SOFT SKILLS IN THE CLASSROOM PROJECT CASE: ADMINISTRATION TECHNICIAN

María Mónica García Arroyo
Instituto Politécnico Nacional
Pachuca de Soto, Hidalgo
https://orcid.org/0000-0003-3908-6844

Azhar Lucía Salinas Cruz
Instituto Politécnico Nacional
Pachuca de Soto, Hidalgo

Humberto Cuevas Rivera
Instituto Politécnico Nacional
Pachuca de Soto, Hidalgo

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).
Abstract: Soft skills and competencies in the school context describe the abilities or aptitudes that help the student to perform comprehensively. These are part of the personality, they develop with the interaction of society and school. This qualitative research has a case study, where the soft skills of a control group in the fourth semester (4AM1) of the CECyT 16 “Hidalgo” high school Administration Technician degree are analyzed, when developing a project institutional integrator called “Classroom Project”; These skills are necessary for effective overall performance and successful collaboration with others. Soft skills such as: teamwork, conflict resolution, creativity, problem identification allow establishing objectives while maintaining supportive and emotional partner relationships, to make decisions responsibly and productively resolve everyday situations.

Keywords: Soft skills, integrative project, decision making, comprehensive education

INTRODUCTION

In this globalized world, the need for learning and soft skills help students to effectively enter the workforce, they are trained within the family and honed during their school career; They are those socio-emotional capabilities that are part of the personality and are shaped by the cultural-social context in which one interacts. They are productive collaborators, which make the subject more efficient and effective in the development of work, but also with the ability to adapt. to the changing conditions of the organization and its environment, when applied from basic to professional education, they form integral professionals in human development.

Soft skills have been present more than you think, since this term was included since 1960 by the United States Army when soldiers realized that there were skills that were not cataloged, but were needed for good performance and winning. wars, such as leadership and teamwork (De la Ossa, 2022).

The Sustainable Development Goal (SDG) demands to guarantee quality, inclusive and equitable education for all (OECD, 2015), as well as the International Labor Organization (ILO) and the United Nations (UN) have shown interest of a comprehensive, fair and equitable education, creating societies that assume changes by establishing new relationships with interpersonal and intrapersonal skills for effective global functioning and to interact successfully with others (UNESCO, 2021). During recent years, society has faced a covid-19 pandemic and with recent technological advances and the need to use them, the perspective has changed, showing the lack of skills such as: perseverance, resilience, communication and adaptation to be able to tolerate the situation of confinement and the change to learn online, in addition to associating different individual and family factors, teachers, campus and classroom, linking the different variables that are related to the social environment.

Collaboration for academic, social and emotional learning (UNESCO, 2021) has a framework that “promotes the development of skills that allow managing emotions, setting and achieving goals, valuing the perspective of others, establishing and maintaining supportive relationships, making decisions responsibly, and constructively resolving personal situations.” and interpersonal.

Soft skills, or Soft Skills as they are also mentioned, are related to the individual’s behavior, interaction with others and personality patterns; For Cobo and Moravec “they refer to the learned and usable capabilities for adaptability in different environments in which the individual develops, including the academic, work, and family environments (2011). Likewise, for Ortega (2016): “soft or
non-cognitive skills are defined as the practices, attitudes and capabilities that a person has to relate and interact with the world.

Therefore, it is necessary to highlight the value it has in some environments more than in others, such as in education, since from an early age it is important for children to learn to function within social norms, since they can also be considered as personal attributes that help to interact with the environment and society, this with the objective that throughout their training process, the student is facilitated in optimizing their own performance and, in the same way, in professional life they stand out for these same skills and achieve the success.

Second HidalgoSoft skills are those behaviors, aptitudes and customs that differentiate professionals and that mark a relaxation when undertaking a project, relating to others or resolving conflicts” (2020). Being those characteristics and conditions that the individual has to interact with others effectively.

The importance of soft skills is becoming more and more present within the field of engineering and other branches to improve within them (García, 2023), it is recommended to incorporate teaching-learning approaches, using different strategies such as: the application of projects, learning based on problem solving, practices and case studies, among others.

Currently, integrative projects are a PBL (Problem-Based Learning) strategy that allows demonstrating and applying the competencies and learning results that students have achieved in the real everyday environment. This strategy takes into consideration, pedagogical and didactic resources, where students acquire knowledge, knowledge, skills and abilities specific to the discipline, with the aim of developing hard and soft skills.

According to (Gómez, 2021) the objectives of integrative projects are, in general, to relate criteria that allow integrating the subjects of basic sciences, humanities, engineering, specific and complementary per semester through team and collaborative work. Thus, demonstrate the effects of learning the learning units of the technical career and finally encourage students to propose solutions to industry and social problems, through the knowledge and use of soft skills.

The Educational Model by competencies proposed by the National Polytechnic Institute (IPN) based on the changes and needs of the productive sector takes a step towards the competency-based approach focused on learning; at the upper secondary level, with the application of innovative integration strategies that project collaborative work and research; whose purpose is to develop a work culture that incorporates processes focused on learning, interdisciplinary and collegiate work, supported by a project methodology.

In the IPN, among the learning strategies it manages is the so-called -Classroom Project-, which has been planned from the perspective of collaborative work as it is an integrative project, which considers the participation of all or some learning units of a semester; whose purpose is to develop competencies and skills in students, in any of the three chosen areas of knowledge (physical-mathematical, medical-biological and social-administrative), which is why it is considered a multidisciplinary and interdisciplinary work.

The Classroom Project is a methodological proposal in the classroom that allows incorporating the knowledge of the learning units in the school year (semester) for the solution of an everyday problem, applied in the teaching-learning process.

The collaborative work competition and others, create learning spaces with the purpose of integrating the different knowledge of the students and evaluating their integration within the classroom, as well
as getting involved and participating to share ideas and information, organizing common work to reach a common goal, goal or meet an objective so that learning is for everyone, with assertive communication and fulfilling their role within the group in accordance with the educational model, posing the challenge of stimulating creativity, innovation, and the potential that human beings have. to go beyond what everyday life demands.

The technical degree in Administration at the upper secondary level “develops competent people, with an attitude of service, possessors of deep civic and ethical values, committed to their work, with the ability to interact, with professionalism in all productive activities and providing high performance to stand out in organizations. national and international.

**METHODOLOGY**

This qualitative case study used observation and was applied during the period from February to June 2023 (school year 23-B) delving into social phenomena, integrating with the context and daily practices to obtain information from the sample. the most attached to reality, obtaining a codeep understanding of the meanings and axioms of the situation as they are presented with a correlational effect, analyzing the use of soft skills in the realization of integrative projects of students in the fourth semester of the administration degree.

For the preparation of this study, a case study has been chosen with the fourth semester 4AM1 as a control group of the administration major in the application of the methodological strategy of the “Classroom Project”: Intervention strategies in Business Management in MSMEs in the state of Hidalgo. Case study, “El Sazón de Renyy”, which analyzes the application of school competencies and soft skills in students, with the relationship between all the observed data to achieve an accurate interpretation of the corresponding results.

The research approach is non-experimental, explanatory and descriptive, which tries to understand reality by identifying the deep nature of the meanings of the actors, being a social research that deals with the context, setting or cultural groups (Avalos, 2017) but with a methodological organization.

**SAMPLE**

The subjects of the study are the forty-one fourth semester students of the 4AM1 group of the technical career of Administration of the IPN high school academic program, whose problem to solve was: Develop and design strategies in the areas of administration, marketing, finance, production and sustainability for the Hidalgo microenterprise “El Sazon de Renyy” based on their characteristics and needs so that they can use the information collected for the development of their activity; as a transversal integrative project with the learning units involved: Strategic planning workshop, Scientific communication, Administration, Socioeconomic environment of Mexico, Accounting and Financial calculations, during the 2022-2023 school year B.

The context of the sample is the Center for Scientific and Technological Studies No. 16, Hidalgo, with eleven years of being foreign, in addition to being multidisciplinary and bivalent, with terminal degrees in the three areas of knowledge (physical-mathematical, social-administrative and medical-biological) and seven technical termination options; bordering the municipalities of San Agustín Tlaxiaca and Santiago Tlapacoya, both of the same state.
INSTRUMENTS

Data were collected with a phenomenological design, based on the study of life experiences, with an affinity for an event, from the perspective of the subject that focuses on the subjective individual experiences of the participants when carrying out the activities of each learning unit to integrate the project, at the same time, the observation report of this population and in conjunction with the data analysis of the selected articles and reports listing the soft skills that are developed based on each skill, with the purpose of carrying out the correlational analysis, to determine the dependence of soft skills on the sample population and the Classroom Project.

PROCEDURE

An extraction of various texts was carried out to incorporate a definition of the soft skills listed for integrative projects (table 1).

Based on the observation made of phenomenological data and the definitions of different authors, the relationship was made to identify the soft skills acquired in the management students during the implementation of the Classroom Project. In that same context, during the field research, annotations were made, changing due to the environment where they are found when developing soft skills; It was observed that skills such as: service orientation and conflict resolution were among the most identified, since one of the purposes of the classroom project was to satisfy the needs of a certain population or solve a problem; It was also examined that the creativity and innovation that were the pillar to start when creating a new and original idea.

On the other hand, they are capable of applying critical and analytical thinking to understand the situation, and identify errors to rationally analyze how to solve the problem; taking into account time management, since the duration of the project is one semester and the appropriate organization had to be in place to distribute the work areas and be able to complete the project in a timely manner.

In addition to this, the project was carried out by the 41 students, however, work teams were delimited among them in order to fully cover the process, developing the soft skill of teamwork with adequate effective communication, both oral and written. It is worth mentioning that each work team was organized to carry out the designated tasks and together they all remained with the appropriate composure so as not to lose control when they were under pressure.

RESULTS

According to the results of the analysis of the soft skills identified when developing the classroom project (table 2), it is considered that each learning unit from basic to professional training had key points to identify which one stood out the most, this by their previous definition.

![Figure 1. (Strategic planning workshop)](image-url)
<table>
<thead>
<tr>
<th>Soft skills</th>
<th>Definition 1</th>
<th>Definition 2</th>
<th>Definition 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conflict resolution</td>
<td>It is the way in which two or more individuals, or organizations find a peaceful solution to the disagreements they face. These disagreements can be emotional, political, financial, or all of them.</td>
<td>It is a very innovative system of understanding human relationships, which does not analyze, judge or sanction, but which resolves effectively and without coercion through pacification.</td>
<td>Any process used to manage, determine or resolve differences that may arise between individuals, families, groups, organizations, communities, nations or any other social unit.</td>
</tr>
<tr>
<td>Teamwork</td>
<td>It consists of collaborating in an organized manner to obtain a common objective. This means understanding the interdependencies that exist between team members and making the most of them in order to achieve that common goal (mission).</td>
<td>It is an organized form of work related to motivation, participation, communication and leadership implemented to achieve objectives.</td>
<td>They can be formed, from the structure of the organization, to achieve a particular objective or by personal desires to satisfy certain needs.</td>
</tr>
<tr>
<td>Effective communication</td>
<td>Transfer of information and understanding between two or more people, considering it as a bridge between men, allowing them to share the feelings and knowledge acquired, being useful to management.</td>
<td>Exchange through speech, writing or other types of signals of feelings, opinions or any other type of information.</td>
<td>Set of elements in interaction where any modification of one of them affects the relationships between the other elements.</td>
</tr>
<tr>
<td>Creativity</td>
<td>Creativity is an ability that human beings have to generate ideas, solve problems or offer different interpretations or solutions to diverse socioeconomic, social and contextual realities.</td>
<td>The term creativity comes from the Latin creare, with the meaning of perceiving, devising, expressing and turning something new and valuable into reality. That is, the set of mental powers that allow us to develop new possibilities and materialize them.</td>
<td>Creativity is a complex construct, influenced by numerous variables of evolutionary, social and educational experiences, and which manifests itself differently in each person. context of knowledge.</td>
</tr>
<tr>
<td>Time management</td>
<td>It involves determining what you must do to set goals, deciding which activities are most important, and giving yourself Realize that other activities will have to be scheduled based on prioritization.</td>
<td>It is a process in which clear goals or objectives are established, the tools that promote time management are determined, the available time is taken into account and the use given to the time is verified.</td>
<td>It is related to the planning of behaviors such as scheduling goals and activities, prioritizing by making task lists, grouping tasks that aim at effective use of time, keeping track of behaviors that aim to observe the use of time in the organization, carrying out activities, etc.</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>It is a creative, skillful and disciplined process of conceptualization, synthesis and/or evaluation of information collected from, or generated by, experience, reflection, reasoning or communication as a guide for understanding and action.</td>
<td>Intentional and self-regulatory judgment where interpretation, analysis, evaluation, inference, and explanation are identified as the central skills of said thinking.</td>
<td>Critical thinking is that way of thinking—about any topic, content, or problem—in which the quality of initial thinking is improved. The result is a practiced, critical thinker who formulates vital problems and questions with clarity and precision.</td>
</tr>
<tr>
<td>Service orientation</td>
<td>This approach requires the responsible and constant study of the customer needs, perceptions, preferences, attitudes and levels of satisfaction.</td>
<td>It is a business philosophy that puts customer needs before those of the business and a way to align business objectives with consumer objectives.</td>
<td>It is based on people and promotes the generation and delivery of a value proposition, that is, the creation of a set of benefits for the client.</td>
</tr>
<tr>
<td>Productivity</td>
<td>It is the result of the harmony and articulation between technology, human resources, organization and systems, managed or administered by people or efficiency, as long as the optimal or balanced combination of resources or efficiency is achieved.</td>
<td>It is the way of using production factors in the creation of goods and services to be offered in a market, it has the objective of optimizing the resources used, such as human, material, capital and financial resources in the production process.</td>
<td>It is the condition or ability to be productive, as a guiding tool for the management of a productive system, indicating that the resources available to the company (labor, capital, materials and energy) are used objectively.</td>
</tr>
<tr>
<td>Innovation</td>
<td>It refers to an object whose novelty value is closely related to the improvement of something previous.</td>
<td>It is a term that comes from the Latin innovatio, with the meaning of creation or modification of a product, and its introduction into a market.</td>
<td>Innovation incorporates in itself a creative solution; that is, a transformation that is carried out with the purpose of solving a problem or overcoming an existing situation.</td>
</tr>
</tbody>
</table>

Table 1. List of soft skills for integrative projects (2023)
<table>
<thead>
<tr>
<th>Learning Unit</th>
<th>General Competition of the UA</th>
<th>Activity performed</th>
<th>Soft skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic planning workshop</td>
<td>Applies strategic concepts and tools necessary to analyze decision making in any social organism. Applies the mission and vision statement process through the analysis of external and internal forces that impact various social organisms.</td>
<td>Design of the strategic planning of a Hidalgo microenterprise dedicated to food preparation, this being an economic kitchen called “El Sazón de Renyy” contributing to its development in the short and long term.</td>
<td>• Teamwork  &lt;br&gt; • Communication  &lt;br&gt; • Conflict resolution  &lt;br&gt; • Critical thinking  &lt;br&gt; • Service orientation  &lt;br&gt; • Time management  &lt;br&gt; • Productivity.</td>
</tr>
<tr>
<td>Administration</td>
<td>Resolves operational problems of the administrative process, through the organizational analysis contemplated in the strategic model of the company or social organization. Apply the principles, elements and techniques of each stage of the administrative process, through the analysis of the characteristics, needs, mission, vision, in any social organization or company.</td>
<td>Knowledge and construction of the business image, expressed through the complete description of the company, the organization chart, and the importance of the mission, vision and values.</td>
<td>• Teamwork  &lt;br&gt; • Creativity  &lt;br&gt; • Effective communication  &lt;br&gt; • Problem resolution  &lt;br&gt; • Service orientation  &lt;br&gt; • Innovation</td>
</tr>
<tr>
<td>Socioeconomic Environment of Mexico</td>
<td>It argues the social, economic and political conditions of Mexico, in the national and international context, linking its personal and social context.</td>
<td>Research, relating the elements of a market study and segmentation variables with the contents of the subject, applied in a real case the study of the external environment of the microenterprise “El Sazón de Renyy”</td>
<td>• Effective communication  &lt;br&gt; • Critical thinking  &lt;br&gt; • Innovation</td>
</tr>
<tr>
<td>Financial Calculations I</td>
<td>Solve financial problems, applying the procedures of compound interest, annuities and amortization in business and personal contexts.</td>
<td>Apply some of the methodologies of the amortization process that would allow them to choose efficient financing alternatives for the short, medium and long-term objectives of the company, seeking to benefit it and make it a profitable activity.</td>
<td>• Conflict resolution  &lt;br&gt; • Teamwork  &lt;br&gt; • Effective communication  &lt;br&gt; • Creativity  &lt;br&gt; • Time management</td>
</tr>
<tr>
<td>Accounting I</td>
<td>Prepares the financial statements based on the accounting entries and the trial balance</td>
<td>1.- Identification of the balance accounts that will make up the project  &lt;br&gt; 2.- It will identify costs and investments that the project will have  &lt;br&gt; 3.- Design budgeted financial statements</td>
<td>• Conflict resolution  &lt;br&gt; • Teamwork  &lt;br&gt; • Effective communication  &lt;br&gt; • Time management  &lt;br&gt; • Analytical and critical thinking.</td>
</tr>
<tr>
<td>Right</td>
<td>Demonstrate the dominance of the laws</td>
<td>Application of articles to specific situations</td>
<td>• Conflict resolution  &lt;br&gt; • Effective communication  &lt;br&gt; • Critical thinking  &lt;br&gt; • Innovation</td>
</tr>
<tr>
<td>Business ethics and social responsibility</td>
<td>Analyze the relationship of companies with ethics and social responsibility</td>
<td>Proposals where ethics and social responsibility are present in the students and the authorities</td>
<td>• Teamwork  &lt;br&gt; • Problem resolution  &lt;br&gt; • Creativity  &lt;br&gt; • Service orientation  &lt;br&gt; • Effective communication  &lt;br&gt; • Critical thinking  &lt;br&gt; • Innovation</td>
</tr>
</tbody>
</table>

Table 2. Description of the Classroom Project and its relationship with soft skills.

Evidence of the Classroom Project and its relationship with soft skills:
Figure 2. (Administration)

Market segmentation

<table>
<thead>
<tr>
<th>GEOGRAPHY</th>
<th>DEMOGRAPHICS</th>
<th>PSYCHOGRAPHIC</th>
<th>BEHAVIORAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>World region: North America</td>
<td>Age: 15-70 years</td>
<td>Social class: Lower-middle, working, middle class</td>
<td>Cultural norm: Brands: Quality, service, country</td>
</tr>
<tr>
<td>Country: Mexico</td>
<td>Gender: Male, female</td>
<td>Economic status: Successful, Entrepreneurs, workers</td>
<td>Consumer choices: Foreign</td>
</tr>
<tr>
<td>Cultural: Hispanic, indigenous</td>
<td>Ethnicity: Mexican</td>
<td>Personality: Sociable, Competitive</td>
<td>Attitudes towards the product: Enthusiastic</td>
</tr>
<tr>
<td>Climate: Semiarid</td>
<td>Education: High</td>
<td>Ethnography: Mexican</td>
<td>Alcohol etc.</td>
</tr>
</tbody>
</table>

Strategies focused on the 4P’s

- Product: What do I sell? What needs can I offer?
- Price: Strategy focused on product variety of quality
- Promotions: How do I make my product known?
- Place: What is the means of communication?

FINANCIAL CALCULATIONS

Credit of 30 thousand to 2.5 million pesos where the interest rates will be 10.5% per year, a low rate compared to the interest rates of other banks such as BANORTE, Ixe, BANCO, where the interest rate is around 29% per year. This makes it the most viable option so that “El sabor de Renny” can continue growing.

FINANCIAL CALCULATIONS

The “Franchise” program is a viable option for the company, this is because it has the support and experience of a franchising company.

For the program you can contact the Franchise Directorate of the General Directorate of Business Development and Business Opportunities.

Figure 3. (Socioeconomic Environment of Mexico)

Figure 4. (Financial Calculations I)

FINANCIAL CALCULATIONS

Under the approach described above, artistic and cultural activities mean processes and practices that are symbols for free expression. In addition to the above, it is essential to consider the relevance that article 12 of the General Education Law (LEG) gives to the arts as a factor of well-being. In this regard, it is specified: “Promote a continuous dialogue between the humanities, the arts, science, technology and innovation as factors of well-being and social transformation.”

Later in article 18, in section VI, it indicates that to achieve “comprehensive orientation in the training of Mexicans and Mexicans within the National Educational System, it will consider socio-emotional skills, such as the development of imagination and creativity of content and shape; respect for others; collaboration and teamwork; communication and informed learning; productivity, capacity for initiative, resilience, responsibility; networking and empathy; management and organization.

The importance given to creativity and imagination as substantial elements of comprehensive education leads us to consider art as a strategic component that helps generate school and community scenarios that favor the development of this policy. Having said the above, it follows that to generate these scenarios, greater security, protection and trust are required within the family and school environment.
The results of this research allow us to know the importance of the development of soft skills in management students, as a strategy in the teaching-learning process within the IPN.

CONCLUSIONS

In conclusion, soft skills are important in the personal and professional development of students. It is an area that has not been given the importance it has, because education focuses on hard skills, which are measurable, which is why these have been relegated to the background, in part, due to ignorance of them; With the project that was carried out, it was intended to demonstrate that the development of these skills such as: leadership, teamwork, effective communication, creativity, to name a few, helped achieve the Classroom project called “El Sazon de Renyy” fulfilled the objective set out in this work “to help a microenterprise” through the development and design of strategies in the areas of administration, marketing, finance, production and sustainability, based on its characteristics and needs in order to use the information collected for the development of their activity The students were able to see first-hand the importance of this type of skills in order to reach a desired goal and conclude the initial objective of their project.

LIMITATIONS

Once the work was completed, one of the first limitations we had was remote work because a work team was in Mexico City at CECyT 14, the other part was in Pachuca, Hidalgo, and the business was in the town of Matilde. (Pachuca) this causes communication problems that were solved through online meetings using the zoom tool and by telephone and in some cases they even went to the business physically to talk with the owners of the microenterprise, all of this generated a communication problem. considerable logistics, bringing to the fore the soft skills of the leaders of each team as well as time management and creativity to solve the problems that arose through the project, it is worth highlighting that apart from the aforementioned skills, teamwork as well as. Effective communication took a leading role in this research because the students managed to coordinate all their efforts and saw it crowned with a real and, above all, viable project in a micro company, giving the added value that what they studied in school was applied in a new way. reliably in a real case helping to improve a business and providing growth opportunities.

RECOMMENDATIONS

Regarding soft skills, it is advisable to make known the successes of this type of work in students from lower semesters so that they can measure the importance of soft skills and such as conflict resolution, teamwork, effective communication, creativity They are of vital importance to be able to solve any problem both academically, professionally and personally.
REFERENCES

Avalos, A. (2017). De la Etnografía o cómo lograr que la escuela te sorprenda hasta quitarte el aliento. Herramientas metodológicas de la investigación construcciones para la práctica de la gestión escolar en la formación inicial de la educación básica. México


