Sistema de evaluación para el Aprendizaje Basado en Problemas (ABP) en estudiantes de la licenciatura en nutrición

Evaluation system for Problem-Based Learning (PBL) in students of Bachelor's degree on Nutrition

Sistema de avaliação para Aprendizagem Baseada em Problemas (PBL) em estudantes de graduação em nutrição

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Resumen

Según la literatura existente, una de las dificultades principales en la evaluación de actividades en el ABP es la definición de los instrumentos que pueden utilizarse para una evaluación formal. El presente artículo tiene como objetivo proponer un sistema de evaluación para el ABP en alumnos de la licenciatura en nutrición. Se trata de un estudio con un paradigma de tipo mixto, desde un modelo secuencial y exploratorio por etapas, donde se emplearon tres instrumentos de naturaleza mixta (cualitativa y cuantitativa) para la recolección sistemática de los datos: cuestionario de evaluación del desempeño de los estudiantes durante las sesiones tutoriales del aprendizaje basado en problemas, escala de evaluación de elementos esenciales del desempeño de un tutor de aprendizaje basado en problemas (ABP) y escala de autoevaluación para el alumno de diseño propio. En los resultados, la dimensión mejor evaluada por parte del tutor fue la interacción con el grupo, con un valor promedio de 34.68 de 36 puntos, en la escala de evaluación de elementos esenciales del desempeño de un tutor de Aprendizaje Basado en Problemas (ABP) la media más alta fue de 3 (+/- 0) para el ítem número 1 que evalúa si el facilitador está bien informado acerca del proceso de aprendizaje basado en problemas; para el instrumento de autoevaluación del alumno se reportó que el valor promedio más alto fue el del ítem número 2 (4.41 +/- 0.57), el cual evalúa la claridad en la instrucción del tutor. En conclusión, los tres instrumentos empleados en la

investigación permitieron llegar a un juicio de valor más asertivo y preciso sobre la técnica de ABP aplicada en los alumnos de nutrición a través de un sistema integral de evaluación.

Palabras clave: Aprendizaje Basado en Problemas (ABP), evaluación, instrumentos, nutrición, juicio de valor.

Abstract

According to the existing literature, one of the main difficulties in the evaluation of activities at the PBL is the definition of instruments that can be used for a formal evaluation. This article aims to propose an evaluation system for the PBL in students of Bachelor's degree on Nutrition. It's a study with a paradigm of mixed type, from a sequential and exploratory model by stages, where used three instruments of mixed nature (qualitative and quantitative) for the systematic data collection: questionnaire of performance evaluation of the students during the tutorial sessions of problem-based learning, assessment scale of essential elements for the performance of a PBL Tutor y self-assessment scale for the student's own design. In the results, the dimension best assessed by the Tutor was the interaction with the Group, with an average of 36 out of 34.68 points, on the assessment scale of essential elements for the performance of a PBL Tutor the highest average was 3 (+/- 0) to item number 1 that evaluates if the facilitator is well informed about the PBL process; for the instrument of the student self-assessment was reported that the highest average value was for item number 2 (4.41 +/- 0.57), which evaluates the clarity in the tutor instruction. In conclusion, the three instruments used in the research led to a value judgment more assertive and precise about the ABP Technology applied in nutrition students through a comprehensive system of evaluation.

Key words: Problem-Based Learning (PBL), assessment, instrument, nutrition, value judgment.

Resumo

De acordo com a literatura, um dos principais dificuldades em avaliar as actividades na ABP é a definição dos instrumentos que podem ser utilizados para uma avaliação formal. Este artigo tem como objetivo propor um sistema de avaliação para os estudantes ABP do grau em nutrição. Este é um estudo com um paradigma de tipo misto, a partir de um modelo seqüencial e exploratória em etapas, onde três instrumentos misturado natureza (qualitativa e quantitativa) para a coleta sistemática de dados foram utilizados: questionário de avaliação do desempenho dos alunos durante as sessões tutoriais de aprendizagem baseada em problemas, elementos essenciais de desempenho escala de avaliação de aprendizagem baseada em problema tutor (PBL) e escala de auto-classificação para próprio projeto do aluno. Nos resultados, a dimensão melhor avaliada pelo tutor foi a interação com o grupo, com uma média de 34,68 com 36 pontos na escala de avaliação dos elementos essenciais do desempenho de um problema tutor Aprendizagem Baseada (PBL) a maior média foi de 3 (+/- 0) para o item número 1 avalia se o facilitador tem conhecimento sobre o processo de aprendizagem baseada em problemas; para a ferramenta de auto-avaliação dos alunos, foi relatado que o maior valor médio foi Item No. 2 (4,41 +/- 0,57), que avalia a clareza de tutor de instruções. Em conclusão, os três instrumentos utilizados na pesquisa permitiu chegar a um julgamento em mais assertivo e técnica precisa aplicado ABP estudantes nutrição através de um valor abrangente sistema de avaliação.

Palavras-chave: aprendizagem baseada em problemas (PBL), instrumentos de avaliação, nutrição, julgamento de valor.

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Introduction

Given the current panorama of teaching, the educational assessment has major challenges in its definition, interpretation and design. Frade (2011) defines it as a dynamic, continuous, systematic and operational process that consists in making a balance between the activities performed and the goals proposed, that necessarily leads to the elaboration of a judgment that allows making decisions of change that lead to continuous improvement in the learning.

According to Aguilar (2011), formal assessment seeks to give a judgment about certain elements, following a procedure already defined and using reliable measuring instruments. That is how every education process requires an objective and relevant assessment system.

From the early 1960s, the McMaster University's Faculty of Health Sciences in Ontario, Canadá designed the Problem-Based Learning (PBL) for approach to the students to the reality of their future professional life through small groups that seek the solution of problematic situations (Loyens, Madga, y Rikers, 2008; en Olivares, 2012).

Díaz Barriga (2006, in Olivares, 2012) defines to the PBL as an integrator approach based in activities that foster reflection, complex thinking, cooperation and decision making, that revolve around the coping of real and significant problems, located in the context of the profession that is forming the College student.

Problem Definition

According to Sola (2011), one of the main difficulties in assessing activities in the ABP is the definition of instruments that can be used for a formal evaluation. Since the technique requires largely a transfer of the responsibility for learning to the students themselves, the knowledge acquired by each not necessarily be the same. Every problem can have multiple solutions and can be approached from a variety of viewpoints. This is undoubtedly an obstacle to measuring compliance with the conceptual goals. Therefore, the evaluation objectives may not be suited to the characteristics of the technique.

Thus the need to create a system to assess the activities that are part of the ABP method, always betting on objectivity and the issuance of an appropriate value judgment arises.

Given the above analysis emerged the following research questions:

1. What instruments can be used in a process of genuine, valid and fair assessment for ABP students of the degree in nutrition?

2. How can propose a system of comprehensive and holistic assessment method ABP for students of nutrition?

Background

Currently there is little literature on the specific guidelines that make the assessment in the method of ABP. MacDonald and Savin-Baden (2004) established the requirements and general characteristics of an evaluation under the ABP. In his opinion, it had to propose a solution based on the real context of the profession and adequate prior knowledge of students to help encourage reflection and self-evaluation, which familiarize students with the main issues of the exercise of the profession evaluation, and to harmonize the objectives, methods and learning outcomes (Bermejo, 2008).

In a study of González et al. (2013), the ABP possible to evaluate transversal competences in nursing students using different instruments, concluding that student participation in the evaluation strengthens attitudes (how to be) as honesty, responsibility and autonomy. On the other hand, Poot-Delgado (2013) states that the assessment in the ABP should be performed covering at least the following aspects: it must be designed according to the results of learning content, according to the knowledge that the student brings to the process of reasoning group, and according to the student's personal interactions with other members of the group.

To Cuachayo (2008), the assessment in the ABP is a genuine partner associated with the problem and process. According to Marin (s.f), one of the challenges for managers or guardians before the ABP is to design and operate an evaluation system according to this instructional methodology. This may require negotiation with the departments or academies. The information derived from the evaluation should be used effectively by those who are in charge of the program, as well as students and teachers.

Problem Based Learning (PBL) in Mexico

In Mexico it has been reported that the ABP is used by institutions such as the National Autonomous University of Mexico (UNAM) in its Faculty of Medicine, the Instituto Tecnologico de Estudios Superiores de Monterrey (ITESM), the University of Colima and the University of Guadalajara (Martinez, 2002).

Didactics and teaching strategy ABP has also been implemented at the level of basic education, as it relates Morales and Perez (2009) in a study in primary Anahuac College in Villahermosa, Tabasco, in which ABP worked in the area of mathematics.

In the field of nutrition, Olivares and Heredia (2012) applied a study in the ITESM Campus Monterrey in health programs and Biotechnology and food, specifically in racing Surgeon (MC), Biomedical Engineer (IB), Bachelor nutrition (LN), Food Engineer (IA) and Engineer in Biotechnology (IBT). According to the previous report, the ABP has been implemented in health programs ITESM since 2001, so the aim of the research was to compare the levels of critical thinking obtained with the Test California Skills Critical Thinking (cctst-2000) of Facione (2000) by trained health students with ABP with students from the same school who were not exposed to this teaching technique. The results showed a greater balance in the development of inductive and deductive thinking in students trained with the teaching technique ABP, which speaks of skills development that paid to the training of health professional.

According to Sola (2011), a problem or difficulty that can be found in a ABP activity is the assessment of the values and attitudes. It is again necessary to observe the process by the teacher. Also, according to the above author, it can be useful an exercise in self-assessment and peer assessment by students to help them reflect on their performance in collaborative work, while giving them feedback from his teammates.

Methodology

Participants were selected by intentional non-probabilistic sample. We included 32 students in research, with a total of 6 men and 26 women, who at the time of the investigation were attending the 6th semester (period May-August 2015) of the degree in nutrition at the University of

Professional Studies and Science Arts (UEPCA) south of the city of Leon, Guanajuato campus. ABP intervention was the subject of Pathology Nutrition I.

This research uses a paradigm of mixed type, from a sequential model and exploratory stages. an interpretive frame of reference is also critical of the method used to support action research.

I work with tutor, individual work and tutor feedback: ABP methodology of the University of Maastricht, which is called "Method 7 steps", which are grouped into three phases was used.

Instruments

To collect data three instruments were used in the design of the evaluation system of ABP:

1) To evaluate meetings ABP (tutor-student) questionnaire assessing the performance of students during the tutorial sessions Problem-Based Learning, which has a high internal validation (Cronbach's alpha = 0.96), validated was used by Valle et al. (1999, in Martinez, 2007), which consists of a scale of 24 items grouped into three dimensions: independent study, reasoning skills and group interaction.

2) In the case of the evaluation of the student to the tutor scale evaluation of essential elements of the performance of a tutor Problem Based Learning (PBL), designed by Dolmans, Wolfghagen and SnellenBelendong (1994) with high validity was used internal (Cronbach's alpha = 0.87). The instrument is of mixed type, consisting of 16 items; 13The number one consists of a scale with 4 categories: insufficient, neutral, enough or not applied or is not required; item 14 evaluates the performance of the tutor on a scale of 1 to 10 where 6 is enough and 10 is excellent, items 15 and 16 are open questions that assess skills tutor and recommendations for him.

3) A third instrument which consisted of a student self-assessment consisting of 8 items with five levels of achievement was also designed: never, rarely, only sometimes, almost always and forever. The validation of this instrument was not performed since the objective was not to obtain a statistic, but a interpretive.

Results

A statistical analysis was done through SPSS v.20 software for Macintosh, in which measures of central tendency were calculated: mean, standard deviation, maximum and minimum value of each item; also made use of NVivo. v.10, in which the responses obtained in items 15 and 16 of the scale of assessment of performance essential elements of a tutor Problem Based Learning (PBL) were coded.

The questionnaire results performance evaluation of students during the tutorial sessions Problem-Based Learning, reported that the best dimension evaluated by the tutor was the first (interaction with the group), with an average of 34.68 with 36 points , which speaks of the interaction with the group that assesses the student's ability to communicate and fit the work of the group with flexibility and respect.

In the case of the evaluation scale performance of essential elements of a tutor Problem Based Learning (PBL), the highest average was 3 (+/- 0) for item number 1 it assesses whether the facilitator is well informed about the process of problem-based learning, so that students agree that the facilitator is trained to work with ABP. The lowest average was for item 10 with a value of 2.13 (+/- 0.83), which evaluates whether the tutor contributed to a greater understanding of the content or subject matter dealt with, which is an area of opportunity for ABP improve future interventions.

For student self-assessment tool was reported that the highest average value was Item No. 2 (4.41 +/- 0.57), which evaluates the clarity of instruction tutor; self-assessment within the item with the lowest value was number 5 (3.80 +/- 0.62) which measures the student's ability to issue an assertive nutritional diagnosis, so the ABP aims to develop skills self-assessment, peer assessment (including pairs). The purpose of self-assessment in this case study was important when you contrast it with the hetero (tutor-student); also because the self is linked to self-direction is more appropriate than other instruments.

Based on the above results Figure 1 is proposed, which presents the elements to take into account an evaluation system for ABP. This figure summarizes the purpose of the evaluation in the ABP,

which is to be an authentic assessment, involving the main actors of education (students, teachers, institutions) participating actively in the construction and dynamic learning. All evaluation system should involve a comprehensive direction, ie: one hetero (student-tutor or tutor-student), a co-evaluation (student-student) and a self-evaluation (own student).

The evaluation of ABP includes 2-dimensional assesment: formal and informal, both in its three moments (diagnostic, formative and summative evaluation), but in itself the ABP may be an evaluation system, which aims to develop competencies (knowledge, skills , attitudes and values).

Tools or instruments to be used in the assessment should be consistent with the competencies to be developed: self-direction, critical thinking, clinical reasoning, teamwork, collaborative work, self-management.

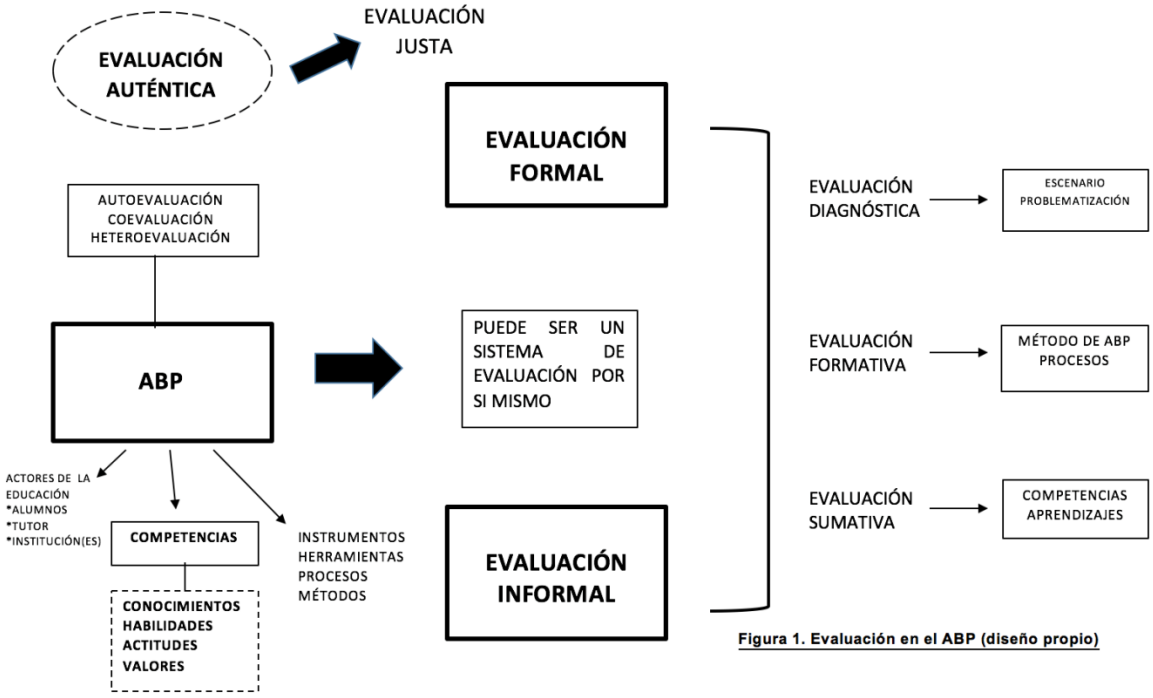

Figura 1. Evaluación en el ABP (diseño propio)

The authors propose several instruments, which have different characteristics (reliability and validity). Therefore, the assessment should be qualitative as far as possible and quantification is necessary only to indicate to what degree is given or ceases to be a behavior or attitude, but the meaning is given by the qualitative reflection (Team Teaching in ABP, 2006).

Discussion

This research allowed to define the scope of an evaluation method for ABP in nutrition students, who identified themselves in scope and challenges of the process.

One of the limits of the research was the inclusion of instruments that allow assess attitudes and values developed by students, so it is recommended to use other instruments and data collection tools such as photographic evidence, video recordings or portfolios of evidence .

As part of the strengths, they could be identified levels of validity and reliability of the instruments used and the mixed nature of these, because they allowed us to evaluate most of the skills acquired by students during the process of implementing the method.

A major area of opportunity for the study is the intervention time since being a transversal research does not allow to extrapolate results to a longer period, so it is important to consider this premise in future research evaluation ABP.

Conclusions

The three instruments used in research possible to reach a value judgment more assertive and precise on the technique of ABP applied to students of nutrition, because through a comprehensive evaluation system students could identify a strength in understanding the scenario problematisation and accompanying clinical cases.

The perception of students of nutrition on the work of the tutor in the ABP, was synthesized in two categories: explanation and feedback. They perceived that required a deeper feedback, and an explanation with affinity in the traditional style of teaching, suggesting that the shift to a constructivist model remains a challenge for the ABP. Nutrition students had a greater development of attitudinal skills as they generated strategies to better process your information through graphic organizers, digital media, photographs and interviews with other experts University professors.

To conclude, the assessment in the ABP suggested integral type must be referring to the inclusion of actors -tutores education, students and peers-and the diversity of assessment tools and interpretive approaches, ie, an assessment Formal and also casual.

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