

Importance of soft skills training from an early age

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ABSTRACT - The authors analyze the fulfillment of the objective of the research was to develop a strategy for the training of soft skills from an early age. Participant observation in the exploratory phase, the survey in the diagnostic stage, the DELPHI method, the quasi experiment to validate the results obtained and the IADOV method to check user satisfaction: methods were used. The need to strengthen the training of soft skills from an early age and its importance for the future development of children in higher levels of education which is vital for success in their future work activity was found. The center line of research was based on deployed integrate, in a single comprehensive educational strategy, formal learning with informal learning, supported flipped classroom techniques to get the results presented in this article.

Keywords: soft skills, invisible learning, strategy, flipped classroom

1. INTRODUCTION

Making informal learning work results presupposes not only using technology effectively, but also taking advantage of the influences exerted by various components of the environment in which indirectly induced knowledge is acquired, without prior planning but which impacts and is incorporated into the mode Of thinking and acting.

The following questions are raised in [1], in the introduction of his book "Invisible learning, a new ecology of education":

- ✓ How to learn in times of hyper connected globalization?
- ✓ What happens to learning when it moves from the stable structure of the twentieth century to liquid infrastructures of the 21st century?
- ✓ What role do the school and the university play when it can be learned in every context and moment?
- ✓ Give formality to invisible learning or make formal learning invisible?

The search for a correct answer to this question focused on the possible advantages and disadvantages of invisible learning recognized by the specialized literature and which are synthesized in the following:

Advantage:

- ✓ As the family is the main social group in which this type of learning is developed, it can be done in an oriented way in the form of a task directed towards a specific objective.
- ✓ It has broad forms and means of presentation and influences several aspects and characters simultaneously.
- ✓ Does not require special conditions to exert influence on learning.

- ✓ The socialization of knowledge is stimulated.
- ✓ It enhances the interest for the management of information and knowledge.

Disadvantages:

- ✓ It can influence negatively if a control is not established on the message that emits
- ✓ It cannot be assessed by the traditional means used in the evaluation of knowledge. New forms of evaluation are needed.
- ✓ Not all influencers receive the message with equal intention so their interpretation can be disseminated with false considerations
- ✓ False belief that technological development is the cause of these disadvantages, so they try to limit the use of technology in school settings

Taking into account the above, the authors evaluated, in the "Liceo Panamericano de Guayaquil" school center, the objective reality about the possible elaboration and application of a strategy that integrates the advantages of invisible learning in order to establish new ways of conceiving the use of the educational potential of the environment in which learning and training are developed. The following characteristics were taken into account:

- ✓ Ease of communication and relationship with the group.
- ✓ Level of information capture and assimilation.
- ✓ Demonstrated autonomy in the way of acting before a daily situation.

This study highlights the limitations of school institutions to assimilate to a new ecology of education that produces a positive transformative effect on student learning. In [2] it is emphasized that learning is not limited to the school or the classroom, but that one learns in many places, at anytime and anywhere. When you have internet in your pocket you can learn constantly, or at least, the opportunity to learn within our reach all the time. In [3] it is argued that people learn informally most of what we need to do our tasks.

Soft skills, also called soft skills, are the skills a person has with whom they interact with their peers in both a work environment and outside. These include: attitude, communicational skills, time management, critical thinking, and a host of other

behaviors that are not always related to what is traditionally called intelligence.

Soft skills have become very important in the 21st century. The authors' interest in this type of competences arises mainly from the need to train the person in cross-cutting labor issues, as well as to offer specific technical training according to the pensum of an educational institution. A study of authors that investigate the subject [4], [5], [6] allowed to arrive at own criteria on the necessity and the possibility of having a strategy to introduce the invisible learning, to form soft competences in the centers of education primary.

This study aims to develop a strategy to use invisible learning in primary education, taking as a case study the Pan American Lyceum of the city of Guayaquil, to enhance teamwork, ICT management and creativity

2. Methodology

During the initial phase, for the design of the research, deep interview, the survey and the documentary analysis were used. To identify the competencies to work in the first stage of the research, surveys were applied to employers, teachers and students' families. In the case of employers, they were asked to assign a value between 1 and 5 according to the importance they attributed to the competencies included in a questionnaire previously prepared by the researchers, based on the documentary analysis, interviews and according to experience Practice. Table 1 shows a summary of the results obtained.

Table 1: Employers' weight in soft skills

Competence	1	2	3	4	5
Ethics				1	19
Team work					20
Communication.			1		19
Flexibility.			2	2	16
Collaborative spirit					20
Domain of foreign languages			5	4	11
ICT management					20
Personal security			1	2	17
Ability to relate		1			19
Information and knowledge management				2	18
Creativity					20

In the parent survey they were asked to express their views on the preferred place of acquiring soft skills. Those that scored the highest score in the managerial survey and in interviews were selected. The results are shown in Table 2. As can be seen, relatives consider that to a greater extent these competences are acquired in the family and / or social environment.

Table 2: Family opinion on the preferred place to acquire soft skills

Competence	% Acquired in school	% acquired in the family and / or social environment
Ethics	25	75
Teamwork	40	60
Communication.	34,8	65,2
Flexibility.	38	62
Collaborative spirit	43	57
Domain of foreign languages	23,8	76,2
ICT management	28,5	71,5
Personal security	31	69
Ability to relate	40	60
Information and knowledge management	39	61
Creativity	50	50

The results presented in Table 3 are an alert to the need to strengthen soft skills, through concrete actions involving teachers, managers, support staff, families and the community in raising the status of the training of these competencies, Considered transverse or soft, term used in this article.

This same instrument is applied in a quasi-experiment, without control group, as part of the validation methods used in the research. In other words, all students will participate in a pretest and posttest evaluation.

Table 3. Weight given by teachers to soft skills in the center of study

Competence	1	2	3	4	5
Ethics			10	15	
Teamwork	5	20			
Communication.		12	10	3	
Flexibility.		14	9	2	
Collaborative spirit		15	8	2	
Domain of foreign languages			20	5	
ICT management			20	5	
Personal security			19	8	
Ability to relate		21	4		
Information and knowledge management		20	2	3	
Creativity		2	18	5	

Interviews were also conducted with managers and teachers. Based on these results and the documentary analysis carried out, the three soft competences that were given greater attention to their development in the Pan American Liceo, students in Guayaquil were selected: teamwork, ICT management and communication.

Subsequently, a diagnosis was made of the situation presented by the students, in the center of study, in relation to the soft skills identified. For this purpose, interviews were carried out, scaling techniques were used to various specialists with experience in the development of basic education, experienced teachers, executives, professionals and technicians related to the variables under study. Because the strategy presented is aimed at the training of skills that are beginning to form from basic education and will have their manifestation in society, employers in the city of Guayaquil were included in the diagnostic study to know their Opinions about the way they want their future employees to behave.

To validate the results, the following methods were used:

The DEPHI method to evaluate the validity of the proposed strategy

- ✓ A quasi-experiment to examine the progress made in the acquisition of competences by the students with the introduction of the strategy. A quasi experiment was applied

without control group, performing pre and post test O1 X O2. All school enrollment in the first and second grade is taken as a sample, before and on two subsequent occasions as the strategy was introduced.

- ✓ The IADOD method to measure the level of satisfaction of users with the strategy developed for the use of invisible learning in the formation of soft skills in primary education. Knowledge of the user's satisfaction status is very useful for decision-making, proposal adjustments and to measure their degree of acceptance.

2. RESULTS

2.1 Strategy proposal

The main result obtained is a strategy aimed at using invisible learning in primary education to favor the formation of soft skills, which consists of:

- a) Develop initial diagnosis. At the beginning of each school year the teacher must make an initial diagnosis with all the students of the group in relation to the state in which each competition is located, emphasizing in the domain of soft skills, including teamwork, mastery of ICT And the ability of students to communicate.
- b) Learn in teams. In the classes plans will incorporate activities that facilitate the combination of the contents of classes with aspect learned in the family or social environment. It is proposed to form groups of 4 students that weekly propose and analyze aspects learned during the previous week: Each group explains one day of the week the most relevant of the learned and its meaning. Here the group disciplines of the intelligent organizations are integrated: Personal learning, shared vision and systemic thinking
- c) Develop brain storms. Twice a week, teachers will carry out an activity where the children will express their opinion about a specific situation, making all the members of the group offer at least an idea about the subject being analyzed.
- d) Create knowledge maps. (Mental maps) that help to know the structured guidelines of

relation and transmission of universal knowledge. These maps are created by the teacher with the participation of the students and with a suitable software is adding concepts that are related until completing the map. In them they introduce elements of the soft skills that are being treated, proving above all the creativity of the students.

- e) Create a repository of good practices. Storing educational resources, good practices, the experiences narrated by children and other elements of the trajectory of a school cycle, will be an important way of organizational learning, that to be able to be improved periodically constitutes a bulwark of the knowledge of the educational entity which will facilitate the training of skills from these early ages.
- f) To select the best narratives of the students in the acquisition of transversal competences in their interaction with the environment. Disclose them using the right technology. To store these good practices of the classroom, which will be part of the living memory of the educational institution.
- g) Implement a co-evaluation system. This is achieved by getting students to learn to value the behavior of their peers, during the academic activity developed. Achieving this competence in students from an early age is very important for the whole life of this person.
- h) Incorporate the concepts of the inverted classroom. In the inverted classroom is a procedure that is based on inverting or flipping the traditional class, so that students identify disciplinary content using technological supports outside the classroom so that the teacher can allocate that time to other activities of participation and collaboration during the class [7].
- i) Integrate technology in an orderly and planned manner. Introducing the technology involves also attending to the didactic and psycho-pedagogical elements. It is important to correctly select this technology to avoid problems of availability, performance or incompatibilities with the educational objectives of the level of education where it is applied, as stated in the thesis defended by

[8] when studying how to use digital tablets in Basic education in Guayaquil. The introduction of ICT in the teaching-learning process should be seen as a tool closely linked to the didactic system of the subject.

- j) Active collaboration using Wikipedia. In a study published in the journal RIED in the year 2013 the authors conclude that the use of Wikipedia could help in two transcendent aspects of soft skills formation from early ages: creative thinking and the formulation of ideas in written form.
- k) Manage information and knowledge. Developing skills for the management of information and knowledge is fundamental for success in professional life, hence the importance of carrying out activities for this purpose
- l) The management of knowledge is now a necessity in all organizations where converting knowledge into a productive resource is what distinguishes one organization from another and where success lies in the good management of intangible resources of organizations, especially the Knowledge [10].
- m) Evaluate the formation of the soft competences achieved. At the end of each period will be assessed the soft skills achieved, which were selected according to the diagnosis made and the elements defined in the research

The aim is to make the school look like the environment and to achieve an integration between informal learning and formal learning, to acquire from the early ages the formation of transversal competences or soft skills that are part of the research that originates this article. The school that is taken as reference was studied in depth to guarantee the objectivity of the proposal.

3. RESULTS OF VALIDATION METHODS USED

a) **Delphi method:** One of the methods used to validate the results of the research was the Delphi method, whose use is very common in the field of educational research [11], [12]. This resulted in a

high level of consensus among the experts consulted on the importance and feasibility of the proposed strategy.

The validation process has two stages: an initial stage of selection of experts, and a second stage, in which experts evaluate the elements under investigation or proposals. For the selection of experts, the self-assessment of the competition criterion was applied using the formula:

$$K = \frac{1}{2}(K_c + K_a)$$

Where K_c is the coefficient of knowledge or information that the person has about the problem (based on their self-assessment); Its values are on a scale of 0 to 10 that for the calculation is multiplied by 0.1: zero indicates that the person has absolutely no knowledge of the problem, while the 10 expresses full knowledge.

Se seleccionaron 20 profesionales, considerados como expertos. Se calculó el coeficiente de competencia promedio de los expertos consultados que fue de 0,8 el que se corresponde con un nivel de competencia alto ($K \Rightarrow 0,8$), por lo cual también se tuvieron en cuenta a los expertos consultados con nivel de competencia medio ($0,5 < K < 0,8$).

The results of the application of the Delphi method confirmed the validity of the strategy as an important contribution to the training of soft skills from early ages in children in the first two cycles of basic education, as well as the feasibility of its implementation. In total, 86% of the selected experts expressed the view that the strategy was very well designed and that the tasks designed contributed to its introduction. Among the elements evaluated favorably by the experts are:

- The importance of collaborative work and its role in the formation of values
- Improvement in the level of student concentration

Iadov technique: Several researchers have used this technique to validate how users are satisfied with a given proposal [13], [14], [15], [11]. In this case the group satisfaction index was 0.9, which means a clear satisfaction with the proposed strategy.

Quasi experiment: Its objective is to examine the progress made in the acquisition of competences by the students with the introduction of the strategy. A quasi experiment was applied without control group, performing pre and post test O1 X O2. All school enrollment in the first and second grades is taken as a sample, before and on two subsequent occasions as the strategy was introduced. The main results obtained are shown in the following radar chart.

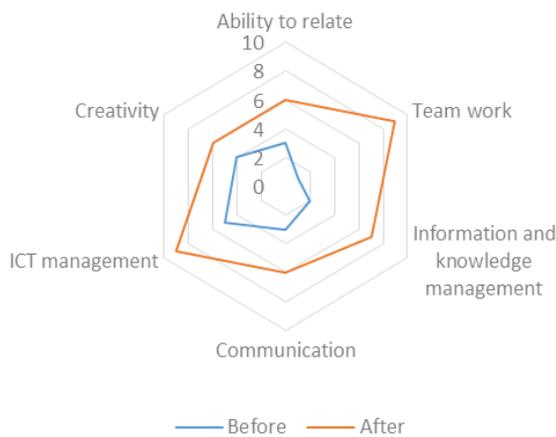


Fig - 1: Main results of the application of the quasi-experiment

In-depth interviews with teachers: In this case, the teachers' opinions on the level of competencies identified before and after the implementation of the strategy were evaluated and the results were very satisfactory.

Table 4: Results of the interview in depth after the strategy was applied

Competence	% High + very high rating	Deep interview
Collaborative spirit	100	Very satisfactory
Communication	94,5	Very satisfactory
Domain of foreign languages	92,0	Satisfactory
Personal security	89	Satisfactory
Ethics	88,0	Satisfactory
Domain of the TIC	96,9	Very Satisfactory
Collaborative spirit	98	Very Satisfactory
Communication	96,3	Satisfactory

Domain of foreign languages	100	Very satisfactory
Personal security	96,1	Satisfactory
Ability to work in a team	96,9	Very Satisfactory
Ability to relate	98	Very Satisfactory
Creativity	96,3	Satisfactory
Information and knowledge management	100	Very satisfactory
Ability to work in a team	96,1	Satisfactory

The results of the in-depth interview, whose data are presented in Table IV, correspond to the results of the quasi-experiment, which constitutes a confirmation of the validity of the applied strategy.

It was evidenced that the way of learning at the present stage is different from the past and that the theories most used in pedagogical strategies do not sufficiently explain how the learning process occurs, which has resulted in the emergence of connectivism whose principles fit in a more complete way to the learning of today, while recognizing the great contributions that the pedagogic sciences have offered to these processes. The following aspects can be highlighted:

- ✓ Studies show that soft-spoken skills are a high priority for contemporary employers.
- ✓ It is important to have a strategy that supports and encourages learners to develop their own ways of learning, enabling them to become effective and effective informal learners.
- ✓ It is becoming increasingly clear that these competences need to be developed at all levels of education and particularly in primary education.

4. CONCLUSIONS

• In order to adopt invisible learning, there is a need for flexibility and a series of transformations in the educational teaching process, since a change in tools, pedagogical conceptions and educational practices is required in order to better prepare students.

• Informal education and its invisible learning, represents an educational dimension whose

foundations, principles, and psycho-pedagogical considerations have been little investigated, so it is a field that has a wide range of studies to be carried out. Determining the positive and negative influences and creating strategies and models of action to achieve a better incorporation and development of soft skills is a necessity for citizen training.

- The studies carried out show two results of high value for the educational sciences:

- ✓ The so-called soft skills are a high priority for the employers of the city of Guayaquil, which corresponds to the data obtained in the bibliography consulted, and other research developed in Ecuador and other countries.
- ✓ The parents' perception that a high percentage of these skills are acquired in the social and / or family environment and not in the school itself requires special attention.

- It is important to have a strategy that supports and encourages learners to develop their own ways of learning, making them effective and efficient informal learners of a school embedded in a global knowledge network and thereby achieving greater Ability to act in today's world.

REFERENCES

- [1] Cobo, C., Moravec, J. Aprendizaje Invisible. Hacia una nueva ecología de la educación. Colección Transmedia XXI. Laboratori de Mitjans Interactius / Publicacions Edicions de la Universitat de Barcelona. (2011). España
- [2] Burbules, N. El aprendizaje ubicuo y el futuro de la enseñanza. Encounters/Encuentros/Rencontres on Education Vol 13, 2012, 3-14.
- [3] Martínez, A. A. Impacto de las nuevas tecnologías como material didáctico en la enseñanza de la química general en la formación del tecnólogo de la salud. Revista Cubana de Tecnología de la Salud; 5(3), (2014) ISSN: 2218-6719 RNPS 2252.
- [4] Acosta de Valera, M. y Páez, H. Estrategias didácticas para educar en Valores con Intencionalidad. Revista Educación en Valores. Universidad de Carabobo. Julio - Diciembre (2007) Vol.2 N°8. Carabobo, Venezuela
- [5] Largent, D. L. Flipping a large CS0 course: An experience report about exploring the use of video, clickers and active learning. Journal of Computing Sciences in Colleges, 29, 84-91. (2013).
- [6] Patiño, M. et al. Estrategias mediadas por la tecnología que contribuyen al desarrollo y socialización del conocimiento en el área de matemática de nivel básico. Revista del Instituto de Estudios en Educación, Universidad del Norte. (2013). ISSN 2145-9444.
- [7] Raad, A. María. Invirtiendo la clase, Chile, Educarchile. (2015).
- [8] Ortega Maldonado, C. Uso de tabletas digitales en la enseñanza primaria, en el estado de Guayaquil. Tesis doctoral defendida en el tribunal de Ciencias de la Educación, La Habana, Cuba. (2014).
- [9] Alonso-García, M et al. A comparison between multi-proxy and historical data of drift-ice conditions on the East Greenland shelf. doi:10.1594/PANGAEA.831441. (2013)
- [10] Passailaigue, R. et al. Evaluation of the socialization of knowledge and collaboration in educational management. International Research Journal of Engineering and Technology (IRJET). Volume: 04 Issue: 3, Marzo. 2017. e-ISSN: 2395-0056
- [11] Cabero, J. y Barroso, J. "La utilización del juicio de experto para la evaluación de TIC: el coeficiente de competencia experta". Bordón, 65, 2,25-38. (2013).
- [12] Santana, F. Las políticas de evaluación de las universidades vistas por un grupo de expertos. En: Giró Miranda, J. (coord.) La escuela en el siglo XXI: la educación en un tiempo de cambio social acelerado Universidad de La Rioja. (2007).

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