Factores motivacionales para la investigación y los objetos virtuales de aprendizaje en estudiantes de maestría en Ciencias de la Educación

Motivational factors to research and Virtual Learning Objects in Maesters students in Education Sciences

Fatores motivacionais para pesquisa e objetos virtuais de aprendizagem em mestrandos em Ciências da Educação

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Resumen

El empleo de las tecnologías de la información y la comunicación se ha incrementado en diversos ámbitos, especialmente en el educativo, donde cada vez es más frecuente que se usen objetos virtuales de aprendizaje (OVA) para abordar diversos temas, lo que motiva a los estudiantes a trabajar tanto de manera individual como de forma colaborativa. Por ello, el objetivo de la presente investigación fue identificar los factores motivacionales de un grupo de estudiantes de la maestría en Ciencias de la Educación de una institución pública del estado de Hidalgo (México) en torno al trabajo con los OVA en el proceso de aprendizaje de la investigación. Para ello, se realizó una entrevista colectiva con 22 estudiantes (3 hombres y 19 mujeres) de la maestría en Ciencias de la Educación de una universidad pública del estado de Hidalgo (México). Los resultados demuestran, con base en la teoría de las expectativas de Vroom (1964), que la motivación de los sujetos de

estudio disminuye cuando no saben cuál tema pudieran elegir para desarrollar en sus proyectos de investigación y cuando no pueden apoyarse en los TIC para facilitar esa tarea, pues la mayoría aún necesita consolidar sus habilidades para saber con claridad qué, cómo y dónde seleccionar la información que requieren sus respectivos temas de estudio. Para atender esta situación, se deben crear estrategias eficaces, eficientes y pertinentes que se centren en las variables que dificultan en estos participantes el uso de las herramientas tecnológicas, como buscadores, plataformas virtuales, bancos de datos, revistas de investigación, entre otros.

Palabras clave: investigación, motivación, objetos virtuales, recurso didáctico.

Abstract

The use of Information and Communication Technologies has increased in various areas, especially in education, where it is increasingly common to use virtual learning objects (OVA) to address various issues, which motivates students to work both individually and collaboratively. Therefore, the objective of the present investigation was to identify the motivational factors of a group of students of the Master's in Educational Sciences of a public institution of the state of Hidalgo (Mexico) around the work with the OVA in the learning process Of the investigation. To do this, a collective interview was conducted with 22 students (3 men and 19 women) of the Master's Degree in Educational Sciences from a public university in the state of Hidalgo (Mexico). The results show, based on the theory of expectations of Vroom (1964), that the motivation of study subjects decreases when they do not know which topic they can choose to develop in their research projects and when they can not rely on ICT for facilitate that task, since most still need to consolidate their skills to know clearly what, how and where to select the information required by their respective subjects of study. To address this situation, effective, efficient and relevant strategies must be created that focus on the variables that make it difficult for these participants to use technological tools, such as search engines, virtual platforms, data banks, research journals, among others.

Resumo

O uso de tecnologias de informação e comunicação tem aumentado em várias áreas, especialmente na educação, onde é cada vez mais comum o uso de objetos virtuais de aprendizagem (OVA) para abordar diversos assuntos, o que motiva os estudantes. para trabalhar tanto individualmente quanto colaborativamente. Portanto, o objetivo da presente investigação foi identificar os fatores motivacionais de um grupo de alunos do Mestrado em Ciências da Educação de uma instituição pública do estado de Hidalgo (México) em torno do trabalho com o OVA no processo de aprendizagem. da investigação. Para isso, foi realizada uma entrevista coletiva com 22 alunos (3 homens e 19 mulheres) do Mestrado em Ciências da Educação de uma universidade pública do estado de Hidalgo (México). Os resultados mostram, com base na teoria das expectativas de Vroom (1964), que a motivação dos sujeitos de estudo diminui quando eles não sabem qual tópico eles podem escolher para desenvolver em seus projetos de pesquisa e quando eles não podem confiar nas TIC para facilitar essa tarefa, uma vez que a maioria ainda precisa consolidar suas habilidades para saber claramente o que, como e onde selecionar as informações exigidas por seus respectivos sujeitos de estudo. Para lidar com essa situação, devem ser criadas estratégias eficazes, eficientes e relevantes que enfoquem as variáveis que dificultam o uso de ferramentas tecnológicas por parte dos participantes, como mecanismos de busca, plataformas virtuais, bancos de dados, revistas de pesquisa, entre outros.

El futuro de la educación estará profundamente signado por la tecnología de la información venidera. Pero más aún, por cómo los educadores y estudiantes utilizan las TIC para el aprendizaje continuo.
Stanley Williams

Introduction

Currently, the effort made by higher education institutions (HEIs) to use information and communication technologies (ICT) as a support resource in planned activities is remarkable (Corona and González, 2012). An example of this are virtual learning objects (OVA), technological tools (eg, social networks, e-mail, repositories, etc.) that are used to offer more interactive teaching opportunities that are coherent with the needs and interests of the students (Windle, McCormick, Dandrea and Wharrad, 2010). This, according to Quesada (2010), has served as support to create and implement virtual learning environments (EVA), spaces that have tried to contribute to true scientific and technological literacy through tasks that seek to promote not only autonomous and collaborative learning of the students, but also the motivational levels of these towards the subjects developed in each discipline.

These benefits, however, contrast with a reality that, in the case of Mexico (Lizarazo and Andión, 2013), shows that the use of ICT in education has been successful only in the institutional and political discourse, since in practice most of the proposals have arisen and have been maintained thanks to personal and isolated initiatives of the teachers. In addition to this situation, it should be pointed out that few studies have focused, from a qualitative perspective, on studying the motivational factors that influence the use of OVA in HEIs, which is because it is more practical to examine Percentages that reflect on this social phenomenon.

In this sense, it can be indicated that one of the most important reports on motivation in telematic environments is the work of Bryndum and Jerónimo (2005), who analyze, from experience, how to maintain interest in program participants. on-line. In this regard, the aforementioned authors conclude that before carrying out activities mediated by ICTs, one must reflect very well on what, how and for what purpose these telematic tools

are to be used, since in this way one can foresee how to promote the motivation of the subject, a factor indispensable to promote and specify the planned tasks.

Based on the foregoing, the objective of this study was to identify the motivational factors of a group of students of the Master's Degree in Educational Sciences of a public institution in the state of Hidalgo (Mexico) around the work with the OVA in the process of research learning. In this sense, it is assumed that the use of these resources by students increases their levels of motivation for research.

Developing

Based on different theoretical references, this section presents a conceptual framework around virtual learning objects and motivation as a key factor for the efficient performance of students.

Virtual learning objects

The virtual learning objects are those digital, self-sustaining and reusable resources used for educational purposes, which are constituted by three internal components: contents, learning activities and elements of contextualization (Pascuas, Jaramillo and Verástegui, 2015), which has Currently, these technological resources must have an external information structure (metadata) that facilitates their storage, identification and recovery (Ministerio de Educación Nacional Colombiano, 2006). In accordance with this idea, the Learning Federation, according to Lowe et al. (2010), also defines the OVA as reusable computer-based resources that are composed of one or more material files that include graphics, text, audio, animation, calculator and notebook, which are designed to be used as an experience. of autonomous learning. The OVA, therefore, can be used through different mobile devices and are compatible with various browsers (eg, Mozilla FireFox, Internet Explorer, Safari, Google Chrome and Opera), which support the HTML language regardless of the operating system that you have (Windows, Mac, Android or Linux) (Pascuas et al., 2015).

The motivation

According to García (2011), motivation is a concept that has been studied for a long time due to the main role it occupies within psychology as an activating force of human behavior (Feldman, 1998). This means that it can also be related to what induces a person not only to carry out certain actions, but also to persist in them until they reach their objectives, which is why it can be linked to the will and interest.

Etymologically, the word motivate comes from the Latin moveré (which means 'move towards a certain goal'), and is associated with a situation of imbalance caused by a stimulus that can be internal or external. In effect, according to Woolfolk (2006), intrinsic motivation is related to that disposition that the individual has to seek or overcome different challenges that will allow him, once overcome, to achieve his personal interests and the development of his abilities. This means that the internal motivation does not require stimuli or rewards that come from outside, as it happens with the extrinsic motivation, which originates due to factors external to the subject. Therefore, the fundamental difference between these types of motivation is found in the subjects' reason for acting, that is, the "locus of control" of the action (location of the cause of the action, its origin).

In accordance with the above, Gross (2009) ensures that any initiative of a person to carry out a project is based on a motivation or enthusiasm to achieve it, which contributes to their personal improvement. However, it must also be clear that motivation is not so easy to encourage, since in order to do so one must have a constant and powerful visualization of the objective to be achieved. Therefore, below are some of the most relevant theories about this concept.

Theory of Maslow's hierarchy of needs (1954)

This theory is perhaps the most classic and known. It was proposed by Abraham Maslow, who identified five different levels of needs (physiological, security, social, esteem and self-realization), which he organized in a pyramidal structure. For this author (1991) these categories of relations are situated in a hierarchical way, so that higher needs can only be activated after those at the lower level have been satisfied. This process of imbalance

between realized needs and needs to be met fosters motivation in the individual to try to satisfy them.

Theory of the dual factor (Herzberg, Mausner y Snyderman, 1967)

This is a theory that focuses on the work environment to study the intrinsic motivation factors (eg, achievements, recognition, work in itself, responsibility and promotions) in contrast to external motivational factors (eg, conditions of work, organizational policy and personal relationships). With this work, the aforementioned authors point out that the aforementioned factors can be divided into hygienic and motivating factors: the former coincide with the lowest levels of Maslow's hierarchical need (philosophical, security and social) and the latter with the highest levels (consideration and self-realization) (Leicdecker and Hall, 1989).

Theory of MacClelland (1989)

McClelland (1989) focuses his theory on three types of motivation: achievement, power and affiliation. The first is linked to an impulse to excel and succeed, which leads individuals to impose higher goals. People motivated by this cause have a desire for excellence, they are committed to a job well done, accept responsibilities and need constant feedback on their performance. Power, on the other hand, has to do not only with the need to influence and control other people and groups, but also to obtain recognition of them. People motivated by this reason want to be considered important and want to progressively acquire prestige and status. The affiliation, finally, is related to the desire to have interpersonal relationships and help others. These people like popularity and contact with others, hence they feel uncomfortable with individual *work.*

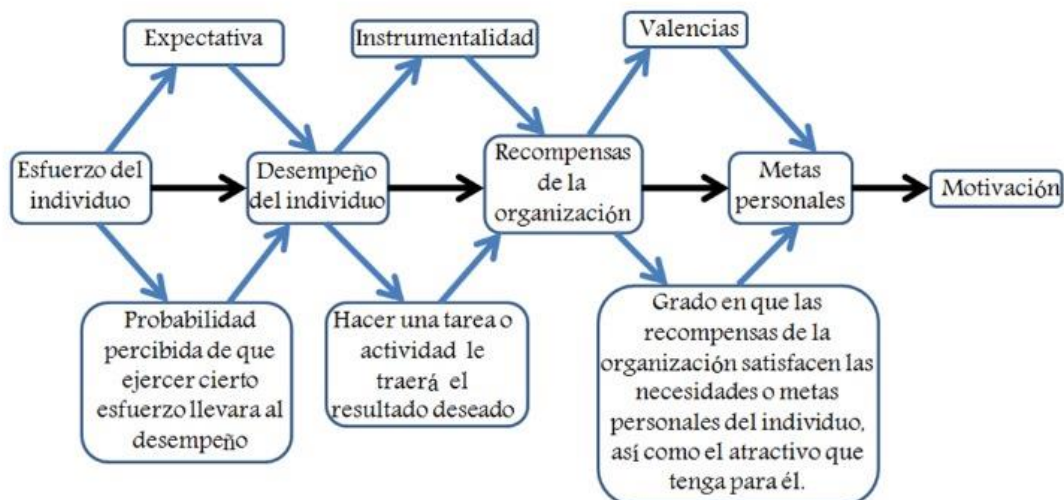### X Theory and Theory Y by McGregor (1966)

This is a theory that is widely disseminated in the business world. The X theory assumes that human beings are lazy and avoid responsibilities, so they must be motivated through punishment; whereas the theory Y points out that human beings tend to look for responsibilities, that effort is a natural element in work and that commitment to objectives supposes a reward (Grensing, 1989).

Theory of Vroom expectations (1964)

The most prominent author of this theory is Vroom (1964), although it has been completed by Lawler (1968). In this it is argued that individuals are thinking beings that have beliefs and harbor hopes and expectations regarding the future events of their lives. In this case, the behavior is the result of choices and the alternatives are based on beliefs and attitudes. According to this theory, highly motivated people are those who not only set valuable goals for them, but also subjectively consider that there are high probabilities to achieve them. This means that to analyze the motivation from this theory must determine the value that the person assigned to the reward and the expectation of its possible achievement.

The model that sustains this theory is composed of the following aspects: individual desires towards specific rewards, performance of activities and perception towards the received rewards, as well as belief that certain behavior will allow to obtain certain rewards, which will guide the effort to complete the tasks. In figure 1 a synthesis of this theory is offered, which will allow to have a clearer knowledge of this:

Figura 1. Relaciones para llevar al máximo la motivación

Fuente: Vázquez-Moctezuma (2014)

ERC Theory of Alderfer (1972)

This is closely related to Maslow's theory, although it proposes the existence of three basic motivations: 1) motivations of existence: correspond to physiological and security needs, 2) relationship motivation: social interactions with others, emotional support, recognition and sense of belonging to the group; and 3) motivation for growth: it focuses on personal growth and development.

Goal Setting Theory by Edwin Locke (1985)

A goal is what a person strives to achieve. In this regard, Locke (1985) states that the intention to achieve an objective is a basic source of motivation. The goals are important in any activity, since they motivate and guide the actions and drive to give the best performance. Goals can have several functions: they mobilize energy and effort, increase persistence and help in the elaboration of strategies (Locke and Latham, 1985). However, for goal setting to really be useful they must be specific, difficult and challenging, although possible to achieve. In addition, there is an important element: feedback, since the person needs feedback to be able to maximize achievements (Becker, 1978).

Theory of equity by Stacey Adams (1963)

This theory states that individuals not only compare their rewards and the product of their work with others, but also evaluate whether they are fair, so that they can react in order to eliminate any injustice. In fact, when there is a state of inequality that is considered unfair, equality is sought. If the same is received, there is a sense of satisfaction and motivation to continue forward; otherwise, demotivation arises, although sometimes the effort increases to achieve the same as the others.

Now, after having described the various theories about motivation, it should be noted that this research has been based on the postulates of Vroom's theory of expectations because it reflects the efforts that individuals make with the expectation of reaching a certain objective, as well as confidence in the expected performance and skills that improve due to the degree of demand.

Method

In this study, a qualitative methodology has been used, since it was considered that it was the indicated one to evaluate the proposed objective in its natural context (Blasco and Pérez, 2007). This, in addition, was propitious to generate an interpretation of the phenomena analyzed from the perception of the participants, who in this specific case were 22 students (3 men and 19 women) of the Master of Education Sciences of a public university from the state of Hidalgo (Mexico).

To collect the information, a collective interview was used, which lasted approximately 64 minutes, and allowed to know the conceptions that the participants had about the mentioned topic (Reguillo, 1998). The questions raised revolved around three fundamental aspects: perception / vision of the students about the research work, use of virtual resources and motivational determinants in the development of a research project in the master's degree. Each question was answered by a group of 3 or 4 students; In this way, each of them was endeavored to deepen the theme proposed according to their experiences and point of view. In this process, the teachers of the course and the class authorities were also present and supervised the interview.

Results and Discussion

In the first place, it was taken as a premise that access to ICT does not automatically increase students' motivation towards research; for this reason, questions were posed how are you: what resources do the participants of this research use? Why use them? How do they use them? and how do they contribute to the progress of their projects? In this sense, and based on Vroom's theory of expectations, the analysis of the results of the discussion group is presented below. The analysis categories were constructed as a result of the transcription of the interview and the identification of the main areas of interest of the participants.

The technological resource

The interview showed that 75% of interviewees use search engines to identify, select and organize information on the Internet, especially Google, either through Google Drive or Google Scholar. In this regard, they consider that these are reliable information tools, so they use them not only to carry out their activities as professionals (most are teachers), but also to promote them with their students when they must search, choose, evaluate and analyze information. Even so, it is also worth noting that many participants stated that they did not know how to track information at an advanced level in portals such as Google Scholar, which represents a considerable loss of the multiple search options offered by this website.

Likewise, it could be perceived that students use repositories from different universities (eg, from the National Autonomous University of Mexico, the Autonomous University of the State of Hidalgo, the Autonomous Metropolitan University, etc.) or platforms such as Classroom and even YouTube .

Likewise, another group of participants (25%) mentioned that technological tools have become interactive and interesting due to structural changes in basic education and the implementation of educational models and policies, which has allowed not only to carry out research works , but also facilitate this task through applications or platforms such as App iCloud, Classroom, Moodle or Blackboard.

However, from the perspective of expectations theory, the efficient management of web resources can serve as a stimulus to increase student motivation if the activities of search, selection and identification of information are directly related to the subject that each student develops as a research project. Likewise, self-assessment, co-evaluation and hetero-evaluation strategies should be promoted to estimate the effort made by students, since this type of interaction can consolidate motivation based on the results obtained.

Paradoxes / polarities of technology

The results of this work indicate that 48% of the participants consider that the technology is very useful to find a large amount of information related to the topics of their respective research projects. They also mention that one of the advantages of these resources is that they allow the communication and linking of information with networks from other parts of the world, either formally or informally, since you can access forums, blogs, Facebook and other portals.

However, it is also highlighted that 52% of the participants think that this technology can become an obstacle or a distraction due to the unlimited variety of options offered by the Web, which in many cases makes it difficult to recognize when a certain source of information is reliable.

Given these setbacks, and based on the theory of expectations, it can be indicated that some of the solutions and recommendations proposed by the interviewees to increase the motivation towards these information search activities are related to focusing first on determining which search sites they are more reliable for the generation of new knowledge. Likewise, didactic situations should be created that allow the participants to reflect on what, how and for what it is necessary to look for certain information, since these questions are useful to guide the effort and the performance of the individual, as well as the instrumentality when using ICT and the assessment of the scope or otherwise of the expectation generated.

Virtual learning strategies

The interviewees commented that a great diversity of strategies were very useful during the propaedeutic course. In particular, they pointed out that it is very helpful to build a reference matrix to organize and consult the data required in the development of the research project, as well as the design of conceptual maps in Office programs, since these allow to quote more easily and offer a more general view of the information consulted. They also indicated that the generation of records and the classification by author, type of

document, methodology, objective and instruments contributes significantly in the analysis of the readings, which serves to be more specific when defining what is wanted. research.

In this sense, it can be stated that the development of virtual strategies for learning increases the motivation of the participants, since they reduce the search time, reduce the amount of information presented and improve the quality of the documents produced. For this, as already indicated, it is necessary to know exactly what is to be investigated and what tools, in this case technological, are to be implemented for that purpose; all this through work in a learning community where each person has something to contribute and learn from their peers.

The status of the research project

From the interview conducted it was evident that most of the participants do not have a theoretical-methodological training in the investigation, which has become an impediment to carry out their projects. Likewise, and as can be inferred from the previous paragraphs, it was found that they do not dominate a great variety of technological tools related to education and research, although they also showed their interest in wanting to learn how to use them and then teach them to others, especially through creation of EVA in research networks.

In this regard, Clares and Gil (2008) mention that there is an association between teaching methodologies and technological resources, since the specific fact of affirming that the didactic and technological resources depend on the methodological view implies that it is located in the most used OVA derived from the motivation that underlies it.

Conclusions

From the results obtained, it can be affirmed that the objective set out in this research was achieved, since the qualitative analysis carried out from Vroom's theory of expectations (1964) made it possible to assess the motivational factors that a group of students from a master's degree in Educational Sciences from a public university in the state of Hidalgo (Mexico) about working with the OVA in the learning process for research.

In this sense, it can be concluded that the motivation of study subjects decreases when they do not know which topic to choose to develop in their research projects and when they can not rely on ICT to facilitate this task, since most still need to consolidate their skills to know clearly what, how and where to select the information required by their respective topics of study. For this reason, a strategy that could serve to increase the motivation of students in the learning process of research mediated by ICT has to do with accompanying them in the selection and development of their study subjects, as this way not only they can find meaning in what they do, but also allow them to propose new goals to be fulfilled in the short, medium and long term, which will help them strengthen their autonomy processes in learning. This, logically, implies creating effective, efficient and relevant strategies that focus on the variables that make it difficult for these participants to use technological tools, such as search engines, virtual platforms, data banks, research journals, use of virtual learning resources, among others.

Finally, in future work should be provided the possibility of addressing the subject evaluated in this research with a mixed theoretical approach, as well as conducting a study from a longitudinal perspective, ie, with the same group of the aforementioned expertise, but in each of the seminars that they study to determine if the levels of motivation increase or decrease, and to continue evaluating if there is a significant link between this variable and the use of ICT in the research processes.

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