

# COURSE ASSESSMENT IN THE DISTANCE MODE BY UNDERGRADUATE STUDENTS OF NURSING

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**ABSTRACT:** The study aimed to analyze the development of the 'Nursing and Research' course in the distance mode of the Undergraduate Course in Nursing, characterizing the similarities and the differences in relation to the on-site teaching. It had a quantitative approach of the exploratory descriptive type, and was undertaken with 60 students of the on-site course and 53 of the distance learning course at a public university in the state of Rio Grande do Sul. Data collection took place in 2012 and 2013, through a questionnaire and data from the virtual environment, analyzed using descriptive statistics (level of significance of 5%). The students from the distance learning groups presented a higher proportion of professionalization in comparison with the on-site groups ( $p=0.007$ ). Communication using email was predominant, with 266 messages sent requesting clarification regarding exercises. It is concluded that there is similarity in the groups' evaluations of the two modes of teaching, with the distance mode being an alternative for students who work.

**DESCRIPTORS:** Education, Nursing; Education, Distance; Students, Nursing; Internet; Educational Technology.

## AVALIAÇÃO DE DISCIPLINA NA MODALIDADE A DISTÂNCIA POR ESTUDANTES DE GRADUAÇÃO EM ENFERMAGEM

**RESUMO:** O objetivo do estudo foi analisar o desenvolvimento da disciplina 'Enfermagem e Pesquisa' na modalidade a distância em Curso de Graduação em Enfermagem, caracterizando as similaridades e as diferenças em relação ao ensino presencial. Teve abordagem quantitativa do tipo exploratória-descritiva realizada com 60 estudantes da disciplina na modalidade presencial e 53 a distância de universidade pública no estado do Rio Grande do Sul. A coleta de dados ocorreu em 2012 e 2013 por questionário e dados do ambiente virtual, analisados pela estatística descritiva (nível de significância de 5%). Os estudantes das turmas a distância apresentaram maior proporção de profissionalização, comparados com as turmas presenciais ( $p=0,007$ ). A comunicação por correio eletrônico foi predominante com o envio de 266 mensagens solicitando esclarecimentos sobre exercícios. Conclui-se que existem similaridade nas avaliações das turmas nas duas modalidades de ensino, sendo que a modalidade a distância é uma alternativa aos estudantes trabalhadores.

**DESCRIPTORIOS:** Educação em enfermagem; Educação a distância; Estudantes de enfermagem; Internet; Tecnologia educacional.

## EVALUACIÓN DE ASIGNATURA EN LA MODALIDAD A DISTANCIA POR ESTUDIANTES DE GRADUACIÓN EN ENFERMERÍA

**RESUMEN:** La finalidad del estudio fue analizar el desarrollo de la asignatura 'Enfermería y Investigación' en la modalidad a distancia en Curso de Graduación en Enfermería, caracterizando las semejanzas y las diferencias acerca de la enseñanza presencial. El abordaje fue cuantitativo del tipo exploratorio descriptivo realizado con 60 estudiantes de la asignatura en la modalidad presencial y 53 a distancia de universidad pública en el estado de Rio Grande do Sul. Los datos fueron recogidos en 2012 y 2013 por cuestionario y datos del ambiente virtual, analizados por la estadística descriptiva (nível de significancia de 5%). Los estudiantes de las clases a distancia presentaron mayor proporción de profesionalización, comparados con las clases presenciales ( $p=0,007$ ). La comunicación por correo electrónico fue predominante con el envío de 266 mensajes solicitando aclaramientos sobre actividades. Se concluye que hay semejanza en las evaluaciones de las clases en las dos modalidades de enseñanza, siendo la modalidad a distancia una alternativa a los estudiantes trabajadores.

**DESCRIPTORIOS:** Educación en enfermería; Educación a distancia; Estudiantes de enfermería; Internet; Tecnología educacional.

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## INTRODUCTION

The implementation of new educational methodologies requires them to be assessed by the participants regarding their effectiveness. Activities mediated by computer are part of the routine of Brazilian Institutions of Higher Education (IHE), although studies reveal that the offering of courses in the distance learning (DL) mode is low in Undergraduate Courses in Nursing<sup>(1)</sup>, in addition to which there is a lower number of publications on DL in comparison with what is produced in other areas of knowledge<sup>(2)</sup>.

Differently from what was the case some years ago, young Brazilians today use computing resources with greater skill, and there has been a gradual democratization of Internet access, particularly in the urban centers<sup>(3)</sup>. Associated with these conditions, one must take into account some characteristics which have been attributed to the use of DL, such as ease in accessing information, flexibility for study, in terms of time and space, and interactivity with classmates and the teaching team, as well as the appropriation of technology with a view to the continuous improvement of professional practice<sup>(1)</sup>. As a result, DL may be perceived as a resource for promoting training and improvement of Nursing professionals, which begins during the undergraduate course when they are familiarized with the use of this technology.

In assessing the courses in the DL mode, students on courses in the area of healthcare emphasize the following as aspects which contribute to their learning: the adequacy of the content presented online, the interaction with the professor, and the dynamic of the activities proposed, as well as the quality of the learning objects and the technologies' ease of use<sup>(4-7)</sup>.

The present investigation was undertaken with the aim of describing the assessment undertaken by the students of the undergraduate course in Nursing in the DL mode, analyzing their opinion regarding the same and the use of the virtual environment. In the same way, the groups in the on-site mode undertook an assessment of this course, which took place concomitantly with the DL, so as to identify the similar and distinct aspects in the process of teaching between these two modes.

This assessment is important as support for the professors of nursing in the planning and running of courses, in particular those undertaken in the distance course. Hence, the objective was to analyse the undertaking of the 'Nursing and Research' course, in the distance learning mode on the Undergraduate Course in Nursing, characterizing the similarities and differences in relation to on-site teaching.

## METHOD

This research has a quantitative approach and is of the exploratory, descriptive, retrospective type, and the data were obtained after the students had concluded the courses<sup>(8)</sup>. The study was undertaken on the undergraduate course in Nursing at a public Brazilian university in the state of Rio Grande do Sul, which offers the course 'Nursing and Research' with 30 hours in the third stage of the same. In the first semester of 2011, the implantation took place of changes in the system of offering groups, there being the possibility for students to choose, in accordance with their enrolment number, the course in the DL mode or in the on-site mode. The content undertaken, the schedule of activities, the professors and the on-site assessments (tests and works) were the same in the two groups in the period in which the study was undertaken. The virtual learning environment used for the DL group was the Moodle made available by the university.

The study population was made up of 156 students who were studying on the course in the two academic semesters of 2012, and the first of 2013, in both the DL mode and the on-site mode. The students and who did not complete the course, through excessive absenteeism, canceling their enrolment during the semester, or withdrawing because of poor health, or through failing the course, were excluded. As a result, the sample was made up of 113 undergraduate students of Nursing.

The data collection instrument, which had been previously tested, contained 14 closed questions and addressed data characterizing the participants, their knowledge and experience in computing/DL, and the assessment which they made of the course (methodology used, quality of the interactions, material made available and content

made available). The questions referent to the assessment of the course had as their alternatives 'within expectations', 'above expectations' and 'below expectations'. At the end of the questionnaire, there was a space for comments or suggestions. The self-applied questionnaires were handed to the students in the semesters following the undertaking of the course in the years 2012 and 2013, the invitation being made personally or via email, ensuring that this would not influence the concept obtained in the course.

The second point of data collection was the analysis of the records in the Moodle virtual environment, undertaken by the students on the course in the DL mode. The number and subject of the electronic messages sent to the professor over the 15 weeks in which the DL course was run were counted.

The data were organized with the support of the Statistical Package for the Social Sciences (SPSS) version 18.0. Continuous variables were described through means and standard deviation. The categorical variables were described using absolute and relative frequencies. The Student t-test was applied in order to compare means between the groups. In the comparison of proportions between the groups, the Pearson chi-squared test or Fisher's exact test were applied. The level of significance adopted was 5% ( $p \leq 0.05$ ).

This study complied with the guidelines of Resolution 196/96<sup>(9)</sup>, and was approved by the University's Research Ethics Committee (20583). The header of the questionnaire contained clarifications regarding the objective and the purposes of the study, its risks and benefits, anonymity and the voluntary character of participation, acceptance to participate in the study being considered to occur upon the return of the filled-out questionnaire.

## RESULTS

The participants in the DL group ( $n=53$ ) and the on-site group ( $n=60$ ) had a mean age of 23.1 ( $\pm 4.6$ ) and 22.4 ( $\pm 7.1$ ) with access to the Internet in their homes (98.1% and 98.3%) mainly by broadband (75.5% and 73.3%), respectively. The majority of the students were not undertaking courses or sub-courses in the DL mode (64.2% and 81.7%), but had already

used virtual environments in the undergraduate course in Nursing (88.7% and 88.3%), in which Moodle predominated (95.7% and 83%). The students from the distance-learning groups presented a high proportion of professionalization in comparison with the on-site groups ( $p=0.007$ ); in the remaining variables, the differences were not statistically significant (Table 1).

In relation to familiarization with computer programs, the students were asked regarding their knowledge and skill for using them, with options such as 'very good', 'I know a little', 'I have difficulty', and 'I don't use them'. Email (90.6% and 96.7%) and surfing the Internet (83.0% and 88.3%) stood out with evaluations of familiarization as 'very good'. In the alternative 'I don't use them', only the virtual learning environment was scored (1.9% and 3.3%). There was no significant difference between the groups in relation to the familiarization with the programs (Table 2).

The distance-learning students had higher expectations than students from on-site groups regarding the interaction with the professor ( $p=0.008$ ) and the materials made available for study ( $p=0.001$ ). The distance-learning students also confirmed, in a high proportion, that they would undertake another DL course, when compared with the students from the on-site group ( $p=0.002$ ) (Table 3). The expectations which remained 'within expectations' in the DL and on-site groups related to the course's content (69.8%; 80.0%), interaction with classmates (77.4%, 76.7%), group work (62.3%, 48.3%), with no significant association being presented ( $p=0.171$ ,  $p=0.790$ ,  $p=0.331$ , respectively). If the same associations in each semester attended by the students were assessed (2012.1, 2012.2, 2013.1), similar results were obtained. The mean grade for the DL course was 7.9 ( $\pm 1.9$ ), while that for the on-site course was 8.1 ( $\pm 1.1$ ), the difference not being statistically significant ( $p=0.483$ ). Regarding the suggestions, only 12 (10.6%) students gave their opinions. Five students (4.4%) suggested that the activities and the doubts should have been explained better, four (3.5%) suggested that more DL courses should be offered on the course, two (1.8%) that the professor should be more involved, and one (0.9%) that on-site classes should be provided.

The second point of data collection was the analysis of the activity and interaction which took

place in the Moodle virtual environment during the undertaking of the course in the DL mode. In the on-site groups, the virtual environment was not used; as a result, the data presented below refer to the access undertaken by the 53 students of the groups in the DL mode. A total of 43 learning support materials were made available, including presentations, videos, hypertexts, educational games and indication of sites on the Internet, for supporting the undertaking of the activities proposed. The reading and studying of these learning objects was recommended but

was not obligatory. Attendance on the DL course took place through recording of the sending of the weekly activities proposed.

The contact between the professor and the students took place online using email, it being the case that 40 (75.5%) students used this form of communication, totaling 266 messages. Regarding the topics of the messages, in 139 (52.3%) cases this involved clarification regarding exercises, 70 (26.3%) clarification of doubts regarding how the course functioned, 34 (12.8%) conflicts between the group participants and 23 (8.6%) requests for assistance.

Table 1 – Characterization of the sample. Porto Alegre-RS-Brazil, 2015

<b>Variables</b>	<b>DL (n=53; 46,9%)</b>	<b>On-site (n=60; 53,1%)</b>	<b>P</b>
Age (years) – mean ± SD	23,1 ± 4,6	22,4 ± 7,1	0,404
Working – n(%)			0,007
Yes	17 (32,1)	6 (10)	
No	36 (67,9)	54 (90)	
With Internet – n(%)	52 (98,1)	59 (98,3)	1,000
Types of Internet – n(%)			0,873
Broadband	40 (75,5)	44 (73,3)	
Internet 3G	8 (15,1)	12 (20)	
Other	4 (7,5)	3 (5)	
Did not answer	1 (1,9)	1 (1,7)	
Previous DL course/sub-course – n(%)			0,083
Yes	18 (34)	11 (18,3)	
No	34 (64,1)	49 (81,7)	
Did not answer	1 (1,9)	0 (0)	
Virtual learning environment– n(%)			0,531
Yes	47 (88,7)	53 (88,3)	
No	5 (9,4)	7 (11,7)	
Did not answer	1 (1,9)	0 (0)	
Types of virtual environments – n(%)			
Moodle	45 (95,7)	44 (83)	0,087
Rooda	32 (68,1)	28 (52,8)	0,177
Navi	35 (74,5)	33 (62,3)	0,275

Table 2 – Familiarization with programs. Porto Alegre-RS-Brazil, 2015

<b>Familiarization</b>	<b>DL (n=53; 46,9%)</b>	<b>On-site (n=60; 53,1%)</b>	<b>P</b>
Text editor – n(%)			0,522
Difficulties	1 (1,9)	0 (0)	
I know a little	12 (22,6)	12 (20)	
Very good	40 (75,5)	48 (80)	
Presentation software– n(%)			0,382
Difficulties	1 (1,9)	3 (5)	
I know a little	29 (54,7)	26 (43,3)	
Very good	23 (43,4)	31 (51,7)	
Surfing the Internet– n(%)			0,479
I know a little	8 (15,1)	7 (11,7)	
Very good	44 (83)	53 (88,3)	
Did not answer	1 (1,9)	0 (0)	
Virtual learning environment– n(%)			0,866
I don't use it	1 (1,9)	2 (3,3)	
Difficulties	2 (3,8)	1 (1,7)	
I know a little	29 (54,7)	32 (53,3)	
Very good	21 (39,6)	25 (41,7)	
Email			0,250
I know a little	5 (9,4)	2 (3,3)	
Very good	48 (90,6)	58 (96,7)	

Table 3 – Expectations regarding the course undertaken. Porto Alegre-RS-Brazil, 2015

<b>Expectations</b>	<b>DL (n=53; 46,9%)</b>	<b>On-site (n=60; 53,1%)</b>	<b>P</b>
Interaction with professor– n(%)			0,008
Below expectations	1 (1,9)	8 (13,3)	
Within expectations	30 (56,6)	42 (70)	
Above expectations	21 (39,6)	10 (16,7)	
Did not answer	1 (1,9)	0 (0)	
Materials made available – n(%)			0,001
Below expectations	1 (1,9)	8 (13,4)	
Within expectations	38 (71,7)	44 (73,3)	
Above expectations	14 (26,4)	3 (5)	
Did not answer	0 (0)	5 (8,3)	
Would undertake (another) DL course – n(%)			0,002
Yes	39 (73,6)	26 (43,3)	
No	14 (26,4)	29 (48,4)	
Did not answer	0 (0)	5 (8,3)	

## DISCUSSION

The characterization of this investigation's participants regarding age range, exclusive commitment to study, not being in the job market, and having a good knowledge of computing coincides with the findings of another study<sup>(10)</sup>. All participants mentioned having access to the Internet in their homes, confirming data published by the Brazilian Internet Management Committee, indicating important changes of users' distribution and access taking place in Brazil, these aspects favoring the proposals for DL<sup>(3)</sup>. Data regarding use of information and communication technology (ICT) from 2012 in Brazil indicated that even with regional differences, in most of the country, possession of computers and Internet in the home has grown in relation to previous years<sup>(3)</sup>.

Hence, one can observe that it was not through lack of access to technological resources or lack of knowledge regarding use of computing that the study participants had not previously undertaken courses in the DL mode. One can still find preconceived ideas which do not value the proposals in the DL mode, considering them to be low-quality or lacking interaction, which is not in accordance with the reality. As a result, the broadening of the offering of DL courses provides opportunities for the students to experience this mode, which for them is new, and for them to make choices that are more appropriate to their learning style.

The higher concentration of students with jobs in the DL groups in the course studied indicates that the organizing of time and the place of the study influenced the option of enrolment for some students. The ease of studying outside the physical university, and the more flexible times, are advantages of this mode which already known, such that workers can gain qualifications in Higher Education. In other countries, the so-called 'nontraditional students' have caused the universities to adapt to this new demand by offering, as options, courses in the DL mode in the Nursing Course<sup>(11)</sup>.

The assessments of the DL course undertaken by the students obtained satisfactory scores in nearly all of the items, it being the case that the same indicated that they would do another course in this mode, which indicates that the same met their expectations. Some aspects, however,

deserve to be emphasized, even though there is no statistical significance; these include group work and interaction with coursemates.

The integration between the coursemates, for undertaking collective activities, is one of the challenges posed by computer-mediated teaching, which must provide opportunities for the construction of a learning community with spaces for exchange between all the participants<sup>(12)</sup>. Conflicts at times of group-work are frequent in the on-site mode, but due to the specific characteristics of DL can be intensified, as there is no physical presence, and the interactions are mediated through the computer. Thus, it falls to the professor to identify the occurrence of conflicts and to manage the same in order to promote learning.

The fact that students from the DL course provided an assessment above expectations regarding the interaction with the professor and the quality of the materials made available reflects on the fact that the various means of communication in DL are in principle aspects for its effectiveness; it must be objective and clear such that the participants in the activities can obtain responses to their questions autonomously<sup>(12)</sup>.

The material produced to be made available to the DL students sought to encompass interactivity, generating questions which were clarified with the professor or with the tutor, promoting active learning. In traditional learning, there is dependence on the professor and the focus is on the task, to the detriment of learning new knowledge. The implementation of active methodologies, with the support of digital materials, breaks with the expository-receptive teaching of on-site classes, and proposes a more autonomous student who is more familiarized with the use of these technologies<sup>(13-14)</sup>. Hence, this is considered an initial phase of transition, in which the students progressively take responsibility for their protagonism in the learning process.

## CONCLUSION

The analysis of the development of the course in the Undergraduate Course in Nursing in the distance learning mode, in comparison with the on-site group, made it possible to identify similarities between the students regarding age

range, access to the Internet, and knowledge in computing. In the DL groups, there were more students who were working, this being an option for those who need to reconcile study and work.

The assessments made by the students in the two modes of study presented similarities, indicating that DL exceeded the expectations regarding interaction with the professor and the availability of materials which supported the learning. The organization of the study time offered by the course incentivizes autonomy in the learning process, bringing the student greater freedom regarding time and space for searching for knowledge; however, these need to conquer their protagonism in the learning process.

It is recommended that studies monitoring courses in the DL mode in the Undergraduate Courses in Nursing should be undertaken, with the objective of assessing the different teaching strategies and support instruments used. In the same way, it is believed that communication between professor and student in clarifying doubts, and strategies which enable cooperative work group and the promotion of better interaction between the participants, can be improved.

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