Virtual Learning and Training Needs in a Peripheral Region of Colombia

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Abstract – **This research seeks to identify necessary elements that allow students to improve self-regulation of learning and self-efficacy in their results in order to achieve a thorough education based on the experience of undergraduate users with their virtual platform. A quantitative method was used, involving a survey questionnaire which would subtract the objective aspects of data collection. The sample was determined according to simple random sampling. As part of the research, the perceptions of students and professors was analyzed, inquiring them on their levels of self-regulation and self-efficacy. Considering the results, the appreciation of the platform was positive while opinions were divided as for the levels of self-regulation and their conception of self-efficiency.**

Keywords – **Self-regulation, self-efficiency, virtual learning.**

1. Introduction

According to Panadero and Tapia [1], self-regulation is a decisive competence in order to reach the proposed objectives within educational processes. For Zimmerman and Schunk [2], there are seven theories on self-regulation: operant, phenomenological, information processing, socio-cognitive, volitional, vygotskian and constructivist.

Each one offers a different approach on how students acquire the ability to self-regulate their learning.

Panadero & Tapia [1], after reviewing the empirical evidence on the use of these theories in different contexts, concluded that it is not necessary to generalize their effectiveness. The authors demonstrated that while the socio-cognitive theory showed better results in elementary students, the information processing theory showed optimal results in high school students, revealing that the student's needs have to be considered when implementing strategies to encourage self-regulation.

2. Literature Review

2.1. Self - Regulated Learning

Schunk & Zimmerman [3] define self-regulated learning as the process that refers to the thoughts, feelings and acts generated by oneself in pursuit of a goal. This means that the "goals to be met" factor is essential. For Pintrich [4], self-regulated learning is an active and constructive process in which the student sets their own learning objectives. In this way, the individual themselves tries to monitor, regulate and control their thoughts, so their motivation will be achieving these objectives and their behavior will thus revolve around obtaining them. Likewise, Manrique [5] considers it as the faculty of a person to control and evaluate their way of learning, making use of learning strategies to achieve the desired goal. This autonomy has to be the goal of education, which is expressed in knowing how to learn to learn [6].

2.2. Self - Efficacy in Skills Development

To address the aspects of self-efficacy as an indicator of self-regulation, the social and emotional learning standards of the Illinois Social Board of Education (ISBE) can be used as an example. These structures the emotional development plan applied in the educational centers of its competence. Their first objective is to develop self-awareness and self-management skills to achieve success in school and

in life. After the contributions of Bisquerra [7], characteristics of this competence were defined, focusing on owning situations and actions to be taken, through the prefix "self", including: 1. Emotional awareness, understood as the recognition of emotions and those of others to the point of understanding the emotional environment [8]; 2. Emotional regulation, which refers to the management of emotions since it recognizes and established a relationship between emotion and cognitive-mediated behavior; and 3. Emotional autonomy, a concept so broad that it defines itself in several characteristics: positive attitude, responsibility, self-esteem, self-motivation and emotional self-efficacy.

2.3. Self - Regulation and Self - Efficacy in Training

The long road that research related to cognitive social theory has traveled has shown that self-efficacy is a key mechanism of self-regulation. Self-referent thinking is a key element of perceived control: a person will not carry out an action if they doubt their own ability to do so. Vohs & Baumeister [9], state that when talking about self-regulation, it refers to goal-directed behavior, and one of the first steps to study self-regulation is to identify four key processes: a) goal setting, b) planning, c) effort, and d) review. Throughout these, the theory of goal setting [10] is applied, as well as the perspective derived from the cybernetic control of the process of self-regulating goals [11], [12]. These premises invariably affect behavior as a structure that is transformed from transactions with the environment.

Bandura [13] asserts that human nature is composed of five basic capacities: the symbolizing capacity, the vicarious capacity, the forecasting capacity, the self-regulatory capacity and the self-reflection capacity. The latter is considered as the "most human" because this form of self-reference of thought is what allows an individual to analyze their own experiences and reflect on their mental processes, generating self-knowledge that will allow them to evaluate, modify and manage thoughts, and thus generate new behaviors. Self-efficacy is developed under the capacities that a person must organize and execute the necessary actions when reaching objectives.

When a person has "high self-efficacy" in each situation, it implies that they have the confidence to achieve a certain degree of performance in that specific context that exceeds the average [14]. It is a motivational judgment which depends on the ability to perform in a specific context.

2.4. Formative Evaluation in the Teaching - Learning Processes

The purpose of the evaluation is to assess achievements, but the formative evaluation offers mechanisms to constantly monitor the advances in the knowledge domain and the development of skills in order to make an in-depth analysis of the decisions made during the teaching-learning process. This constant monitoring of strengths and weaknesses contributes to the improvement of learning [15].

The proposal of the European Union was to standardize higher education in knowledge, skills and attitudes (Tuning Project). Later, its version adapted for Latin America compiled by Beneitone, Esquetini, Gonzales, Maletá, Suifi and Wagenaar [16] proposed general competences that any professional should master, such as the capacity for teamwork, interpersonal skills, the ability to lead towards common goals, the ability to act in new situations and the ability to make decisions [17], which is in line with the concept of emotional self-knowledge and self-regulation.

2.5. Virtual learning as a training tool

New technologies offer the great possibility of choosing between face-to-face and virtual education, but it is not yet defined for whom. The logical answer would be to think that for people without access to the traditional education system, such as geographically isolated people or with little available time, but in reality they are also presented to people with access to the traditional education system. Statistics show that most users are in the first group, which means that it is not yet a threat to traditional face-to-face education [18].

In recent years, there has been a privatization trend in education throughout the world, as well as a considerable increase in the demand for distance education [18]. Distance education is a two-way or multidirectional communication system, it can be massive, and it is based on the systematic implementation of teaching resources with the support of tutoring, for although teachers are physically separated from the students, these still achieve independent and cooperative learning. Verduin and Clark [19], and Garcia [20], identified four features of distance education: 1. The separation of teacher and student during most of the instructional process; 2. The influence of a student support organization; 3. The use of means of union between the teacher, the student and the contents of the course; 4. The provision of a two-way communication between the teacher, the tutor or the educational agency, and the student.

Apart from the fact that the use of computer networks in the field of higher education allows professional studies to be taken to social sectors that cannot enter institutions for different reasons [21], it also displaces the concept of the teacher as the main source of knowledge [22].

As it was shown, self-regulation and self-efficacy are key to developing a comprehensive training in students that interact in a virtual environment and only casually with the teacher (semi-presence). Also, according to the demands of the learning environment, the most convenient is to implement a suitable accompaniment model.

Following this line, Majós et al. [23] presented a study that applied a proposal to teach self-regulation in higher education that offered conclusions which emphasized the relevant points for teaching self-regulation skills, as well as the relevance of teachers in its development. Likewise, Calderín & Csoban [24] explored self-efficacy in the use of computers in a conventional higher education environment, detecting failures that revealed the need to organize programs in order to guide students in the effective use of ICT.

2.6. Educational Orientation Within a Virtual Platform

Open educational resources - REA are very important nowadays due to their impact on the different educational levels and levels that exist through the web, mainly in higher education, either in distance or face-to-face mode [25]. OERs are free educational resources and materials freely available on the Internet: text, audio, video, software or multimedia; that they have free licenses for the production, distribution and use of such resources for the benefit of the educational community, mainly for teachers of any educational level [26]. These are part of the global trend of open access to existing information on the Internet, called: Open Access, impacting distance education, online education [26].

3. Materials and Methods

The methodology includes four subsections: (1) the approach, method and type of research is established; (2) the participants in the research are described; (3) the analysis of information.

3.1. Approach, Method and Type

The research had a quantitative approach, using data collection to test the phenomenon of the study based on numerical measurement and statistical analysis. It is cross-sectional and descriptive, since the researcher studies previously recorded information and, "after the fact", formulates explanations for the study phenomenon [27].

The study was descriptive in nature as it sought to determine the characteristics of the phenomenon studied. An instrument was designed for the application of perception surveys, both to teachers and students, in which students' shortcomings in self-regulation and self-efficacy, and suggestions or improvements will be evaluated. Basically, the same instrument was applied to both teachers and students, only that the student's contains fewer questions because due to their nature, as a source, these were sufficient for the indicators. The one for the teachers contained 18 questions and the one for the students.

3.2. Population and Sample

The research was limited to students of the last semesters and university professors of the universities, public and private, of the department of Huila. For the selection of the participants, a simple random sampling based on the formula of Murray & Larry [28] was used, which obtained a percentage for the sample of 250 students from all the undergraduate courses. Participants were provided with a physical or virtual form, as appropriate, to complete. The response level was over 98% of the forms, that is, responses were obtained from 245 questionnaires.

3.3. Data Analysis

The method of data collection was quantitative. Surveys were applied to students and teachers which contained the perception variables regarding their self-regulation and self-efficacy, as well as suggestions or improvements. This allowed speeding up the information systematization process for its proper analysis and processing in search of solutions for the detected defects.

4. Results and Discussion

Regarding the results, there were two indicators: efficiency and self-regulation.

4.1. Efficiency

For this indicator, two questions were used. The first was only meant for teachers, while the second was meant for both teachers and students. The first was "With each activity the student shows improvement in their assignments". Faced with this statement, teachers showed a very significant 66.7%, which is almost always fulfilled, followed by 22.2%, and finally leaving 11.1% as the least significant, which represents an opinion within the negative scale. Although in general it seems like a positive

result, these two less significant numbers should be worked on since they are on the other side of the average, with a tendency to decline, and there is no totally optimal opinion among the respondents. The results show a lack of efficiency since there is no optimal perception and two significant results are within the range of bad opinion.

The next question applied in this indicator is "Assignments meet the objectives of the course and in turn lead to clarity on the subject seen". 55.6% of teachers responded that it "always occurs"; 33.35, "always"; and 11.1%, "half the time". On the other hand, 46.9% of the students stated that it "almost always" occurs, followed very closely by 45.8% who said it "always occurs", which puts both percentages in positions which represent the opinion of the students. The option which stated that "Half the time it occurs" shows 7.3%. This result is very favorable for this factor and seems to suggest only small changes in this regard. If contrasted with the results of teachers, it can be seen that there is similarity and, therefore, an opportunity for understanding and joint changes.

4.2. Self - Regulation

Two questions were used for this indicator. The first was applied only to teachers and the second was applied to teachers and students. The first question applied was "The student consults doubts or inconveniences before giving in assignments". 66.7% of teachers say that it "almost always" happens, while 11.1% say it "almost never" happens.

On the other hand, the second question that corresponds to this indicator is "Deliveries are presented before the established final day." Faced with this statement, teachers believed that it occurs "almost always" in a significant 55.6%, followed by 22.2%, which corresponds to the opinion that it occurs "always". Leaving "half of the occasions" and "almost never" as unrepresentative with an equitable 11.1%. Although in this result it can be perceived that the favorable opinion is above the average, it is necessary to reflect on the unrepresentative percentages since they are within the scale on the unfavorable side.

Although the results are generally positive, it is noted that almost a quarter of the respondents, both teachers and students, have a moderately negative opinion of the indicator. The contrast of the first and second questions suggests that the self-regulation indicator is a training need that should be strengthened because, if the student does not have a sense of exploration and reflection by not questioning their teacher, their delivery habits are also not optimal.

4.3. Significant Learning

Two questions were also used for this indicator. The first was applied only to teachers and the second was applied to teachers and students. The first question applied was "Lessons are visible in the students' actions". 66.7% of teachers said they "partially agree", while 11.1% said they "partially disagree".

If the learning objects are seen beyond the curricula, it is possible to find pedagogical innovations, in this way, the teacher through extracurricular observation can show that his teachings have intervened the student's own actions. Whether it is a virtual environment, situations such as deliveries, consultations, forums or the student's priorities in their proposals can reveal these attitudinal changes, can recognize a construction of meanings.

The next question was: "In each assignment, there is evidence of integration of lessons resulting from the topics already discussed or studied". 44.4% of the teachers answered "totally agree" to this question. To this question, 58.7% of the students replied that they "totally agree", followed by 33.5% who said that they "partially agree".

This indicator presents contrasting results to a slight extent, because although the first question reveals a small but significant failure, the second shows a higher percentage of teachers who think that significant learning is not taking place, while students have a better opinion about. The fact that students think that there is an integration of knowledge is a very positive thing, since it could suggest that their self-regulation and autonomy are being strengthened.

4.4. Thorough Education

For this indicator, two questions were applied — the first, to both teachers and students, and the second, only to teachers. The first question was "The use of teachings, product of subjects studied in different courses, is evidenced in forums and assignments". 55.6% of teachers responded that they "partially agree", followed by 22.2% who "partially disagree". On the other hand, 46.9% of the students declared to "totally agree", followed by 37.4% that declared to "partially agree".

The next question applied was "The situations of plagiarism, substitution or imitation are very scarce". 44.4% of teachers responded that they "partially agree". The less significant percentage were presented by the options of "indifferent" and "totally disagree". In addition, the second most significant percentage belongs to the negative opinion scale.

The results of this indicator suggest a direct intervention and definitively place it as a need that must be strengthened, since it is not possible to make an integral formation evident through transversal knowledge if there is no certainty of the veracity and ethics of the student.

4.5. Opinion Regarding the Platform

For this indicator, two questions were applied, both to teachers and students. The first question that was asked was "There must be other components on the platform to facilitate learning". To this, 44.4% of the teachers replied that they "totally agree", followed by 33.3% who "partially agree". The options "partially disagree" and "totally disagree" reached 11.1% each. The students answered this question in a way very similar to the teachers: 63.7% said they "totally agree", making it the most significant percentage, followed by 27.9% who "partially agree", leaving 0.6% who say they "totally disagree".

The second question that was applied to them was "The management of the platform is friendly and attractive". 55.6% of the teachers responded that they "totally agree", followed by 22.2% who say they "partially agree", leaving 11.1% who equally represent those who say they are "indifferent" or "totally disagree". On the other hand, 48% of the students said they "totally agree", followed by 33% who said they "partially agree". The least significant percentage was that they say they "totally disagree" with 3.4%.

Once again, although the overall results were positive, the gaps became evident in this category and intervention in the training needs of significant learning and comprehensive training become necessary, as well as of the opinion regarding the platform, within the category of improvements.

5. Conclusions

The results showed that among the most significant suggestions both in teachers and students, in terms of efficiency, use, and monitoring, there is generally a favorable opinion. The platform is efficient, as well as the monitoring. However, opinions are divided regarding the use of the platform, therefore, the creation of an accompaniment model that tends towards integral training must include aspects that strengthen the use of the platform.

Regarding the appreciation against the platform, opinions were divided. However, paradoxically, in this case the positive responses only emphasize the need for structural changes. While most say the platform is friendly, they also suggest that improvements should be made.

Regarding the results of self-regulation and self-efficiency, they were very positive: both students and teachers show optimum efficiency in the use of the platform. However, in terms of self-regulation, it is not the same. Divided opinions on proper self-regulation suggest an intervention in this regard when developing the accompaniment model.

Finally, regarding the identification of teachers on their commitment to meaningful learning, the obviously divided opinions suggest a great intervention. In the face of comprehensive training in this category, similar results can be seen: strongly divided opinions that highlight an urgent intervention in this aspect.

In the case of teachers, although the current management of the platform is evident, what they question or criticize is the behavior of some students — not the majority, but of a representative amount — regarding the use of the platform. Students have a good perception of the way in which it is presented and managed. However, this favorable opinion is not always for its efficiency or illustrative, but simply because it is easy to use and, possibly, due to its vulnerability at the time of being evaluated.

Self-efficacy and self-regulation are constantly strengthened by this type of education, as it motivates students to constantly surpass themselves and, in turn, be able to supervise and question each time they have either doubt or a right guess.

References

[1]. Panadero, E., & Alonso-Tapia, J. (2014). Teorías de autorregulación educativa: una comparación y reflexión teórica. *Psicología educativa*, *20*(1), 11-22.

[2]. Zimmerman, B. J., & Schunk, D. H. (Eds.). (2001). *Self-regulated learning and academic achievement: Theoretical perspectives*. Routledge.

[3]. Schunk, D. H., & Zimmerman, B. J. (1997). Social origins of self-regulatory competence. *Educational psychologist*, *32*(4), 195-208.

[4]. Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of educational psychology*, *92*(3), 544.

[5]. Villavicencio, L. M. (2004). El aprendizaje autónomo en la educación a distancia. In *Primer congreso Virtual Latinoamericano de educación a distancia* (pp. 1-11).

[6]. Cuadrado, A. M. M. (2011). Competencias del estudiante autorregulado y los estilos de aprendizaje. *Revista de estilos de aprendizaje*, *4*(8), 136-148.

[7]. Alzina, R. B. (2003). Educación emocional y competencias básicas para la vida. *Revista de investigación educativa*, *21*(1), 7-43.

[8]. Bisquerra Alzina, R., & Pérez Escoda, N. (2007). Las competencias emocionales. *Educación XX1, 2007, num. 10, p. 61-82.*

[9]. Baumeister, R. F., & Vohs, K. D. (2004). Handbook of self-regulation: Research, theory, and applications.

[10]. Latham, G. P., & Locke, E. A. (1991). Self-regulation through goal setting. *Organizational behavior and human decision processes*, *50*(2), 212-247.

[11]. Klein, H. J. (1989). An integrated control theory model of work motivation. *Academy of management review*, *14*(2), 150-172.

[12]. Lord, R. G., & Levy, P. E. (1994). Moving from cognition to action: A control theory perspective. *Applied Psychology*, *43*(3), 335-367.

[13]. Bandura, A. (1994). Self-efficacy. *Encyclopedia of human behavior*, *4*, 71-81.

[14]. Sierra, J. J. V. (2008). *La inteligencia emocional rasgo, la autoeficacia para el liderazgo y su vinculación a procesos afectivos grupales, cognitivos y de desempeño* (Doctoral dissertation, Universidad de Salamanca).

[15]. Gallardo Córdova, K. E., Gil Rendón, M. E., Contreras Durán, B., García Hernández, E., Lázaro Hernández, R. A., & Ocaña Jiménez, L. (2012). Toma de decisiones para la evaluación formativa: el proceso de planeación y determinación de sus mecanismos. *Sinéctica*, (39), 01-19.

[16]. Esquetini, C., González, J., Maleta, M. M., Siufi, G., & Wagenaar, R. (2007). *Reflexiones y perspectivas de la educación superior en América Latina: informe final, proyecto Tuning América Latina 2004-2007* (No. 281.8 BEN).

[17]. Fragoso-Luzuriaga, R. (2015). Inteligencia emocional y competencias emocionales en educación superior,¿ un mismo concepto?. *Revista iberoamericana de educación superior*, *6*(16), 110-125.

[18]. Candia, A. (2012). La Educación Virtual: ¿Una Alternativa A La Educación Tradicional? Tecnología y Educación.

[19]. Verduin, J. R., & Clark, T. A. (1991). *Distance education: The foundations of effective practice.* Jossey-Bass Inc Pub.

[20]. García Aretio, L. (2001). *La educación a distancia: de la teoría a la práctica* (No. C10 26). Ariel.

[21]. Moreira, M. A. (2002). Investigación en educación en ciencias: métodos cualitativos. *Actas del PIDEC*, *4*(14), 25-45.

[22]. Minguell, M. E., Font, J. F., Cornellas, P., & Regás, D. C. (2012). Realidad aumentada y códigos QR en educación. In *Tendencias emergentes en educación con TIC* (pp. 135-157). Espiral.

[23]. Mauri, T., Colomina, R., & Gispert, I. D. (2009). Diseño de propuestas docentes con TIC para la enseñanza de la autorregulación en la Educación Superior. *Revista de Educación, 2009, num. 348, p. 377-399.*

[24]. Cruz, M. C., & Mirka, E. C. (2010). Elementos para un programa de alfabetización informacional: La autoeficacia hacia el uso de la computadora. *Biblios: Revista electrónica de bibliotecología, archivología y museología*, (37), 1.

[25]. Morales, R., & Agüera, A. S. (2002). Capacitación basada en objetos reusables de aprendizaje. *Boletín IIE*, *26*(1), 23.

[26]. Gutiérrez, F. J. M., & de los Santos, J. G. E. (2009). La iniciativa Knowledge Hub: un aporte del Tecnológico de Monterrey al mundo. *Ried. Revista iberoamericana de educación a distancia*, *12*(2), 83-112.

[27]. Flores, M., & Valenzuela, J. (2013). Fundamentos de investigación educativa, Vol. 2.

[28]. Spiegel, M. R. (2009). *Estadística*. McGraw-Hill.