



# Development of Intellectual Skills in the Teacher of the First Cycle of Primary Education

## Desarrollo de habilidades intelectuales en el docente del primer ciclo de enseñanza primaria

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### Abstract

The formation and development of the general intellectual abilities begin from the first years of the infant's life and constitute the foundations for the future formation of professional capacities and competences; however, adequate strategies are not always implemented in primary education that favor them, sometimes due to teacher preparation flaws. The present study has the purpose of characterizing the level of knowledge that educators have in the first cycle of primary education in the city of Machala on this subject. The methodological strategy responded to the quantitative-qualitative paradigm, systematized through the methods of scientific and statistical observation. The information collected through a survey of 40 randomly selected teachers is shown through of a table and figures descriptive. The findings allowed to conclude that there are shortcomings in teacher preparation that limit the formation and development of intellectual skills, as a result student have intellectual inadequacies.

**Key words:** Intellectual skills, first cycle, teacher training.

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## Resumen

La formación y desarrollo de las habilidades intelectuales generales se inician desde los primeros años de vida del infante y constituyen los cimientos para la futura formación de capacidades y competencias profesionales; sin embargo no siempre se implementan adecuadas estrategias en la enseñanza primaria que las favorezcan, en ocasiones por falencias en la preparación del maestro. El presente estudio tiene el propósito de caracterizar el nivel de conocimientos que poseen los educadores del primer ciclo de la educación primaria de la ciudad de Machala sobre este tema. La estrategia metodológica respondió al paradigma cuanti-cualitativo, sistematizada a través de los métodos de observación científica y estadístico. La información recopilada a través de una encuesta a 40 docentes seleccionados aleatoriamente se muestra a través de una tabla y figuras descriptivas. Los hallazgos permitieron concluir que existen falencias en la preparación del docente que limitan la formación y desarrollo de las habilidades intelectuales como consecuencia los alumnos presentan insuficiencias intelectuales.

**Palabras clave:** habilidades intelectuales, primer ciclo, formación docente.

## Introduction

Intellectual skills must be formed and developed from the early years of the infant, it is the responsibility of the school as a preparatory stage for the subsequent formation of skills and competencies necessary in civic and professional life (Kholodnaya & Gelfman, 2016), in order to achieve personalities capable of directing processes and integrating knowledge, skills and values (Girvan, Conneely & Tangney, 2016).

In this endeavor, the paths are multiple: educational models and policies, use of technologies and means to support teaching, curriculum design, application of didactic and methodological strategies, among others; each of them offers certain possibilities and represents specific challenges. This diversity suggests that there is no single way to achieve this purpose, hence the importance of developing innovative efforts and experiences.

In this sense, in the Ecuadorian educational field, strategies have been drawn to contribute to the satisfaction of this necessary construction of the student's personality; however, even

these actions are not enough; an integrative view of this phenomenon is essential, which allows advising solutions from the teacher training processes.

In this regard, Chi, Liu & Bai (2017) and Rivera, Pernas & Nogueira (2017), coincide in pointing out that generally in classrooms teachers give greater importance to the teaching of knowledge than to the rest of the components of the teaching process-learning, which is motivated by a limited preparation of the teacher and is evidenced in the inadequacies of the students in the domain of general intellectual abilities and mental capacities. While it is true that these skills are closely linked to the assimilation of knowledge, since, in this process they are formed, developed and perfected, it is necessary to comply with methodologies based on logically structured procedures for their proper flourishing.

Several authors have referred to general intellectual abilities, among which they are cited for their interest in this study to Bacallao et al. (2007), Bean et al. (2018), Black et al. (2018), Care, Scoular & Griffin (2016), Espinoza (2017), Kholodnaya & Gelfman (2016), Ramón, Ortega & Espinoza (2020), and Villalobos et al. (2018); authors what in their research not only they value the training and development of these skills in schoolchildren, they also coincide in pointing out the necessary teacher training from an interdisciplinary perspective that allows the design and application of comprehensive strategies that go beyond the limits of skills necessary for each subject and establish mutual collaboration actions.

In order to characterize this situation in the teaching of the first cycle of primary schools in the city of Machala, this study is carried out.

### **Brief epistemological approach around the intellectual abilities of the first cycle of primary education**

There are various definitions of skill, including the one assumed by Kholodnaya & Gelfman (2016), who consider that it is the ability acquired by man that allows the rational use of their knowledge and habits in the process of theoretical and practical activity. Criterion shared with Bacallao et al. (2007), who consider that these are assimilated in the process of interaction of the subject with the object, are the content of the actions that the subject performs, made up of a group of operations that have a defined objective.

For their part, Ramón et al. (2020) assume the skill as the set of psychic and practical actions that the subject must carry out and is based on the activity; definition that agrees with the proposed by Álvarez de Zayas (1999), who states that it is the system of actions and operations that the individual dominates in the pursuit of an objective. Brito, Castillo & Domenech (2000), add that: “the skill is that particular executive psychological formation constituted by the system of dominated operations that guarantee its execution under conscious control” (p. 1); in this

definition, the conscious state of the subject is significantly particularized in the execution of the pertinent actions in the achievement of the skill.

Regarding the intellectual skills Amorós (2009), points out that they are those that are needed in the performance of mental activities. Kim & Lundberg (2016) define them as a set of capabilities that improve the learning of new knowledge, which are complemented with manual, aesthetic and other inherent human skills, which at the same time favor the acquisition of new ones.

Synthesizing the previous contributions, is assumed as a concept of intellectual skills those that intervene in the execution of mental activities for the transformation of knowledge in a conscious way, in the achievement of the objectives outlined in the learning process and that in turn favor the acquisition of new skills; from a didactic perspective, they characterize the actions that the student takes to make up for the lack of knowledge in the face of an unknown situation, and which add to the wealth of knowledge, contributing to the intellectual formation of the personality.

Much has been debated about the systematization of actions for the formation of a skill, in this sense, Guamán, Espinoza & Serrano (2007), consider that for this it is necessary to consider the generalizing and extra-polarizing effect; in this process it is necessary for students to put into practice the necessary operations that promote their role: active, critical, creative and participatory, always from the perspective of the individualities of each one (Bean et al., 2018). In this way it is contributing to the integral development of the student, which is the basic purpose of education; in this regard, Coll (2001), states: "the ultimate purpose of pedagogical intervention is to help the student develop the abilities to carry out meaningful learning by himself, and to learn to learn" (p. 23).

According to Black et al. (2018), this represents that through an action-reflection-action process is that subjects, together with others, carry out the development of their intellectual abilities and the construction of knowledge, in this way singular importance is given to collective activity based on the postulates of the Vigoskian theory of sociocultural learning.

For Espinoza (2017), in this process, the teacher not only teaches and directs, but also accompanies and stimulates the student's process of analysis and reflection, for which they must be prepared and possess a special sensitivity, an aspect that is sometimes not present when considering building those skills.

Another aspect of great importance to take into account and for which teachers must be prepared is the control stage, which aims to know the level of development reached by the student; as well as the self-evaluation that allows them to assess their results.

## Intellectual skills to be formed in the first cycle of primary education

The first cycle of primary education in Ecuador has among its objectives the formation and development of the following general intellectual skills: observe, describe, compare, exemplify and use models.

Observation plays a priority role in the intellectual development of the individual, but not just any observation, the one of interest is that the student performs with a well-defined purpose, and is aware of the importance of the actions that it executes.

Direct observation of the objects and phenomena of the surrounding environment is of great importance for the child, because it puts him/her in direct contact with the world that surrounds him/her, broadens his/her horizon and develops his/her intellectual capacities; but the schoolchild must be taught to observe, for which the teacher must know their particularities, the school's starting level to motivate him/her and arouse his/her interest in observation about this reality, the teacher must teach him/her to learn to summarize the knowledge obtained about the object and value the actions and procedures used (Kim & Lundberg, 2016; Kholodnaya & Gelfman, 2016).

The development of the skill to describe must start from preschool education, it is based on the verbalization of the perception of the objects or phenomena observed, which contributes to the development of language. Later and gradually the educator has to make the student begin to describe what he/she remembers, without the need for direct observation of the object.

This skill, together with observation, is essential for the acquisition of knowledge about nature and society, at the same time that it allows the teacher to control the actions carried out by the student and that are not totally evident to the teacher.

The skill to compare is based on the contrast of the characteristics of two or more objects to determine their similarities and differences (Adonina et al., 2018); in the process of training this skill, it is recommended that the teacher keep in mind that the student must start by establishing the differences, and only when he/she has managed to perfect this first moment will he proceed to the determination of the common characteristics according to Guamán, Espinoza & Serrano (2017). In order to be able to compare, it is evident that the skill of observation must be previously developed. The comparison of objects, facts and situations is carried out on the basis of processes of analysis, synthesis, abstraction and generalization.

Exemplification, like comparison, is a skill that corresponds to the application seen as a level of assimilation, so its training is more complex and requires greater dedication for part of the teacher (Espinoza & Campuzano, 2019), a detailed orientation, a broader execution and a precise control of the operations that the school performs, which is consistent with the

approaches carried out by Agulló, Meroño and Bueno (2017). Therefore, through this skill the student links knowledge with his/her life, thus making learning more affordable.

The skill to use models begins when intellectual actions arise in the child, carried out mentally, which are supported by material means, graphics, simple instruments and the representation of the real object. For Espinoza and Ricaldi (2019), the use of models facilitates the acquisition of knowledge, serves as a basis for controlling work and allows the school to assess the quality of their actions, determine their shortcomings and organize work for correction.

It is important the domain by the teacher of the degree of hierarchy of the skills to be achieved in the students, since their logical order should not be violated; as well as the interrelation between them, which allows the harmonious promotion of them.

## Requirements for the formation of general intellectual skills

The requirements for the formation of general intellectual skills are expressed in the objectives of the degree and cycle. That is why it is necessary when evaluating the quality of education from the results achieved in the training of the educated.

Among these requirements proposed by Hernández (2000) are: guarantee the student's mastery of the content necessary for the development of the actions; develop in the student an adequate level of development of the actions that have a close relationship of subordination with the skill to develop; accurate and clear target orientation; formulation of the objective of the activity in the form of action; determination of the operational system; not only verbal guidance, it must have models and teaching aids; grading of the level of difficulties that the student will face; attention to the psychological peculiarities, age and level of independence of the child; make the student aware of the actions she executes; organization of the process collectively; have guides that facilitate the work of schoolchildren, at the same time they can be used for self-control; establish emotional empathy with students to achieve adequate communication between teacher and students; timely use of both re-productive and productive methods; stimulation by the desire to improve, to perfect the work and obtain good results; structuring the actions and operations in such a way that they are sufficient, guaranteeing the systematization of the actions and consequently their consolidation; guarantee in teaching activities that the student is the subject of their own learning; pay attention to the process of memorizing the actions, as well as their improvement; control of the activity carried out by the schoolchild to identify and solve possible deficiencies and prevent any deficiencies that may arise; control and evaluation of the results directed towards all the constitutive elements of the objective (knowledge, skills, evaluative actions and the conditions in which the assimilation process took place); motivate students towards self-control, demonstrating its importance for obtaining higher quality results in their tasks, in their learning; demonstration to the students how

to operate with the elaborated model, from the comparison of the work of the schoolchildren with the requirements that appear in it; collective analysis of the students' work.

In addition, to control the mastery of skills, the teacher must take into account the indicators that can guide their analysis: his correct compliance, the conscious nature of the execution of the action, the level of independence and the stability of the actions.

## Materials and Methods

In the systematization of the methodological strategy, the quantitative-qualitative paradigm and the use of research methods: scientific and statistical observation were assumed. Through direct scientific observation of the teaching-learning process, the regularities of the teacher's work were determined according to the formation and development of these skills; the statistical method facilitated the planning, collection, processing and analysis of the information collected through the application of a survey (questionnaire) carried out on 140 randomly selected teachers from the population of educators in the first cycle of primary schools of the city of Machala. The results were summarized and presented through of a table and figures of the Descriptive Statistics.

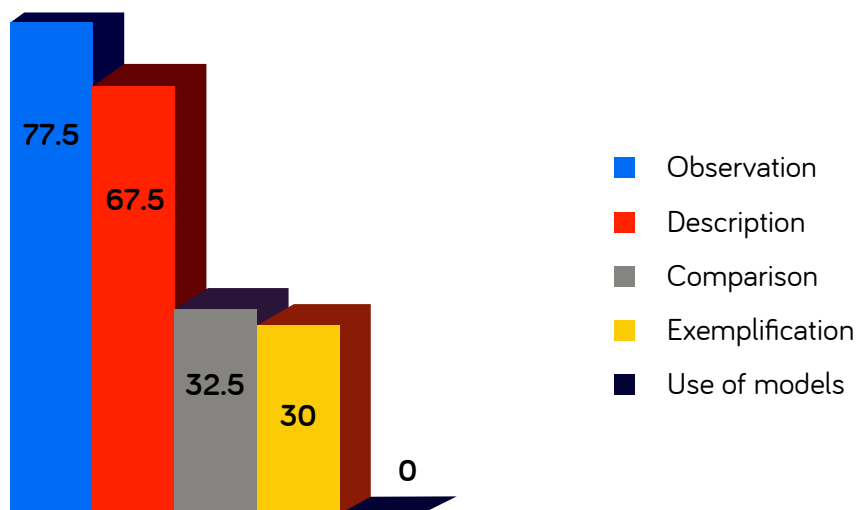
For the preparation of the survey, the methodological guideline validated by Hernández (2000), this was prepared with the objective of determining the degree of preparation of teachers to assume the development of general intellectual skills and how they develop actions to achieve this purpose.

Once the questionnaire was selected, it was submitted to the criteria of experts for its validation of the context. The group of experts was made up of seven specialists on the subject, three pedagogues, three psychologists and an educational psychologist, all with scientific category of doctors in their area of knowledge; likewise, all of them have main teaching categories (main holder, associate holder or assistant). The reliability of the instrument was determined using the Cronbach's alpha coefficient test, at a significance level of 5 %.

## Results

The results obtained through the application of the survey to the 140 selected teachers of the first cycle of primary education are shown in the following.

Figure 1 shows the intellectual skills that must be formed in the 1<sup>st</sup> cycle recognized and mentioned by teachers.



**Figure 1.** Intellectual skills to be formed in the first cycle of primary education, Machala. Academic Period 2017-2018. Source: author's own elaboration.

77.5 % (108) of the teachers surveyed recognized observation as one of the general intellectual skills to be developed in students in the first cycle of primary education; 67.5 % (94) mention the description, 32.5 % (13) the comparison and 35 % (49) the exemplification; the least identified skill was exemplification with only 30 % (42). The use of models was not recognized by any of the teachers.

The information obtained on the way in which the teacher organizes the teaching work to achieve the development of these skills in their students and the requirements to be taken into account are summarized in table 1.

**Table 1.** Requirements for the formation of general intellectual skills

Requirement	Amount	%
Mastery by the student of the content necessary for the development of the actions	140	100
Adequate level of development of actions that are closely subordinate to the ability to be developed	105	75
Accurate and clear target orientation	70	50
Formulation of the objective of the activity in the form of action	39	27.5
Determination of the operational system	42	30
Not only verbal guidance, it must have models and teaching aids	39	27.5



Requirement	Amount	%
Grading of the level of difficulties that the student will face	18	12.5
Attention to the psychological peculiarities, age and level of independence of the child	18	12.5
The student must be aware of the actions he performs	74	52.5
Organization of the process collectively	88	62.5
Having guides that facilitate the work of schoolchildren, at the same time it serves for self-control	35	25
Establish emotional empathy with students to achieve adequate communication between teacher and students	0	0
Timely use of both reproductive and productive methods	7	5
Stimulation by the desire to improve, to perfect the work and obtain good results	28	20
Structuring of the actions and operations in such a way that they are sufficient, guaranteeing the systematization of the actions and consequently their consolidation	28	20
Guarantee in teaching activities that the student is the subject of their own learning.	42	30
Pay attention to the process of memorizing the actions, as well as their improvement	7	5
Control of the activity carried out by the school to identify and solve possible deficiencies and prevent any deficiencies that may arise	0	0
Control and evaluation of the results directed towards all the constitutive elements of the objective	0	0
Motivate students towards self-control, demonstrating its importance for obtaining higher quality results in their tasks, in their learning	53	37.5
Demonstration to students how to operate with the elaborated model.	0	0
Collective analysis of the students' work	122	87.5

Source: author's own elaboration.

It is significant that 100 % (140) of teachers consider that a requirement for the development of skills is mastery by the student of the content; 87.5 % (122) give importance to the collective analysis of the work carried out by the student in the pursuit of the development of skills; 75 % (105) consider that the level of development of actions subordinate to skill is of the utmost importance for their training and promotion; 62.5 % (88) consider that a requirement to bear in mind is the organization of the process collectively; 52.5 % (74) consider that the student should be aware of the actions that they carry out; 50 % (70) of the respondents gave the precise and clear orientation of the objective singular importance in the achievement of skills.

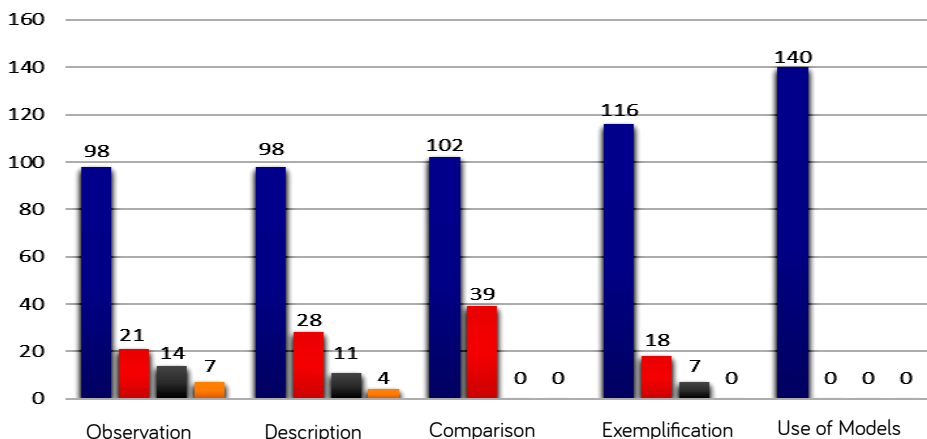
Motivating students towards self-control, demonstrating its relevance for obtaining higher quality results in their tasks, in their learning, is considered by 37.5 % (53) an essential requirement in the process of training the skills.

Among the requirements less recognized by teachers is the determination of the operational system and the design of teaching activities where the student is the subject of their own learning, which were mentioned by 30 % (42); similarly, not only verbal orientation, where models and teaching aids are available, was considered by 27.5 % (39) of the surveyed teachers. 25 % (35) value that having guides that facilitate the work of schoolchildren, at the same time they serve for self-control to be a requirement in the process of training skills. The graduation of the level of difficulties that the student will face and the attention to the psychological particularities, age and level of independence of the child was considered by 12.5 % (18).

Stimulating the desire to improve, to perfect the work and obtain good results was taken into account by only 20 % (28) of the teachers; as well as the structuring of the actions and operations in such a way that they are sufficient, thus guaranteeing the systematization and consolidation of the actions. Only 5 % (7) of educators take into consideration the timely use of both reproductive and productive methods and attention to memorizing actions, as well as their improvement.

None of the respondents took into consideration the emotional empathy of the teacher with the schoolchildren in order to achieve adequate communication, the control of the activity carried out by the schoolchild to identify and solve possible deficiencies and prevent any deficiencies that could arise, the demonstration to the students of how to operate with the elaborated model, and the control and evaluation of the results directed towards all the constitutive elements of the objective.

In inquiries about the actions necessary to develop the intellectual abilities in students, the following information was obtained, which is shown in figure 2.



**Figure 2.** Mastery of algorithms of actions for the formation and development of intellectual skills in the first cycle of primary education, Machala. Academic Period 2017-2018. Source: author's own elaboration.

It is observed that only 7 (5 %) of the teachers completely dominate the algorithm of actions to be executed to train and develop the observation; 14 (10 %) know the actions, but do not structure them logically; 21 (15 %) omit some actions and 98 (70 %) do not know the algorithm, which is made up of the following actions: know or determine the object, fact or phenomenon to observe and the objectives of the observation; analyze the object of observation; set the features or characteristics of the object according to the proposed objectives; summarize the information obtained from the stated purposes; assess the application of the actions.

Regarding the description, only 4 (2.5 %) completely dominate the algorithm of the actions to be carried out to train and develop the skill; the sequence of steps to follow is: initially identify the object being described, this will facilitate the process of organizing the description; analyze the object, fact or phenomenon that is described, determining the possible planes; organize the description (elaboration of the plan); determine the elements that compose it and the links that are established between them (at least the fundamental ones); present them through language (oral or written); control the quality of the description from the comparison of what is expressed with the object of the description.

Among the teachers surveyed, 11 (7.5 %) are aware of the actions, but they do not condemn them logically; 28 (20 %) omit some actions; 98 (70 %) teachers declare not knowing the algorithm.

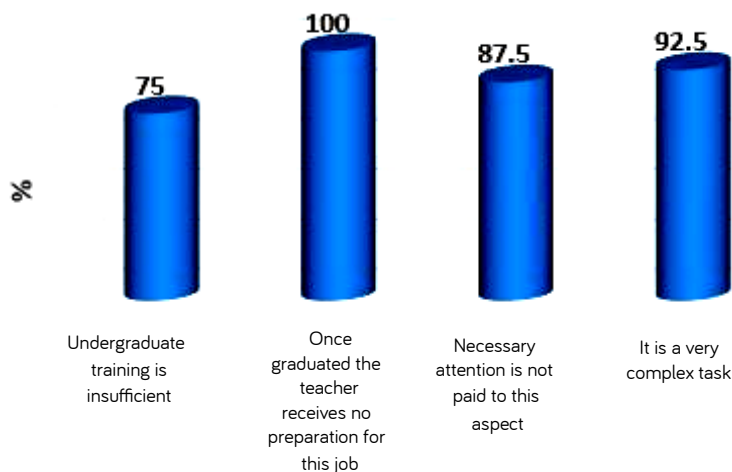
The sequence of actions to achieve the comparison is not known by any of the respondents; 102 (72.5 %) did not master the algorithm and 39 (27.5 %) skipped some steps.

Hernández (2000), points out that the development of this ability can be achieved if the following actions are taken into account: determine the objects of comparison; determine the lines of comparison; determine similarities and differences between objects for each comparison line; draw conclusions about each line; draw conclusions about each object; draw general conclusions.

The analysis of the information provided by figure 2 relative to the skill of exemplification shows that no teacher surveyed masters the algorithm of actions, 7 (5 %) despite knowing the actions do not know how to structure them logically; 18 (12.5 %) are unaware of some of the actions and 116 (82.5 %) are unaware of the algorithm. These steps are: determine the part of the content that you want to exemplify; select the essentials of the selected part; select, from the reality close to the child, the object, fact or phenomenon that carries the essential; make known the object, fact or phenomenon as a concretion of the reality expressed in the fact, concept or law, highlighting the essential content, which allows the quality control of the operations carried out.

All 140 (100 %) teachers do not know the algorithm to develop the use of models, the actions in question are: analysis of the selected model; determination of essential features; copy of the features that compose it (or elaboration of the new object on the basis of the essential features of the given model); comparison of the work done with the model; correction of the deficiencies detected in the copy (or the new elaborated object).

Regarding the causes that motivate the difficulties in the preparation of teachers, the information that is summarized in figure 3 was obtained.



**Figure 3.** Causes of inadequacies in teacher training of intellectual skills in the first cycle of primary education, Machala. Academic Period 2017-2018. Source: author's own elaboration.

Figure 3 shows that 100 % (140) of the respondents attribute their limitations to adequately develop intellectual skills in their students to insufficient spaces for improvement once they graduate; 92.5 % (132) consider that it is too complex a task that requires specialized training; 87.5 % (122) consider that the competent academic authorities and teachers do not pay the necessary attention to this aspect; leaving it to the considerations of each teacher in particular; 75 % (105) believe that undergraduate training is insufficient and does not delve into the requirements to be taken into account for the training of general intellectual skills that are expressed in the undergraduate and cycle objectives.

## Discussion

These results show fissures in the domain of the necessary knowledge of teachers for the formation of the intellectual skills to be achieved in the first cycle, which corresponds to the results of the inquiries made by Rivera, Pernas & Nogueira (2017), who found that the vast majority of teachers only master the specific skills of the programs of the subjects they teach, such as Language and Mathematics.

Various authors have ruled on the requirements of the process of training and development of general intellectual skills, including:

Achiong et al. (2016), consider that the actions and operations should be structured in such a way as to guarantee the student the performance of actions of the same type that are characterized by their individualization and an increasing level of complexity, although the content varies, which will allow the systematization of the shares and consequently their consolidation. This same author considers that an adequate structuring of actions contributes to the promotion of skills. Along the same lines of ideas, Chi et al. (2017) and Kohler (2013), state that the process of training and development of skills is complex and requires the integration of a well-organized system of actions.

The learning of skills through active methods is increasingly approaching the use of teaching techniques and resources in order to create collaborative spaces where social interactions play a determining role, based on the postulates of the Vigoskian theory of sociocultural learning (Adonina et al., 2018).

The findings of Kohler (2013), in their research, show that academic performance is significantly associated with the intellectual skills of students, which can only be achieved through didactic-methodological strategies that allow organizing teaching work based on compliance of necessary requirements that facilitate this process.

The teachers surveyed do not know the algorithm of actions to be executed in the formation of intellectual skills or do not comply with the steps of the logical sequence; for example, in the formation of the skill of description the elaboration of the plan, the establishment of the links between the elements that make up the object and the control of the quality of the description are frequently omitted. These results coincide with the findings of Bean et al. (2018). In this sense, Espinoza & Ricaldi (2019) in their studies concluded that the effectiveness in the formation of intellectual abilities is achieved through the correct structuring of the sequence of steps to follow so that the action becomes ability, a process that must be systematic, continuous and conscious.

Regarding the preparation of teachers to assume the process of training intellectual skills, scholars such as Agulló, Meroño & Bueno (2017), Espinoza (2017), Villalobos et al. (2018), have pronounced on the necessary and constant improvement of the teacher. These authors in one way or another have approached the problem and coincide with the findings of the present study by pointing out as causes of teacher insufficiencies those associated with undergraduate training and teacher improvement.

The teachers surveyed indicated as causes of their limited preparation: insufficient postgraduate training, since once they graduate they do not receive preparation for this work, it is a very complex task, the competent authorities do not pay the necessary attention and undergraduate training to this aspect is insufficient, in this order.

## Conclusions

The results of the inquiries made allow us to conclude that the process of development of general intellectual skills has the following shortcomings: there is no intention in the development of intellectual skills, it is limited to the abilities inherent to the subjects of the study curriculum; teachers do not master the sequence of logical steps for the formation and development of intellectual skills (observation, description, classification, exemplification and use of models); the preparation of the teachers of the first cycle of the primary schools of the city of Machala is insufficient to comply with the training and development of the intellectual skills that appear indicated for said cycle, as a consequence of the deficiency in the undergraduate training, which guarantee the successful performance of the graduate; postgraduate improvement in general does not include the topics related to the development of intellectual skills defined for the first cycle, so it does not contribute to complement the improvement of the aforementioned professionals in this important aspect.

As a consequence of these fissures, the level of development of general intellectual skills in students is insufficient.

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