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E-Learning: A Comparative study out Knowledge Acquisition by Nurses

Yara Padalina[a] , Heloisa H. C. Peres[b]

[a] *Nursing Supervisor of the "Hospital e Maternidade São Luís – Itaim"*
[b] *Nurse PhD Professor of the Professional Orientation Department at EEUSP*

Abstract

Organizations have been using strategies to enhance human resources, such as computer training. The aim of this study is to compare the knowledge acquired by nurses groups who used computer training and those who had traditional classroom training. The quantitative research methodology follows the experimental method. This study was held at São Luiz Hospital and Maternity. The study population consisted of 60 nurses, divided into two groups. One of them had traditional classroom training, and the other one had computer-assisted training. Participants were evaluated both before and after training. The results show that an equal amount of knowledge was acquired by each group, and the conclusion was that both methods are efficient.

Key words:

distance education - continuing education – comparative study – eLearning

Introduction

Organizations have developed several educational strategies, and among the new technologies developed, those applied to teaching have encouraged the distance learning process [(1)].

To attain a unique position in the market, São Luiz Hospital and Maternity has been investing in the intellectual capital and developing human skills through the adoption of eLearning in their personnel training process.

After a successful initial assessment of eLearning as a teaching tool, the hospital proceeded to invest on the Quality-Oriented Education Program, named "Quality Tools", with three steps: 1.Introduction on the program and definition of the concepts of quality; 2.Structure and principles of Quality Enhancing Program; 3.Quality tools and exercises. At that point, this would be the right moment for this research. The objective of this study was to compare the knowledge acquired by nurses using eLearning and nurses receiving face-to-face training.

Materials and methods

The quantitative research methodology followed the experimental method leading to comparison of face-to-face with online training given to the night shift nurses. The control group was formed by nurses attending face-to-face training, while the experimental group comprised the eLearning program trainees.

The population in this study amounted to 60 nurses. Eleven nurses were excluded for different reasons, and the 49 remaining, out of their own free will agreed to participate in the research. The trainees were distributed in each group at random, with restriction and matched treatment populations.

Face-to face training was given by the researcher in 2 hours through the Power Point software in the hospital training rooms, providing the same content as eLearning. ELearning was given in about 40 minutes in the hospital intranet.

The data collection tools of this study consisted of two questionnaires, one of which was given by the researcher for characterizing the population and the other, called the Pre/Post Test, was provided by the eLearning methodology team consisting of professionals from different areas guided by a pedagogy master. The latter test was applied to both groups, before and after the training program, in order to evaluate the trainee's input.

Results and Discussion

The results and eventual discussions here concern the comparison between both groups of nurses.

The study population consisted of 49 nurses: 46 (94%) were female, 40 (82%) had been employed for over three years, 23 (84%) were 30 to 49 years old, 44 (90%) were post-graduated, 47 (96%) had notions of informatics, 28 (57%) had taken e-learning courses, 41 individuals (84%) had participated in the first phase of the course on line offered by the hospital.

It can be verified that the group is young and post-graduated, two aspects favoring an early contact with computer science.

The computer science is part of the contemporary social context, and drives people to adapt themselves and make use of new technologies in their personal and professional life [(2)].

The data were analyzed with descriptive measures (mean, median, standard deviation, maximum and minimum value).

The average grades in the different groups and moments of assessment were compared, analysis of variance (ANOVA) was used, with two factors: assessment moment (pre-course and post-course) and group (face-to-face or Internet): redundant measures were considered in the assessment moment factor.

The possibility of an interaction effect between factors was assessed. When the interaction effect is not significant, the main effects may be assessed directly, otherwise the behavior of a factor should be assessed according to the levels of the other factor [(3).]

The data obtained in this research showed that trainees of both methods had a better grade in the post-course test at the moment of assessment (Table 1).

Table 1 – Total number of right answers by the face-to-face group population (N=25) and eLearnning group population (N=4) in pre-course and post-course tests - São Paulo, 2006.

Assessm-ent	Face-to-face		Elearning	
	Pre	Post	Pre	Pos
Mean	**16.4**	**17.8**	**17.8**	**19.4**
Median	**19.0**	**19.0**	**19.0**	**20.0**
Standard deviation	**4.5**	**3.2**	**3.1**	**1.7**
Min.	**6.0**	**11.0**	**9.0**	**16.0**
Max.	**23.0**	**22.0**	**21**	**22**

The data showed that as a rule the lowest grades were those of the face-to-face group, not only in the pre-course but also in the post-course tests.

The mean increase obtained in the tests made by e-learning trainees is not significantly different from those attending face-to-face training. The statistical analysis shows that no group effect was verified.

The comparative results of the two modes of training show that both were efficacious, as the mean grade of trainees were higher in both cases, which indicate acquisition of the contents presented.

Online courses provide an opportunity for teachers to give better lessons, enabling them to use a series of, not only technical but also pedagogical training tools, instead of the old one-to-many pattern of presentation[(4)].

Conclusion

This study has reached its objective, as its results compare the amount of knowledge acquired by both groups.

The study verified that knowledge was acquired, no matter what strategy was used in training. It can be inferred that e-learning is an efficacious and efficient method, as it adds several advantages regarding flexibility as well as time and cost saving, which cannot be attained by face-to-face training because of the limitations of the latter.

E-learning, therefore, provides a more customized study, which can be adapted to each trainee's rhythm, overcoming geographical barriers with time flexibility, as the student can choose when and where to undergo his/her training.

In nursing, the eLearning provides time optimization and flexibility in training, highlighting the importance of adoption of new teaching tools to suit each individual's learning dynamics; it is a fast and efficient model of professional qualification and training,

It can be stated that eLearning allows changes in educational behavior and paradigms, introduces a new learning culture, incorporating technology in the formation of nurses.

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Address for correspondence

[a] Padalino Y. Rua Eugênio Betarello, 55 Ap 62 D.
E-mail: yarapadalino@uol.com.br
[b] Peres HHC. Av. Dr Enéas de Carvalho Aguiar, 419. E-mail: hhcperes@usp.br