.	Totally appropriate (1); Appropriate with revisions (1); Does not apply (1)

*Answer frequencies are displayed in parentheses.

Regarding the composition of breast milk (1.1), the judges suggested the following about the literature:

> (...) also highlight the presence of free amino acids besides calcium and phosphor (Subject J1);

> (...) does not contain endorphin, but this hormone, produced by the hypophysis, is released during breastfeeding (Subject J2);

> (...) incorrect information about the milk color (...) endorphin, can be changed to calming (Subject J3).

For the items about myths and taboos of breastfeeding (1.2) and encouragement for changes in behavior and attitude (1.7), the following absence was noted by one judge:

> (...) [clarifying] doubts about burping at the breast and weak/watery milk (Subject J3).

Regarding encouragement for breastfeeding from institutions (1.8), one expert suggested that the item *did not apply* and stated the following:

> Breastfeeding stimulation at institutions should also be prioritized through specific strategies for professionals (Subject J1).

Regarding the appropriateness of the CT for the proposed age range (over 18 years of age) (2.1) and the appropriateness of the font size (2.7), one judge provided the following comments:

> Some words need to be clearer and common in our people's speech. Various terms need to be reconsidered in the text (Subject J3);

> The text is very long. I would further reinforce mother, child and family bonding issues. I would start by talking more about the physiology aspects, advantages for the mother at the start of the strophes (Subject J3).

For whether the information was clear and the terms understandable (2.6), there were two suggestions for revisions. One expert considered the CT inappropriate. The other two judges made the following comments:

Chart 2 – Evaluation of the topic 2 items by the content experts - Fortaleza, CE, 2009.

Item	Evaluation
2.1 The technology is appropriate for the proposed age range (over 18 years of age).	Totally appropriate (2)*; Inappropriate (1)
2.2 The technology is appropriate for women and men.	Totally appropriate (2); Appropriate with revisions (1)
2.3 The information is scientifically correct.	Totally appropriate (1); Appropriate with revisions (1); Does not apply (1)
2.4 The information does not contain discrimination or prejudice.	Totally appropriate (2); Appropriate with revisions (1)
2.5 The language is appropriate for the target public.	Totally appropriate (2); Appropriate with revisions (1)
2.6 The information is clear and the terms are understandable.	Appropriate with revisions (2); Inappropriate (1)
2.7 The font size is appropriate.	Totally appropriate (2); Inappropriate (1)
2.8 The proposed content contains a logical sequence.	Totally appropriate (1); Appropriate with revisions (1); Does not apply (1)
2.9 The concepts in the text are interrelated.	Totally appropriate (2); Appropriate with revisions (1)

*Answer frequencies are displayed in parentheses.

> I gave some suggestions for changes in the text. Some verses are also confusing (Subject J1);

> Verses 6 and 10 are confusing. In verse 6, *Peace and calmness for the mother? It's a lie that introduces* can lead to the mistaken interpretation that the mother's peace and calmness favor weak milk. In verse 10, *So the restlessness / The mother has can produce / There is no breastfeeding*. Suggestion: the restlessness the mother feels can produce problems/absence/failures in breastfeeding (Subject J2).

Judge 2 suggested replacing several verses:

> Verses 3, 4 and 5 talk about the color of the milk. (...) I believe that information about more watery milk (at the start of feeding) and more fatty milk (at the end of feeding) is important though. In verse 3, I suggest replacing *various colors* with *various tastes* and *that color* with *that taste*; in verses 4 and 5, reformulate without using the color parameters, just the nutrition parameters (Subject J2).

Chart 3 – Evaluation of the topic 3 items by the content experts - Fortaleza, CE, 2009.

Item	Evaluation
3.1 The technology illustrates the key aspect that needs to be reinforced.	Totally appropriate (1)*; Appropriate with revisions (2)
3.2 The technology permits the transfer and generalization of learning in different contexts (hospital, residential and outpatient).	Totally appropriate (2); Inappropriate (1)
3.3 The technology clarifies issues related to breastfeeding practice to the public.	Totally appropriate (2); Appropriate with revisions (1)
3.4 The technology encourages breastfeeding.	Totally appropriate (3)
3.5 The technology pictures the necessary topics to inform the family as a whole.	Totally appropriate (2); Inappropriate (1)

*Answer frequencies are displayed in parentheses.

Chart 3 illustrates the evaluation of the third topic.

As shown in Chart 3, one suggestion was to revise the item related to the key aspect that needs to be reinforced (3.1):

> Further detail about care for the nipples and types of nipples (Subject J1).

The judges' comments and suggestions were relevant for constructing the verses and improving the technology. All of the comments and suggestions highlighted that the string literature was appropriate and interesting. The following suggestions were made about the string literature:

> Simple and attractive technology that is easy to operate (Subject J1);

> (...) appropriate and it certainly reaches (...) the population in general as well, in a playful and interesting way (Subject J2);

> (...) change some excerpts (...) if the breast is sensitive, pass breast milk on the nipple, it prevents cracks. And if the breast is hard (...) massage (...) have the baby breastfeed more frequently, it helps to relieve the mother and the baby gets more nourished and satisfied (Subject J3).

Before the re-evaluation, one of the judges (J3) proposed several adjustments that were all accepted:

> I think it's not clear that the mother should avoid cross-breastfeeding (like being a *wet-nurse*) (...) Making it clearer, without creating the impression that the mother is backward, but well informed, she can only give another mother's milk if it has been pasteurized in a milk bank (Subject J3);

> (...) It (the idea) will be transmitted that, if the mother eats certain foods, this can change the taste of the milk (and that is very controversial). What you need to clarify really is that part of the milk is FOREMILK, rich in water, antibodies and salt, and HINDMILK, rich in fat and sugar (Subject J3).

After accepting the suggestions that were formulated in the first evaluation, the educational technology was evaluated a second time, and new analyses were developed. One judge thought that the encouragement for behavior and attitude changes (1.7) were appropriate, but the judge suggested revisions:

> I believe that the aim of the content is not to encourage changes, but to clarify and stimulate knowledge about breastfeeding practices (Subject J3).

In the second evaluation of topic 2, the items were considered appropriate, but one judge observed the following:

> Despite the changes, I would like it to be tested (...) to see if what was emphasized in the strophes was understood correctly. There may be a possibility of biased understanding. The same is true for language, as that is not such a usual form of communication among us sighted people, and we need to assess it in this other group (Subject J3).

This comment remits to the next phase of the psychometric model, which was the empirical validation in the target public. The validation phase assessed the benefits of the educational technology for future research.

In topic 3, two judges thought that the item that assessed whether the technology pictured the themes to inform the family as a whole (3.5) was totally appropriate, while one judge considered the item to be appropriate with revisions. Several comments and suggestions were related to the evaluation instrument in the second assessment phase:

> Relevant technology for maternal and infant nursing care (Subject J1);

> The change in the content sequence improved the presentation of the text and made it more systematic. The newly incorporated verses also contributed to a further understanding (Subject J2);

> Although the text is very long (it needs to be evaluated further whether the population remains concentrated at all times during listening), the strategy offers innovations (...) and should be supported and disseminated. This will certainly create different opportunities for future studies on the theme (Subject J3).

Evaluation by the string literature judges

The judges in this phase were all male. Judge 4 holds a degree in languages and social communication (journalism) and has published approximately 70 pieces of string literature. Judge 5 graduated in languages and has published approximately 120 pieces of string literature. Judge 6 holds a degree in history and has published approximately 60 pieces of string literature.

In the second evaluation phase by the string literature judges, all of the items were evaluated. A summary of each item is presented in Chart 4.

Chart 4 – Assessment of the educational technology by the string literature judges - Fortaleza, CE, 2009.

Item	Evaluation
4.1 The string literature is appropriate for any community.	Totally appropriate (3)*
4.2 The length of the booklet is appropriate.	Appropriate with revisions (1); Inappropriate (2)
4.3 The string literature correctly uses rhymes.	Totally appropriate (2); Appropriate with revisions (1)
4.4 The number of syllables in the verses is appropriate.	Totally appropriate (2); Appropriate with revisions (1)
4.5 The first, third and fifth verses are free verses.	Totally appropriate (3)
4.6 The second, fourth and sixth verses are rhymed verses.	Totally appropriate (3)

*Answer frequencies are displayed in parentheses.

The judges made the following comments about the length of the string booklet (4.2):

> The ideal would be 48 strophes, to be published in a 16-page booklet, with three strophes on each page (Subject J5);

> As for the number of strophes, a string can be made with 11 x 4=44 strophes, one page would be glued (Subject J6).

With regard to the rhyme use (4.3) and the number of syllables in the verses (4.4), one judge suggested revisions, and the other judges were satisfied:

> Congratulations on the work; it has a great slant of the initiative of an inborn string literature author. Therefore, I suggest a rereading together with a string literature professional so that, together with you, he can indicate elements that can improve your work (Subject J5);

> Very wholesome the idea of choosing this theme. In fact, breastfeeding is the most sublime act on a mother's behalf. It should be highlighted that the form with which the master's student chose to present her thesis was the best: string literature. This literary genre lies within everyone's reach, from the most literate to the most illiterate person. Hence, the project of the master's student will certainly be as successful as she has dreamt of (Subject J4).

After the proposed adjustments in the string verses, the researchers again submitted the literature for evaluation. One string literature judge suggested further changes in two strophes:

> Your route through string literature has started; with a little more skill you will outperform the masters (Subject J5);

> It's excellent (Subject J6).

DISCUSSION

All of the content judges submitted two evaluations. The language and expressions were replaced to facilitate the public's understanding and to avoid possible confusion. The judges suggested clarifications about the myths and taboos about breastfeeding that were expressed in the technology, due interfere with the duration of breastfeeding. Breastfeeding takes place in a sociocultural context and is influenced by culture, beliefs and taboos[14].

In a study about how nurses can address grandmothers and their families, the theme of breastfeeding promotion was addressed. Women found the presence of a health

professional, in this case a nurse, helpful. Health professionals were perceived as being important in the hospital and at home[15].

The judges indicated that another important topic was to reinforce mother-child bonding during breastfeeding. Studies show that pleasant, eye-to-eye breastfeeding with permanent contact favors the mother and the child, promotes intimacy, encourages affection and feelings of security and protects the child; the mother has increased self-confidence and feelings of accomplishment[16].

Cross-nursing was also mentioned as a topic for further clarification. The mothers need to be instructed to avoid breastfeeding children other than their child. The aim is to avoid the spread of pathogens, such as HIV, through breast milk[17].

The proposed suggestions were aimed at improving the educational technology to facilitate popular understandings of breastfeeding. In a study on the validation of educational material for self-care among mastectomized women, a similar aim was to modify expressions for the sake of easier understanding[4].

When educational material is elaborated, clear and objective language enhances the target population's understanding[18]. A psychometric model[12] suggests rules and criteria to construct items and improve clarity, simplicity and credibility. To follow the recommendations, the items should be in line with the subjects' understanding, express a single idea and be formulated in a meaningful way.

In the second assessment by the content judges, the items were considered to be totally appropriate with the exception of the proposed aim to encourage behavior and attitude change. The educational technology encourages behavior and attitude change, but it can also clarify and stimulate knowledge about breastfeeding. The changes derive from knowledge. There is a need to advance from a culture of obligation to a culture of need, which is rooted in individuals' demands and desires[15].

The string literature judges made suggestions about the rules of the rhyme and metrics. Rhyme refers to the correspondence of the sounds with different words. In the sextain (six-verse strophe), rhyme was used in the second, fourth and sixth verses. Thus, the first, third and fifth verses were free verses, so they did not require rhymes. Another rule in the string literature is to use metrics to measure the syllables in the verses. With a total of seven syllables, the poetic syllable is counted until the final tonic syllable of the verses. To construct seven-syllable verses, elision is sometimes needed, which means that two or more vowels are merged in the same verse to create a single syllable[8].

Because they are written in verses, the booklets can effectively facilitate understanding of the message. The composition of string literature favors read-aloud group sessions[19]. In the health area, string literature is important because it communicates educational content that promotes health. In analyses of health content, string technologies were capable of providing information and were focused on HIV/AIDS and breastfeeding contexts[9,20].

Three judges commented on the length of the string literature and suggested that the text was too long. Despite their suggestion, the text was not adjusted, as the technology was presented in audio; if the listener feels tired, (s)he can interrupt the recording and later return to the same point. String literature can be used in written and song formats.

CONCLUSION

In the present study, an educational technology in the string literature mode was evaluated. The technology aimed to improve health education about breastfeeding. Positive results were obtained, as the content and format of the string literature were assessed in accordance with a psychometric model. The theoretical-methodological framework is flexible and permits adaptations to different educational objects. Therefore, the framework is relevant for constructing and evaluating educational technology.

In the evaluation phase with the content and string literature judges, the content judges' participation and decisive contribution to the elaboration of the study are highlighted. The string literature judges were comprehensive and cooperative and improved the text in accordance with string literature rules, which resulted in versification and rhyme.

Given that the targets were reached, this study can be used as a guide for future research. The technology can be made available in written and song formats, and the two forms can be compared. The empirical and analytic psychometric validation of the technology is the next step before it can be made available for the target public.

REFERENCES

1. Koerich MS, Backes DS, Scortegagna HM, Wall ML, Veronese AM, Zeferino MT, et al. Tecnologias de cuidado em saúde e enfermagem e suas perspectivas filosóficas. Texto Contexto Enferm. 2006;15(n.esp):178-85.

2. Caetano JA, Pagliuca LMF. Cartilha sobre auto-exame ocular para portadores do HIV/AIDS como tecnologia emancipatória: relato de experiência. Rev Eletr Enferm [Internet]. 2006 [citado 15 set. 2009];8(2):241-49. Disponível em http://www.fen.ufg.br/revista/revista8_2/v8n2a09.htm

3. Nietsche EA. Tecnologia emancipatória: possibilidade ou impossibilidade para a práxis de enfermagem. Florianópolis: UNIJUÍ; 2000.

4. Oliveira MS, Fernandes AFC, Sawada NO. Manual educativo para o autocuidado da mulher mastectomizada: um estudo de validação. Texto Contexto Enferm. 2008;17(1):115-23.

5. Sessions G. Avaliação em HIV/AIDS: uma perspectiva internacional: fundamentos de avaliação. Rio de Janeiro: ABIA; 2001.

6. Kerr-Pontes LR, Pontes RJS, Bosi MLM, Rigotto RM, Silva RM, Bezerra Filho JG, et al. Uma reflexão sobre o processo de avaliação das pós-graduações brasileiras com ênfase na área de saúde coletiva. Physis Rev Saúde Coletiva. 2005;15(1):83-94.

7. Brasil. Ministério da Saúde. Portal da Saúde. Avaliação de Tecnologias em Saúde [Internet]. Brasília; 2011 [citado 2011 jan. 20]. Disponível em: http://portal.saude.gov.br/portal/saude/profissional/visualizar_texto.cfm?idtxt=29084&janela=1

8. Lima AV. Acorda cordel na sala de aula. Fortaleza: Tupynamquim; 2006.

9. Oliveira PMP, Rebouças CBA, Pagliuca LMF. Literatura de cordel como meio de promoção para o aleitamento materno. Esc Anna Nery Rev Enferm. 2008;12(2):217-23.

10. Queluz MC, Pereira MJB, Santos CB, Leite AM, Ricco RG. Prevalence and determinants of exclusive breastfeeding in the city of Serrana, São Paulo, Brazil. Rev Esc Enferm USP [Internet]. 2012 [cited 2012 Mar 25];46(3):537-43. Available from: http://www.scielo.br/pdf/reeusp/v46n3/en_02.pdf

11. Brasil. Ministério da Saúde. Portal da Saúde. Leite materno: sinônimo de bebês bem alimentados [Internet]. Brasília; 2009 [citado 2009 out. 20]. Disponível em: http://portal.saude.gov.br/portal/saude/visualizar_texto.cfm?idtxt=23960

12. Pasquali L. Instrumentos psicológicos: manual prático de elaboração. Brasília: Lab PAM/IBAPP; 1999.

13. Rebouças CBA, Pagliuca LMF, Almeida PC. Non-verbal communication: aspects observed during nursing consultations with blind patients. Esc Anna Nery Rev Enferm. 2007;11(1):38-43.

14. Ichisato SMT, Shimoa AKK. Aleitamento materno e as crenças alimentares. Rev Latino Am Enferm. 2001;9(5):70-6.

15. Teixeira MA, Nitschke RG. Modelo de cuidar em enfermagem junto às mulheres-avós e sua família no cotidiano do processo de amamentação. Texto Contexto Enferm. 2008;17(1):183-91.

16. Brasil. Ministério da Saúde; Secretaria de Atenção à Saúde. Saúde da criança: nutrição infantil: aleitamento materno e alimentação complementar [Internet]. Brasília; 2009 [citado 2009 out. 20]. Disponível em: http://189.28.128.100/nutricao/docs/geral/cadernoatenaaobasica_23.pdf

17. Freitas F, Martins-Costa SH, Ramos JGL, Magalhães JA, Schmidt AP. Rotinas em obstetrícia. Porto Alegre: Artmed; 2006.

18. Silva GRF, Cardoso MVLML. Material didático para a promoção da saúde ocular da criança. Rev Paul Enferm. 2007;26(1):12-6.

19. Abreu M. "Então se forma a história bonita": relações entre folhetos de cordel e literatura erudita. Horiz Antropol [Internet]. 2004 [citado 2007 nov. 25];10(22):199-218. Disponível em: http://www.scielo.br/pdf/ha/v10n22/22701.pdf

20. Pagliuca LMF, Oliveira PMP, Rebouças CBA, Galvão MTG. Literatura de cordel: veículo de comunicação e educação em saúde. Texto Contexto Enferm. 2007;16(4):662-70.

Correspondence addressed to: Paula Marciana Pinheiro de Oliveira
Rua Leão do Norte, 669 - Vila Peri
CEP 60730-010 - Fortaleza, CE, Brazil