

REQUIREMENTS FOR THE USE OF A CYBERTUTOR WITH COMMUNITY HEALTH WORKERS

Requisitos para utilização de cybertutor com agentes comunitários de saúde

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ABSTRACT

Purpose: to verify and to feature the conditions of the effective participation of community health workers (CHW) in virtual learning environment with topic "breast-feeding". **Methods:** participated in the study 49 CHW from Rondônia, and after 45 days, in which all the process was monitored, occurred a videoconference to take testimonials about the access and content. It was used the Collective Subject Discourse to identify difficulties/easiness/suggestions/proposals of which were extracted three categories: (a) Willing to obtain knowledge; (b) Conditions to the achieving of the study; and (c) Assessment of professional education and the content. **Results:** 8 CHW (15.69%) accessed the cybertutor in correct time; 100% followed the introductory module complete; 62.50% the modulus 2 and 3; 37.50% the modulus 4 at 8. For the Category (a) 8 CHW reported were motivated in using cybertutor, since it is a way to reinforce and acquire new knowledge. As to Category (b) the main difficulties were described as lack of knowledge on technology, material and financial resources and time availabilities. In Category (c) it was reported having obtained new knowledge that could be passed immediately to population and the desire to have similar experiences. **Conclusion:** the requirements for the distance courses for CHW imply the viability of resources by local administrators, prior knowledge of basic computer, Internet access, computers available in appropriate sites, well as others aspects such, to time available during working hours and/or extra time and challenging themes to make effect continuing distance education.

KEYWORDS: Distance Education; Continuing Education; Breast-Feeding; Primary Health Care; Community Health Workers

■ INTRODUCTION

Increasingly valued, distance education (DE) or distance learning (DL) corresponds to the midpoint of a continuous line in whose extremes is the teacher-student¹ presential relation, and, on the other hand, the open self-taught education, in which the pupil manages the content, time, sequence and pace of learning¹, and this means of communication

has been an alternative to improve the quality of life and well being of citizens².

DL is a technological system of bidirectional and /or multidirectional communication, which can be used in population groups, based on systematic and joint action of learning resources, or give support to an organization and tutorial guidance, providing an independent and/or cooperative². Therefore, distance learning is an option for educational action, combining communication and computer technologies. Its merit lies in the possibility of multiplying its effects in a mass and low cost¹ perspective, thus, studies on DL in Brazil² have shown a growing interest in the subject. In addition to well-defined systems and programs, DL depends on trained human resources, adequate teaching material and, fundamentally, appropriate means of taking the teaching from the production centers to the student³.

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Conflict of interest: non-existent

In 1996, with the passing of Guidelines Laws and National Education Bases, virtual learning environments were created, requiring decrees and orders for DL standardization, besides the concept of Brazilian Open University, in 2005.

Europe's developed countries, the United States and Canada⁴ recognize that the main role of these computer resources is to assist the teacher in mediating the teaching-learning process³, besides being a stimulus for learners to interact with the resources from technological advance². Many university experiences occur in Brazil and the importance of this applied modality⁵ is recognized.

Telehealth, or distance health services, are those in which communication technologies are used for information exchange, whether directed to diagnoses, prevention and treatment of diseases^{6,7}, continuing⁸ or permanent⁹ education, as well as research purposes^{4,10}, with no presential requirement of those involved. Among several tools, *cybertutor*, or electronic tutor, is a platform designed to provide information, tasks and/or illustrative problems via the *web*, combined with tutorial aspects which assist students and/or professionals in solving problems, therefore, a computer system sustained by the *web*¹¹. Developed by the Telemedicine discipline of the Medicine School with the University of São Paulo¹², this system is an interactive model which allows students to learn theoretical concepts more effectively, as it monitors the performance of each participant and provides users with a continuous *feedback*.

After going through all the topics of the course and answering the reinforcement questions, learners undergo an assessment to measure their general knowledge on the subject. Thus, global questions are designed, so that learners can not establish a direct link with the questions of the items studied. Users benefit from the ease of communication with experts, organizing their own study time, without the drawbacks of commuting or predetermined schedules. On the other hand, through *cybertutor*, the coordinator of the course verifies the learners' progress, by viewing the content studied and their hits-and-misses, which allows determining other forms of virtual or presential contacts¹¹.

Taking into account the current technological advances in education (DL, for example), and the need to intensify and improve the knowledge of health professionals, on issues relevant to public and collective health, such as, for example, breast-feeding, this investigation has been conducted, owing to the numerous benefits that this approach brings to the child's development and health promotion postpartum period¹³. Moreover, the subject contributes to the understanding,

encouragement and support of the national policy that aims to reduce maternal and infant mortality, in which the Ministry of Health and the World Health Organization have been investing in recent years¹⁴.

After analyzing the profile of needs prior to the implementation of *cybertutor* and the already highlighted facilities of this tool¹¹, this study aimed at verifying and characterizing the conditions required to enable the use of a *cybertutor on breastfeeding with Community Health Workers* (CHW) of eight family health teams with the Department of Health of Monte Negro, RO, serving the urban and rural populations.

■ METHODS

This study followed the criteria of the Committee For Research Ethics with the Bauru School of Dentistry – University of São Paulo (USP), approved under No. 168/2009, in which the participants were informed about the procedures and objectives of the research and signed the Statement of Informed Consent. The research used the qualitative methodology for field work, with exploratory purposes, utilizing social representations¹⁵ as a basis in the interpretation of discourses. The quantitative data obtained were tabulated in a specific spreadsheet and submitted to descriptive statistical analysis.

Firstly, the contact with the Health Department of Monte Negro, RO, in order to suggest the presentation of the *cybertutor* in Tele-breastfeeding (developed by the Telemedicine team with the Medicine School of the University of São Paulo - USP), to the 51 CHW hired by the municipality to meet demands of rural and urban populations.

Those who agreed on joining the study voluntarily were given initial oral and written instruction, learning more about the tool, as far as the functioning and access to the *cybertutor are concerned*. Two key people of the team (a health director and a coordinator of the Family Health Strategy) were requested and instructed to encourage these professionals as to the motivation and guidance required.

A period of 45 days was established for the study of the course presented by the tool, monitored by the coordinator of the team who prepared the *cybertutor*. Then, a *video* conference was held, so as to gather testimonials of the CHWs, through a set of questions employed by the researchers, seeking to identify the commitment of those involved in the investigation and the difficulties/facilities/suggestions/ propositions about the content of the course, as well as the procedures for access and studies in the technological network (navigation) provided by the instrument.

The following questions were asked:

1. How did you feel when using this educational tool?
2. What were the managers' incentives?
3. Considerations on the requirements prior to accessing the *cybertutor*.
4. What approaches did you adopt during the study process with the *cybertutor*?

The testimonials of the CHWs were recorded and transcribed verbatim, enabling the elaboration of Discourse of the Collective Subject (DCS)¹⁶, representing the reports of each individual, in each category.

DCS is a proposal for verbal organization of qualitative data obtained from testimonial, using methodological operators or figures which support the formation of the discourses representing all interlocutors, as follows: Central *Ideas/Categories* (CI/C), that is, denominations of the linguistic expression which reveals and describes, in the most concise and precise way, as possible, the meaning of the content; Key *Expressions* (KE) which may be described as snippets or verbatim transcripts of each answer to be highlighted by the researcher and which constitute the essential content of the representations, and the *Anchorage* figure which is the explicit expression of a given theory, ideology, belief, or value which the author of the discourse professes and that, as a general statement, is being used by the enunciator to "frame" a specific situation.

Three categories were established with these methodological operators, as follows: (a) Desire to gain knowledge; (b) *Requirements to attain the study and* (c) *Assessment of professional qualification and content*, discussed via videoconference for more detailed explanations of the subject matter.

The quantitative data were tabulated in a specific spreadsheet and submitted to descriptive statistical analysis.

■ RESULTS

Profile and conducts of the CHW group

Out of the 51 CHW invited, 49 agreed to participate voluntarily, and only 8 (15.69%) accessed the *cybertutor* in due time. Eight CHWs accessed the course, i.e., 1 male (12.5%) and 7 females (87.5%) and the mean age of these participants was 28.63 years, while the mean age of the CHW group (49 subjects) was 38.24 years.

As to the advance in the *cybertutor's modules*, a significant decrease is seen in the access/use, among the eight modules of the course, as shown in Figure 1.

As to the conducts adopted, during the study process with the *cybertutor*, the CHWs reported that they did not have time available to use the tool in their working hours, therefore, they had to study in their free time (at the end of their working hours and/or their lunch time); 3 people (37.5%) resorted to internet cafés, using their own money to have access to a computer; 2 people (25%) used the computer at their study site or at another job, 2 people (25%) used, just one time, a family member's computer and 1 person (12.5%) used a personal computer and did the study at home.

Videoconference

In relation to the results obtained using the qualitative methodology, it was possible to constitute categories, after conforming the discourses of the collective subject, extracted through extensive and in-depth reading of the individual testimonials collected during the videoconference, given the methodological operators of Central Ideas, Key-Expressions and Anchorage. The elaborate collective discourses, representing the original expressions of each participant, are as follows:

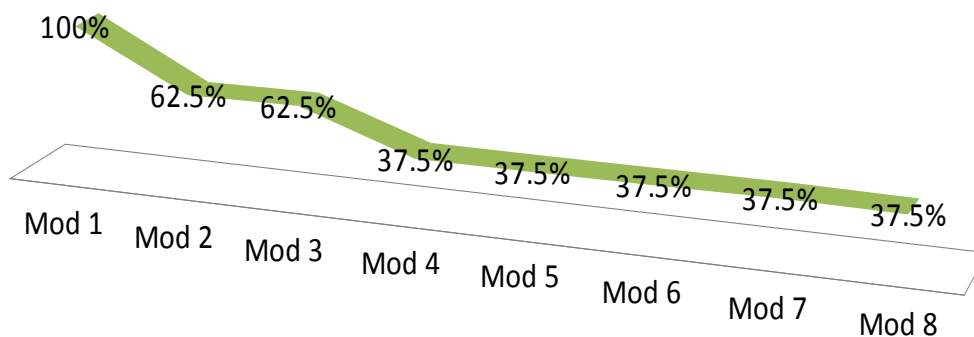


Figure 1 – Advance of CHWs in the study of the *cybertutor* and percentage of participants who accessed the different modules available.

1. Desire to gain knowledge

"The 49 CHWs who agreed on participating of the research wanted to learn more to share the knowledge with pregnant women. We thought it was a quite modern way to study and learn new things and, in addition, we reinforced that which we already knew and that is why we were so excited about doing the course. Here, in Monte Negro, we work with many pregnant women most of whom are adolescent or mother of many children, so taking these novelties to them was very interesting. By the way, I am pregnant and I want to learn more for me, too. We received great encouragement from FOB-USP and support from the monitors, I mean, they wanted to know what we had already studied, what we needed to keep on going, they revived the research goals, but not everybody was able to study. All of them wanted, but it was difficult, very difficult, and not everyone made it".

There was a consensus among the eight participants and the expression of this pregnant CHW represents the discourse of most women. Furthermore, during all the videoconference, they reported the discourses of those CHWs, justifying their reasons for not participating in the study.

2. Requirements to attain the study

"I guess the vast majority of my colleagues have not a computer course, and that is why they did not participate in the study... so, I think it is extremely important that one does a basic computer course, prior to starting the study with the cybertutor. Whenever I had work to do in the city, I would take advantage of free moments to access the internet. I studied either at lunch time or after 6 PM and, thus, it would be convenient if the course were provided during working hours, with no cost to us. Most people used someone else's computer, or had to go to an internet café, but not everyone could afford to pay to study at any time or had someone in the family to lend them a computer. We asked the managers nothing because we are not accustomed to taking courses which require time other than working hours. The courses we do, and they last just one or two days, are taught by people called by the board of health, so, we are not used to asking".

This collective discourse highlights how the CHWs concluded that basic computer knowledge

and the internet are necessary for distance studies and how they had to resort to others (relatives, internet cafés) and extra time to do and almost finish the course. The lack of communication between the workers and the board of directors, although not intentional, is also clear.

3. Assessment of professional qualification and content

"This course improved our knowledge; there was always something different that we did not know, for instance, the anatomy part. It was easy to access and navigate and very useful to update our concepts and knowledge which we were able to share with other people, from the very first module, because it already showed new things and transferring what we had just learnt to pregnant women was very interesting. We speak on behalf of those who were not able to access or conclude the course, for we are sure all of us would like to have other opportunities like this for qualification and improvement of the profession".

The possibility of renewal and use of the knowledge generated, coupled with the enthusiasm and motivation of the CHWs who accomplished the final module is highlighted.

■ DISCUSSION

Brazil has 26 states and a federal district. Rondônia state is located in the North region, bordered by Mato Grosso (East), Amazonas (North), Acre (West) and the Republic of Bolivia (West and South). It has 52 cities and Monte Negro is 250 Km from Porto Velho (capital), with some 16 thousand inhabitants who interact through television, radio, newspaper and the internet, being, many times, the only means of contact and teaching-learning this population can rely on. Thus, if these tools are used effectively, mainly the internet, they can be of great help in teaching the public and health professionals, including Community Health Workers (CHW)¹⁷.

CHWs¹⁸ form a group of people, within the community, committed to working with the population and their functions include the development of activities aimed at the prevention of diseases and health promotion through individual and collective educational actions along with the families and the community. Breastfeeding is a necessity of the city and has to be encouraged, therefore, the importance of a more scientific qualification and/or updating of these professionals. As connectors between the health team and the families, they must be provided

with enough scientific knowledge so as to meet the demands of the public and deal with the myths they are faced with.

Distance learning has been present in most debates and educational practices in recent years, hence, it is considered a possible training alternative, especially, in distant populations or in need of teaching and/or improvement opportunities near their place of study or work^{19,20}.

In this regard, DL can promote the universalization of teaching and learning opportunities, according to approval of the Decennial Education Plan () Law Project 2011-2020 which provides in its guideline VII, among others, humanistic, scientific and technological promotion in the country, to comply with Article 214 of the Federal Constitution, 1988. In the Annex of DEP 2011- 2020, goal 12 concerning the due provision quality in the gross enrollment ratio in higher education, bringing as proposals the increase of school places through expansion and internalization of the higher education federal system, including the Brazilian Open University System (12.2), and the institutionalization of the bibliographic references digital library composition program for graduation courses (12.15), to assist various segments of the population, is emphasized.

The development of DL is not free from difficulties. There are many barriers that prevent marginalized human groups from accessing conventional and updating studies: geographic, age, temporal barriers, personal constraints, social and economic difficulties, and others².

This study recognizes some of these difficulties, since out of the 49 CHWs interested in using the cybertutor, only 8 did. Furthermore, a significant reduction in the access to the modules available in the virtual learning environment, by the participants, was found (Figure 1). Such difficulties are reported by the CHWs themselves, formed into discourses collective subject.

As for Category (a) *Desire to gain knowledge*, CHWs addressed aspects related to personal motivation to use the educational tool and showed that all of them (the 49 CHWs) were motivated to use the cybertutor, since the virtual instrument is a means to reinforce and gain new knowledge¹¹. The relevance shows the educational choice to be appropriate, since the Internet can be the most current way to provide people with knowledge, mainly, to extremely distant locations in Brazil or other parts in the world, promoting the interrelation among people²⁰.

Among many difficulties which may justify the lack in using the educational tool is the motivational factor, no less important. The motivational process includes needs, expectations, values, models and

mental conceptions of everything in the world^{21,22}. In this regard, the motivational stimulus is quite relevant, and if the community is not motivated or retro-fed, there is a high risk of withdrawal from the course. One of the relevant motivational factors was the choice of the theme “breastfeeding”, with reported interest in the matter which is directly related to the work with many pregnant women and infants, including CHWs, mostly women. The other praised factor was the possibility of counting on two monitores, trained to operate the tool and encourage the group in studying the *cybertutor*, besides guiding and removing doubts, which, certainly, prevented a great number of CHWs from quitting.

Worldwide, the number of computers increases day by day, as justified by the growth of Internet users, but according to this study, most CHWs, in Monte Negro, RO, do not have computers in their homes, nor the chance to access the Internet at their workplace. Until very recently, around 2007, this region had no internet access. The Amazon region, despite geographical difficulties, has the infra-structure to run a digital station, justified by the access to broadband and wireless Internet and this provided the communication of existing health teams with skilled professionals anywhere in Brazil^{18,19}.

As for Category (b) *Requirements to attain the study*, numerous are the difficulties the CHWs had when studying the cybertutor, as they reported, therefore, solutions to these issues must be sought. There are barriers, mainly in terms of knowledge on computer use and other technical issues, i.e., one needs a lot of prior knowledge in computer science to be able to study a cybertutor. CHWs with no such expertise did not have the opportunity to learn more on the tool.

By the discourse of the interviewees it was possible to infer and confirm that, before having access to the *cybertutor*, most CHWs would need a basic computer course, prior to the implementation of the tool or any other means of DL over the Internet.

Regarding access difficulties, there were no computers available for the *cybertutor to be used*, for, according to testimonials of the CHWs, some had expenses at internet cafés, since most of them lived and worked in rural areas (84%), far from the urban center (some even 80 km away) with no possibility of Internet access, which prevented them from participating in the research. Others were helped by relatives, however, within the norms set by those who granted. In addition, they used the weekends or lunch time to access and when asked about the strangeness of the practice, since the investment keeps them away from family members, away from daily chores, taking the time that could

be used in other tasks, the discourse is directed towards suggestion of some consents.

No support was provided by the administrators of Monte Negro, RO, other than motivation, however, when questioned about this, hesitation was evident, and upon insistence, it was possible to obtain, between laughs, the confirmed lack of request by the CHWs, to get incentives or resources. Although the board of health had agreed on the research, one of the representatives of the managers, at the end of the interview, reported that if he had known the CHWs were having difficulties, he would have at least released them from working hours, for the studies. Thus, the conception that the universe of discourse is the interaction of segments of the discursive fields which are mutually delimited^{23,24}, was confirmed.

The implementation of Pact²⁵, in its three dimensions – Pact for Life, in defense of SUS and Management – indicates possibilities for the enforcement of agreements aimed at promoting innovations in the processes and instruments of work and management, so as to achieve higher effectiveness, efficiency and assistance quality, from the population's health needs, seeking to achieve social equity.

In Category (c) *Assessment of professional qualification and content*, the CHWs addressed aspects related to the content of the course and, again, consensual discourses concerning the study process and professional qualification emerged, with animated demonstrations. The meanings produced assume request characteristics which encourage initiatives for the employment of some educational instrument, i.e., taking into account the will, desire or expectation of each participant, it is imperative to implement continuing education through instruments such as the one proposed here.

The accountability for the necessary changes aimed at access to knowledge can mean one more commitment on the part of authorities involved in the initial project – Managers of Monte Negro, RO and professionals with USP-Bauru, SP. If local authorities are committed to providing the requirements regarded as basic ones (identified following the implementation of the *cybertutor on breastfeeding*), certainly they will be able to meet the principles of Pact²⁵. Therefore, the purpose of the investment is justified political, pedagogical and geographically; particularly, as far as the incorporation of theoretical content and actions to be produced to reach the solvability of items of Pact for Life are concerned: the reduction of child and maternal mortality and the implementation of new guidelines to strengthen primary health care.

Although small, and therefore, little significant, statistically, with no possibilities of generalization, the sample of the present study is important to the local reality, taking into account that 49 CHWs agreed on participating in the research but only eight accomplished the course, yet, with difficulties. Furthermore, phone surveys with municipal departments of the State of São Paulo, with less than sixty thousand inhabitants, such as Piratininga, Borebi, Lençóis Paulista, Pederneiras, Agudos, among others, showed that CHW groups present the same characteristics highlighted in this research.

It is necessary to mention that the initial investigation aimed at the implementation and assessment of the *cybertutor*, however, owing to the difficulties described, the goal was changed, thus, focussing on the identification of the requirements for a distance learning *cybertutor* to be employed to assist these professionals in Monte Negro, RO.

Thus, the suggestions to solve and enable the execution of the project to implement a *cybertutor* were considered simple, subject to debate, and may be agreed on provided that there are possibilities for them to be discussed and established with the participation of the parts involved: managers of the municipality, professionals with the Bauru School of Dentistry - USP, and Community Health Workers.

■ CONCLUSION

This study allowed the conclusion, on preliminary data and with a small sample, that the necessary requirements for the use of a CHWs *cybertutor* depend, in part, on the managers who need to allocate resources, so as to enhance the knowledge of professionals, given the disposition to learn they demonstrate. As for the content, although it has been extensively explored, it was still possible to challenge the CHWs. The results indicate the suitability of DL for the Continuing Education of Health workers, nevertheless, they point to need for:

- Implementation of a permanent education policy including distance learning courses;
- Previous basic computer skills;
- Previous basic knowledge on the Internet;
- Access to computers;
- Time available for studies;
- Easy commute for studies (more specifically for those who work in rural areas)
- Ease and encouragement of financial investment for the acquisition of computers, extra funds contributions, or even agreements and partnerships with commercial establishments (Internet

cafés, among others), so as to facilitate the studies;

- Implementation of a career plan which encourages professional advancement.

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RESUMO

Objetivo: verificar e caracterizar os requisitos para efetiva participação dos Agentes Comunitários de Saúde (ACS) em ambientes virtuais de aprendizagem, utilizando o tema "amamentação". **Métodos:** participaram do estudo 49 ACS do município de Monte Negro-RO; após 45 dias, durante os quais o processo foi monitorado, ocorreu uma videoconferência para coletar depoimentos sobre o acesso e conteúdo. Foi utilizada a Análise do Discurso do Sujeito Coletivo para identificar dificuldades/facilidades/sugestões/proposições dos participantes, considerando três categorias: (a) Desejo de adquirir conhecimentos; (b) Consecução do estudo e (c) Avaliação da formação do profissional e do conteúdo. **Resultados:** oito ACS (15,69%) acessaram o *cybertutor* em tempo hábil; destes 100% cursou o módulo introdutório completo; 62,5% os módulos 2 e 3; 37,5% os módulos de 4 à 8. Para a Categoria (a) oito ACS relataram que estiveram motivados no uso do *cybertutor*, visto ser um meio para reforçar e adquirir novos conhecimentos. Quanto à Categoria (b), as maiores dificuldades descritas foram a falta de conhecimento da informática, de recursos materiais e financeiros, além de tempo disponível. Na Categoria (c) referiram ter obtido novos conhecimentos que puderam levar para a população imediatamente e o desejo de ter outras experiências semelhantes. **Conclusão:** os requisitos necessários para ministrar cursos a distância aos ACS implicam a viabilização de recursos pelos gestores locais, conhecimentos prévios de informática básica, acesso à Internet, computadores disponíveis em locais apropriados, assim como outros aspectos como disponibilizar tempo em horário de trabalho e/ou extra, e temas desafiadores para efetivar a educação continuada à distância.

DESCRITORES: Educação à Distância; Educação Continuada; Aleitamento Materno; Atenção Primária à Saúde; Agentes Comunitários de Saúde

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