

DEVELOPING AND EVALUATION OF A WEBSITE ABOUT CHILDREN'S LANGUAGE DEVELOPMENT: PORTAL DOS BEBÊS – DESENVOLVIMENTO DA LINGUAGEM

Elaboração e avaliação de um website sobre o desenvolvimento da linguagem infantil: portal dos bebês – desenvolvimento da linguagem

Aline Martins⁽¹⁾, Elen Caroline Franco⁽¹⁾, Magali de Lourdes Caldana⁽³⁾

ABSTRACT

Purpose: to design and develop a website in the field of speech therapy with a focus on development of babies from 0 to 48 months, and furthermore, to evaluate the quality of the content presented and technological resources used. **Methods:** in the first phase of the project a survey of data through review of literature about development and acquisition of child language was conducted. Then this content was inserted into the website and rated by 20 parents and / or caregivers. **Results:** the *Portal dos Bebês website – Desenvolvimento da Linguagem* was developed with language directed to parents and / or caregivers, and their content was divided into three themes: “Language Development”, “Speech and Language” and “Language and Environment”. With regard to the quality of content and presentation, the website was rated as “excellent” by all participants in the sample. Regarding the review of the vocabulary used and the presentation of content, 70% and 75% respectively, considered the website as “excellent”. Regarding the visual presentation, 85% of participants rated as “excellent”. The type of navigation was rated as “satisfactory” by 50% of participants. As to the extent that parents and / or caregivers think about the site most rated as “excellent” the aid that it gives in the language development child. **Conclusion:** the *Portal dos Bebês website – Desenvolvimento da Linguagem* can be accessed by online address <http://portaldosbebes.fob.usp.br>, and its contents and technological resources were assessed as satisfactory to excellent by parents and / or caregivers participating.

KEYWORDS: Language Development; Child Language; Education, Distance

■ INTRODUCTION

The ability on language acquisition is a superior ability of human being. Through it, communication becomes possible in order to express ideas, emotion and desire, as well as contribute to the development of other fields such as cognition and contribute to communicative functions¹.

From the very beginning we are exposed to favorable development of language stimuli. The first way of child socialization occurs through language

and, it is mostly carried out in the family and school environment through verbal instructions during daily activities such as breastfeeding / feeding and bathing². Therefore, even before learning how to speak, children have access to values, beliefs and rules, acquiring knowledge of their culture and their language³.

Considering that, parents and/or caregivers have a major role in the development of language, by assigning meaning and intention to the child communication and mainly by assuming the position of representative of the language.

For the interaction between parents and/or caregivers with the child becomes more effective, it is important to know how to make enriching communication. Thus, it is necessary to inform people about the most complex and important aspects for the development of language, enabling health

⁽¹⁾ Faculdade de Odontologia de Bauru / Universidade de São Paulo – FOB/USP, Bauru, São Paulo, Brasil.

⁽²⁾ Fonoaudiologia da FOB/USP – Bauru, SP, Brasil.

Financial disclosure: Tutorial Education Program – MEC/Sesu
Conflict of interest: non-existent

promotion and prevention to the population. It is also important that the teacher knows about the stages of acquisition and regular development of speech and language, and so, they may be able to notice the variations in child development and are aware about the ways of stimulating oral language and communication skills⁴.

It is of great importance to increase access to health information in a way to enable the community to use this knowledge in making decisions. Given this necessity it is possible to make use of distance education technologies, so that through them it may be possible that information reaches parents in places that there is no professional.

The use of technology, combined to the speech therapy knowledge, has been described in other studies⁵⁻⁸, and the results are motivating for further research.

Therefore, the present study had as objective to design and to develop a website in the field of speech therapy with a focus on language development of babies from 0 to 48 months, and furthermore, to evaluate the quality of the content presented and technological resources that it was used.

■ METHODS

The research related to the development of this study was approved by the Research Ethics Committee of our Institution, protocol number 88/2010 and there was parental consent by signing an informed consent.

The study included 20 parents and / or caregivers of 0-48 months –children. As a criteria for inclusion parents and / or caregivers must have taken care of at least one child with age up to 48 month, have internet access and do not have a degree in Speech Pathology.

The development of the study consisted of three steps. Firstly, we performed a comprehensive data collection through literature review on the development of language, communication skills of infants, the importance of stimulation early in life, and the best way to make interaction between parents and baby richer and the different environments of child development. The content collected was organized in texts and topics, using a simple, clear and friendly language so that any population appropriates the knowledge.

In order to facilitate the interpretation of content, illustrative images and video were used. Three children, two girls (5 and 8 months) and a boy (2 years and 6 months) were filmed in everyday activities after the clarification to the adults responsible for the children about the purpose of video related to the study procedures and with their prior consent,

by signing the authorization for the use of sounds and images. The recording data was made in a very familiar environment for the child.

Some other aspects that were considered when building the website, relate to the accessibility and usability that are fundamental to digital inclusion, aiming at ease of use. Such assumptions were guaranteed by a designer from the Institution Educational Technology team, as well as by professionals responsible for implementing the website that it was performed by a private company.

After the development of online content it started the second stage of the study in which the researcher contacted parents and / or caregivers of infants 0-48 months by sending them a letter or email explaining the purpose of the study. People contacted to participate in the study received a Term of Free and Informed Consent and after the reading it was given the option to accept or decline their participation by signing the term. Both options allowed access to the contents of the Portal dos Bebês, however, for those who refused to participate it was not given the questionnaire for evaluating the content of the Website.

Participants had access to the entire contents of the Portal dos Bebês, yet the survey was conducted on topics related to Language Developmental, covering the topics “Language Development”, “Speech and Language” and “Language and Environment”. After signing the consent form participants had two weeks to access the website and complete the survey.

The questionnaire evaluated the presentation and quality of content, visual presentation, appropriateness to the public, the importance of the website and the attitudes presented towards the children.

Regarding the first aspect the evaluated items were consistency between the content and the theme, vocabulary and form of presentation of concepts. On the visual quality it was judged the page quality, pictures, videos and type of navigation. Regarding the suitability to the audience, the reviewer judged if it was appropriate or not. Considering the importance of the website it was judged if the material helps in enhancing interaction with the child language development, also if the acquired knowledge can be used in everyday language, and if they would recommend the material to other parents and / or caregivers. Concerning the latter point it was verified if the parents already had these attitudes towards children before.

All aspects were analyzed using a four-item scale, classified as Poor, Average, Satisfactory and Excellent, and to each given concept, the evaluator had the opportunity to justify their response and make suggestions.

Once collected the surveys, the third step was performed in which the data were treated statistically as it was performed descriptive statistic to tabulate the responses obtained through questionnaires to verify the reported importance by the participants as to the content.

■ RESULTS

The results will be presented in two parts: development of the content for the website Portal dos Bebês – Language Development (<http://portaldos-bebes.fob.usp.br>) and evaluating the content.

Part I: Results of the development of the website Portal dos Bebês – Language Development

The section on language website “Portal dos Bebês – Desenvolvimento da Linguagem” was elaborated from the consultation of an extensive bibliography, no limit date of publication, which was sought in books, journal articles and reports in the Web posted by educational institutions.

The language used was directed to parents and / or caregivers, in other words, easy to understand, not using technical terms in the field of Speech Pathology. The content was divided in the following themes “Language Development”, “Speech and Language” and “Language and Environment” presented in figure 1. This division was made, seeking to facilitate website navigation and for parents and / or caregivers so they could have autonomy to navigate content according to their needs and interests.

The screenshot shows a web browser window displaying the website "Desenvolvimento normal da aquisição da linguagem". On the left is a vertical sidebar menu with various topics. The "Desenvolvimento da Linguagem" item is highlighted with a red box. The main content area features a title, an illustration of a child, and text explaining language development. A dropdown menu is open over the "Desenvolvimento da Linguagem" item, listing sub-topics with their corresponding age ranges.

Item	Idade
Desenvolvimento da Linguagem	Idade: 0 - 6 meses
Fala e Linguagem	Idade: 6 - 12 meses
Linguagem e o Ambiente	Idade: 1 - 2 anos
As funções orofaciais	Idade: 2 - 3 anos
Amamentação Natural	Idade: 3 - 4 anos
Alimentação	Dicas Gerais
Chupeta, mamadeira e sucção de dedo	

Figure 1 – Items Site

The first item “Language Development” is composed of two sub items, for the normal development of language acquisition and importance of stimulation and interaction. In subsection one (1) language is described as the ability to understand what it was said and play what we want, which is considered the primary way of socialization and communication. Thus, it is through language that babies begin to understand what they feel, what they

see, to form concepts of actions, objects and shapes and develop oral language. Also it is displayed the important factors for a successful development of language and attitudes which parents and / or caregivers must take if the baby has any change in the appropriate course of language development.

The subsection two (2) explains the importance of stimulation and interaction between baby and family and peers (Figure 2).

A Audição

Triagem Auditiva Neonatal

A Deficiência Auditiva

Diagnóstico Audiológico

Família e Deficiência Auditiva

Aparelho Auditivo

Implante Coclear

Sistemas de Frequência Modulada (FM)

Aprendendo a ouvir e a falar

Desenvolvimento da Linguagem

Fala e Linguagem

Linguagem e o Ambiente

As funções orofaciais

Amamentação Natural

Alimentação

Chupeta, mamadeira e sucção de dedo

Importância da Estimulação

O cérebro possui capacidade de potencializar suas funções, mas para que isso ocorra é preciso de estimulação precoce, pois é nos primeiros anos de vida do bebê que a organização do cérebro e suas funções têm maior eficiência.



Por isso que o ambiente familiar e social que a criança frequenta é de grande importância, pois é ele que proporciona as interações e contribui para o desenvolvimento geral da criança, por meio da estimulação adequada.

Pode-se afirmar que a criança aprende com o meio em que vive e com as pessoas que estão ao seu redor. Por isso é fundamental que a criança esteja inserida em um ambiente rico em estimulação para que possa aumentar seu potencial desde o seu nascimento.



Com isso concluímos que a família desenvolve um papel importantíssimo durante o processo de desenvolvimento da criança. E as orientações aqui encontradas serão importantes para que os pais de cuidadores otimizem o desempenho desta criança nas áreas de comunicação, linguagem, habilidades cognitivas, motora, autocuidados e socialização.

Figure 2 – Subclause Language Development: Importance of Stimulation

The “Speech and Language” item is divided into six sub items that address the development of language and conversational skills. These are separated by aged 0 to 6 months, 6 to 12 months, 1 to 2 years 2 to 3 years and 3 to 4 years. Within each subsection it was approached what is expected for each age, communication skills presented, the

development of language and tips for parents and / or caregivers to know how to stimulate their child and enhance their development. To facilitate the acquisition of knowledge short videos of children in routine activities were inserted. The last subsection of this context discusses general tips and stimulation is presented in Figure 3.

A Audição	<h2 style="color: #4CAF50;">Dicas Gerais</h2> <hr style="border-top: 1px dotted #ccc;"/> <p>1. Cheque a distância O ideal é ter os olhos no nível dos olhos da criança, a fim de se tornar menos intimidador para ela.</p> <p>2. Tenha cuidado com as perguntas Não pergunte demais nem crie situações que haja muita pressão, por exemplo: exigir que a criança responda corretamente na frente de outras pessoas.</p> <p>3. Nível de linguagem Verifique o nível de linguagem que a criança está apta a compreender e simplifique as frases. Com crianças pequenas tente selecionar assuntos do cotidiano, evitando usar conceitos abstratos.</p> <p>4. Respeito o tempo da criança Dê tempo para que a criança possa responder e espere que conclua o que estava dizendo, antes de mudar de assunto. Interrompê-las pode dificultar a comunicação.</p> <p>5. Não force repetições É normal que a criança apresente algum problema de pronúncia, conforme foi descrito, quando isso ocorrer apenas repita a palavra fornecendo-lhe o modelo correto, sem obriga-lá a repetir.</p> <p>6. Forneça retroalimentação A criança precisa de retorno em uma conversação, como contato visual, sorrisos, movimentos afirmativos que as encorajam e lhes dão mais confiança.</p>
Triagem Auditiva Neonatal	
A Deficiência Auditiva	
Diagnóstico Audiológico	
Família e Deficiência Auditiva	
Aparelho Auditivo	
Implante Coclear	
Sistemas de Frequência Modulada (FM)	
Aprendendo a ouvir e a falar	
Desenvolvimento da Linguagem	
Fala e Linguagem	
Linguagem e o Ambiente	
As funções orofaciais	
Amamentação Natural	
Alimentação	
Chupeta, mamadeira e sucção de dedo	

Figure 3 – Subsection Speech and Language: General Tips

The last item on the language part of the website entitled “Language and Environment” addresses child development in different environments. The sub-items are divided into “Working parents”, “Children in the Daycare Center”, “Twin Children” and “Super protective Parents”.

The subsection “Working parents” was created because, in most families, both men and women work and a frequent concern is how to reconcile work and homework and education and child care. Therefore, the content covers how to improve the quality of communication between parents and children.

The choice of sub-item “Children in Daycare Center” took place because many working parents worry when they need to leave their children in daycare. In this subsection it was described the role that daycare has on child development, the importance of the contact between children and adults and the main factors that must be considered when choosing a daycare center.

Another topic is titled “Twin Children”, this item on development of twins is a discussed aspect. This topic was selected because of the pregnancy of twins being pointed in the literature as a risk factor for the development of language, a condition that may be related to genetic, environmental and interactional factors.

The last subsection was “Super Protective parents”. Parents have a duty to protect their children, but when that protection becomes excessive, the development of these children can be seriously compromised. Therefore, it was described some attitudes that parents should not take their children in language and tips to better encourage them, promoting their communicative potential.

Part II: Evaluation of the website Portal dos Bebês – Language Development by parents and / or caregivers

The website “Portal dos Bebês – Desenvolvimento da Linguagem” was rated by 20 parents and / or caregivers of infants from 0-48 months. Of these 20 participants, there were 2 caregivers, 4 fathers and 14 mothers. The age of participants varied from 24-55 years. All of them had completed secondary level at least; six of them had finished graduation and one of them had finished post-graduation.

Regarding to the quality of content and presentation, the website was rated as “excellent” by all participants in the sample, when asked about the consistency between the topic and the subject proposed which is the development of children’s language. Regarding the review of the vocabulary used and the presentation of content, 70% and 75% respectively, considered the website as “excellent”, conforms illustrated in Figure 4.

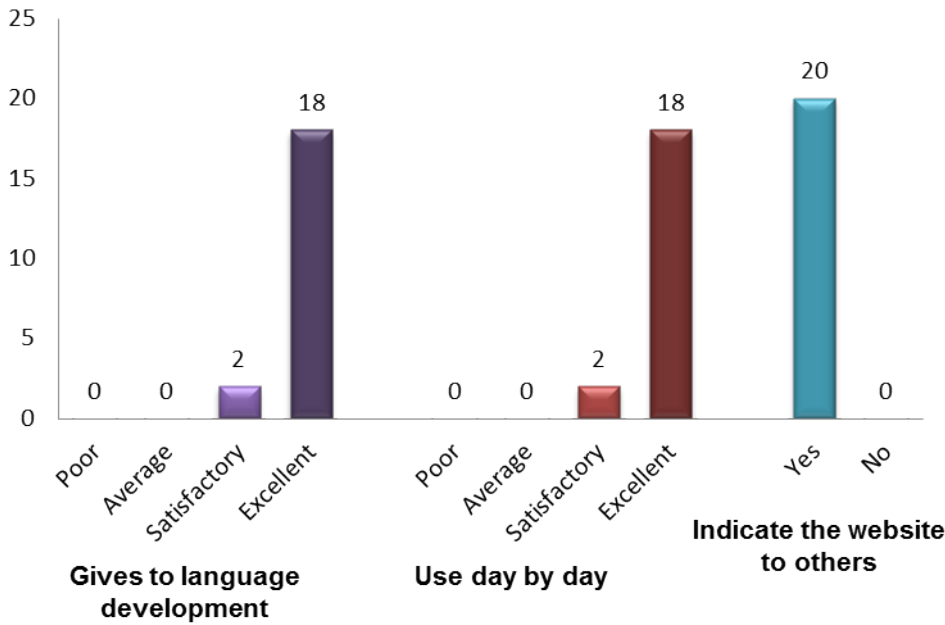


Figure 4 – Evaluating of presentation and quality of content

Regarding the visual presentation, 85% of participants rated the quality of the pages presented and figures as “excellent”, the type of navigation was rated as “satisfactory” by 50% of participants

(Figure 5). This result, as was justified by the evaluators, is due to the difficulty of navigation in sub items from the side menu bar.

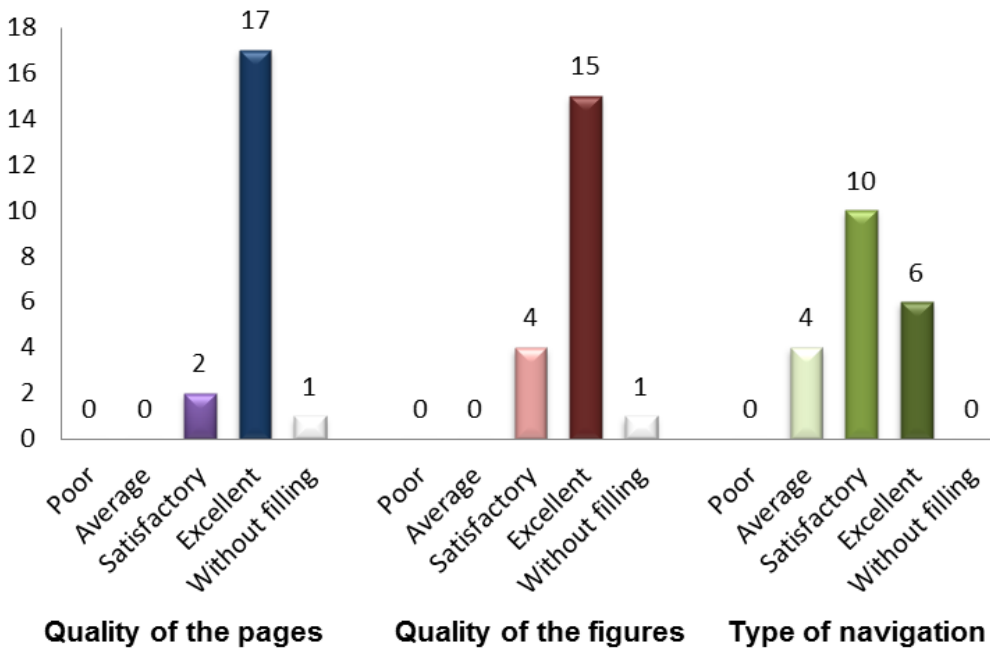


Figure 5 – Evaluation of Visual Presentation

Regarding the importance of the site parents and / or caregivers it can be observed in Figure 6 that it was mainly rated as “excellent” the aid that gives to language development of the child and that the

proposed strategies and content are important for the use day by day. All parents and / or caregivers of the sample reported in the survey that they would indicate the website to others.

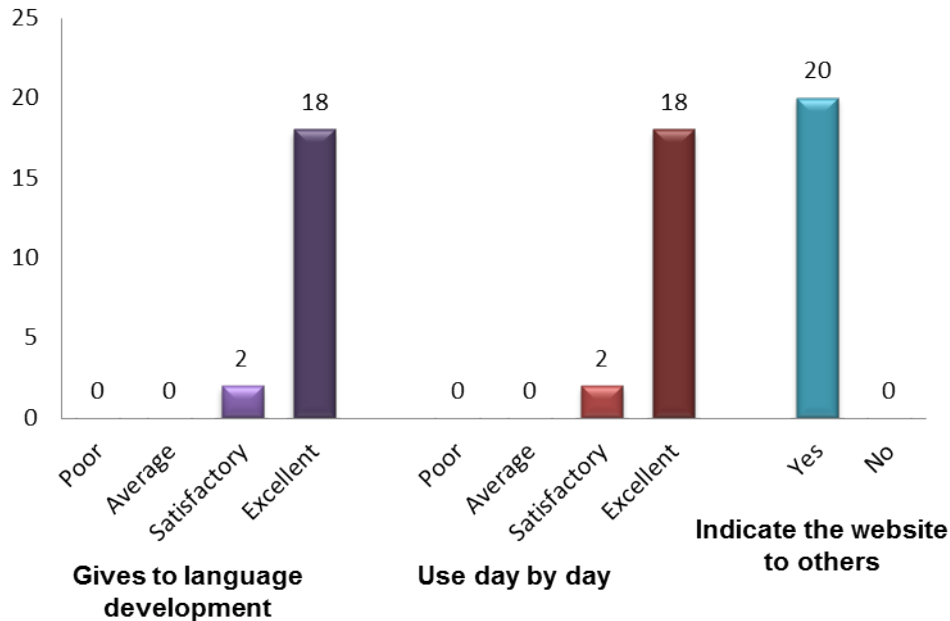


Figure 6 – Importance of Website for parents and / or caregivers

When parents and / or caregivers were asked about the importance of the website for the development of language and their attitudes to children, three of them replied that their attitudes towards them were the same as described by the website, but they found the content very important to assist children’s language development. The other 17 parents and / or caregivers reported that they had all described attitudes and that after seeing the website and browsing through its contents, some attitudes towards children have changed or at least attempted to modify, improving the development potential of themselves.

■ DISCUSSION

Parents and / or caregivers have a fundamental role of strengthening the skills, giving communicative intent to the actions of children and observing the course of their development. However, parents and / or caregivers may not have sufficient knowledge of language development and the importance of stimulation. So the new capabilities of the child can be a challenge for them, they need to adapt to new requirements and learn how to deal with the

acquisitions that appear during this period of development^{9,10}. It was also observed in this study, the parents’ difficulty in adjusting to new expressions of their children, in which 17 parents and / or caregivers do not know how to deal with situations of development of the children and do not have knowledge of the importance of stimulation.

Children have great potential for learning¹¹, the early years are essential for the vital processes of development occur in all domains of the functions. At birth, the child’s brain responds to spoken language already, but progressive maturation of interhemispheric functional connectivity is established with the language exposure¹.

The knowledge of parents and / or caregivers concerning the normal development of language acquisition is fundamental so that they know how to deal and what to expect of children at each stage of development, without requiring beyond or below what the child can provide. Moreover, with the development of this study, it was attempted to provide knowledge for parents and / or caregivers can identify as early as possible so that, if necessary, the intervention process is performed.

It is very important to increase access to health information for the community to use this knowledge when making decisions. For this, the internet has been a valuable tool for dissemination of speech therapy knowledge. As for virtual mentoring programs is crucial that they are a source of information and social support playing an important role in the transmission of information¹².

According to the Brazilian legislation, distance education is a way of teaching that enables self-learning, with the mediation of systematically organized teaching resources, presented in various media of information, used isolated or combined, and transmitted by various media¹³. In the area of Speech Pathology in 2009, the Federal Board of Speech Pathology regulated the practice of telehealth through Resolution 366¹⁴.

The use of the Internet makes available information using multimedia features, with access to a wide extent and cost, plus the ability to reach remote locations and include various groups of population¹⁵. Faced with this it was found that the best way to provide knowledge and guide parents and / or caregivers about child development so that they can take more assertive attitudes towards children was creating the website "Portal dos Bebês – Desenvolvimento da Linguagem".

A review of this material by users was of great importance for improving the website. Several studies that verify the acceptance of the population had the opposite telehealth user approval^{12,16}. The same result was found in this study, in which all evaluators classified the website as satisfactory and excellent.

The creation of website makes it easier and standardizes the orientations to parents, focusing on health care. The planning and design phase

of the website was the one that required longer time, because of the concern of the researchers to develop a material that addresses important content in a clear and objective manner, stimulating reading and navigation of the website interactively.

In this context, it is important to consider that the learning process is influenced by many aspects and that there are differences in how people learn. According to this, people retain more information when these are acquired along with illustrations, pictures and videos¹⁷. For this reason, researchers took great care on the quality of images and videos, as this study was rated between good and excellent by users.

■ CONCLUSION

The planning and design of the website required most of the time, as required extensive research for the selection, definition and organization of content.

The process of evaluation by parents and / or caregivers was effective to check out quality to the material and achieve the stated goal of taking information about the children's language development for parents and / or caregivers.

These guidelines allow prevention of delays in development and enable an early diagnosis of impaired oral communication. Thus, the creation of the website is of great importance, as it combines the basic information about children's language development, allowing access to guidance when needed. From this study, anyone can have access to such information by address <http://portaldosbebes.fob.usp.br>, which was reported as satisfactory to excellent by parents and / or caregivers.

RESUMO

Objetivo: criar e desenvolver um *website* na área de fonoaudiologia com enfoque no desenvolvimento da linguagem de bebês de 0 a 48 meses, além de avaliar a qualidade do conteúdo apresentado e os recursos tecnológicos utilizados. **Métodos:** na primeira fase do projeto foi realizado um levantamento de dados por meio de revisão de literatura sobre o desenvolvimento e aquisição da linguagem infantil. Em seguida esse conteúdo foi inserido no *website* e avaliado por 20 pais e/ou cuidadores. **Resultado:** o *website* Portal dos Bebês – Desenvolvimento da Linguagem foi desenvolvido com linguagem voltada a pais e/ou cuidadores, e seu conteúdo foi dividido em três temas: “Desenvolvimento da Linguagem”, “Fala e Linguagem” e “Linguagem e o Ambiente”. No que se refere à qualidade do conteúdo e da apresentação, o *website* foi avaliado como “excelente” por todos os participantes da amostra. Quanto à avaliação sobre o vocabulário utilizado e a forma de apresentação do conteúdo, 70% e 75% respectivamente, consideraram o website como “excelente”. Em relação à apresentação visual, 85% dos participantes classificaram como “excelentes”, já o tipo de navegação foi classificado como “satisfatório” por 50% dos participantes. Quanto à importância que os pais e/ou cuidadores julgam sobre o site a maioria classificou como “excelente” o auxílio que o mesmo dá no desenvolvimento da linguagem da criança. **Conclusão:** o *website* Portal dos Bebês – Desenvolvimento da Linguagem pode ser acessado pelo endereço *online* <http://portaldosbebes.fob.usp.br>, e seu conteúdo e recursos tecnológicos utilizados foram avaliados como satisfatório a excelente pelos pais e/ou cuidadores participantes.

DESCRIPTORIOS: Desenvolvimento da Linguagem; Linguagem Infantil; Educação a Distância

■ REFERENCES

- Perani D, Saccuman MC, Scifo P, Anwander A, Spada D, Baldoli C et al. Neural language networks at birth. *Proc Natl Acad Sci USA*. 2011;108(45):1-6.
- Scopel RR, Souza VC, Lemos SMA. A influência do ambiente familiar e escolar na aquisição e no desenvolvimento da linguagem: revisão de literatura. *Rev CEFAC*. 2012;14(4):732-41.
- Rowe ML. A longitudinal investigation of the role of quantity and quality of child-directed speech in vocabulary development. *Child Dev*. 2012;83(5):1762-74.
- Mendonça JE, Lemos SMA. Promoção da saúde e ações fonoaudiológicas em educação infantil. *Rev CEFAC*. 2011;13(6):1017-30.
- Blasca WQ, Maximino LP, Galdino DG, Campos K, Picolini MM. Novas tecnologias educacionais no ensino da audiolgia. *Rev CEFAC*. 2010;12(6):1017-24.
- Silva ASC, Rizzante FAP, Picolini MM, Campos K, Correa CC, Franco EC et al. Bauru school of dentistry tele-health league: an educational strategy applied to research, teaching and extension among applications in tele-health. *J. Appl. Oral Sci*. 2011;19(6):599-603.
- Correa CC, Martins A, Pardo-Fanton CS, Silva ASC, Barros GTT, Wen CL et al. Ações de teleeducação interativa em saúde vocal baseadas na dinâmica do projeto jovem doutor. *Distúrb. Comun*. 2012;24(3):359-68.
- Picolini MM, Blasca WQ, Richieri-Costa A, Maximino LP. A elaboração de um ambiente virtual de aprendizagem em síndromes genéticas. *Rev CEFAC*. 2013;15(2):382-90.
- Lopes RCS, Oliveira DS, Vivian AG, Bohmgahren LMC, Piccinini CA. Sentimentos maternos frente ao desenvolvimento da criança aos 12 meses: convivendo com as novas aquisições infantis. *Psic.: Teor. e Pesq*. 2007;23(1):5-16.
- Paula LIC, Pires CD, Mascarenhas TS, Costa JPL, Brito LMO. Percepção da associação entre estimulação ambiental e desenvolvimento normal por mães de crianças nos três primeiros anos de vida. *Rev Paul Pediatr*. 2013;31(2):211-7.
- Marinho MFJ. A mente do seu filho: como estimular as crianças e identificar os distúrbios psicológicos na infância. *Ciência & Saúde Coletiva*. 2010;15(2):609-10.
- Shohan S, Heber M. Characteristics of a virtual community for individuals who are d/Deaf and hard of hearing. *American Annals of the deaf*. 2012;157(3):251-63.
- Brasil. Decreto Lei n. 9.394, de 20 de dezembro de 1996. Estabelece as diretrizes e bases da educação nacional. *Diário Oficial da União, Brasília*, 23 de dezembro de 1996, Seção 1, p. 27839.

[acesso em 2007 mar 23]. Disponível em <http://www.mec.gov.br/home/legislacao/default.htm>

14. Spinardi-Panes AC, Lopes-Herrera SA, Maximino LP. Aspectos éticos e legais na prática da telessaúde em Fonoaudiologia. Rev CEFAC. 2013;15(4):1040-3.

15. Wen CL. Telemedicina – visão sob foco de uma disciplina. Rev Telem Telessaude. 2006;2(2):20.

16. Campos K, Oliveira JRM, Blasca WQ. Processo de adaptação de aparelho de amplificação sonora individual: elaboração de um DVD para auxiliar a orientação a indivíduos idosos. Rev Soc Bras Fonoaudiol. 2010;15(1):19-25.

17. Hayden P. Learner's pocketbooks. 2 ed. Hampshire: Management Pocketbooks; 2005.

Received on: January 29, 2014

Accepted on: May 09, 2014

Mailing address:

Elen Caroline Franco

Al. Dr. Octávio Pinheiro Brisolla, 3-21 B,

Santa Tereza

Bauru – SP – Brasil

CEP: 17012-059

E-mail: elen.fono@yahoo.com.br