

Estrategia colaborativa para lograr motivación y competencias en microbiología. Caso: podología UAS

Collaborative strategy to achieve motivation and competences in microbiology. Case: podiatry UAS

Estratégia de colaboração para a motivação e habilidades em microbiologia. Caso: UAS podologia

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Resumen

La presente tesis surge de la necesidad de competencias cognitivas y la falta de motivación observadas en el aula, de ahí el interés de aplicar estrategias colaborativas con la finalidad de lograr motivación y competencia en Microbiología. En las carreras técnicas, los alumnos no se preocupan por este tipo de contenidos porque lo que les interesa es desarrollar las habilidades para realizar las maniobras requeridas. En esta investigación intervienen alumnos del segundo semestre de la carrera de técnico superior de podología de la Facultad de Medicina de la Universidad Autónoma de Sinaloa, durante el ciclo escolar 2014 -2015; el

objetivo es determinar el impacto que ejercen las estrategias colaborativas en el logro de la motivación y las competencias en Microbiología. El enfoque utilizado fue mixto con diseño longitudinal, la parte cualitativa es etnográfica en la aplicación de estrategia didáctica, y cuantitativa en el análisis estadístico de datos de la escala EMA, el cual permite desarrollar procesos y causas. Se examinaron los cambios durante el tiempo establecido (seis meses), en el cual se midió la diferencia lograda cuando se realizó el tratamiento con la variable independiente (la estrategia colaborativa). Durante este periodo, en el proceso de recolección de datos se utilizaron instrumentos como el diario de campo, las autoevaluaciones, las rúbricas de desempeño, entre otros. Los resultados obtenidos confirman la teoría de que la conformación de los grupos de aprendizaje colaborativo genera competencias cognitivas y sociales en ellos, además de que motiva la interacción entre iguales, desarrolla capacidades intelectuales, sociales, afectivas y valores, y lo más importante, provee y refuerza competencias para la vida.

Palabras clave: estrategias de aprendizaje, grupos de aprendizaje colaborativo, competencias, motivación.

Abstract

The present thesis emerges of the need of cognitive competences and the lack of motivation observed in the classroom, hence the interest of applying collaborative strategies in order to achieve motivation and competency in microbiology. In the technical careers, those students are not concerned by this type of contents because they are interested in to develop the skills to perform the required operations. This research involved students of the second semester of the career of Superior Technical of Podiatry of the Faculty of Medicine of the Autonomous University of Sinaloa, during the school cycle 2014-2015; the objective is determine the impact that exercise the collaborative strategies in the achievement of the motivation and the competencies in microbiology. A mixed approach was used with longitudinal design, the qualitative part is ethnographic in the application of teaching strategy, and quantitative in the data statistical analysis of the EMA scale, which allows to develop processes and causes. The changes during the allotted time (six months) were examined, in which the successful difference was measured when the treatment with the

independent variable (the collaborative strategy) was treated. During this period, in the process of data collection utilized instruments such as the field diary, self-assessments, performance rubrics, among others. The results confirm the theory that the formation of collaborative learning groups generates cognitive and social competencies in them, additionally motivates the interaction among equals, develops intellectual, social and emotional capabilities and values, and what is even more important, provides and reinforces competencies for life.

Key words: learning strategies, collaborative learning groups, motivation, competencies.

Resumo

Esta tese surge da necessidade de habilidades cognitivas e falta de motivação observada na sala de aula, daí o interesse em aplicar estratégias de colaboração com o objectivo de alcançar a motivação e competência em microbiologia. Em cursos técnicos, os estudantes não se preocupam com este tipo de conteúdo, porque o que lhes interessa é desenvolver as habilidades necessárias para executar as manobras necessárias. Esta pesquisa os alunos envolvidos na segunda metade do técnico sênior corrida podologia da Faculdade de Medicina da Universidade Autónoma de Sinaloa, durante o ano de 2014 -2015 escolar; o objetivo é determinar o impacto que as estratégias de colaboração para atingir a motivação e habilidades em microbiologia. A abordagem utilizada foi misturado com desenho longitudinal, a parte qualitativa é etnográfica na implementação de estratégia de ensino, e análise estatística quantitativa de dados da escala de EMA, que permite desenvolver processos e causas. Eles examinaram as alterações durante o tempo definido (seis meses), em que a diferença obtida quando o tratamento foi realizado com a variável independente (a estratégia colaborativa) foi medida. Durante este período, no processo de instrumentos de coleta de dados, tais como o diário, auto-avaliações, desempenho rubricas, etc. Os resultados confirmam a teoria de que a formação de grupos de aprendizagem colaborativa gera habilidades cognitivas foram utilizados e social-los, além de que incentiva a interação entre pares, desenvolve capacidades intelectuais, sociais, emocionais e valores, e mais importante, fornece e reforça competências para a vida.

Palavras-chave: estratégias de aprendizagem, grupos de aprendizagem colaborativa, habilidades, motivação.

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Introduction

In our institutions of college and higher education, too often teachers are professionals in some disciplinary field (doctor, nurse, chemist, biologist, dentist, etc). They venture into teaching, whether it's for work opportunity or personal inclination; due to many and varied reasons they are in this situation, however, they lack of the tools to carry to out their teaching work efficiently. Most of the time they just stand in a classroom to teach in the same way that learned when they were students, so the big challenge for all of them is to transform the educational paradigm that defends the collaborative construction of significant knowledge, with sense and social relevance. The first step for the teachers to notice their educational weaknesses is that they reflect deeply on what takes place in its class and the problems that beset the students. This way they can generate on own initiative a change proposal; it is well known that it is impossible to cover all the problems, however, we should start with those that affect us as teachers and the students. This will help to by a broader approach, that supports the teacher to reflect on their practice focused on teaching and teaching techniques, by a broader approach, that supports the teacher to reflect on their practice and to build solutions for the situations they face on daily basis.

Throughout history have been changes in the behavior of the teacher and the student, governed by different paradigms as: behaviorism, humanistic, cognitive, constructive, competencies, among others, all them with the purpose that the student learn. It same happens currently because the education is based mainly in the constructivism and competences; on the other hand, with collaborative learning methodologies it is possible to achieve that the student becomes autonomous and active, that acquire their knowledge when interacts with their peers. According to Ausubel, Novak and Hanesian (1978), “is an activity in which students, and possibly their teachers, build collaboratively an explicit knowledge model that takes place in a constructivist way” (p. 280).

The teacher uses collaborative learning strategies to achieve unity in the group and teach students to work in teams. Since many new insights emerge through peer interaction, also they should be able to relate all these aspects with your daily life, realize that what you learn in the classroom is used in real contexts. This work focuses on collaborative strategies and motivations, which are the main problems facing the researcher. It is convinced that to achieve meaningful learning is very important that teachers form learning groups and nurture motivating strategies to accomplish the task. It is easy to enter into such a deep topic as motivation because psicoeducativos covers factors that influence learning, so you must be willing voluntarily.

THEORETICAL SUPPORT

The teaching-learning process involves the entire education do, why should understand and improve methods of both teaching and learning and identify different techniques, methodologies, processes and stages that exist between them.

Learning means formed as a person. The university as a higher education institution exists to train members of society; in addition to working scientific knowledge, educate from a less transmissive teaching methodology is based on the acceptance of students as active people guided by their teachers and acquire skills for finding information. The aim is knowledge of content, applying them in real situations and the formation of a critical, reflective spirit, to acquire the necessary strategies towards the development of their autonomy in learning about their academic work and his itinerary educational (Fonseca, 2007).

This process is also conceived as a space whose main protagonist is the student, while the teacher meets the facilitator of learning processes. Are students who construct knowledge from reading, to contribute their experiences, reflect on them, exchange their views. For Vygotsky (1979), cognitive development, in particular, is possible thanks to the interaction with other individuals who have more knowledge and experience; This author has also studied the construction of shared meanings, through the educational discourse in the classroom context. A constructive conception of school learning is not identified with any

particular theory, but rather approaches present in different theoretical frameworks that converge on a set of principles (Wallon, Piaget, Vygotsky, Ausubel, Bruner).

Constructivist paradigm

This paradigm is shared by different researchers, amongst which are Piaget (1952), Vygotsky (1978), Ausubel (1963) and Bruner (1988) model. The ideas of each clearly show that current concepts; theory tries to explain the nature of human knowledge.

Constructivism assumes that nothing comes from nothing, ie that prior knowledge gives birth to new knowledge. To Ausubel (1963), being foreknowledge, the most important factor influencing learning is what the learner already knows. You have to find this out and then teach it, because it is argued that the study is essentially active, where people learn something new and incorporate it into their previous experiences and their mental structures. To apprehend him, the new is deposited on a network of knowledge and experience that exist in the subject, this means that learning is neither liability nor objective, however, is a subjective process that each person will constantly modifying the light of their experiences.

Paradigma competency

The powers are constructions that result in the person who knows pertinently act in a given context, to mobilize their personal resources: knowledge, actions, qualities, culture and emotion. However, Zarzar (2010) reflects on various definitions and mentions that the powers are demonstrating the ability to do something and do it well.

In education, Jacques Delors (1997) states that education should be based on four pillars throughout life: learning to know, learning to do, learning to be and learning to live together; the latter, education, has a dual mission: to show the diversity of the human species and contribute to an awareness of the similarities and interdependence between people. Only through concerted and collaborative work, either on tasks, projects or research, within the family, organizations or education, may diminish and even disappear differences and conflicts between individuals, and thus ensure the development of creative people in a less violent and more humane society.

Zarchar (2010, p.18) defines competencies as "the set of knowledge, skills and abilities, both specific and cross, which must meet a graduate to fully meet the social demands". According to him, the elements of a competition are four:

- It is a capability is demonstrated.
- It is an ability to do something.
- That something must be well done (p.9).
- Learning is collaborative.

Collaborative learning is immersed in the theory of social constructivism Gosden (1994). And it focuses on the process of building knowledge through learning that results from the interaction with a group and by work done in cooperation with others. Several authors have investigated the issue and in this framework we will review the most important contributions to literature in the area of collaborative learning.

Collaborative learning is a system designed to organize interactions and induce reciprocal influence among team members. According to Johnson (1998), this develops in each member's commitment to learning in others; to create an interdependence that does not involve competition between them, shared authority and responsibility is accepted, respecting the other's point of view to generate new knowledge as a whole; It allows interaction of employees and this is ideal for achieving short-term goals, to let each acquire their learning. In this regard, Del Valle (2008) notes that students participate to express their concerns, views and various reflections, which favors the development of transversal skills necessary for professional performance: time planning, communication, problem solving , decision making, promotion of innovative and creative capacity, and promote deeper learning. In addition to these concepts, Casamayor (2010) believes that it is a social process in which from joint work and the establishment of common goals building knowledge is generated; also facilitates reciprocity between a wide range of individuals who know the difference and contrast their views, so develop knowledge generation processes

DESIGN

Following from the hypothesis: Implementing collaborative strategy creates motivation and competence of the subject of Microbiology at students of TSU in Podiatry FM-UAS, the objectives of the research are to determine the impact and how they influence collaborative strategies in the achievement motivation and skills of pupils. It also examines whether students accept the group learning techniques, similarly described if motivation is achieved by the content for achieving the objectives; independent variable, and two dependent collaborative strategy: motivation and competition three variables of interest for the study were analyzed.

Conceptual and operational definition of variables

- Collaborative strategy: management strategy in the classroom that favors the organization of students in heterogeneous groups to perform tasks and learning activities (Ovejero, 1990), and its operational definition is: strategies used in the classroom to generate the learning environment collaborative (figure 1).
- Motivation: set of factors that drives a person to perform an activity or to achieve a goal. And operationally: willingness and enthusiasm in performance as a result of the environment and personal characteristics.
- Competition: According to constructivism states that competition involves complex processes of mobilization and integration of knowledge (Perrenoud, 2008). As for its operationalization, it is a process which identifies and processes clinical or biomedical information for proper professional practice, based on criteria of reliability of sources.

MATERIAL AND METHODS

The method used is mixed with longitudinal design, the qualitative part has an ethnographic approach in implementing teaching strategy, and statistical analysis of data from the EMA scale is quantitative, which allows the development of processes and causes. They examined changes during the set time (six months), in which the difference achieved

when treatment was performed with the independent variable was measured, which is the collaborative strategy; of qualitative because reflection is the bridge that links the researcher and participants; Research also is a social, educational research and all falls into this kind (Mertens, 2005). It is also longitudinal ethnographic, because it lasted a full semester, is given flexible, holistic, broad, subjective and inductive naturally, in other words, the social behavior of the group before the investigation is investigated over a period of given time. According Sampieri (2010), ethnography is an active method, where interaction occurs and is usually given and have contact between participants and researcher, here the researcher acts as an instrument of data collection relying on different techniques used during the study, ie, the investigator initiates the collection with comments that help describe how the group and from them knowing unfolds.

Statistic analysis

For the analysis of construct validity was taken as reference confirmatory factor analysis using Cronbach's alpha of Manassero and Vázquez (1997), Nunez (2006) and Cervino (2013). In addition, there was a detailed variations between the pre-test and post-test and correlations between academic self-concept and the seven subscales of Academic Motivation Scale analysis. Internal consistency was analyzed by Pearson correlation and differences between gender were analyzed by statistical test T Student; for the rest of the analysis SPSS version 20 we were used.

First the instrument of Academic Motivation Scale (EMA) Vallerand (1989), consisting of 28 questions related to class attendance was applied; the scale raises the question why you go to school? and the various items that reflect different reasons as possible answers, same who value the opinion of each student on a scale consisting of 7 points and runs from 1 nothing at all, until 7 completely, which measure three variables and are : amotivation, intrinsic motivation and extrinsic motivation. The author in his validation studies revealed that the scale had satisfaction levels of internal consistency with Cronbach's alpha of 0.80 with high levels of stability, small variations on this scale should be 0.75, higher is better observed.

The strategies implemented in the classroom on collaboration is not an innovative theme, however, it is the basis for meaningful learning and interpersonal relationships. Since 1979, Vygotsky writes scientific literature that mentions that students are the ones who construct knowledge from reading, contribute their experiences, reflect on them and report their views to their peers and teacher. In these times they are the basis for many educational interventions, seeking to improve the development of social skills, or skills; in this regard can be found numerous investigations that confirm, for example, Ruiz (2012), Turion (2013), Reguera (2010), Brandy (2013), Orozco (2013), Salazar (2008), Chumba (2009), Ordorica (2010), Magellan (2011), Alanis (2012), Osuna (2008), Monroy (2010), Medina (2011), Salazar (2011), Zamudio (2014), and Medrano (2014).

Working with collaborative strategies is not an easy activity, since it is necessary that teachers be patient to wait for the results. In this research, the group was deeply rooted traditional way of working; They did not accept the collaborative strategies. One limitation was that were twenty individuals with very different characteristics (age, attitude, socialize). According to Slavin (1999), the difficulty occurs in the first few weeks as a result of the variety of characters, contrast that also generates incompatibility paradigms on the design of teaching, because students who were older were waiting already digested classes , explained and just wanted to behave as listeners; had no intention of working with this type of activity where competition and individualism. Meanwhile, Magellan (2011) mentions that older people are more serious and focused people who have very clear what is going to school; that there was no doubt, however, it differs with the author in this case because the beginning did not enrich the learning situations, or acting as monitors in collaborative processes, which was achieved after several classes. During the first working session, the teacher had the need to change planning. According to Pujolàs (2008), it is not easy to organize a collaborative class because in a group can be tensions, rivalries and exclusions; the first few weeks no progress was made, and teaching the slowly introduced collaborative strategies, because time is required to achieve accept work this way.

Despite the difficulties faced teacher in the classroom, improvement of social skills, values and attitudes was observed, which is favorable to live in harmony; further learning and motivation also had an increase. On the other hand, changes in the behavior of group

members not left waiting: they shared ideas, material and knowledge to perform activities that the teacher asked. All this leads us to match Pujolàs (2008), who mentions that interactions between students can transform a group into a learning society where collaborative strategies help to create an appropriate climate for marriage between partners is given and these It takes ownership of a significant learning; also transforms the student into an autonomous, active and able to participate in the acquisition of their own knowledge from their interaction with the group subject: Meanwhile, the teacher acts as a facilitator of knowledge; according to Magallanes (2011) and Osuna (2008), the role of teachers is generally guide the work in the classroom and facilitate collaboration.

CONCLUSION

Therefore, this thesis states that school learning with the adequacy and implementation of collaborative strategies in the classroom is increased, coinciding with the following authors: Ruiz (2012), Turion (2013), Reguera (2010), Brandy (2013), Orozco (2013), Chumba (2009), Ordorica (2010), Magellan (2011), Alanis (2012), Osuna (2008), Monroy (2010), Medina (2011), Zamudio (2014), and Medrano (2014). They mention that the implementation of the collaborative approach results in positive values in student learning, plus it encourages work, construction and learning from the constructivist approach, where they develop values that serve as indicators of attitudinal competencies. Also, academic achievement, according to the proposed course is improved: the implementation of collaborative strategy generates motivation and skills, demonstrated that students podiatry improved motivation toward the subject of Microbiology and skills they acquired the demonstrated in their activities and attitudes. Building knowledge really is promoted from group interaction. The methodologies were the triggers for the student is motivated by the contents, while the time was what transformed knowledge in competition. When the group does not allow the implementation of the strategy, the teacher perceives friction, differences among students, who form small groups: students, professionals and indifferent; with the passage of time, when the situation changed developed features such as individual responsibility, respect and positive interaction also something very interesting happened was accepted as companions and acquired values such as cooperation, responsibility and work team up. The impact exerted on students strategy was very good, although it was gradually

as students in the first instance did not accept the collaborative techniques. This was achieved with the passage of time and the insistence of teachers gradually increased motivation and skills were acquired due to the activities performed when they themselves were allowed to work collaboratively.

Recommendations

During the development of the implementation of the strategy in the classroom, the teacher realized several aspects that hindered collaborative work, so the following is suggested:

The institution is asked to adapt the spaces for teaching strategies and collaborative work in maneuvers in which adequate and sufficient spaces are required for teachers and students can move are used. It is difficult to access in confined spaces, both for the organization of teams, as for observation, in addition to the distraction of the group is favored, it would be very helpful in the case of this class in particular, let alone the team necessary and remove anything that is not suitable even for traditional classes.

It is also recommended to the educational institution offering refresher courses and teacher training so that teachers are up to date in the different teaching strategies.

The academic secretariat will is recommended programming classes two hours, because the time for collaborative strategy is insufficient to carry out a method in a class of one hour a day, as the teacher in addition to the organization requires time to spend list, explain the strategy, and comment and clarification.

For teachers it is important to know and use the collaborative strategies, as the benefits generated by the use methodologies collaboration are many, however, it is recommended to prepare to achieve through courses, workshops or graduates because the time to apply must be mastered, otherwise the group perceives it.

In addition, the teacher must take the time to know their students in a frame class and have an alternate planning, since the classroom work is not easy because the planning does not always work for some sector, which is important identify its characteristics in the frame.

Specifically, the object of this study group, introduce and implement collaborative strategy was not easy because, as explained at the beginning, the age difference led repeatedly rejected students techniques.

Despite the difficulties it is important that future generations of teachers to use collaborative strategies, since the benefits are many for the student, in addition, if the aim is a work that achieves skills, this is the best choice because students not only they develop cognitive skills, social skills but also cultivate themselves sometimes unknown. Of course, there are the experiences of life.

Finally, you should always keep in mind that we are dealing with human beings with whom we must be responsible and who should know, respect and tolerate, so that interpersonal relationships are entertaining and they develop those values by example.

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