

Experience with an Internet-Based Course for Ophthalmology Residents

Curso por Internet para Residentes em Oftalmologia: uma Experiência

Keila Monteiro de Carvalho¹
Josie Naomi Iyeyasu¹
Stella Maris da Costa e Castro¹
Gelse Beatriz Martins Monteiro¹
Anita Zimmermann¹

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- Distance Learning.
- Medical Residency.
- Ophthalmology.
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PALAVRAS-CHAVE:

- Educação à Distância.
- Residência Médica.
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ABSTRACT

Objective: To describe the first experience of an Internet-based course for ophthalmology residents. **Method:** Twenty-three residents were invited to participate in the study; however, only 13 (56.52%) took part, performing the proposed activities and answering a questionnaire. **Results:** Of the 13 participants, only five (38.46%) completed 100% of the tasks, three (23.07%) completed between 70 and 90%, two (15.38%) completed between 50 and 60% and three (23.07%) completed less than 10% of the tasks. Regarding the use of computers and the Internet in general, all the participants reported using the Internet daily. All of them also affirmed they use the internet to study or to conduct research. **Conclusion:** Despite the advantages of the Internet, medical residents are still very reluctant to its use. Considering the context of information and communication technologies, there is a pressing need to reformulate continuing medical education in order to meet the demand of this new developing world.

RESUMO

Objetivo: Descrever a primeira experiência com um curso à distância para médicos residentes de Oftalmologia. **Método:** Vinte e três residentes foram convidados a participar do estudo, porém somente 13 (56,52%) aderiram, realizando as atividades propostas e respondendo o questionário. **Resultados:** Dentre os 13 participantes, apenas 5 (38,46%) completaram 100% das tarefas, 3 (23,07%) completaram entre 70% e 90%, 2 (15,38%) completaram entre 50% e 60%, e 3 (23,07%) completaram menos de 10% das tarefas. Em relação ao uso do computador e da internet em geral, todos os participantes afirmaram que usam a internet diariamente. Todos também responderam que usam a internet para estudar ou fazer pesquisas. **Conclusão:** Apesar das vantagens da internet, os médicos residentes ainda são muito relutantes quanto ao seu uso. Considerando-se o contexto atual das tecnologias de informação e comunicação, é mandatório que se faça uma reformulação na educação médica continuada para atender à demanda deste novo mundo.

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INTRODUCTION

The Internet is proving to be a useful tool in everybody's daily routine, and this could be no different among doctors. It is undeniable that it has brought previously unavailable facilities and its use has transformed the way people communicate and, significantly, the way people learn¹. Over the last century, technologies in the biomedical area have developed at a frantic pace, with an exponential proliferation of medical literature². This ever-increasing improvement in information and communication technologies has turned the development of new competences into something so essential that, nowadays, those who do not adapt to this new way of life are considered behind the times¹.

To keep up with this pace of change, professionals must learn more and more by themselves, often outside their work hours. Although books are a good form of learning, they still suffer from an information delay.

Speed is one of the major advantages of the Internet², in addition to its constant information update and ease of access. Physicians can use it anytime and anywhere, according to their convenience³, even outside working hours⁴, and allowing them to at their own rhythm, offering multiple accesses⁵ and bringing a more equal and uniform educational experience in geographically distant places^{5,6}.

Based on all these premises, we proposed the development of an experimental Internet-based course as a complementary tool for the ophthalmology residents during their residency program. The aim of this paper was to describe this first experience in the Department of Ophthalmology-Otorhinolaryngology of the UNICAMP Faculty of Medical Sciences in Brazil.

METHODS

This was a cross-sectional analytical study. Two questionnaires were submitted to the residents. The first one asked questions about the Internet and computer use in general and was answered before the beginning of the course. The second was related to the course itself and was answered upon conclusion of the course. Data regarding accesses, frequencies and tasks done by the residents were taken from the system. Statistical analysis was conducted using the SPSS-Statistical Package for the Social Sciences, by compliance tables.

The Internet-based ophthalmology course was developed using a pre-existing template (TelEduc), which is a platform developed by the UNICAMP Office of Information Technology Applied to Education (NIED), which allows the creation of Internet-based courses and their online maintenance. After a training period, an ophthalmology course was developed for

ophthalmology residents at the following site: http://www.ead.unicamp.br/~teleduc/cursos/aplic/index.php?cod_curso=1783.

The study population comprised first- and second-year ophthalmology residents of the Department of Ophthalmology-Otorhinolaryngology of the UNICAMP Faculty of Medical Sciences for a whole year (2007). The residents were invited to participate in the course during classes and by e-mail.

In order to gain permission to access the course, the residents had to first register themselves on the site. They subsequently received a personal password that enabled free access to the course. The home page contained the following shortcuts: environment structure, course dynamics, schedule, activities, support material, message board, settings and chat. The shortcut "environment structure" brought information about the TelEduc. The shortcut "course dynamics" brought information about the course and the tools available on the site. The shortcut "schedule" showed the course program. The shortcut "activities" showed the tasks that should be performed by the residents. Once an activity was done (whether an article or class summary), the resident could save and compile it in a portfolio. Therefore, each resident had his/her own portfolio containing all their personal files. The shortcut "support material" brought files (Powerpoint files, texts and links to relevant sites selected by the course tutors). The shortcut "message board" gave hints and opinions about extra materials. The shortcut "settings" allowed the residents to change their login, password, personal data and language, as well as to be notified when there was a new activity. Finally, participants could chat to each other, airing their doubts, opinions and comments. Soon after the end of the activities, the participants were invited to answer a multiple choice questionnaire about general and specific aspects of the course.

The project was approved by the Research Ethics Committee of Unicamp — Faculty of Medical Sciences, under number 742/2007.

RESULTS

The following data were taken from the operational system:

Of the 23 service residents, only 13 participated in the study (12 first-year and one second-year residents).

Concerning the first-year residents' compliance, four people (33%) completed 100% of the given tasks, three people (25%) completed between 70 and 90%, two people (16%) between 50 and 60% and three people (25%) less than 10% of the tasks. The one and only second-year resident completed 100% of the tasks.

Computer and Internet use in General

Of all the participants, 11 first-years answered the first questionnaire, which was applied before the beginning of the course. All of them (100%) reported using the Internet on a daily basis. They also all declared that they use the internet to study or conduct research: 9% daily, 55% twice or three times a week, 27% once a week and 9% once a month.

Regarding how long the Internet had been a part of the participants' daily routine, 18% reported that it had been between 1-3 years, 36% answered 3-5 years, 36% answered 5-10 years and 9% answered over 10 years.

In relation to the number of online courses the participants had previously taken, 36% answered they had never taken any Internet-based course, 45% answered between one and three courses and 18% answered over three courses.

Finally, when the participants were asked about their main source of study, 91% said books and 9% answered websites. None of them indicated articles as their main source of study.

General and Specific Aspects of the Course

The data below were also taken from the operational system:

Regarding course attendance, 9% did not attend the course, 64% attended it once a week and 27% attended it twice or three times a week.

27% of the participants managed to dedicate 30 minutes per week to the course, 45% between 1 and 2 hours per week and 27% between 3 and 5 hours per week.

The following questions comprised the last questionnaire answered by the participants:

The questions were presented in the form of affirmative phrases. The participants could choose only one of the following answers: "totally disagree", "disagree", "not sure", "agree" and "totally agree".

Regarding satisfaction with the offered content: 70% disagreed, 10% were not sure and 20% agreed.

As regards contribution of the task to their understanding of the subject: 30% totally disagreed, 20% disagreed, 10% were not sure, 40% agreed and 0% totally agreed.

DISCUSSION

Computer-based teaching has been successfully used in many areas of medical education. Data support the effectiveness of this method for medical education and show that it allows residency programs to provide all essential educational content for the resident⁴. In some medical schools, educational information technology has been included in undergraduate medical education⁷. Furthermore, within the context of this new paradigm of medical education, it is believed that physicians

who are self-directed learners will be able to offer better quality care for their patients⁸.

Information technology and the Internet have not come to substitute traditional teaching methods, which are still very important for physicians' academic learning, but rather to become a partner to those methods, serving as a complementary and enhancing feature.

The need for reformulation in continuing medical education has been discussed in many studies⁹. Preparing students for information management and technology in medical practice is one of the recommendations of nine major reports on medical training¹⁰. All medical disciplines, including ophthalmology, could have many benefits in terms of patient care with the use of this new kind of technology¹¹.

However, despite the advantages of the Internet and computers, physicians unfortunately remain very reluctant to use them. This reluctance is due to several reasons including the inability to handle these technologies^{3,12}, discomfort felt by older physicians⁹, lack of training to use them¹¹, lack of resources to evaluate site credibility, slow speed, difficulty in scanning so much information, software incompatibilities¹², and the costs of file downloads when the user is not aware of any possibility of buying the files using their institution license¹¹.

Low resident compliance and poor dedication to Internet-based courses, as happened in our study, have been reported before. In a study conducted at Harvard University to determine the efficacy of creating a personal site for each resident in order to improve care for diabetes and hypertension patients, only four of the 12 service residents participated in the study voluntarily and, of those, three residents accessed their websites only once¹³.

Regarding the role of the Internet in the residents' daily routine, our study is in accordance with others already performed in Brazil. A study into the development of an Internet-based plastic surgery course for biomedical students at the University of São Paulo found that, although 94% of the participants have a computer at home, less than 50% of them accessed the internet daily¹⁴. In another, a questionnaire about Internet access applied to a group of pediatricians and otorhinolaryngologists during a congress showed that 100% of the volunteers had Internet access¹⁵. The biggest problem is that, despite these results, in most cases the Internet is used for personal purposes instead of medical education¹⁶.

Some studies have shown that the main source of seeking information among residents are journal papers¹⁷, while others showed that residents still prefer books^{18,19}, as was observed in our study.

By contrast, a lot of studies have suggested that online courses are becoming more popular, as we could observe in our results, which showed that most participants had already participated and appreciated participating in at least one such program^{14,15,20,21}.

Thus, although a lot of studies show positive results about Internet- and computer-based courses, the results of our study support several others, in which the participants were reluctant to the use of new technologies, especially regarding medical education. The main limitation of our study was the low level of the residents' compliance due to the small number of participants and tasks performed.

Therefore, this preliminary study, despite its limitations and unfavorable results, was conducted as a guide for further experiences and research in this area. As the next step, we intend to implement a new Internet-based course in ophthalmology basic sciences aimed at first-year residents, since their compliance level was much higher. New studies shall be conducted in order to evaluate the effectiveness of this new tool at our service.

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AUTHORS' CONTRIBUTION

Keila Monteiro de Carvalho coordenou a equipe, revisão crítica do manuscrito. Josie Naomi Iyeyasu contribuiu na redação do texto, revisão do manuscrito. Stella Maris da Costa e Castro contribuiu da análise estatística, trabalho de campo, revisão do manuscrito. Gelse Beatriz Martins Monteiro e Anita Zimmermann participou no trabalho de campo, revisão do manuscrito.

CONFLICT OF INTERESTS

The authors declare not to have any conflict of interests nor any kind of financial support for the study.

CORRESPONDENCE ADDRESS

Keila Monteiro de Carvalho
Departamento de Oftalmo-Otorrino
Rua Vital Brasil, 251
Cidade Universitária Zeferino Vaz — Campinas
CEP. 13083-888 — SP
E-mail: keilammc@gmail.com