

Influence of active methodologies and the incidence of sociological factors in the desertion and permanence of SENA



Influencia de las Metodologías activas y la incidencia de los factores sociológicos en la deserción y permanencia de los aprendices SENA

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ABSTRACT

The new methods in the twentieth century are characterized by an increasingly less expository and dogmatic teaching: things instead of words; study by personal observation instead of knowledge by the teacher; real construction. In relation to the above mentioned, agile or active methodologies intend to generate dogmatic and radical changes in the way in which knowledge is carried and acquired, it has a bilateral impact, since it is concerned both with the teaching exercise and with the student's perception, it proposes to place the student as the protagonist axis on which knowledge is built, mediated by previous knowledge, valuing his subjective experience and dismantling traditional paradigms. This is why such active teaching methodologies have a direct impact on the academic permanence of students, since it enables active participatory learning, where the learner explores his potential and identifies vocations while acquiring and assimilating knowledge, from a personal frame of reference contextualized in

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their tastes, learning rhythms and motivations. These characteristics contribute to the mitigation of problems of absenteeism and academic desertion, while playing ambivalently as a protective factor that mitigates the effect of sociological difficulties in the self.

Keywords: Active methodologies, learner permanence, motivation, learning .

RESUMEN

Los nuevos métodos en el siglo XX se caracterizan por una enseñanza cada vez menos expositiva y dogmática: las cosas en lugar de las palabras; el estudio por la observación personal en lugar del conocimiento por el maestro; la construcción real. En relación a lo antes mencionado, las metodologías ágiles o activas pretenden generar cambios dogmáticos y radicales en la forma en la cual se lleva y adquiere el conocimiento es de impacto bilateral, ya que, se preocupa tanto por el ejercicio docente como por la percepción del alumno, propone ubicar al estudiante como ejes protagónicos sobre el que se construye el conocimiento mediado por saberes previos, valorando su experiencia subjetiva, desmotando paradigmas tradicionales. Es por esto que dichas metodologías de enseñanza activa tienen una incidencia directa en la permanencia académica de los estudiantes, ya que, posibilita un aprendizaje activo participativo, donde el aprendiz explora sus potencialidades e identifica vocaciones al mismo tiempo que adquiere y asimila el

conocimiento, desde un marco de referencia personal contextualizado en sus gustos, ritmos de aprendizaje y motivaciones. Dichas características, contribuyen a la mitigación de problemáticas de ausentismo y deserción académica, al mismo tiempo que juega de forma ambivalente como factor protector que atenúa el efecto de dificultades sociológicas en el ser.

Palabras clave: Metodologías activas, aprendiz permanencia, motivación, aprendizaje.

Introduction

The SENA Tecnoacademy is a learning scenario, equipped with emerging technologies to develop innovation-oriented competencies, through project-based training, to optimize useful knowledge that enables the apprentice for the world of work with innovative solutions for companies and productive sectors.

At the beginning of this year, the National Learning Service (SENA), through its Tecnoacademia program, provided more than 1,260 places for students of basic and complementary secondary education, interested in the different lines of training in science, technology and innovation in the sub-region of Eastern Antioquia, to enroll and acquire free classroom training, which due to the effects of the current COVID 19 health emergency was forced to be developed virtually, framing certain sociological factors that affect early class desertion.

The main sociological factors that affect virtual education dropout are the low resources that families have to acquire technological tools such as digital equipment, access and maintenance of connection networks in rural areas of Antioquia; the lack of pedagogical adaptability by instructors in virtual environments, digital literacy on the part of trainees, the lack of interactive spaces and feedback within the classroom, the alteration of communication links with peers.

As well as the intrinsic motivational factors that play a determining role in permanence, generating personal interpretations of facts and contextualized situations about the training dynamics given in virtual learning environments.

An epistemic scan was made through different articles and research projects, which allow the generation of a state of the art in which the results generated in previous and recent research on the subject are compiled, establishing criteria of relationship in academic desertion in virtual environments and how active methodologies can mitigate or impact this problem.

Materials and methods

The study is of a mixed type, which consists according to Hernández et al (2014) in the systematic integration of quantitative and qualitative methods in a single study in order to obtain a more complete "photograph" of the phenomenon; they represent that set of empirical and critical research processes through the collection and analysis of quantitative and qualitative data, as well as their integration and joint discussion, to make inferences product of all the information obtained, in order to achieve a greater understanding of the phenomenon under study.

The research is developed with apprentices enrolled at the Center for Innovation, Agroindustry and Aviation, whose ages range from 10 to 17 years old, who are in elementary or middle school and are residents of the municipalities of Eastern Antioquia.

Depending on the development of the project, the semi-structured interview is the method used in the research to ask questions to a sample of participants via e-mail, in order to collect and analyze the data that will serve as support for the research.

Table 1. *Data collection instruments*

Specific objectives	Techniques	Instruments
To characterize the population that participates in specialized or complementary training courses of SENA, Oriente Antioqueño branch (Tecnoacademia program) to identify the initial perception of students and	Successful case study, which refers to "the study of the particularity and complexity of a singular case, in order to understand its activity in concrete circumstances" (Stake, 1998). This method was chosen because it will allow	Semi-structured interview

teachers in relation to the strategic components that a pedagogical model should have and the importance of vocational development...	an in-depth study of the most successful and the least successful cases of a program and to inquire about their particularities, challenges, barriers and difficulties.
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Source: Own elaboration

The information gathering instrument is the in-depth interview, which according to Robles (2011), has the intention of "entering into the life of the other, penetrating and detailing the transcendent, deciphering and understanding the tastes, fears, satisfactions, anxieties and joys, significant and relevant of the interviewee; it consists of building step by step, thoroughly the experience of the other" (p.40).

This type of interview is the one that has aroused the greatest interest, since it is associated with the expectation that the interviewees are more likely to express their points of view in a relatively open manner than in a standardized interview or questionnaire. Through these we sought to characterize the population under study and their perspectives regarding the nodal categories of this research: learning models, sociological factors, vocational development, social innovation, youth and society.

In order to identify the main factors that influence virtual educational desertion and how active methodologies influence the permanence of SENA apprentices belonging to the Tecnoacademia Oriente-Antioqueño program, an interview was conducted with 25 students of the biotechnology and electronics and robotics training line, of which 13 were men and 12 were women, between 14 and 16 years old, in 9th, 10th and 11th grades, with socioeconomic strata 1, 2 and 3 between the urban and rural sector.

Results

It was found that the student population in the initial phase has an initial vision of the educational process that is identified with a negative social imaginary, where education does not have a vocational purpose, nor a long-term purpose, nor personal development.

On the other hand, the student population that participated in the interview considers that it is necessary to continue changing the educational model and that it should be aimed at allowing students to take advantage of their creative and imaginative

potential from different courses and areas of knowledge (not only those of the SENA Technoacademy). In addition, young people insist that they are often not listened to and that their ideas or proposals to solve problems in the community are not taken into account by adults, which generates feelings of insecurity, helplessness and distrust in them, so for them it is necessary that there are communication and trust networks.

Students insist that this type of learning strategies should continue to be used in schools, since they are a way in which they are the protagonists of the process, and they feel useful when generating initiatives that can have an impact on their territory.

They also believe that generating these pilots with the welfare of the people with whom they live in the school, neighborhood and municipality in mind, makes their bonds and love for the territory grow. The successful pilots were: prosthesis for upper limb, natural sweetener without sugar, sign language translator with neural network interface. These pilots are part of the SDG goals such as: reduction of inequalities, health and well-being, industry, innovation and infrastructure.

In relation to connectivity, in order to verify if this factor effectively causes desertion, it was found that not all of them have an electronic device to receive their classes and that 36% share it with a family member and 16% with two members. Likewise, it is evident that although statistics show that 6.24% have access to the Internet, 3.12% have access to the Internet from a public network to receive their virtual classes, which makes the trainees disperse in their academic work and makes it difficult to attract their attention.

Similarly, we sought to recognize the motivations and interests that can influence the training exercise of the Tecnoacademia program trainees, with the question "Do you think that the contributions in class are valued? 48% stated that they were valued, while 24% indicated that they were valued almost always and 20% sometimes. Likewise, 68% said that they were not bored in class and that the virtual contents of the Tecnoacademia program were of interest to them.

It was also demonstrated that 85% of the students are committed to their virtual classes and would not drop out of their academic training, because the topics taught promote their academic and personal development, with 80% of the students represented.

The questions also focused on active methodologies, asking: Do you consider that using games in the classroom is essential for the learning process? 80% of the respondents answered affirmatively, and it was also evident that they consider

experimentation and academic participation to be important, and 100% stated that the knowledge acquired in the classroom should be applied to real problems in their environment.

The facilitators were a relevant factor, since it was evidenced that they promote participation, socialization and feedback in the class, for which the trainees responded 100% positively, 88% indicated that the facilitators provide feedback on their work, indicating that 12% feel that this aspect needs to be strengthened.

Regarding the development of pedagogical training, 100% of the students responded that learning was effective in virtual and distance learning, and 52% of them dedicated an average of 1 to 2 hours to their virtual training, while 48% dedicated 2 to 4 hours. Likewise, 100% indicated that they prefer face-to-face education to virtual education.

When asked about support from their family environment, 88% of Tecnoacademia trainees have the support of their parents and feel confident in sharing their knowledge.

In relation to the percentages, it was evidenced that the main factor of academic desertion is due to the fact that most of the students do not have the resources to acquire the necessary tools to develop their studies, which generates a lack of motivation due to all the external factors and circumstances they are going through and that have nothing to do with the didactics of the classes or with the contents.

This is why active methodologies are catapulted as the most appropriate response within the learning approaches, since techniques such as the "flipped classroom" allow closing gaps in educational access in digital matters, taking into account that this technique is leveraged in the asynchronous and autonomous learning, of course the problem of digital tools and connectivity remains latent, but pedagogy directly influences not only to support the student in the academic processes, but in turn keeps it active and participatory with an inclusive approach.

As mentioned by Barkley, Major and Cross (2014), active methodologies allow students to develop projects according to their vocations and capabilities, which is why active methodologies have a direct impact on motivation in the classroom, thus establishing a direct correlation in terms of academic permanence and the impact of sociological factors derived from day-to-day life.

However, most teachers are unaware of these techniques or methods, remaining stuck in anachronistic forms of teaching, which evidently leads us to point out the lack of educational public policies, in relation to the generation of programs that allow for teacher updating and national guidelines that seek to generate standardized processes

within educational institutions, providing meaningful and lasting learning over time from the self-motivation of the individual, which in turn mitigates academic dropout rates and contributes to the development of the country.

Conclusions

Virtual education in Colombia has become a great challenge for educational institutions, the lack of technological equipment, internet connectivity and the rural and urban sector have affected the way in which students receive their classes.

One of the challenges faced by virtual education is the incidence of sociological factors for student continuity and permanence, being economic resources and family and social group influence the major cause of desertion. Therefore, it is essential that virtual learning environments provide dynamic and attractive follow-up and motivation mechanisms that contribute to solve the problems faced by students in a clear, optimal, precise and timely manner, favoring complete educational trajectories.

As previously indicated, low economic resources is one of the main sociological factors that affect virtual education dropout, because families cannot easily acquire technological tools such as digital equipment, access and maintenance of connection networks in rural areas of Antioquia; to this is added the lack of pedagogical adaptability by instructors in virtual environments, digital literacy on the part of learners, the lack of interactive spaces and feedback within the classroom, the alteration of communication links with peers.

Therefore, it is denoted that within the educational action research the role of the teacher implies a strategy of transformation of the pedagogical practice, in which he/she must incorporate some subjects and themes through problems, cases or projects, for this he/she must be a facilitator and be responsible for organizing learning situations, The resolution of which requires the reflection of concepts and involves educational innovations, which introduce transformations in schools that promote improvement mechanisms, likewise all of the above is articulated to the processes of digital literacy, which allows students to learn by themselves other mechanisms and learning models.

The educational desertion described as abandonment of the school system by students is caused by the different contexts in which the child or adolescent interacts, such as the social, family and school, due to the influence, lack of follow-up and accompaniment, evidenced in a serious problem that restricts the possibility of having

a social development and personal progress, contributing to the perpetuity of the cycle of poverty, since education is fundamental for the development of a country.

It is the duty of the National Government and educational institutions to create integral spaces when educating children and young people, where they are allowed to be a central part of education, with the help of an interdisciplinary team of teachers who ensure a quality education.

Through its Tecnoacademy program, SENA generates a scenario focused on the learning of children and young people in elementary and middle school, which seeks to enhance the capabilities focused on science and technology, through spaces in which the student is the protagonist of their education.

Vocation with purpose is a long term process, where the educational model must be the backbone, on which students can lean, to explore their abilities, passions and tastes; but also their fears, insecurities and afflictions. In addition, this process must be crossed by a learning model where students can communicate, participate and feel in an environment of trust where they can question knowledge and their ways of learning. But, also to have a support network that motivates their creativity, imaginative and inventive capacity.

On the other hand, social cohesion and territorial rootedness are crucial for education to contribute to positively transform society, since young people need to create ties and ownership in the place where they live, study, grow and develop; to feel responsible for its direction, organization and progress. So that, hand in hand with knowledge and technology, they can generate innovative and sustainable ventures that energize the local economy and close the gaps of inequality and exclusion.

This research contributes to education, since educational action research is a parallel of participatory action research which, oriented towards educational action, leads to the search for solutions in this sector.

The active methodologies in the permanence of SENA apprentices are based on a constructive development process that allows the student to move from memoristic and traditional learning to an interactive one, where he is the protagonist of his learning, working autonomously in the different classes, but in constant communication with the teacher, generating critical, analytical, creative and argumentative thinking, among other skills.

It is also important to emphasize that the operation of the PAR is based on the participation of the actors, which is the fundamental element of this research, these are not subjects of the research, but are an active part of it, seeking that all actors

participate both in the process of partition and identification, which is why the application of the information collection instrument was developed with the main actors of this problem, so that in this way through the resignification of their voices, solutions to student desertion can be found.

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