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Performance analysis of nursing students in teaching by skills and for understanding*

Análise do desempenho dos estudantes de enfermagem no ensino por competências e no ensino para compreensão

Análisis de desarrollo de los estudiantes de enfermería enla enseñanza por competencias y en la enseñanza para la comprensión

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ABSTRACT

Objective: To analyze the performance of students of the course Supervised Curricular Internship based on skills (curriculum A) and teaching for understanding (curriculum B). **Method:** Exploratory descriptive, quantitative and documentary study. The location of the research was a private university of the city of São Paulo and for data collection were used 312 performance assessment tools for students of the course being studied. **Results:** The assessment of the performance of curriculum A students had no difference compared to the overall average of curriculum B students. The A students showed better performance in relation to B in the intensive care unit and in pedagogical practices, and B showed better performance in attitudinal bases topics and management. Students who are nursing technicians have better performance and, those working in the afternoon have better grades. **Conclusion:** It was not proven that students of the course Supervised Curricular Internship of the understanding curriculum (B) had better performance than the students of the skills curriculum (A). The technical training of nursing and work shift were variables that interfered in student performance regardless of the type of curriculum. During the study there was the possibility of analyzing the performance assessment tools for students, as well as the filling by professors, noting that there is need for better structuring of the evaluation of student performance and, above all, a process of training of professors for the execution of this activity.

DESCRIPTORS

Education in nursing; Curriculum; Competence-based education; Educational Assessment; Nursing students.

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INTRODUCTION

The context of national educational policies of higher education has changed with the new National Curriculum Guidelines, specifically concerning health care courses. Among them are the resolutions no. 2 of June 18, 2007[1] and no. 4 of April 6, 2009[2], which regulate minimum course hours and integration of health courses.

Universities sought to adjust their curricula to these resolutions. In the university where this study took place, the curriculum in effect was by skills, when the Institutional Pedagogical Project was adopted in 2009. In addition to the adjustments requested above, the Project was the theoretical basis of teaching for understanding, created from the development of the Project Zero, a research center of the Harvard Graduate School of Education, directed by Perkins and Gardner in 1988 and 1989*(3)*.

For this to be possible, the curricula of the said educational institution was completely restructured. It had to become modular, consisting of undergraduate teaching units, professional practices, integrated projects, and learning modules and bases. The curriculum began to be set up in a more integral way, some courses ceased to exist and the undergraduate courses began to be developed in related Areas Axes, professors began working on multidisciplinary integration and to have a solid training in education, which was already promoted by the university. The realization of integrated projects, professional practices and units common to all courses (Core Curricula) have been set up in all university careers.

Teaching for understanding is a theoretical framework started by researchers at the Harvard Graduate School of Education who study human cognition in a variety of domains and seek improvements in reflection, education and learning in diverse educational settings, looking for the best efforts to teach for understanding, which they termed as a complex process[3].

But ultimately, what understanding is? To David Perkins "it is the ability to think and act in a flexible manner with what you know"[4]. From this definition we can abstract some important pillars for the construction of this concept. Understanding is a capacity, i.e. a cognitive function to develop and also an attitude, a malleable action, variable of acquired or developed knowledge. By its characteristic of cognitive function would be impossible to define understanding in its strictest sense, linked to the neuropsychic function, since it depends on a series of neurological and psychological-cognitive factors. However, it is possible to observe the existence of understanding from the reply given by the one who expresses[5].

The conceptual framework is based on the definition of generator topics, on the establishment of goals of understanding, comprehension performance and continuous assessment. These four moments must be internalized in the professor, so that they can move safely in this conceptual framework[3,6].

Generator topics are central and fundamental issues or themes to the training of the student, and must be related to their experiences and interests. They can be approached in various approaches, linked also to the passions of professors. The goals of understanding are buoyed by a verb that show objectively what the student is expected to understand. The performances of understanding reflect the expected performances of the student in relation to the goals of understanding. Ongoing assessment should be performed at the end of each activity[3,6].

Concerning teaching by skills, discussions, both in general and in professional training, with emphasis on the latter, emerge in the 1960s and 1970s, depending on each country. From the beginning, the concept of competence has been associated with the idea of training and tends to replace the notion of knowledge in general education and the notion of qualification in vocational training, although they are not synonyms[7]. A first interpretation on skills would be qualification plus know-how, including employee attitudes in the workplace.

The curriculum by skills, "skill" is understood as the ability to mobilize a set of cognitive, affective and psychomotor features or attributes, relationships, values, attitudes, culture, ethical principles, dexterity and abilities to solve with relevance and effectiveness professional situations. In educational practice, in an approach by skills, assessment is no longer centered in disciplines and is verified through specific situations and tasks[8].

Within this context, when experiencing the two curricula, it is empirically noticeable that students of the two pedagogical models have different achievements. In reflective action some questions arise: The performance of students in the field of practice in the model by understanding is greater than by skills? There are performance differences in the practice field in behavioral dimensions, scientific knowledge, practical assistance, educational activities and the production of works?

Thus, the objective was to analyze the performance of students in the curricular supervised internship of the pedagogical project based on skills and students of the pedagogical project of teaching for understanding.

METHOD

The study was quantitative, exploratory and descriptive of the documentary research type, analyzing six instruments for the evaluation of students of the course Supervised Curricular Internship.

Supervised Internship is a curriculum component that happens in the seventh and eighth semesters with the goal of preparing students for the exercise of professional practice, proposing the holding of practical experiences with the application of scientific knowledge learned during the development of the course in a critical-reflexive perspective.

Students of the two curricula performed the internship in basic health units, basic units with the family health strategy, inpatient adult unit, inpatient child unit, intensive care unit and internship in nursing management

in hospitalization or outpatient unit unit, on an average of 20 days per unit.

The class of the skills curriculum (curriculum A) was composed of 33 students, so there were 198 evaluation instruments. The curriculum based on teaching for understanding (curriculum B), the group was composed of 18 students and, therefore, 108 instruments. In total, there were 52 students and 312 evaluation tools.

The evaluation tool used was the same for both curricula and comprised the following topics: behavior; scientific knowledge; health care practice; management and educational actions; and activities/work.

In the behavior topic, values of 0 to 2 points, the following items are evaluated: personal presentation; responsibility and commitments; punctuality; attendance, organization and leadership; personal and social attitudes; construction of relationships; acceptance of the guidelines, constructive criticism and ability to embrace them; identification of opportunities to expand knowledge; and use of personal material.

In the topic of scientific knowledge, values of 0 to 3 points, the student is evaluated on the following criteria: demonstration of knowledge of anatomy/physiology and the pathological and physiological processes, correlating them with the assistance provided; recognition of the action of medicines, presentation, side effects, via and form of administration; correlation of test results with the clinical evolution of the patient; initiative to recognize the dynamics, flows and structure of the unit; recognition of health programs offered by the unit and by the SUS; initiative in planning and organizing the unit; establishment of priorities in order to meet the demand of the unit and of the proposed actions; recognition and identification of environmental, sanitary and epidemiological indicators and implementation of compulsory notification; survey and analysis of data and information after home visits and/or social support networks, proposing health actions; filling of reports, books, specific register files and patient records according to the routine of the unit.

In Health care practice, from 0 to 3 points, the student is evaluated in the following items: development of basic techniques with specific technical and scientific knowledge; reporting the clinical state and minimally recognizes patient complexity, in order to orient and make decisions; documentation of the actions in a systematized and organized way, with use of specific nursing vocabulary and nomenclature; performance of systematic nursing consultation; analyzes, discusses and evaluates the effectiveness of the actions and practices of nursing provided; organizes the work to optimize time and tasks; passes on duty with relevant and succinct information.

Management, from 0 to 3 points, covers the management of people, health care, administrative and personal development.

Educational actions and activities/works, value of 0 to 2 points. In this topic the student is evaluated with the items: proposes health education to users and employees of basic health units, using content and approach strategies according to the needs of the local population, with the proposals of SUS, UBS and the professor; performs extra-internship search, doing research on the subjects covered in the field, sharing with the group the knowledge gained; develops critical analytical reasoning, exposing and debating ideas, participate in the discussions, provides answers consistently; presentation of the work/activity; have dominion over the data submitted; division of activities and teamwork.

There was a fixed professor for the practice fear, which assessed students of the two curricula, which means it was the same person who filled out the evaluation instruments for students of curriculum A (by skills) and curriculum B (for understanding).

The data obtained from the evaluation instruments were tabulated and composed the database, presented in descriptive tables and charts, and statistically analyzed. In the variables that have more than two answer options, analysis of variance (ANOVA) were performed, followed by the Tukey's method, in which paired differences were found. With the item age, the Pearson's correlation coefficient was used. Fisher's exact test was used to compare categorical variables and Student's t-test for age[9]. The significance level was 0.05.

RESULTS

The results are presented covering the characterization of the subject, the performance of the students of curricula A and B and the comparison between them.

In relation to the subject, in both curricula, most are female, respectively 30 (90.9%) and 16 (88.9%), average age of 28.3 years, and predominant age group is 21 to 30 years.

Concerning training in the area of nursing, in curriculum A, 14 students are nursing technicians (42.42%), three (6.06%) are nursing assistants, 13 (39.4%) do not have training in the area, and three (6.06%) students did not report. From the students of curriculum B, eight (44.44%) are nursing technicians, four (22.22%) are nursing assistants, four (22.22%) did not have training in the area of health, and two (11.11%) did not report. Twenty-four (69.69%) worker students were identified in curriculum A, and 13 (72.22%) in curriculum B. There was no significant difference between the groups concerning training in the area of nursing and the variable of being employed.

Of the 23 worker students from curriculum A, 14 (58.3%) work in the afternoon, nine (37.5%) in the night shift and one (4.2%) works two shifts, afternoon and evening. Of the 13 worker students of curriculum B, seven (53.9%) work in the afternoon and six (46.1%) at night; no statistical difference was detected between the groups.

Regarding the students' performance analysis, the comparison of the averages of the curricula A and B can be seen in Figure 1.

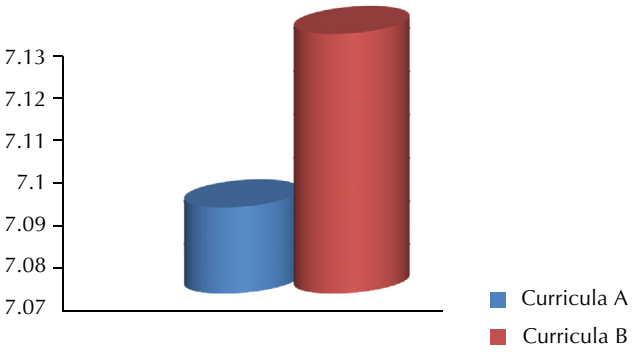

Figure 1 - Overall average of student performance evaluation of curricula And B. São Paulo, 2012.

Source: Paranhos, WY. Performance analysis of the nursing students in teaching by skills and for understanding [PhD thesis]. São Paulo: School of Nursing, University of São Paulo, 2014.

Curriculum A students had an average of 7.09 and of curriculum B, 7.13, standard deviation of 0.728 and 0.666, respectively. T-test was conducted (p = 0.985), without significant statistical difference.

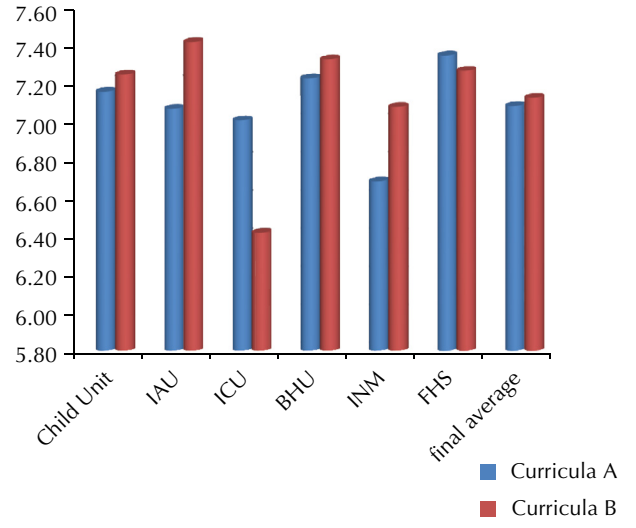

Figure 2 - Average assessment of students' performance per internship unit of curricula A and B. São Paulo, 2012.

Source: Paranhos, WY. Performance analysis of the nursing students in teaching by skills and for understanding [PhD thesis]. São Paulo: School of Nursing, University of São Paulo, 2014.

In Figure 2, the comparison of the averages of the students' performance is shown by internship unit.

In the intensive care unit, the averages were 7.11 for students curriculum A, with a standard deviation of 1.088 and, for curriculum B, 6.44, with standard deviation of 1.21. T-test (p=0.46) showed that the average for the curriculum A group is greater than for curriculum B only in this field of practice.

In the evaluation of students' performance according to the topics, the categories that have statistical significance are highlighted, that were present with behavioral and best average for students of curriculum B, average of 3.18, standard deviation of 0.271 and a p value of Fisher's test of 0.0. The average for health care practice was better for students of curriculum A, 2.306 average, standard deviation of 0.238 and a p-value of Fisher's test of 0.030. For the personal development item, students of curriculum B were better, with 0.867 average and standard deviation of 0.173 and a p value of Fisher's test of 0.048.

Comparing the performance of students concerning training in the field of nursing, the final average between the nursing assistants and technicians, according to Fisher's test, was the p value of 0.13; between assistants and another formation, was 0.67; and between nursing technicians and another formation was 0.01.

Regarding work shift, according to Fisher's test, the final average among students who do not work and those working in the afternoon was the value of p was 0.98; for the ones that do not work and those who work at night p was 0.10; and for those working in the afternoon and those working at night p was 0.02.

DISCUSSION

With regard to the characterization of the subject in relation to age, unlike other studies, the age group of 21 to 30 was predominant. Other studies have a predominance of students in the range of 18 to 20 years[10-12].

This age, a bit higher than other studies, can interfere with learning, due to the fact that the majority of students have left high school some time ago. On the other hand, as found in this study, that age can demonstrate that these students already have family obligations and therefore should have more interest and responsibility towards studies[12].

The predominance of students with training in the area of nursing can be justified by them relying on the university as a way to rise in the career, which also justifies the predominance of worker students, most of whom have training in the area of health and, therefore, already operate in the area.

In recent years, the *nursing worker student* phenomenon has been growing in nursing courses. The demand tends to keep rising, precisely for seducing the worker student, who, being highly motivated, will overcome great challenges to become a nurse[12].

Regarding the performance of the students, the average of the curriculum by skills (A) group is greater than the curriculum for understanding (B) group in the intensive care unit. One reason may be because for the curriculum A, this content was taught in the Nursing in the Life Cycle (special situations) course, with 320 hours, which covered assistance in the most prevalent special situations in the life cycle. For curriculum B, this content was presented in Tertiary Health Care of the Individual, Family and Community, with 160 hours. Given the aforementioned, it is observed that the amount of course hours was lower, which certainly caused teachers to elect a smaller number of content to deliver.

The syllabus has been considered of vital importance in the educational process because the level of appropriation of a professor on a given theme influences the choice and application of teaching strategies and of learning as-

sessment. "Knowing something allows us to teach it; and to meet a content with depth means being mentally organized and well-prepared to teach it in general"[13].

As for the performance in professional practices, one of the factors that can explain a better result for group A is that they had more practical classes, such as teaching strategies, than those of curriculum B, in the courses of Nursing Instruments I, II, III and IV.

Teaching strategies have been addressed with great emphasis by scholars of education. Comênio, in his book *Didactica magna*, reported: "to learn everything with greater ease one should use as many senses as possible... the ear must always go together with vision, and the tongue with the hands"[14].

The practical situations experienced by students makes it possible for them to experience problematic situations, establishing connections with reality, without losing sight of the students' individuality, their intellectual and emotional conditions and their life trajectory.

In the behavior topic, the better performance of the students of the curriculum for understanding was expected, since teaching for understanding aims to make the student reflect, to adapt to the constant social changes and technological advances, contributing to the sustainable development of society. To understand is to explain, justify, relate and apply in order to extrapolate daily knowledge and skills[4]. The goal of the theoretical framework of teaching for understanding is to encourage the teacher/tutor to be reflective in the articulation of their educational practices.

On the topic of personal development in the management item, students of curriculum B were better than those of curriculum A. Students of curriculum B, since the beginning of the course, in the common axis of health, were encouraged through active methodologies to be active elements in their own learning, and this is reflected in this item, which requires the student to be proactive. In teaching for understanding, teaching emphasizes the training of skills, from the most simple, like reading and writing, to the more complex and higher-order for problems-solving, like planning, reflection and evaluation[3].

Active methodologies allow the balance between words and pictures, facilitating the process of development of thinking, so much so that educators as Vigostky[15] call attention to the fact that without sensations, perceptions and representations, thinking does not develop.

On most items, both in the curriculum by skills as for understanding, nursing technician performs better than the others. Probably this is because technicians have training of 1,200 hours[16].

The CEE indication No. 08/2000[17] states that the minimum duration required for supervised internships cannot be less than 50% of the minimum hours of their professional qualification, i.e. 600 hours, therefore the technical course in nursing should be structured with a minimum of 1,800 hours. Including the courses that serve the vital cycle in theory and in practice, health of children, women, adults, elderly, in addition to intensive care and internship in nursing management.

In comparison with performance and work shift, the result obtained is interesting, that on most items the student who works the afternoon shift has better performance. This data collaborates with previous data that shows that technicians already have training in the area of health and, therefore, they are workers who perform better than the student who does not work. Students who works at night presents changes in their body, since the human species is diurnal. These changes are hormonal, psychological, behavioral and of performance[13,18 -19].

CONCLUSION

Data analysis allows us to conclude that curricular internship students who attended both curricula are mostly women, between 26 and 35 years old, single, nursing technicians working in the afternoon shift.

Regarding the comparison of the performance evaluation of curriculum A students, had no statistical difference in relation to the overall average of the curriculum B students.

The hypothesis that the performance of students of the modular curriculum based on the theoretical framework of teaching for understanding was better than the performance of students of the curriculum by skills is not confirmed.

When comparing the performances of the students of the supervised internship course in the curriculum based on skills and the modular curriculum based on teaching for understanding, the first showed better performance in the intensive care unit and welfare practices, and the second in behavior and management.

As for training in the area of health, students who are nursing technicians have better performance than those who do not have training in the area of health.

Concerning work shift, students who works in the afternoon got better grades than those who work at night and the ones that do not work.

It is considered that to discuss and analyze this result, a research must be conducted to demystify the student who works the afternoon shift, since there are several studies about night shift students and workers.

It is also concluded that, like most of the variables were the same, internship field, teachers and instruments, the curriculum was not a significant variable for the result of the performance of students.

It is recognized that documentary research has limits, since previously collected data were used, and it was verified that several items on the instrument of performance evaluation of students in supervised internship need revision. Therefore, it is suggested that, based on this research, a study group of teachers from the university where this study was conducted is created, so that the instrument can be modified in the light of the theoretical reference on evaluation.

Another limit of this study was the election of performance assessment of students of the last year to evaluate only one class of each curriculum, and for the analysis of the influence of the curricula in the learning process will

need further studies to explore the performance of the student also along theoretical and practical disciplines.

New research should be made for better interpretation and analysis of the performance evaluation of students during supervised internship, because we believe that this is the key point of the training of nursing students, in which they learn by action.

A self-assessment of teachers is needed, based on the pedagogic project of the course, especially in relation to competencies and skills proposed for the graduates' profile.

This study highlights some points: the evaluation of student performance in supervised internships should be better structured, and there must be a qualification of professors for the development of the learning evaluation process.

RESUMO

Objetivo: Analisar o desempenho dos estudantes da disciplina Estágio Curricular Supervisionado do projeto pedagógico baseado em Competências (currículo A) e dos estudantes do projeto pedagógico na perspectiva do Ensino para Compreensão (currículo B). **Método:** Estudo exploratório descritivo, quantitativo e documental. O local da pesquisa foi uma universidade privada do município de São Paulo e para a coleta de dados foram utilizados 312 instrumentos de avaliação de desempenho dos estudantes da disciplina em questão. **Resultados:** A avaliação do desempenho dos estudantes do currículo A não teve diferença em relação à média geral dos estudantes do currículo B. Os estudantes do A mostraram melhor desempenho em relação ao B na unidade de terapia intensiva e no tópico práticas pedagógicas, e os do B nos tópicos bases comportamentais e atitudinais e gestão. Os estudantes que são técnicos de enfermagem têm desempenho melhor e os que trabalham à tarde têm melhores notas. **Conclusão:** Não foi comprovada a hipótese de que os estudantes da disciplina Estágio Curricular Supervisionado do currículo por compreensão (B) tem melhor desempenho que os estudantes do currículo por competências (A). A formação como técnico de enfermagem e turno de trabalho foram variáveis que interferiram no desempenho dos alunos independentemente do tipo de currículo. Durante o estudo houve a possibilidade de analisar os instrumentos de avaliação de desempenho dos estudantes, bem como o preenchimento pelos docentes, constatando-se que há necessidade de melhor estruturação na avaliação de desempenho do estudante e, principalmente, um processo de capacitação dos professores para a execução dessa atividade.

DESCRITORES

Educação em Enfermagem; Currículo; Educação Baseada em Competência; Avaliação Educacional; Estudantes de Enfermagem.

RESUMEN

Objetivos: Analizar el desarrollo de los estudiantes en las asignaturas del Práctica Curricular del proyecto pedagógico basado en Competencias (currículo A) y de los estudiantes del proyecto pedagógico en la perspectiva de la Enseñanza para la Comprensión (currículo B). **Método:** Estudio exploratorio descriptivo, cuantitativo y documental. El local de la investigación fue una Universidad Privada, del municipio de São Paulo y para la recolección de datos fueron utilizados 312 instrumentos de evaluación del desarrollo de los estudiantes de la mencionada disciplina. **Resultados:** La evaluación del desempeño de los estudiantes de las asignatura en cuestión. Resultados: la evaluación del desempeño de los estudiantes del currículo A no presentó diferencia al ser comparada con el promedio general de los estudiantes del currículo B. Los estudiantes del currículo A demostraron mejor desempeño en relación al B en la unidad de terapia intensiva y en tópico de prácticas pedagógicas, y los del B en los tópicos bases comportamentales y actitudinales y gestión. Los estudiantes que son técnicos de enfermería tuvieron mejor desempeño y los que trabajan en el periodo de la tarde obtienen mejores notas. **Conclusión:** no se comprobó la hipótesis de que los estudiantes de la Práctica Curricular Supervisada del currículo por comprensión (B) tuvieron mejor desempeño que los estudiantes del currículo por competencias (A). La formación como técnico de enfermería y turno de trabajo fueron variables que interfirieron en el desempeño de los alumnos independientemente del tipo de currículo. Durante el estudio hubo la posibilidad de analizar los instrumentos de avaluación de desempeño de los estudiantes, bien como el relleno por parte de los profesores, constatándose la necesidad de mejor estructuración en la evaluación de desempeño del estudiantes y, principalmente en el proceso de capacitación de los profesores para ejecutar esa actividad.

DESCRIPTORES

Educación en Enfermería; Currículo; Educación Basada en Competencias; Evaluación Educacional; Estudiantes de Enfermería.

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