

Evaluation of an educational website on First Aid*

AVALIAÇÃO DO *WEBSITE* EDUCACIONAL EM PRIMEIROS SOCORROS

EVALUACIÓN DE LA PÁGINA *WEB* EDUCATIVA EN PRIMEROS AUXILIOS

Satomi Mori¹, Iveth Yamaguchi Whitaker², Heimar de Fátima Marin³

ABSTRACT

The aim of this study was to evaluate the structure, quality of information and usability of a website on First Aid. The evaluation was performed by information technology (IT) and health care professionals and by students, using specific and validated instruments. The kappa method was used to evaluate the agreement of the answers, and Cronbach's α coefficient was used to assess the reliability of the instrument. There was no agreement (0.047) among the answers obtained from the IT professionals, indicating that the structure of the website must be reviewed. There was also no agreement in the evaluation by the health care professionals (-0.062); however, the overall positive scores suggest that the quality of the information of the website is adequate. The assessment of reliability of the instrument to evaluate the navigability rendered a value of $\alpha=0.974$. Although improvement of the website structure is recommended, the quality of the information is good, and its use has contributed to the apprenticeship of students.

DESCRIPTORS

Education, distance
Internet
First aid
Emergency nursing
Educational technology

RESUMO

Avaliar a estrutura, a qualidade da informação e a navegabilidade do *website* em Primeiros Socorros. A avaliação foi realizada por profissionais de informática, da saúde e por estudantes, utilizando-se instrumentos específicos e validados. O método Kappa foi aplicado para avaliar a concordância das respostas e o coeficiente α de Cronbach, para avaliar a confiabilidade do instrumento. Nas respostas obtidas pelos profissionais, observou-se que não houve concordância das respostas dos profissionais de informática (0.047), indicando que a estrutura do *website* deve ser revisada. Na avaliação dos profissionais da saúde (-0.062), verificou-se que, apesar de não haver concordância, a qualidade da informação é adequada em razão dos escores positivos assinalados. Na avaliação da confiabilidade do instrumento de navegabilidade obteve-se $\alpha=0,974$. Apesar de melhorias na estrutura do *website* serem indicadas, a qualidade da informação é boa e seu uso colaborou para o aprendizado dos estudantes.

DESCRIPTORIOS

Educação a distância
Internet
Primeiros socorros
Enfermagem em emergência
Tecnologia educacional

RESUMEN

Evaluar la estructura, calidad de la información y navegabilidad de la página *web* en primeros auxilios. La evaluación fue realizada por profesionales de informática, de salud y por los estudiantes, con la utilización de instrumentos específicos y validados. Se aplicó el método *Kappa* para evaluar la concordancia de las respuestas y el coeficiente α de *Cronbach*, para evaluar la confiabilidad del instrumento. En las respuestas obtenidas por los profesionales, se observó que no había concordancia entre las respuestas de los profesionales de informática (0.047), lo que indicó que la estructura de la página *web* debía ser revisada. En la evaluación de los profesionales de la salud (-0,062), se encontró que, a pesar de no existir concordancia, la calidad de la información es apropiada por las puntuaciones positivas indicadas. En la evaluación de la confiabilidad del instrumento de navegabilidad, se obtuvo $\alpha= 0,974$. Pese a indicarse mejoras en la estructura de la página *web*, la calidad de la información es buena y su uso contribuyó con el aprendizaje de los estudiantes.

DESCRIPTORIOS

Educación a distancia
Internet
Primeros auxilios
Enfermería de urgencia
Tecnología educacional

* Extracted from the dissertation "Avaliação do *website* educacional em primeiros socorros", Escola Paulista de Enfermagem da Universidade Federal de São Paulo, 2010. ¹ Masters degree in Sciences from the Escola Paulista de Enfermagem - Universidade Federal de São Paulo, SP, Brazil. satomi.mori@unifesp.br ² PhD, Associate Professor, Escola Paulista de Enfermagem - Universidade Federal de São Paulo, São Paulo, SP, Brazil. ³ Professor, Escola Paulista de Enfermagem - Universidade Federal de São Paulo, São Paulo, SP, Brazil.

INTRODUCTION

The use of information and communication technologies by nursing schools has favored the apprenticeship of many students beyond barriers such as physical and geographical space and time⁽¹⁾. Technological-educational resources can promote an interactive acquisition of knowledge, development of research skills, technical-scientific disclosure, and construction of knowledge⁽²⁾. Therefore, a reliable website on first aid or basic life support (BLS) could help to increase the number of people who are aware of the correct procedures involved in attending to victims, in addition to contributing to the diversification of the methods and resources used for the guidance and qualification of people in BLS.

According to data from the *Sistema Único de Saúde* – SUS, the national incidence of morbidity in 2009 due to external causes, i.e., accidents and violence, was 881,685 cases in the hospital networks of the SUS. The highest incidence occurred in the southeast region, with 373,049 (42.3 %) cases. Data on acute myocardial infarction from the same year showed that 68,429 people were hospitalized in the SUS hospital networks. Similarly, the highest incidence was in the southeast region, with 36,047 (52.7 %) cases. In the State of São Paulo alone, 20,198 (29.5 %) hospitalizations were recorded⁽³⁾.

These data from the SUS show the importance of knowing the correct first aid measures for the moments that precede hospitalization of people in at-risk situations. For this reason and given that laymen are most commonly the first to witness medical emergencies, there is a need for guidance of the population on the rapid identification of conditions that demand adequate victim care.

Researchers from the Center for Nursing Informatics, in cooperation with the Department of Health Informatics of the Universidade Federal de São Paulo – UNIFESP, have developed an educational first aid system on a CD-ROM, which was named First Aid Course, (CNPq AI 523808/95-0 NV). This software has been used as a teaching tool in the undergraduate courses of the UNIFESP since 1998. However, with the advent of the internet, the whole CD-ROM content was transferred to the World Wide Web for several reasons, including frequent damage of the CDs due to constant use, the need for periodic updates of the content according to published guidelines, the limited storage capacity of the information, and the cost related to its maintenance and updating.

Currently, the website is composed of 11 chapters and one test of theoretical knowledge. The chapters are the following: Introduction, Evaluation of the Victim, Cardiac Arrest and Resuscitation, Airway Obstruction, Injuries and Hemorrhages, Fractures and Immobilizations, Burns, Intoxications

or Poisoning, Venomous Animals, Medical Emergencies, and Transport of the Victim. Each chapter contains illustrative images (pictures, images, animations, and videos), a small glossary, and a supporting text in *pdf* format.

Until now, this didactic resource has been useful in the process of teaching and learning BLS. However, the need to improve its navigability to make it compatible with the new forms of communication that have arisen from the modernization of the Internet has been perceived over the years. Considering the relevance of teaching and guidance in BLS and the importance and need to invest in the elaboration, disclosure, and application of reliable informative tools, the present work has aimed to evaluate the Website on First Aid with respect to structure, quality of the information, and navigability as a didactic material.

METHOD

The present work is an applied study to evaluate a Website on First Aid and has been approved by the Research Ethics Committee of the UNIFESP (Protocol No. 1658/07). This survey is used to solve societal problems and needs by means of the creation and improvement of processes and products⁽⁴⁾. The stages described below were performed for the development of this study.

Creation and validation of instruments for website evaluation

Given the lack of a Brazilian website evaluation instrument that is translated and validated in consensus, the creation of one was necessary. This was made by using reference evaluation instruments and models, such as *Health-Related Web Site Evaluation Form*⁽⁵⁾, *System Usability Scale*⁽⁶⁾, and *Heuristic Evaluation*⁽⁷⁾.

Three different website evaluation instruments were elaborated, as follows: one to evaluate the structure, another to evaluate the information, and a third to evaluate the navigability, as described below.

The instrument to evaluate the structure included 6 evaluation criteria, which resulted in a total of 42 items. The first criterion, Authorship and Purpose (4 items), consisted of information on authorship of the program, the institution to which it was linked, its logos, and whether the purposes were laid out in an adequate and clear manner. The second criterion, Overall Appearance (10 items), evaluated whether the program exhibited format patterns and had image and audio quality that contributed to pleasant navigation by the user. The third criterion, Consistency and Patterns (8 items), evaluated whether the program had a consistent and standardized presentation of the information, which would allow the user to easily recognize the sequence, the objects, the actions, and the available options. The

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fourth criterion, Functionality and Navigability (12 items), evaluated whether the program possessed and exhibited resources to improve and ease the navigation by the user. The fifth criterion, Content (5 items), evaluated whether the program displayed updated information (text, pictures, images, videos, and narration) in a clear, objective, and consistent manner. The last criterion, Errors (3 items), evaluated whether the structure of the program hindered the user commands in producing errors, displayed a message informing the cause, and proposed an adequate solution.

The instrument to evaluate the quality of the information was composed of 2 evaluation criteria, which included 57 items. One criterion was Presentation and Overall Content (5 items), which evaluated whether the website was visually adequate, had easy navigation, and maintained the user's attention. Furthermore, it evaluated whether the approached topics were comprehensive and relevant for the acquisition of knowledge on first aid. The other criterion, Quality of the Information in each Chapter of the Website (52 items), evaluated the legibility, clarity, and objectivity of the images, videos, and audio and the adequacy of the content.

The instrument to evaluate the navigability was composed of 5 criteria, totaling 67 items. The first criterion, Overall Appearance (2 items), evaluated whether the website was visually appealing and maintained a pattern of distribution of the information, stimulating the user to explore the following pages. The second criterion, Ease of Navigation (5 items), evaluated whether the information exhibited on the website was organized, favoring easy navigation and maintaining the user's attention. The third criterion, Quality of the Information in each Chapter of the Website (52 items), evaluated whether the legibility, clarity, and objectivity of the images, videos, and audio and the adequacy of the content met the student's needs. The fourth criterion, Adequacy of Content and its Learning (6 items), evaluated whether the approached topics and their structure in the website eased the process of learning, considering the student's previous knowledge of first aid. The fifth criterion, Attitude (2 items), evaluated the student's readiness to use the website as a studying tool and whether it was suitable for that purpose.

The *Likert* scale was used to rate each instrument of evaluation. The established scores ranged from 1 to 5 points and varied from *strongly agree* (5 points) to *strongly disagree* (1 point) or from *excellent* (5 points) to *poor* (1 point), depending on the evaluated criterion.

Three aspects were used for the validation of the instruments by means of consensus analysis, as follows: the relation and relevance of each item with its respective evaluation criteria and the domain of the content.

The validation process of the instruments was performed by 15 professionals from authorized institutions of the city of São Paulo (convenience sample). Five IT

professionals, who met the criteria for higher education and a minimum of 5 years of experience in the elaboration of websites, were invited to analyze the instrument to evaluate the website structure. Furthermore, 5 health care professionals, physicians, or nurses with a minimum of 5 years of experience in teaching BLS or in the emergency field were invited to analyze the instrument to evaluate the quality of the information. The remaining 5 professionals were college professors with a minimum of 5 years of experience in in-person or distance teaching, who analyzed the instrument to evaluate the navigability.

After confirming their participation in the study by signing the informed consent form (ICF), the instructions to access the website and the instrument of evaluation were handed out to the professionals. The return deadline was set at 15 days after the receipt of the printouts.

For the validation of each instrument, a Safety Limit (SL) ≥ 0.70 was considered, which was obtained by the ratio of the sum of the scores determined by the professionals and the total scores. The 3 elaborated instruments for the evaluation of the website were considered appropriate because they exhibited SL values ≥ 0.70 . The instrument to evaluate the structure obtained SL=0.81, the instrument to evaluate the information obtained SL=0.91, and the instrument to evaluate the navigability obtained SL=0.79. Corrections were made on the items of the instruments according to the suggestions made by the professionals. Specifically, 6 of 42 items from the instrument to evaluate the website structure were reviewed due to a lack of clarity of the used terms. Furthermore, 2 of a total of 57 items from the instrument to evaluate the quality of the information were reviewed, as follows: one for the use of an incorrect term and the other to improve the description of the item. Finally, 11 out of 67 items from the instrument to evaluate the navigability were reviewed to improve the wording, and 3 were relocated to other criteria of the evaluation.

Evaluation of the website

Once the instruments were validated, the evaluation of the website was performed. The evaluation of the structure was performed by 5 IT professionals with higher education and a minimum of 5 years of experience in the elaboration of websites, and the evaluation of the quality of the information was performed by 5 health care professionals, physicians, or nurses with a minimum of 5 years of experience as BLS teachers or in the emergency field. The search for professionals was conducted in authorized institutions in the city of São Paulo by means of contact by phone. After having agreed to participate in the study, the evaluators received the informed consent form (ICF), the instructions to access the website, and the website evaluation instrument. The deadline established for the return of the evaluation was 15 days after receipt of the printouts.

The evaluation of the navigability was performed by first year undergraduate nursing students. The objectives, the

main stages of the study, and the procedure of evaluation were explained to the students on the first day of classes of the Basic Life Support course. After the instructions, the ICF and the instrument to evaluate the website navigability were handed out. The students who had agreed to participate in the study were asked to return the answered instrument of evaluation on the last day of classes.

Data handling and analysis

The kappa method was applied to verify agreement of the scores given to the items of evaluation by the professionals. Internal consistency of the instrument to evaluate the navigability was analyzed by means of Cronbach's α coefficient. The analysis of the students' evaluations was made by considering the following calculation to obtain the score: $\text{score} = (\text{sum of score obtained from students} - 65) / (325 - 65)$. According to the scores, the following classes were defined:

- Score $\leq 67\%$ - Poor website navigability,
- Score $\geq 68\%$ to $\leq 78\%$ - Fair website navigability,

- Score $\geq 79\%$ to $\leq 89\%$ - Good website navigability, and
- Score $\geq 90\%$ - Excellent website navigability.

RESULTS

The results exhibited here display the evaluation of the website structure by IT professionals, the evaluation of the quality of the information of the website made by health care professionals, and the evaluation of the website navigability made by students.

Evaluation of website structure - IT professionals

Missing answers from one of the evaluators lead to the exclusion of 2 out of 42 items of the evaluation of the website structure from the agreement analysis of the scores given by the IT professionals. The agreement analysis of the scores for the 40 items revealed a kappa value of 0.047 ($p=0.137$; $CI=-0.015$ to 0.11), indicating that there was no agreement among the scores given by the 5 evaluators. The distribution of the scores given to the 40 items for the evaluation of the structure by the IT professionals is shown in Table 1.

Table 1 - Answers from the IT professionals according to the score category for the evaluation of the website structure. UNIFESP, São Paulo, 2009.

Score Category	IT Professional									
	1		2		3		4		5	
	N	%	n	%	n	%	N	%	N	%
Strongly agree	14	35.0	19	47.5	29	72.5	29	72.5	-	-
Agree	22	55.0	15	37.5	6	15.0	4	10.0	19	47.5
Neither agree nor disagree	2	5.0	3	7.5	2	5.0	-	-	11	27.5
Disagree	2	5.0	-	-	1	2.5	2	5.0	2	5.0
Strongly disagree	-	-	3	7.5	2	5.0	5	12.5	8	20.0
Total	40	100.0	40	100.0	40	100.0	40	100.0	40	100.0

There was variation in the answers obtained from the IT professionals, despite the majority having *somewhat agreed* or *strongly agreed* with the items of evaluation. Out of the 5 professionals, 4 answered *strongly agree* for 35 % to 72.5 % of the items of evaluation. Five answered *somewhat agree* for 10 % to 55 % of the items of evaluation, 4 answered *neither agree nor disagree* for 5 % to 27 % of the items, 4 *disagreed* with 2.5 % and 5 % of the items, and 4 *strongly disagreed* with 5 % and 20 % of the items of evaluation.

Among the comments and suggestions made by the IT professionals to improve the website, especially by those who had checked *disagree* or *strongly disagree*, the following were the most prominent: update the design of the website and images, especially photos and videos because they look old; change color and font patterns to make navigation more pleasant; and improve the distribution of icons that could make navigation confusing for the user.

The results from the kappa method on the variations among the answers and the suggestions obtained from the

IT professionals indicated that the structure of the website needs to be reviewed, to become more modern and easy to understand, and to simplify navigation.

Evaluation of the quality of the information of the website - health care professionals

The kappa value was -0.062 ($p=$ did not apply; $CI=-0.133$ to 0.0080), indicating that, overall, there was no agreement among the answers of the 5 professionals. The distribution of the answers for the 57 items of evaluation that were given by the 5 health care professionals is shown in Table 2.

According to Table 2, the answers obtained from the health care professionals were generally uniform, with no *strongly disagree* or *disagree* answers. The frequency of the answer *strongly agree* varied from 29.9 % to 94.7 %, and *agree* varied from 5.3 % to 52.6 %. Only 2 evaluators answered *neither agree nor disagree*, with the frequency varying from 10.5 % to 17.5 %.

Table 2 – Answers from the health care professionals according to the score category for the evaluation of the quality of the information of the website. UNIFESP, São Paulo, 2009.

Score category	Health Care Professionals									
	1		2		3		4		5	
	N	%	n	%	n	%	n	%	n	%
Strongly agree/Excellent	54	94.7	31	54.4	27	47.4	17	29.9	51	89.5
Agree/Very good	3	5.3	26	45.6	24	42.1	30	52.6	6	10.5
Neither agree nor disagree/Good	–	–	–	–	6	10.5	10	17.5	–	–
Somewhat disagree/Regular	–	–	–	–	–	–	–	–	–	–
Strongly disagree/Poor	–	–	–	–	–	–	–	–	–	–
Total	57	100.0	57	100.0	57	100.0	57	100.0	57	100.0

Thus, even though there was no agreement between the answers of the evaluators based on the kappa value, the answers *disagree* and *strongly disagree* were not assigned. The above-mentioned lack of agreement may be due to the variation of the answers of the professionals between the scores *neither agree nor disagree*, *agree*, and *strongly agree*. Overall, the quality of the information of the website can be considered adequate because the answers obtained from the professionals varied predominantly between *agree/very good* and *strongly agree/excellent*.

Even though the majority of the professionals stated that the quality of the information of the website is adequate, suggestions were made for adaptation, inclusion, and correction of some details to make them more appropriate, such as the following: correct the images that show rescuers without protective gloves and barrier devices during the execution of mouth-to-mouth ventilation, provide a link to the automatic external defibrillator (AED) to allow for its quick identification, include illustrative images in the chapter of medical emergencies, and improve the distribution of the links in the website.

Evaluation of website navigability – students

Out of 87 first year students who received the instrument of evaluation, 67 (77.01 %) answered and returned it. Only one student had to be excluded from the study because he/she had left several items of the evaluation unanswered, which resulted in 66 participants.

The sampling was composed mainly of female students (95.24 %), with an average age of 20±2.48 years. Most of the students (61.67 %) had not participated previously in BLS courses or training. Among those who had already attended courses (38.33 %), the most cited places were driving schools, high schools, and undergraduate academic leagues of the UNIFESP.

The evaluation of internal consistency of the instrument by means of Cronbach's α coefficient revealed that the reliability of the evaluation of the website by the

students was very high ($\alpha=0.974$). Regarding the evaluation of website navigability as a study tool, 53 (81.54 %) of 65 answers obtained from the students for the ease of navigation criterion reported not to perceive difficulties, and only 12 (18.46 %) had difficulties with the navigation. The cited reasons that contributed to the above-mentioned difficulties in navigability were the following: the large number of links on the website pages, which sometimes made navigating confusing, the fact that there was no quick-search mechanism, and the lack of illustrative images for some content. In the evaluation of the overall appearance criterion, 58 (87.9 %) out of 66 found the design of the website appealing.

With respect to the criterion related to the students' attitude, 56 (85 %) *strongly agreed* or *agreed* that their readiness to use the website as a didactic resource was very high, and 55 (83.4 %) classified their motivation to use the website as *very good*. Among those who *neither agreed nor disagreed* or *strongly disagreed* with these aspects, the following reasons were stated: they preferred lectures or printed materials and disliked studying on the computer and they believed the website is not an entirely motivating resource because it is poorly interactive. Furthermore, some students reported to not have Internet at home and to have little time to study on the university computers, which limited access to the website.

At the end of the study, 59 (93.7 %) of 63 students answered *strongly agree* or *agree* that learning BLS with the website was adequate for the application of their knowledge in the practical classes. Furthermore, 61 (92.42 %) of 66 students *strongly agreed* or *agreed* that the website is suitable as a didactic resource.

The average score of the evaluations of website navigability made by the students was 79.35 % (CI=75.85-82.84), indicating that the website has good navigability quality according to the students' opinion.

Chart 1 presents a summarization of the key results obtained from the evaluations of the website made by the IT and health care professionals and the students.

Chart 1 – Key results of the evaluation of the website by category of evaluators and evaluated aspects. UNIFESP, São Paulo, 2009.

Evaluators	Evaluated aspects	Key results
IT Professionals	Website Structure	There was no agreement among the scores given by the evaluators (kappa 0.047). Improvements of the website structure are necessary to make it modern and to simplify navigation and updates of the design and images (photos and videos), change of color and font patterns, and adjustment of icon distribution are needed.
Health Care Professionals	Quality of the Information	There was no agreement among the scores given by the evaluators (kappa 0.062). Suggestions for improvements and adjustments of the information include correct the images that show rescuers without protective gloves and barrier devices during mouth-to-mouth ventilation, provide a link to the automatic external defibrillator (AED), include illustrative images in the chapter of medical emergencies, and improve the distribution of links in the website.
Students	Navigability	Factors that hampered navigability, as reported by 18.46 % of the students, were the large number of links on the website pages, lack of quick-search mechanism, and no illustrative images for some content. The design of the website was considered to be appealing by 87.9 % of the students. Most students displayed high readiness (85 %) and motivation (83.4 %) to use the website as a didactic resource. The website was considered to be adequate for use as a didactic resource by 92.42 % of the students. A score of 79.35 % indicated good navigability of the website.

DISCUSSION

The present study intended to provide resources for the adaptation and improvement of the Website on First Aid, which has been an important didactic resource for first year students in the undergraduate nursing course of the UNIFESP. The intention was to provide an easy-to-navigate website with reliable information and also to adapt its content so that other people could have access to the information. The development of improvements of the website by means of the results obtained from this evaluation is considered to be crucial for this purpose.

Considering the frequency of situations that lead to health aggravations, the acquisition of knowledge and the development of skills in BLS by health care professionals and laymen are of extreme relevance to ensure the survival of people in a medical emergency. Currently, the basic information on BLS for laymen is provided by classes in driving schools, some schools, and some authorized health care institutions. In addition to theoretical classes, practical training can be performed for the development of skills. However, the dissemination of knowledge can be limited to people who possess the means to access these courses.

A result from a Canadian study shows that the main reasons cited by 61 nursing students for never having previously attended BLS training were related to the financial cost of the courses (49.2 %), inconvenience of the courses (26.2 %), and lack of knowledge of their existence (13.1 %), among others. Alternatively, the reasons that encouraged them to participate in future training were mainly the availability of cost-free courses (65.6 %), the improvement of accessibility to the courses (54.1 %), and lower fees for the courses (29.5 %)⁽⁸⁾. Despite the small sample size of this study, the cited reasons for the lack of participation in BLS training can also occur in our country, given the different socio-economic realities.

Given the importance of the subject, the investment in greater effort to develop and disseminate BLS training technologies is relevant and necessary, which can be

broadly used for training and disclosure of information among health care professionals and laymen.

The technological resources feature several advantages, such as the possibility to standardize the quality and quantity of available information, the reduction of training costs, and the flexibility in the study of the materials⁽⁸⁻⁹⁾. Another advantage of technological resources, especially websites, is the easy access to the information, namely from any computer connected to the Internet, its high abundance, and the promptness to obtain it⁽¹⁰⁾.

Studies on learning BLS by means of technological resources report that the users appreciated the flexibility to proceed or review content according to their individual needs, without being influenced by other people and that they found them stimulating and innovative⁽¹¹⁻¹²⁾. However, some individuals have perceived difficulties to localize the desired information and not being familiar with studying or manipulating the tools, thus needing previous training⁽¹³⁻¹⁴⁾.

Given these facts and considering the existence of the Website on First Aid, the utilization of this resource can and must be optimized by the undergraduate Nursing School students and, in the future, by other users. Thus, it was considered fundamental to evaluate the quality of the website, for which it would be important to evaluate not only the quality of the transmitted information but also the structure and navigability, to truly identify all the positive and negative aspects related to the website.

As for the analysis of the structure and quality of the information of the website, the kappa value of the evaluations showed that there was no agreement among the opinions of the IT and health care professionals. This was due to the variation of the answers given by the professionals for the items of the evaluation. Additionally, the items related to the quality of the website were more frequently given negative values, indicating that the structure of the website needs to be adjusted.

With respect to the quality of the information, even though there was no agreement among the answers of the health

care professionals, the distribution was entirely within scores that indicate good quality. The lack of agreement was due to considerable variations in the distribution of the answers.

Even though the sampling of professionals is considered to be small, several important aspects were identified to adapt and improve the website. Among the several suggestions obtained from the evaluating professionals, both categories of professionals shared the opinion that reviewing and adapting the organization and distribution of the information and the links is necessary. The obtained results have elucidated the factors that could particularly compromise the user's interest and ease of navigation.

Results from a study that has developed and evaluated a website on nursing care in a post-anesthesia recovery room have proven the importance of the evaluation of the structure and information quality to determine whether the user is obtaining the desired information without needing to access other sources and whether the resource maintains the attention and interest of the user during its use. Presenting the information in a clear, direct, and updated manner with accessible language also helps the user to obtain the information in an appropriate manner⁽¹⁵⁾.

The students also mentioned that the large number of links on the website pages made navigation confusing at times. Furthermore, the lack of a quick-search mechanism and of illustrative images for some content hampered the identification of some information and the study and better understanding of that content.

Other aspects that were noted and that must be taken into account include the preference of some students for lectures or printed materials, the opinion that the website is not a totally motivating resource because it is poorly interactive, and the fact that some students did not have access to the internet at home or had little time to study on the university computers. A similar result has been obtained in a study that evaluated the website of the Nursing Didactics course. The authors recommended that the professionals reflect about the possibilities and restrictions when using this type of resource⁽¹⁶⁾.

REFERENCES

1. Skiba DJ, Connors HR, Jeffries PR. Information technologies and transformation of nursing education. *Nurs Outlook*. 2008;56(5):225-30.
2. Gonçalves GR, Peres HHC, Rodrigues RC, Tronchin DMR, Pereira IM. Virtual educational proposal in cardiopulmonary resuscitation for the neonate care. *Rev Esc Enferm USP* [Internet]. 2010 [cited 2012 Apr 22];44(2):413-20. Available from: http://www.scielo.br/pdf/reeusp/v44n2/en_25.pdf
3. Brasil. Ministério da Saúde. DATASUS. Informações de Saúde. Epidemiológicas e Morbidade [Internet]. Brasília; 2010 [citado 2010 mar. 29]. Disponível em: <http://www2.datasus.gov.br>
4. Appolinário F. Metodologia da ciência: filosofia e prática da pesquisa. São Paulo: Pioneira; 2006.
5. Teach L. Health-related web site evaluation form [Internet]. 1998 [cited 2009 Feb 19]. Available from: www.sph.emory.edu/WELLNESS/instrument.htm
6. Brooke J. SUS - a quick and dirty usability scale [Internet]. [cited 2009 Feb 19]. Available from: <http://hell.meiert.org/core/pdf/sus.pdf>
7. Nielsen J. Ten usability heuristics [Internet]. [cited 2009 Mar 3]. Available from: http://www.useit.com/papers/heuristic/heuristic_list.html

Furthermore, other studies have noted the importance to perform surveys and permanent evaluations, share ideas and experiences on the use of technological resources, and update changes in the educational field, both by the teachers and students, for a better use of these resources⁽¹⁷⁻¹⁸⁾. The professors also have the challenge and responsibility to disseminate the use of technological resources early in education so the student is comfortable with using them for his/her practices and is adapted to the requirements for the use of the technology⁽¹⁸⁾.

For the full development of this study, the next aim needs to be achieved, which consists in the important task of applying the suggestions made by the professionals and students during the evaluation process. This process has the objective to obtain improvements for the educational Website on First Aid and to use the adapted structure of the resource to perform adjustments of the content to provide the version of the website.

CONCLUSIONS

The results obtained in this study led to the conclusion that the structure of the website needs to be improved, especially the distribution of the links, to facilitate its utilization by the users and that the aesthetic aspect must be adjusted to a more modern and pleasant appearance. Furthermore, the quality of the information and the navigability were found to be good. According to the students' opinion, the Website on First Aid is an adequate educational resource, and its use has contributed to the apprenticeship of the subject.

With these results, some initiatives and adaptations are being undertaken to ensure its suitability. Initially, the website was transferred to the Moodle platform, prioritizing the possibility to develop interactive activities between professors and students. Measures are being elaborated to adjust the organization of the structure and the aesthetic appeal and to search for financial resources to perform the update of the images and sounds to complement and enrich the described information to ease learning.

8. Liberman M, Golberg N, Meulder D Sampalis J. Teaching cardiopulmonary resuscitation to CEGEP students in Quebec: a pilot project. *Resuscitation*. 2000;47(3):249-57.
9. Sit JW, Chung JW, Chow MC, Wong TK. Experiences of online learning: student's perspective. *Nurse Educ Today*. 2005;25(2):140-7.
10. Évora YDM. A informática na pesquisa em enfermagem. *Acta Paul Enferm*. 2000; 13(n.esp, pt 1):184-9.
11. Monsieurs KG, Vogels C, Bossaert LL, Meert P, Manganas A, Tsiknakis M, et al. Learning effect of a novel interactive basic life support CD: the JUST system. *Resuscitation*. 2004;62(2):159-65.
12. Peterson R. Teaching cardiopulmonary resuscitation via the web. *Crit Care Med*. 2006; 26(3):55-9.
13. Rojo PT, Vieira SS, Zem-Mascarenhas SH, Sandor ER, Vieira CRSP. Panorama of nursing distance education in Brazil. *Rev Esc Enferm USP* [Internet]. 2011 [cited 2012 Apr 17];45(6):1476-80. Available from: http://www.scielo.br/pdf/reeusp/v45n6/en_v45n6a28.pdf
14. Dal Sasso GTM, Souza ML. A simulação assistida por computador: a conveniência no processo de educar-cuidar da enfermagem. *Texto Contexto Enferm*. 2006;15(2):231-9.
15. Lins TH, Marin HF. Avaliação de website sobre assistência de enfermagem na sala de recuperação pós-anestésica. *Acta Paul Enferm*. 2012;25(1):109-15.
16. Peres HHC, Meira KC, Leite MMJ. Ensino de didática em enfermagem mediado pelo computador: avaliação discente. *Rev Esc Enferm USP*. 2007;41(2):271-8.
17. Lopes ACC, Ferreira AA, Fernandes JAL, Morita ABPS, Poveda VB, Souza AJS. Construction and evaluation of educational software on urinary indwelling catheters. *Rev Esc Enferm USP* [Internet]. 2011 [cited 2012 Apr 17];45(1):215-22. Available from: http://www.scielo.br/pdf/reeusp/v45n1/en_30.pdf
18. Silveira DT, Catalan VM, Neutzling AL, Martinato LHM. Digital learning objects in nursing consultation: technology assessment by undergraduate. *Rev Latino Am Enferm* [Internet]. 2010 [cited 2012 Oct 4];18(5). Available from: <http://www.scielo.br/pdf/rlae/v18n5/23.pdf>

Acknowledgements

Professor Marin was partially funded by NIH D43TW007015 and CNPq 301735/2009.