Appropriation of significant learnings in second-grade students of Primary Education in the Mexican rural zone

Apropiación de aprendizajes significativos en alumnos de segundo grado de educación primaria en la zona rural mexicana

David Roberto Graciano Sánchez
Aníbal Zaldívar Colado
Jorge Lizárraga Reyes

ABSTRACT

This research aims to analyze the appropriation of significant learning in second-grade students of primary school in the Mexican rural area. It describes the context in which the students live to understand their motivations. Through the action-research method, four students' aspects were evaluated: writing competence, reading competence, mathematical thinking, and self-evaluation of their performance, taking into account the characteristics proposed by the curricular standards shown in the Basic Education Study Programs 2011 (in Mexico). The main results found that 76% of the students have consolidated conventional writing, while the remaining 24% still do not achieve it. 59% of students can self-correct their written products; 65% read as specified by the program, and 53% solve problems using numbers up to three digits. 65% of the children could perform a self-evaluation of their performance. In conclusion, it affirms that frequently, to stimulate the appropriation of significant learning, recreational activities are also needed. It recommends that teacher accompany students in breaks or even when they play, when the student demonstrates a change in attitude and puts into practice what they have learned in the classroom.

Keywords: significant learning, primary education, rural zone.

RESUMEN

Esta investigación tiene como objetivo analizar la apropiación del aprendizaje significativo en estudiantes de segundo grado de primaria en la zona rural mexicana. Se describe el contexto en el que viven los alumnos con la finalidad de comprender sus motivaciones. A través del método de investigación-acción se evaluaron cuatro aspectos de los estudiantes: competencia en escritura, competencia en lectura, pensamiento matemático y autoevaluación de su desempeño, teniendo en cuenta las características propuestas por los estándares curriculares mostrados en los Programas de Estudio de Educación Básica 2011 (en México). Los principales resultados obtenidos indican que el 76% de los estudiantes tiene escritura convencional consolidada, mientras que el 24% restante aún no logra alcanzar este nivel. El 59% de los estudiantes autocorrigen sus productos escritos. El 65% lee según lo especificado por el programa, y el 53% resuelve problemas usando números de hasta tres dígitos. El 65% de los niños podría realizar una autoevaluación de su desempeño. En conclusión, se afirma frecuentemente que para estimular la apropiación del aprendizaje significativo también se necesitan actividades recreativas. Se recomienda que el maestro acompañe a los estudiantes en el recreo o mientras juegan, cuando el estudiante demuestra un cambio de actitud y pone en práctica lo que ha aprendido en el aula.

Palabras clave: aprendizaje significativo, educación primaria, zona rural.

1

INTRODUCTION

Current education is going through a crisis. The students fail not just within the school, in life, too; this is because they do not have the tools needed for academic success and the skills necessary for daily living. It is required to think about what went wrong, so among teacher, students, and learning object interaction. Take appropriate actions to face the challenges of teachers. Shaping the premise that school training is accessible to all, as the Third Constitutional Article (Constitución de México, 1917) says: every individual has the right to receive a formation. The above has allowed most of society to have access to teaching. Thus, remote villages in rural or hilly areas have had the benefits of education, allowing their inhabitants to be in relative equality conditions to those who live in urban areas. Reality shows that rural schools are not like the city's schools, the characteristics of the campus, of the students, of the socio-economic and cultural situations, are different. For those as mentioned earlier, the expectations of students and parents about learning change radically.

A student of the rural environment will be immersed in a context usually dominated by agricultural and livestock activities. Therefore, the perspectives related to what they will dedicate to in adult life are limited to these activities. The above happens, especially in the case of men, women mostly have the idea of only getting married and doing housework, that is, housewife. Children have life projects closely related to their immediate reality. These expectations have repercussions for their achievements within the classroom work. The student mindset is *the knowledge I gain in the school; it will not do much good. I will work in agriculture. Why learn all the things the teacher tells us?*

David Roberto Graciano Sánchez. Profesor de Educación Básica de la Secretaría de Educación Pública, Nayarit, México. Es doctor en Educación por la Universidad del Pacífico Norte (México). Es miembro del Comité Científico de la *Revista de Investigación en Tecnologías de la Información*, editada en España. Cultiva la línea de investigación Tecnología educativa. Correo electrónico: drgsl.90@gmail.com. ID: https://orcid.org/0000-0002-5145-0170.

Aníbal Zaldívar Colado (autor de correspondencia). Profesor Investigador de tiempo completo Titular C en la Universidad Autónoma de Sinaloa, México. Miembro del Sistema Nacional de Investigadores y del Sistema Sinaloense de Investigadores y Tecnólogos. Cuenta con perfil deseable Prodep y funge como responsable del Cuerpo Académico Consolidado Tecnología Educativa I+D+i (UAS-CA-303). Es doctor en Educación, maestro en Informática, licenciado en Informática e Ingeniero Civil. Es evaluador de Conacyt, CIEES, Conaic, Prodep y diversas revistas internacionales indizadas. Cultiva las líneas de investigación Modelado matemático de problemas educativos y Tecnología educativa. Correo electrónico: azaldivar@uas.edu.mx. ID: https://orcid.org/0000-0002-6622-6630.

Jorge Lizárraga Reyes. Profesor Investigador de tiempo completo Titular C en la Universidad Autónoma de Sinaloa, México. Es doctor en Educación y miembro del Cuerpo Académico Consolidado Tecnología Educativa I+D+i (UAS-CA-303). Entre sus publicaciones recientes se encuentran el capítulo de libro "Percepción del docente universitario sobre redes sociales como recurso educativo" (2018) y el artículo "Influencia de la tutoría en el aprendizaje de matemáticas. Perspectiva del estudiante" (2018). Es miembro del Comité Científico de la *Revista de Investigación en Tecnologías de la Información*, editada en España. Cultiva la línea de investigación Tecnología educativa. Correo electrónico: jorge.uas@uas.edu.mx. ID: https://orcid.org/0000-0001-6281-4446

One of the common problems experienced by teachers working in rural areas is the student's lack of interest in acquiring knowledge due to the low relationship between the contents working in the school and their environment. In the experience of authors, low expectations have been observed by students when asked about what they will dedicate to later in life, and what they think of their education. Similarly, parents seem more concerned with other situations than the training their children receive in school, leaving their learning entirely in the hands of teachers. Academic subjects are not interesting because they have no relation to the reality the student is living. *Why should the child be interested in learning about the history of Mexico? What relationship does it have with the reality of its surroundings? Moreover, most importantly, what benefit will he/she get with this kind of knowledge? What negative impact on his/her life will he/she has if he/she does not appropriate such understanding?*

Many examples could be named in which the contents observed in the school do not have any correspondence with the type of life that the children of rural communities' lead. There is simply no interest because they do not find any relationship with their context or with any event they know. When we talk about authentic practices, it must be said that these can be assessed on how much cultural relevance the activities requested of the student have, as well as their level of social activity (Wang, Liang, Zhang, Jonsson, Li, Yu, Sun, Ma, Bai, Abbey, Luo, Yue y Rozelle, 2019; Corbett, 2015; Díaz-Barriga & Hernández, 2010).

In this research, the subjects of study belong to a full-time rural school. For each group, there is a teacher, in addition to a Principal dedicated to administrative activities. The institution named Juan Escutia T.V. is located in the community of Estación Yago, in the municipality of Santiago Ixcuintla in the state of Nayarit, northwestern Mexico. It has six classrooms, one group per grade. It has all the necessary materials, a school library and a computer center, although the latter is not used due to lack of maintenance.

The analyzed group concluded the second-grade in July 2019, they started that grade when this study began. It consists of 17 students, ten girls, and seven boys, of which only seven completed preschool education; the other ten are at a lower level of knowledge than their peers; it is difficult to give individual attention to students in such a situation. What initially sought is to promote motor development and certain basic concepts such as quantities and study it with different levels of difficulty according to the level of each student. However, this means that the topics are usually analyzed very quickly without going too deeply into the most complex primary education concepts.

The community analyzed in this research case is mostly dedicated to agricultural and livestock activities. Mothers usually stay at home doing housework, and parents go to work and return in the afternoon. Also, attention to children's educational issues

is generally left to mothers, as parents work long hours. This routine is assimilated by the child and sometimes even imitated; when school hours are over, students usually do different activities, including play, watch TV, do homework, and in some cases, work. That is the life of almost any student in this type of community. The task is considered as an obligation and must perform it. However, the task is performed not for the pleasure of only doing it, as in the case of recreational activities, and even work, but because if they do not comply, the teacher, like their parents, could scold and punish them.

Inside the school, a poor attitude is frequently observed when doing the activities; they have seen them as obligations they must fulfill, even if they do not like it. The students have rarely taken any interest by the material used or by a subject that captures their attention. However, that feeling disappears quickly, as well as the knowledge produced, leaving the student just like at the beginning. It should be understood that motivation consists of providing students with a situation that induces them to an intentional effort, to an activity-oriented to particular desired and expected results. Thus, to motivate is to predispose students to learn and, consequently, make an effort to achieve the previously established objectives (Nérici, 1992).

This last phenomenon is often repeated, showing itself as a constant pattern. The teacher arrives and tries to learn X or Y content. Children usually study at these moments and have no evaluation problems, causing that after a while, most of the information is forgotten with relative ease. So again, the teacher has to repeat the teaching, creating little progress in learning about the effort made by the teacher to assimilate it. This cycle repeats for weeks or months.

Attention by students is often minimal, for a good reason. Most students have never studied the preschool level; most are not accustomed to school schedules and do not have mental and psychomotor development like those who did. This action implies concentration in mental activity, such as attending an oral explanation, reading a paragraph of text, or a conversation. The effort, mental energy, or cognitive resources focus or concentrate on the processing of informative stimuli from the explanation, the text or a person (Rivas-Navarro, 2008). In the absence of this, the lessons learned become superficial.

Due to the previous arguments, it was decided to investigate about the appropriation of significant learning by second-grade students of primary level. Because it is considered that since it is impossible to change the living habits of students and people in the community, the most important thing is to make every learning that takes place in the classroom means to them and last for a very long time; they are also able to use them to solve problems of their daily lives. It is also considered harmonious and complementary to the new approaches used in the formation of life skills and the development of complex thinking.

Discern, understanding and addressing the process of skills formation in its integrality, vicissitudes, order, and chaos have as a fundamental condition that we as teachers and facilitators of educational programs change our perception based on pure logic, for a complicated way of thinking, so that we can have the mental and cognitive tools to weave knowledge. Contextualize knowledge; integrate the whole to the parts and the parts to the whole; make dissimilar and irreconcilable proposals in complementary proposals; assume chaos and uncertainty as expected phenomena and face them through strategies, and, finally, religion separately: affection with reason, science with poetry, philosophy with myth, theory with practice and dependence with autonomy (Tobón-Tobón, 2010).

The research arises from the importance of understanding the role of learning that students acquire within primary schools in rural communities because those who are received regularly lack meaning and connection with the reality that students live. This research provides benefits for students; they are the main ones favored by appropriating significant learning. The students are the ones that give meaning to the concepts acquired in the school; likewise, teachers are highly strengthened by understanding and assimilating the idea of what significant learning is and designing strategies that facilitate such appropriation, many of the frustrations that occur due to not achieving the expected results reduced. Based on the previous, the purpose of this research is to analyze the appropriation of significant learning in students of the second grade of primary education, in schools in rural Mexico.

Related research works

It is common to find publications about meaningful learning, primary education, or rural school. Some analyze meaningful learning in children or rural schools. However, little has been said about the relationship of these three issues. A search for the topics *significant learning* and *meaningful learning* was carried out in MDPI, Taylor and Francis Online, Elsevier, and Google Scholar, in a 2015-2019 interval quest. The results found do not include publications related to primary education and rural school. Due to the above, publications that relate, separately, the variables studied in this research were analyzed. These documents are mentioned below.

Díaz Fuentes, Osses Bustingorry and Muñoz Navarro (2016) show the results of a study based on the grounded theory method, which aimed to identify new aspects that would improve rural children's education in Araucanía, Chile. Three factors related to the children's curricular structure, teaching, and learning strategies were identified, which presented an essential link with the teacher's emotional characteristics and the natural and socio-cultural environment through meaningful and constructivist learning. If used pedagogically, those aspects can improve the teaching-learning process and, in a parallel way, educational performance, allowing the maintenance of the

environment and the peasant and indigenous traditions, fundamental bases for a new curricular teaching framework for the rural education system.

In the paper of Bazán-Ramírez, Ferrari-Belmont, Delgado-Sánchez, Castro-Melo and Hernández-Rodríguez (2016), 130 autobiographies from sixth-grade children from public countryside schools of Morelos, México, were analyzed. The writing competence was taken as a reference, from the official curriculum. It was observed from the analysis that only 23.8% achieved all the curricular standards established. The children tend to refer more frequently to events from their scholar activities than from their family life. Furthermore, it was found that the curricular standards of the autobiography and the diversity of events referred by the children do not correlate, which suggests that the official curricular standards must be reviewed to include a functional dimension in teaching autobiographical writing competence.

A reflection is presented by Carrero Arango and González Rodríguez (2017), about the situation of rural education in Colombia, its contributions to education, its relationship with technology training, and some experiences with rural education in Ciudad Bolívar. In the main conclusions they expressed that it is imperative to overcome the sectorial conception of learning to fully integrate policies that benefit urban centers and rural areas and expand coverage, quality, and take into account the specific context.

Bernal-Pinzón (2017) presents the results of a research that aimed to know what girls and boys from primary school write. It implied a glance at their experiences in a rural context, considering the guidance of New School, a method of work that the teacher manages using guides. The process was carried out, keeping in mind the action research methodology, allowing not only to investigate how girls and boys understand and construct written language but also to reflect on how the teacher focuses the methodology. The theoretical perspective of the natural method of Freinet served as a framework to recognize in the children's texts a material that could be considered valid, redirected to understand the children's writing, and take into account the world around them. It was also achieved a new meaning to the guides as a way to facilitate children's learning from a free text approach.

In the paper of Abós Olivares and Boix Tomás (2017), one of the phases of an international research project is presented in which several dimensions of teaching in rural schools were studied. The approach used was the qualitative one through structured interviews with multigrade classroom teachers selected from their answers to a previous questionnaire. The results and subsequent conclusions aim to the presence of a variety of assessment instruments and peer co-assessment strategies.

As noted, the referred publications do not consider the three variables contained in this research. The mentioned authors worked on one or two of the factors: primary school students, rural schools, meaningful learning.

Materials and methods

Determining the approach that research has is a priority to carry out the necessary actions that allow the correct collection and analysis of data. It also represents the fundamental part, the foundation of any scientific research that it wants to perform regardless of its working area. Hernández Sampieri, Fernández Collado and Baptista Lucio (2014) define research as a set of systematic, critical and empirical processes that apply to the study of a problem. So, doing research is studying a problem. The present investigation was carried out following the qualitative paradigm; this methodology, as indicated by its name, aims to describe a phenomenon's qualities. Look for a concept that can encompass a part of reality. It is not about testing or measuring to what degree a particular aspect is in a given event, but discovering as many qualities as possible. In these investigations, one must speak of understanding in depth rather than the accuracy: it is about obtaining an opinion as sincere as possible.

For the term "method", the Royal Spanish Academy indicates that it has its origin in the Greek *méthodos*, which could be defined as the way of saying or doing, of acting or proceeding (RAE, 2020). It can then be said that the method allows to work or do something to achieve a goal or objective. Rangel and Duno (1979, cited by Hurtado León & Toro Garrido, 2005) affirm that the method allows analysis trapping reality in its process and its development perspectives and, at the same time, it gives the way to act; the method contains strategy and teaching. Within qualitative research, many methods allow exploration according to the needs and objectives of researchers. The most appropriate method to carry out this research is action-research, where the essence is the reflexive exploration that the professional makes of his activity. Beyond their contribution to the resolution of problems, each professional's capacity reflects on their practice, plans, and progressively improved. In general, cooperative action research constitutes a systematic way of thinking about the practice to optimize teaching-learning processes (Bausela-Herreras, 2004).

Data collection instruments are an essential part of the research process, represent how researchers can obtain valuable data, and reach conclusions about the problem investigated. Observation and analysis of student work were used as the primary data collection instruments.

This study took place in Juan Escutia T.V. Primary School, located in the community of Estación Yago, municipality of Santiago Ixcuintla, state of Nayarit. Beginning in August 2018 and ending in July 2019, during the second-grade of the study group. The population to investigate is the 17 students (total population), whose ages varied between seven and eight years. Of the 17 students, ten are girls and seven boys. Only seven of the students carried out studies at the preschool level, the rest of them face their first academic experience. The total of the study subjects come from the rural population, and only two are considered low-middle economic class, while the rest

are of low level. Four students' aspects were analyzed: writing competence, reading competence, mathematical thinking, and self-evaluation of performance, considering the characteristics proposed by the curricular standards shown in the comprehensive reform of primary education (these reforms, called the Integral Reform of Basic Education –RIEB–, by its acronym in Spanish) of Agreement 592, published in the Official Gazette on August 2011. Defined as: a public policy that encourages the integral formation of all preschool, primary, and secondary students to promote the development of life skills and the achievement of the graduation profile, based on expected learning and the establishment of Curricular, Teaching Performance and Management Standards (SEP, 2011a), by the Ministry of Public Education, Mexico (SEP, by its acronym in Spanish). The RIEB is the guiding document that defines the competencies for life, the graduation profile, the curricular standards, and the expected learning that constitute the students' developmental path. It allows a formation that favors the construction of the personal and national identity of the students, to value their environment and live and develop as full people.

In the process to evaluate and determine the level of appropriation of significant learning in the development of writing, reading, mathematical thinking, and performance self-assessment skills, rubrics were designed, divided into three levels, with Level 1 being the lowest and Level 3 the highest, which allows to observe and classify the performance of the students in different activities throughout the school year. Only students who achieve a Level 3 assessment are considered among those who appropriated significant learning. The rest of the students have not reached this goal or are in the process of doing so. The three levels of assessment are described below.

Writing competence

- Level 1. The student is unable to solve different communicative situations with the cognitive tools they have. Often, the student is not aware of the activities he/she is doing or their purpose, so he/she usually leaves his/her productions written without checking if he/she considers that they express the idea he/she wishes to convey. He/She feels apathy and lack of identity with his/her texts and is not interested in sharing them.
- Level 2. The student can solve some communicative situations with the cognitive tools that he/she has. Sometimes the student is aware of the activities he/she is doing and their purpose, so the student usually reviews his/her written productions to determine if the idea he/she intends to express is understandable. He/She is not indifferent to his/her texts and regularly shares them frequently.
- Level 3. The student solves communicative situations with the cognitive tools he/she has. If he/she considers his/her work insufficient, he/she usually tries or ask for support until he/she is satisfied. He/She is aware of the activities he/she is

carrying out and their purpose, so the student reviews and corrects his/her written productions until the child is sure that they express what he/she wants. He/She likes his/her writings and almost always wants to share them with others.

Reading competence

- Level 1: The child does not show interest or interaction with the different types of text. The readings only serve to solve immediate situations and he/she often forgets the information because it does not relate to various topics at different times. He/She is unable to formulate ideas that are not found in the text, avoids analyzing them to identify implicit information. He/She does not usually use his/her imagination to modify what he/she reads, and that meets his/her interests mentally, so he/she does not feel motivated to read as a recreational activity.
- Level 2: The student shows interest and interaction with some texts that they like. When so, remembers for a long time what he/she reads, relates it, and uses it in different situations. Occasionally he/she can formulate ideas presented implicitly in the text and ask questions about him/her because his/her curiosity leads him to want to know more. Mentally modify those stories that he/she likes thanks to his/her imagination and motivation that he/she usually feels for reading regularly.
- Level 3: The student shows a lot of interest and interaction with the texts. Remembers the information, relates it, and uses it to solve different situations, both inside and outside the classroom. He/She formulates ideas and questions that are not implicit in the text, making hypotheses based on existing information, the product of his/her curiosity to know more. Mentally modifies stories and frequently reads because of the acquired taste.

Mathematical thinking competence

- Level 1: The student cannot solve mathematical problems autonomously and cannot use the information to provide answers. Shows an indifferent attitude and apathy for these activities. In everyday life, outside the classroom, he/she cannot use his/her cognitive tools to find solutions to adversities that arise.
- Level 2: The student can solve some problems autonomously and can use the existing information to try to solve them. His/Her attitude is positive in solving situations that involve the use of mathematical thinking. In everyday activities, outside the classroom, he/she uses his/her cognitive tools to try to solve different cases.
- Level 3: The student solves problems autonomously and ingeniously, using the existing information to solve through different procedures. They are motivated by the challenges involved in solving mathematical problems, both within the classroom in fictitious problems and outside through everyday situations that

require the use of their cognitive resources. Shows creativity and a wide range of ways to solve a problem.

Self-assessment competence
- Level 1: The child is unable to detect his/her mistakes in the different activities he/she performs. He/She does not identify the limitations that do not allow him/her to overcome the different situations raised or experienced. He/She does not understand his/her scope or how far he/she can reach. He/She usually lies and does not recognize his/her mistakes because of fear or shame of what others think. Nor can he/she identify his/her areas of opportunity, which makes it impossible to autonomously develop a small action plan to address his/her areas of opportunity.
- Level 2: The student detects some of his/her mistakes in the different activities he/she performs. The student can identify some of the limitations that prevent or make it challenging to overcome raised or lived actions. It is not clear what its scope is. The student does not lie when recognizing his/her failures but avoids doing so, often out of fear or grief of what others think. The student can identify his/her areas of opportunity, but it is complicated for him/her to develop a small action plan to address these aspects.
- Level 3: The student detects errors when performing their activities. He/She also identifies its limitations in the proposed or lived activities. The student is clear about his/her scope. He/She sincerely accepts his/her mistakes, and is not afraid to share it with his/her colleagues, understands that it is necessary to continue improving. Identify his/her areas of opportunity, and can develop a small action plan to address aspects to be strengthened.

Ethical considerations

The ethical questions considered in the research are not damaging the moral integrity of any of the individuals involved in it. Not to interfere with the student's private lives and explain the purpose of the investigation from the start. Students were respected at work rates and results according to their abilities, always seeking real results without manipulating them by the researcher. Likewise, the authors and researchers cited to support this work are credited.

Results

After the work done with the students during the established period, the achievements determined in different areas of performance that exist in elementary school were the following.

Writing competence

The first area and one of the most important is related to writing competence. It considered if the proposal has achieved writing appropriation based on the curricular standards proposed in the RIEB within the Guidelines for the Primary Education teacher, Second-Grade (SEP, 2011b). 76% of the students have consolidated conventional writing, while the remaining 24% are in process. That is, they have notions of the characteristics of the words but still cannot write conventionally.

However, the fact that most students have appropriated conventional writing does not imply that significant learning occurred. In response, it is necessary to observe if the student uses it to solve different situations and if he/she is aware of what he/she is doing. The most notable example is when the student corrects his/her work before delivering it. The student uses mental schemes to modify a text that makes sense and importance, giving the right message he/she tries to communicate. 41% of students cannot self-correct their written products, leaving work as is or needing the help of another person to achieve it. In contrast, 59% of the group can do so, although at different levels.

Therefore, it considered that students who manage to do it autonomously had created mental schemes about the use of writing that others have not achieved yet. It determined that students who can manage and correct their texts have a higher performance in different school activities, like participating more, showing greater self-confidence, often recognizing their mistakes more quickly, and usually present a positive attitude towards learning (Montanero, Lucero & Fernández, 2014; Larraín, Freire & Olivos, 2014; Montanero & Madeira, 2019).

Reading competence

The second aspect evaluated was reading competence, according to their grade level and according to the curricular standards proposed by the RIEB (SEP, 2011b). 35% of students are still in the process of acquiring reading according to their grade level, so some students can decipher what is written but do so at a lower level than expected. Instead, 65% of students can read as specified for second grade and understand what they read. It is necessary to observe how they interact with the training in meaningful learnings to determine how much they adjust with this object of learning. The above could assess through aspects like the interest in reading and the ability to use their interpretation in several different situations, understand ideas that are not explicitly found through analysis, and modify the information according to their interests.

The reading is also seen as an essential means that allows continuing learning autonomously throughout life. The student manages to understand that it is a school activity only, but that it is a hobby that can be very interesting if given an opportunity. It is not guided only by what the text says. He/she can see those ideas that are hidden

and provide a sense of ownership to what he/she reads. 47% of students do not use reading in a meaningful way, merely limiting to activities required by the teacher. On the other hand, 53% of students can use this learning object in a conscious way that meets their needs. They also show a particular interest in reading outside school hours, as a recreational activity.

Mathematical thinking competence

The next aspect refers to mathematical thinking. As an analysis point, the ability to solve different problems using up to three digits is considered. Considering the features proposed by curricular standards shown in the RIEB (SEP, 2011a), the following results were obtained: 47% can not solve problems using numbers of up to three digits in situations within the school, while 53% can do it. To determine if learning is meaningful, it was first considered that the student could solve the problems by himself/herself and uses the available information to give different answers that he/she student considers practical. Secondly, the attitude shown when performing the activities is analyzed. Finally, it determined how the student develops in everyday situations that involve solving problems with the use of quantities, such as when buying a product or playing games. It was observed that 53% of students are unable to solve autonomously the different situations outside the classroom, where they must use mathematical thinking to solve the problems that may arise. On the other hand, 47% did show success in facing favorable performance utilizing the knowledge acquired inside and outside the classroom.

Self-assessment competence

The last aspect of analysis is related to the students' ability to realize a self-assessment of performance in various activities, both inside and outside the classroom. Self-assessment is the key that allows the individual to internalize the knowledge acquired and give it a particular meaning. It analyzed their texts up to the capacity to consider the scope and limitations. It proposed that the student realizes a self-assessment exercise that allows detecting the mistakes, restrictions, and ranges obtained. Nevertheless, the students can also submit a plan of action to improve their performance in a short period. 35% of students cannot perform appropriate self-assessment in different situations, while the remaining 65% can do so, being students who have not yet consolidated their reading, writing, or related to mathematical thinking. These cases are somewhat particular, in situations straightforward and within reach of their possibilities, they detect when they make a mistake and occasionally even repair it. When students cannot do it, they are aware of having been wrong. However, since the children do not possess the competence to resolve it acceptably, they cannot conclude their correction.

Conclusions

Analyzing the appropriation of significant learning in second-grade students of the primary level has had quite favorable results in the majority of students who took part in the research. The child must be aware through a self-assessment exercise about the scope and limitations to use this new mental scheme in different daily or school situations. The appropriation of such learning requires a set of strategies and circumstances that allow the student to develop this type of mental scheme, first with the teacher's help and then, as far as possible, autonomously by himself/herself.

The purpose of this research is to analyze the appropriation of significant learning in students of the second grade of primary education in schools in the Mexican rural area. It was achieved through the method of action research, carrying out an analysis of four aspects in the students: competence in writing, reading skills, mathematical thinking, and self-evaluation of their performance; considering the characteristics proposed by the curricular standards shown in the RIEB (SEP, 2011b). Concerning writing competence, it determined that 76% of students have consolidated conventional writing, while 24% are in the process. 41% of students cannot self-correct their written products, so they rely on the teacher to do it; however, 59% of the group can do so.

About reading competence, 35% of students are still in the process of acquiring reading; on the other hand, 65% of them read as specified in the RIEB, also understanding what they read. 47% do not use reading in a meaningful way; on the other hand, 53% do. In regard to mathematical thinking, 53% can solve problems in the school using up to three digits. 47% autonomously solve the different situations outside the classroom, where they must use mathematical thinking to solve the problems. Finally, it was found that 65% of the children were able to make a self-evaluation of their performance.

The importance of a healthy learning environment is essential. The teacher must be able to offer students a space where they feel comfortable to perform the activities, and have the confidence to intervene individually when doubts or problems arise. The teacher must allow students to learn at their own pace and at the best of their ability. Playing, singing, laughter, or talking about everyday interest situations must be of great importance, and adequate spaces must allow students to express their concerns. The teacher has a huge responsibility. He/she must set aside the seriousness and be involved, as far as possible, in the activities carried out by students both outside and inside the classroom. It motivates them to carry out activities of all kinds, giving them the confidence to do what they set out to do.

There is a critical point in the healthy learning environment, and it is that the teacher must handle the game as a regular part in this grade of elementary school. It is through games that the student learns in his/her most natural state. So it is in-

comprehensible that the teacher seeks to achieve learning in the students differently from what he/she accustomed to earn knowledge. The use of games, in their various forms and modalities, allows the student to be attracted to the class and the object of learning. It gives a meaning within their reality. It allows real and direct interaction, which can lead to the creation of steady and lasting schemes in the child's mind and develop thoughts of collaborative work.

It is necessary to mention the importance of promoting collaborative work inside and outside the classroom. Learning is not just the product of a mental appropriation of a new concept, it requires interaction and understanding of this new learning object. The student learns every day through different activities, the majority being social ones, rwo children playing soccer or a group of girls playing jump rope; learning facilitated when the student interacts with other students, and confronts their way of seeing things, observing other realities and listening to ideas that frequently can be very different from what he/she already has established. Occasionally, the discussion is even necessary for the student to select the learning object that is most appropriate after hearing different points of view. For the social being, it is essential to experience the importance of collaborating to solve different situations from an early age, as in the real world.

The meaningful learning is perceived especially in attitudes and ways of dealing with different situations when the student uses his/her knowledge to solve a particular problem, both inside and outside the school. It is recommended to the teacher to be with them at recess, while playing naturally. There he/she can perceive if the students produced a change in their ways of thinking and can regulate them outside the classroom. Some indicators that can allow the teacher to determine the acquisition of significant learning are the following:

- The student can modify his/her ideas by listening to the opinions of others.
- The student is aware of his/her mistakes and seeks to correct them.
- The student relates different topics but with common aspects.
- The student uses his/her knowledge to give solutions to various problems.
- The student regulates his/her ideas to give opinions.
- The student understands the importance of carrying out his/her self-assessment.
- The student has a certain level of self-confidence and expresses himself/herself in different situations.

Determining if the current educational program promotes the acquisition of meaningful learning is complex. The problem there is excessive importance to obtaining results similar to those established by international organizations, such as the Organization for Economic Co-operation and Development. The educational levels of different countries are compared and competition for getting results begins. When this situation occurs, the governments regularly pressure the teachers, who begin to

force the students. Reaching specific indicators becomes the priority, and essential aspects of the academy, such as differentiated rhythms and capacities, are no longer respected. At that time, learning ceases to be significant for the student because it does not respond to a need for it, but a requirement from an external agent.

When this happens, learning becomes mandatory and meaningless to the student. It is important for the child to learn as many concepts as the quality and relevance they have for him. Time has to be used exclusively to determine content; any other action results in a loss. One forgets that activities such as a birthday party, a soccer game against another school, a musical rehearsal, are essential in academic education. They are significant facts that facilitate the development of values. Nevertheless, the most important thing is that it allows them to give a sense of identity and belonging to their school and the actions they carry out within it. Sometimes, when encouraging meaningful learning appropriation, it is necessary to pay attention to other activities that motivate them and let them know that they are part of a community.

In future works, other academic and non-academic variables could be considered. These could fill the gaps of the situations that cannot be explained with this research results. For example, social factors, such as family members, would be an important contribution to try to explain some of the children's learning needs.
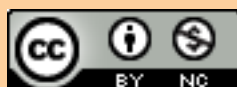
REFERENCES

Abós Olivares, P., & Boix Tomás, R. (2017). Evaluación de los aprendizajes en escuelas rurales multigrado. *Aula Abierta*, 45(1), 41-48. doi: http://dx.doi.org/10.17811/rifie.45.2017.41-48.

Bausela-Herreras, E. (2004). La docencia a través de la investigación-acción. *Revista Iberoamericana de Educación*, 35(1), 1-9. doi: https://doi.org/10.35362/rie3512871.

Bazán-Ramírez, A., Ferrari-Belmont, A. M., Castro-Melo, G., Delgado-Sánchez, U., & Hernández-Rodríguez, C. (2016). La autobiografía como aprendizaje esperado y comportamiento lingüístico en niños rurales mexicanos. *Revista Argentina de Ciencias del Comportamiento*, 8(3), 61-71. Recuperado de: https://www.redalyc.org/articulo.oa?id=3334/333449323009.

Bernal-Pinzón, M. L. (2017). ¿Qué escriben los niños? Una mirada desde el modelo escuela nueva. *Revista de Investigación, Desarrollo e Innovación*, 7(2), 255-268. doi: https://doi.org/10.19053/20278306.v7.n2.2017.6069.

Carrero Arango, M., & González Rodríguez, M. (2017). La educación rural en Colombia: experiencias y perspectivas. *Praxis Pedagógica*, 16(19), 79-89. doi: https://doi.org/10.26620/uniminuto.praxis.16.19.2016.79-89.

Constitución Política de los Estados Unidos Mexicanos (2004). México: McGraw-Hill.

Corbett, M. (2015). Rural education: Some sociological provocations for the field. *Australian and International Journal of Rural Education*, 25(3), 9-25. https://search.informit.com.au/documentSummary;dn=704814901228404;res=IELHSS.

Díaz-Barriga, F., & Hernández Rojas, G. (2010). *Estrategias docentes para un aprendizaje significativo. Una interpretación constructivista*. Ciudad de México: McGraw-Hill.

Díaz Fuentes, R., Osses Bustingorry, S., & Muñoz Navarro, S. (2016). Factors and interactions of the teaching-learning process in rural contexts of Araucanía, Chile. *Estudios Pedagógicos*, 42(3), 111-128. doi: https://dx.doi.org/10.4067/S0718-07052016000400006.

Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P. (2014). *Metodología de la investigación*. Ciudad de México: McGraw-Hill.

Hurtado-León, I., & Toro-Garrido, J. (2005). *Paradigmas y métodos de investigación en tiempos de cambio*. Venezuela: Episteme Consultores Asociados.

Larraín, A., Freire, P., & Olivos, T. (2014). Habilidades de argumentación escrita: una propuesta de medición para estudiantes de quinto básico. *Psicoperspectivas*, 13(1), 94-107. doi: https://dx.doi.org/10.5027/psicoperspectivas-Vol13-Issue1-fulltext-287.

Montanero, M., & Madeira, M. L. (2019). Collaborative chain writing: effects on the narrative competence of primary school students. *Journal for the Study of Education and Development*, 42(4), 915-951. doi: https://doi.org/10.1080/02103702.2019.1650464.

Montanero, M., Lucero, M., & Fernández, M. J. (2014). Iterative co-evaluation with a rubric of narrative texts in Primary Education. *Journal for the Study of Education and Development*, 37(1), 184-220. doi: 10.1080/02103702.2014.881653.

Nérici, I.G. (1992). *Hacia una didáctica general dinámica*. Argentina: Kapelusz.

RAE [Real Academia Española] (2020). *Diccionario de la lengua española* (22a. ed.). Madrid, España: Author.

Rivas-Navarro, M. (2008). *Procesos cognitivos y aprendizaje significativo*. Madrid: Comunidad Autónoma de Madrid-Servicio de Documentación y Publicaciones.

SEP [Secretaría de Educación Pública] (2011a). *Acuerdo número 592 por el que se establece la articulación de la educación básica. Segundo grado*. Ciudad de México: SEP.

SEP [Secretaría de Educación Pública] (2011b). *Programas de estudio 2011. Guías para el maestro. Educación básica. Primaria. Segundo grado*. Ciudad de México: SEP.

Tobón-Tobón, S. (2010). *Formación integral y competencias. Pensamiento complejo, currículo, didáctica y evaluación*. Colombia: Ecoe.

Wang, L., Liang, W., Zhang, S., Jonsson, L., Li, M., Yu, C., Sun, Y., Ma, Q., Bai, Y., Abbey, C., Luo, R., Yue, A., & Rozelle, S. (2019). Are infant/toddler developmental delays a problem across rural China? *Journal of Comparative Economics*, 47(2), 458-469. doi: https://doi.org/10.1016/j.jce.2019.02.003.