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DIPLOMOVÁ PRÁCE

Educational implications of the multi-age school in rural Mexico: the case of an elementary school

Důsledky vzdělávání v malotřídních školách na mexickém venkově: případová studie elementární školy

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Odesláním této diplomové práce o Důsledky vzdělávání v malotřídních školách na mexickém venkově: případová studie elementární školy, že jsem ji vypracovala pod vedením vedoucího práce samostatně s použitím zdrojů a literatury uvedené v práci. Dále potvrzuji, že toto dílo nebylo použito k získání jiného nebo stejného titulu.

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ABSTRACT

In Mexico, multi-age schools represent 32.6% of all basic education schools (National Institute for Educational Evaluation, 2018). Even though these schools represent an important number in the Mexican educational system, several factors currently distance these schools from excellence. There is currently a lot of generalized information about the shortcomings suffered by these schools. Still, the specific information that exists about particular cases of unitary multi-age schools is scarce. Regarding this information, the current diploma thesis aims to provide information on the elements involved in the educational process of a unitary multi-age school. The thesis is divided into a theoretical part and an empirical part.

The theoretical part of the study defines the multi-age school. Identifies and analyzes official documents that place the multiage school in the Mexican educational system, also presents the main theories that support the research, and integrates relevant national and international research to know some background regarding multiage schools, highlighting the need to carry out the research. The empirical part is responsible for showing the methodology used and describes the process of sample selection and data collection. Subsequently, the data obtained will be analyzed, which will become key information to be able to respond to the objectives set out in this research and provide some suggestions to improve education in multi-age schools.

KEYWORDS

ABSTRAKT

V Mexiku malotřídních školách věků 32,6 % všech základních škol (Národní institut pro hodnocení vzdělávání, 2018). I když tyto školy představují v mexickém vzdělávacím systému důležité číslo, několik faktorů v současné době tyto školy vzdaluje od excelence. V současné době existuje mnoho obecných informací o nedostatcích, které tyto školy trpí. Konkrétní informace, které existují o konkrétních případech unitárních víceletých škol, jsou však vzácné. S ohledem na tyto informace si současná diplomová práce klade za cíl poskytnout informace o prvcích zapojených do vzdělávacího procesu unitární víceleté školy. Práce je rozdělena na teoretickou část a empirickou část.

Teoretická část studia vymezuje malotřídních školách. Identifikuje a analyzuje oficiální dokumenty, které umisťují multikáře školu do mexického vzdělávacího systému, také představuje hlavní teorie, které podporují výzkum, a integruje relevantní národní a mezinárodní výzkum, aby znal některé pozadí týkající se multikáře škol, zdůrazňující potřebu provádět výzkum. Empirická část je zodpovědná za zobrazení použité metodiky a popisuje proces výběru vzorku a sběru dat. Následně budou získaná data analyzována, což se stane klíčovou informací, aby bylo možné reagovat na cíle stanovené v tomto výzkumu a poskytnout některé návrhy na zlepšení vzdělávání ve víceletých školách.

KLÍČOVÁ SLOVA

Vícetřídní škola, Pedagogická praxe, Strategie výuky, Efektivní školy, Studijní plán a Program.

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INTRODUCTION

> *"Education does not change the world; it changes the people who are going to change the world".*

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(Paulo Freire 1921-1927)

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Multiage schools or (multigrade) schools in Mexico are responsible for serving all levels of basic education (Preschool, Primary, Secondary), both to the indigenous and mestizo population. This type of school has covered the right to education mostly in rural areas with difficult access and far from urban areas.

The right to education requires that students be served with quality, although in the case of multiage or (multigrade) schools it is a reality that they currently operate in precarious conditions in terms of infrastructure, equipment, scarce teaching material, and pedagogical practices due to lack of specialized training. Various investigations point to the lack of pertinent actions as the cause of the impoverishment of school models destined for rural areas, unlike rural schools, schools with complete organization, have more attention and resources from the national educational system.

The fact that a school is multi-age does not in itself represent a problem, it may even represent a pedagogical advantage. There are pedagogical proposals, as well as educational factors that allow learning to be effective in schools with this organization despite the negative conditions in which they operate. In multi-age schools, some factors influence student learning more than others, such as the context (Neitzel, 2017). Currently, there are different proposals to innovate the way of education in these schools (Rodriguez, 2010), teaching strategies that are proposed according to the context of multi-age schools (Rockwell & Rebolledo, 2018), and skills and abilities that can be applied through teaching practice (Monserrat Magro, 2021 proposals that involve the use of a comprehensive

education model (Carrasco Rosas, 2005). Today few studies speak of the positive factors that intervene in the educational process in multi-age schools and most of the studies that exist speak of the problems and negative aspects.

This research focuses particularly on multiage schools with unitary organization, that is, only one teacher attends the 6 grades of primary school, a qualitative ethnographic study is carried out, taking as an example the multiage school located in a zone rural in Mexico. The challenge is greater for teachers who work in a unitary multi-age school, since these teachers, apart from attending to the 6th grade, must perform the functions of a director. It is important to mention that there were a few academically formal studies available on multi-age schools with the unitary organization. The most relevant studies speak in general about the situation of multi-age education in Mexico (Weiss, 2000) the problems and challenges faced by multi-age schools (Liliana Miranda, 2021) The challenges and inequality (Castro et al., 2019). Regarding the need to cover this gap in specific information on work in a multi-age school with a unitary organization, the general objective of this study seeks to identify the elements that intervene in the educational process of the school and to meet the general objective, two specific objectives are presented: The first is to analyze the teaching strategies implemented by the teacher that contribute to the comprehensive development of students. The second refers to identifying the relationship between the national education plan and program and the educational needs of students.

To meet the research objectives, the thesis is divided into two categories, the theoretical part, and the empirical part. The theoretical part is dedicated to describing the term multi-age education, describes the problems faced by these schools, and defines some concepts that are related to these problems, later background is shown through national and international literature and describes the theories that support the research. The empirical part presents the objectives of the research, it also presents the research questions, then the methodology applied during the research is shown, the instruments and the approach used are described, and the sample and

the context on which the research was based are also described, then the findings obtained by the applied methodology are described. In the final part, an analysis is carried out to answer the research questions. It ends with the conclusion in which the limitations of the research are mentioned, in addition, some recommendations are provided and some proposals for future research are made.

Basic education in Mexico

Basic education covers school training according to the plans and study   . programs from 3 to 15 years of age and is studied throughout 12 grades, distributed in 3 educational levels: three grades of preschool education, six of primary education, 3 secondary education (Ministry of Public Education, 2020)
According to the new educational model in Mexico that has the name: "New Mexican School" (NEM), the national educational system is displayed according to the age of the students. (See appendix F)

The new Mexican school and the national educational system:
1.- Basic Education
    a) The first thousand days (0 to 3 years of age)
    b) Preschool (4 to 5 years old)
    c) First three years of primary school (6 to 8 years old)
    d) Final three years of primary school (9 to 11 years old)
    e) Secondary (11 to 14 years of age)

2.- Upper Secondary Education
    a) Upper Secondary Education (15 to 17 years of age)
    b) Technical Education and Technologist (16 to 18 years of age)
    a) 3.- Higher Education (university) (18 to 23 years of age)
    b) 4.- Education for adults

5.- Literacy and school recovery

<u>Definition of multiage school</u>

According to the national institute of educational evaluation, multi-age schools are part of basic education in Mexico, these are schools in which a teacher serves students of different grades, ages, and learning levels in the same classroom. The teacher also carries out managerial and administrative activities simultaneously, and the communities substantially support the maintenance and management of the educational service (2019).

There are two forms of multi-age schools: Unitary schools, which work with a single professional, that is, the teacher must be in charge of the school management and must also exercise the teaching function, serving 6 grades at the same time and in the same classroom. The other way of multi-age school is divided into sections, Vargas (2003) mentions that these schools have some multi-age grades, from two to six primary groups may be sharing the same classroom at the same time.

Multi-age schools share certain characteristics; they are generally found in rural communities; they do not have enough materials and resources to develop the teaching-learning process. The author Vargas (2003) also points out some other characteristics of multi-age schools:

- Isolation conditions
- High levels of Poverty
- Inadequate facilities
- Shortage of pedagogical materials
- Difficult conditions for teachers
- Hard access
- Low learning achievements

Definition of Excellence in education

Some authors agree that educational excellence consists of ensuring that each student achieves maximum intellectual and moral development based on their abilities. Branden et al. (2010) point out that since the student body is academically heterogeneous, each student must be encouraged to make the most of their abilities, ultimately the excellence of the entire system is assessed by evaluating its capacity to cope with this diversity. Educational performance indicates that students have different talents, motivations, and ambitions. From this point of view, equality of production is replaced by differential excellence. The result to be striven for is to make each student excel according to his or her abilities and thus offer each student the maximum opportunity to fully develop his or her potential (Van den Branden et al. 2010).

For his part, Villar Angulo (2009) describes that excellence in the educational system is the reason for learning. The brevity of responsibility and the fascination with critical thinking and problem solving to the dynamism of teaching.

Teaching practice and its conceptualization

One of the important elements that stand out in this research is the teaching practice, which is described by Achilli (1986) he understands the teaching practice as the work that the teacher develops daily in certain and concrete social, historical and economic conditions, acquiring a significance both for society and for the teacher himself. For his part, Davini (2015), states that "when we speak of "practices" we are not referring exclusively to the development of operational, technical or "doing" skills, but to the ability to intervene and teach in complex real contexts in situations that include different dimensions and a necessary reflection, to which decision-making and often even to the contextualized treatment of challenges or ethical dilemmas in social and institutional environments". In this concept, the author invites us to identify all the dimensions that make up all this in practice to get to know this concept in its entirety. In addition to these characteristics, Vergara (2016)

mentions that the practice in addition to being dynamic, contextualized, and complex, also has a characteristic aspect "An agent that exercises its activity on a certain reality" (Vergara, 2016).

Excellence

For its part, the Official Journal of the Federation (2019) describes: "Excellence as a criterion of education that is oriented towards constant comprehensive improvement that promotes the maximum learning achievement of students, for the development of their critical thinking and strengthening the ties between school and community" (Official Journal of the Federation, 2019)

This same concept was taken up in an academic forum called "Academic Forum: Educational reform initiative, voices of research" in this forum Dr. Hugo Aboites, who spoke on the subject of quality and excellence, pointed out that "educational excellence is like the recharged quality where the school is seen, not as a trainer and builder of knowledge, but as an industry of imparting knowledge" (2019). In this same forum, in the presentation the pedagogy doctor Mendez assures educational excellence as an important project, that excellence has a certain type of class involved and becomes a purpose for people to achieve excellence (2019)

School dropout

The phenomenon of school dropout has occurred more frequently in Mexico and occurs for different reasons. The author Salazar (N.D) has described desertion as a process of neglect on the part of the students towards a school that in most cases culminates in the abandonment by the adolescent.

Tinto (2006) Points to school dropout as one of the most important problems facing society and mentions that dropout comes from the lack of identity between students and the institution, students will remain in an educational center as long as when they feel integrated into this center. Regarding this issue, Bourdieu (1986) has

stated that social origin is the determining factor that intervenes in students when they enter the educational system because each student has different levels of economic culture and also differences in knowledge.

Bourdieu (1996) points out the differences between the traits and behaviors of students from working-class families and the traits and behavior of students from middle-class families, he emphasizes that as a consequence of the differences that may exist between these categories, students from lower social class present more difficulties in adapting to the school context and this ends with their motivation to study and increases the risk of dropping out of school Bourdieu and Passeron, (1970). In addition, these authors Van den Branden et al. (2010) mention that most educational institutions do not take into account the differences between students of different origins.

On the other hand, according to Herrera (2009), an important factor associated with desertion is the repetition of subjects, this author measures the school failure of students according to the number of repetitions that the student performs in a subject.

Educational backwardness

The educational lag is a current problem and it is a consequence of various factors by which people in this situation of lag do not become literate, or do not complete their basic education.

Muñoz (2009) also points to the educational gap as the result of a process in which various facts intervene, he mentions some factors such as the lack of inclusion of rural schools by the educational system, school performance and lack of economic resources are other important factor since in some cases students must work to be able to pay for their studies and this causes low energy and attention during the

school day another factor is repeating subjects since this factor affects students so that they spend more years of their lives studying, there are currently more factors involved but these are the most frequent.

According to Muñoz (2009), a very important source of educational lag originates in the educational sector, since most of the time this organization tends to neglect schools that are in rural, marginalized areas, and generally schools that are attended by low-income students, there is a big difference in the administration that takes place in schools with a better social level since the resources allocated to these schools are better than the resources allocated to schools with a lower social level

<u>Downtown urban view</u>

Theorist and geographer David Harvey in his book Rebel Cities, refers to the "Urban-centric vision, as an essentialized vision in the city" (Garnier, 2019). Speaking specifically on educational issues, Santos (2019) describes the urban-centric vision as a problem that currently occurs in some countries since educational models are designed and created for application in urban contexts, thus ignoring the shortcomings and problems that exist in rural schools.

1. Research Background

Multi-age schools are a reality that society faces, there are currently many documents that describe the causes of the problems faced by this type of school, likewise, there are documents that provide ideas for improvement for multi-age education. The researchers consulted show a broad panorama of teaching practice in the multi-age classroom and point out the need to recognize the specific areas of the teaching task.

Teaching multi-age groups has been studied by many authors, who will be mentioned during this document those authors show an interest in knowing in-depth the contexts in which the teaching task is developed within multi-age classrooms to propose improvements to achieve an education of excellence in these institutions. According to the (Official Journal of the Federation, 2020) "excellence is the criterion of education that is oriented towards constant comprehensive improvement that promotes the maximum learning achievement of students, for the development of their critical thinking and the strengthening of ties between school and community". It is the excellence in education that has been the reason to consult the main authors whose scientific contribution allows us to have clarity about the factors that intervene in the educational practice in multi-age schools.

An analysis of the different methodological positions of each author is carried out and documents of great importance for education in Mexico are also taken into account, which regulates Mexican education and shows rules, processes, norms, laws, and policies created in favor of education.

In this sense, it is necessary to cite in the investigation article 3 of the Political Constitution of the United Mexican States (2020) and the General Law of Education (2019), since they are the main legal instruments that regulate the educational system and establish the foundations of national education.

Specifically, Article 3 of the Political Constitution of the United Mexican States (2020), establishes that every individual has the right to receive an education, it also concentrates 3 philosophical principles (2020): First: Those that refer to the political and legal organization, second: Those who raise the values and fundamental rights of people, third: Lay education.

The General Education Law extends some of the principles established in article 3 of the constitution which is responsible for regulating the education provided

by the state federation, federal entities, and municipalities, as well as decentralized and private organizations.

The current educational model in Mexico with the name: The New Mexican School (NEM) is also a benchmark for research since it contains a set of rules and steps that guide the teaching and learning processes. This new educational model also has as its task the comprehensive training of girls, boys, adolescents, and young people, and "Its objective is to promote learning excellence" (Ministry of Public Education, 2019). According to the National Agreement, the most important principles are excellence, integrity, and fairness. An educational model is made up of rules that establish how teachers should teach and what tools should be used to teach. Talking specifically about the teaching practice in multi-age schools, it is necessary to consult the General Law of the system for the career of teachers, which establishes the selection, admission, promotion, and recognition processes for teaching staff.

The author who has described in depth the teaching practice in multi-age schools is Ruth Mercado Maldonado, who is also an expert in education issues, through her book: Teaching knowledge as a social construction published in 2002, she describes how teachers anticipate and at the same time improvise what they will do during teaching, how teachers involve students in the proposed class activities. The notion of teaching knowledge is associated with the theoretical developments of the author Heller on the knowledge of everyday life. Mercado (2022) cites Heller's theory, this theory focuses on the subject and his heterogeneous learning about the social environment that is immersed in everyday life.
Expert authors affirm that the positive or negative development of educational processes in this type of school is related to the pedagogical performance of teachers. In this sense, the doctoral thesis entitled competencies and skills for the development of teaching practice in multi-age rural nursery schools. Written by Magro (2021) through a comparative study between Spain and Mexico, information about teacher training is shown as a key element for the transformation of teaching

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professionalism and, as a result, achieving educational excellence in these classrooms.

Rosas (2005) in her research with the name: Teachers who transform their educational practice and build a model of comprehensive education for the multi-age. She highlights the importance of the support of the educational authorities for the construction of an educational model created by working teachers of multi-age schools, intending to achieve a comprehensive education in the multi-age school, and convert the concept that characterizes the multi-age school as a deficient school, now it becomes a school suitable for the rural environment, that this type of school may manage to have equal or better quality than regular schools, in whatever area they are located. Another interesting work that provides important information to the research talks about one of the main problems that exist in the multi-age school: The development of teaching skills for teaching work in multi-age schools, written by Castro (2018). The research is focused on teaching practice and on those problems that affect education in multi-age schools due to the lack of lessons, training, and specific classes that are taught in normal schools, which prepare students who after a while will become teachers in this type of school.

Leyva (2018) is also an author who has carried out different investigations regarding the issue of education in multi-age classrooms, especially the article she wrote with the support of other two researchers Leyva et al., (2018) in the study they point out the focuses of attention to implement an educational policy that contains didactic strategies focused on learning relevant to the different rural and indigenous realities of our country.

As an example of educational excellence, the analysis carried out by Lynnakylä, Välijärvi, and Arffman, of why the Finnish educational system is so successful in reconciling equity with excellence, is taken up again. (Branden et al., 2010) these authors point out that, especially in comprehensive education systems,

low-achieving, low-income students receive a lot of support not only from their teachers but also from their (more competent) peers.

<u>Characterization of teaching practice in multi-age schools in Mexico</u>

In multi-age schools, teachers perform pedagogical and administrative functions, since there is no exclusive director in them. Within the existing regulations, a director is only assigned when there are six groups in the school, that is why practically in all multi-age schools there are directors with a group in charge. This condition affects the time allocated to teaching activities since the teacher requires time to perform tasks related to the organization and management of school resources, care for parents, and filling out the documentation required by educational authorities, the effective school day is also affected since the school week is generally reduced to four or three days, the five hours established for the school day are not met and the schedules are quite irregular, this is due to the displacement of teachers since most of them do not live in the communities where they work, little leadership in managing a group with different levels of development and competence, mastery of curricular content, as well as lack of detailed knowledge educational support materials for teachers and textbooks for different school grades, are challenges that are expanding do on the subject of curriculum, materials and educational practices.

This situation is even more accentuated in unitary schools, that is, where there is only one teacher to take care of all the students, carry out administrative tasks and attend to the requests of the educational authorities. According to the national institute for educational evaluation (2018) the school organization itself generates tasks that the teacher must fulfill and most of the time these tasks must be attended to outside the school and during the hours of the school day, for which the teachers have to be absent and the unitary school is forced to close during the days that the teacher is absent.

This set of characteristics present in the rural school, adding to it the poverty of families and the educational environments of children in rural areas, causes negative returns in the school system, such as desertion. This is a difficult situation since the task that teachers have in this type of school is of a high level of complexity.

The teaching work, in the conditions of the multi-age classroom, implies attending simultaneously to girls and boys of different grades, which represents both advantages and difficulties in the development of the teaching processes, on the one hand, the heterogeneous situation of the group allows the teacher favors collaboration between the students, but at the same time requires him to organize and plan the work in such a way that he can articulate and relate the contents of the different grades, avoiding the fragmentation of teaching and attending to the children according to their needs and characteristics, among the main challenges faced by teachers of multi-age schools for the implementation of study programs are the didactic planning and organization of the contents, the articulation of materials and teaching strategies for the achievement of the expected learning and the development of skills for autonomous learning.

On the other hand, multi-age schools are where there is a greater lack of personnel who can support physical education activities, artistic education, technology teaching, or english. In these circumstances, teachers are obliged to develop all the contents of the curriculum, even those on which they may not have received training, such as the teaching of the second language (English). Regarding this information "about 27% of students in Mexico enrolled in a disadvantaged school (OECD average: 34%) attend a school whose principal reported that the school's ability to provide instruction is hampered by a shortage of teaching staff" (PISA, 2018).

Another important problem that teachers face is the lack of initial training to work with multi-age students. (OECD, 2010) points out that professional development options are dispersed among various providers and organizations, and

teachers indicate that courses do not always respond to their needs. Professional development offerings should be diversified and made more coherent and relevant to the needs of schools, as well as opportunities for professional development based on school needs should be expanded and supported.

Currently, the high rates of poverty, inequality, and the increase in crime rates have been increasing due to these factors, improving educational quality is a political and social priority in Mexico. It can be said that with the change of government every six years, various proposals have been made regarding improvements in education and there has been an educational improvement and an increasingly important focus on educational policies, but although various actions have been carried out, there is still lack actions that promote student performance.

According to the Program for International Student Assessment (PISA) applied 2018, in Mexico socioeconomic status was a strong predictor of performance in reading, math, and science. "In all other years and all other areas, the average performance of Mexico was not different from that observed in PISA 2018" (PISA, 2018).

About the conditions of the teaching processes in multi-age schools, the teaching style is preferably oriented to the transfer of content for its memorization by the students, without differentiating their learning levels. In addition to this, the organization of teaching does not resort to group work or distinguish between the learning levels of boys and girls. Likewise, it could be said that the activity of the students is eminently passive, limited to listening to instructions and copying. In addition to the fact that the teaching contents do not refer to the learning needs of children or their cultural experiences.

In the precarious material working conditions and without a pedagogical and methodological orientation for work in the multi-age classroom, teachers face serious limitations to conduct processes aimed at the achievement of children's learning.

The impulse that multi-age schools need so that they can raise their educational level requires external support, and according to this need, the National Project for Evaluation and Educational Improvement of Multi-age Schools (PRONAEME), detected through an investigation of some educational problems in multi-age schools, these derive from the demands and challenges they have to adjust and respond to an inflexible uni grade school organization (2017). According to various authors mentioned above, an educational model is needed that responds to the characteristics and requirements of multi-age education at the different levels and types of services. For multi-age schools, it is known that supervision structures constitute a central part of the institutional conditions that facilitate or hinder the pedagogical, administrative, and material support those teachers and directors commissioned from multi-age groups receive. Supervision structures are a central part of multi-age schools, supervision integrates professionals who are trained to act as an authority for directors of multi-age schools and full organization in Mexico. Supervision facilitates or hinders pedagogical support, and provides administrative and material support received by teachers and directors of multi-age groups. For the development of education in the multi-age school, the support of the authorities at the federal, state and municipal levels is necessary, according to this at the federal level, as part of the Educational Reform (2013) an organism was proposed that has the name of , Technical Assistance to Schools (2017) which in accordance with the General Law of the Professional Teaching Service (2018), the must provide support, advice and specialized accompaniment to teachers and staff with management functions to improve the professional teaching practice and the operation of the school, Technical Assistance to Schools (2017) Points out the need to accompany teachers in the practice of internal evaluation, in this way a clearer vision of teaching practice is obtained, this body also mentions that it is necessary to accompany teachers during the interpretation and use of external evaluations , if these evaluations are carried out properly, it is possible to know how the educational process is developed in the classroom.

In addition to this, the Ministry of Public Education (2015) through the agency Professional Teaching Service (SPD) mentions a profile, parameters, and indicators of the school supervisor and the pedagogical technical advisor, but this does not mention features that consider the needs of multi-age schools According to this information, we realize that unfortunately in Mexico, education in multi-age schools is not a priority, since the specific needs of multi-age schools are not taken into account, since these are measured with the same parameters as multi-age schools. complete organization.

Ideally, the teacher would appreciate the importance of taking advantage of the heterogeneity of multi-age groups (ages, interests, knowledge, skills) to promote learning through collaboration between students through shared activities, based on it, the teacher can identify his or updating needs to organize and plan his classes and establish agreements that allow the teacher to meet these training needs. And as a necessary complement to the collaborative work between the students and the development of the class, it is necessary to promote the autonomous work of the students, and the autonomy of student learning, Santos (2006) mentions that autonomy is a competence that needs to be stimulated in multi-age schools because in these classrooms the teacher must serve different groups and each one with different school needs in the same space and time, in addition, learning autonomy, allows the teacher to create a learning environment open to any contribution from the students. In the multi-age classroom, where beyond the objectives for each grade, students can advance in the acquisition of content according to their interests and motivations and with different levels of curricular depth.

The multi-age school is not the same as the graduate school, several aspects make them different, and that is why the multi-age school must be treated with special attention in all the aspects that compose it and contextualize it to the reality that is living in the classrooms, curriculum, pedagogy, infrastructure, administration, time management, among other aspects.

This chapter shows the compilation of previous research on the educational process specifically in multi-age schools in Mexico. At the beginning of the chapter, the context in which these schools are located is described and the characteristics of the teaching task in multi-age schools are examined. Subsequently, the theories that give way to educational excellence through the application of the study plan and program of Mexico are reviewed. International and national investigations that have been carried out around the subject are also exposed.

1. Multi-age education in rural areas

In developing countries, especially in rural areas, the multi-age school is presented as an educational opportunity for children and young people who live in these communities, the teacher has the task of working with different age ranges and different socioeconomic realities.

UNESCO proposed the term unitary school or single teacher school in the early 1960s. In Latin America, the most common terms to refer to school today are a one-teacher school or multi-age school. In recommendation number 52 of UNESCO, of 1961, important aspects were pointed out about the reason to be of multi-age schools:

"Regardless of the character, urban or rural, of his place of origin and his residence, every child who attends a primary school, whether it be one with several teachers or one with only one, should receive the minimum instruction necessary to continue their studies beyond the primary grade or be able to benefit from a complete education that prepares them to fulfill their obligations as a man and as a citizen" (UNESCO, 1961).

"Considering that difficulties of all kinds must be overcome so that children from small communities can, without being separated from their families, have access to education in conditions equivalent to those offered to children in more important localities" (UNESCO, 1961)

Regarding this information, it can be said that the unitary school has been present since the origins of the formal educational system, previously education was taught in a single classroom and with a single teacher, in that classroom, there were students of different ages and what was taught was same to all students. Later the school evolved to be organized into different grades.

In Mexico, multi-age schools emerged in the 19th century as an emergency measure to care for rural populations. According to National Institute for Educational Evaluation (2019) multi-age schools exist in Mexico at all levels of basic education, these schools provide education for all the population.

The (National Institute for Educational Evaluation, 2019) points out that the basic education system in Mexico is made up of 226,188 schools, through which care is provided to just over 25 million students, thanks to the work carried out by 1,219,862 teachers. At all levels of basic education, the vast majority of schools are publicly supported: 81% in preschool, 90% in primary, and 86% in secondary (National Institute for Educational Evaluation, 2019). The author Santos speaks specifically of multi-age schools in primary education. "Mexican educational system has a total of 87,756 public primary schools, of which 77.3% are general, 11.7% belong to the indigenous modality and 11% are community" (Santos, 2019). These results show that in Mexico there is a significant number of multi-age schools to be exact, Santos (2019) also mentions that 45.6% of the country's public primary schools are multi-age, in absolute numbers it represents more than 40 thousand schools.

Most multi-age schools do not have a large number of students or workers within them, and in some cases, the educational hours are shorter than ordinary schools but they manage to fulfill their purpose, to bring education to the most remote corners of the country. According to Santos, "Community schools are usually small: in 82.5% of them, the enrollment range goes from 1 to 15 students and in 13.4%, from 16 to 25" (Santos, 2019).

Multi-age schools are heterogeneous schools. In the case of primary schools, the number of teachers can be divided into unitary (one teacher), two teachers, three teachers, and up to 4 teachers attending the educational center, remembering that the primary level in Mexico must have six teachers and a director to be considered a full organization school. In most schools, the teacher also directs the educational center and the multi-professional multi-age school that has two or more teachers, but they are not enough to attend each grade individually. In many parts of Mexico, the fight to end multi-age schools is a priority, but it is also worth mentioning that if they did not exist, many children would be without access to education, which is why instead of eliminating these schools, resources are being strengthened to improve the quality of the education they provide. Accepting that multi-age schools exist and that they fulfill important objectives and roles for our society and our future professionals, is everyone's task. It must be recognized that there are some of these campuses that function very well, that is quite well constituted in addition to having a good academic level.

2. Theories

2.1 Effective schools movement

Firestone (1991) highlighted the breadth of the consequences of the studies by Edmons (1979) and Goodlad et al. (1979) in which he points out that "The effective school's movement was committed to the belief that the children of poor

families living in urban areas could succeed in school and that school could help them" (Sammons et al., 2015).

"An effective school adds additional value to the performance of its students, compared to other schools that receive a similar enrollment." (Sammons et al., 2015) According to this movement, it is possible to know if a school is effective by measuring knowledge and skills in specific areas such as reading, writing, and mathematics. Perez (2004) says that when a child does not acquire these skills at school, it is almost impossible to say that the school has been effective.

The first investigations on school effectiveness included explicit objectives or goals, related to equity and excellence. Sammons et al. (2015) describe three characteristics as the most important: the clients are the children belonging to the low-income social class, the second: Are basic skills in reading and mathematics, and finally the third: Equity is represented by poor children. these children must achieve the same professional levels as middle-class students.

In Mexico, the differences between an urban school and a rural school can be remarkably identified, these differences can be reflected in the economically disadvantaged children who attend the school, sometimes these students belong to ethnic groups, and in general, it is difficult for this type of students manage to obtain the same professional development opportunities as students in urban areas and this is where equity does not seem to matter.

Reynolds (1994) says that it is important for research on school effectiveness to take into account the differences in terms of traditions and the national educational context. Fuller and Clarke (1994) also point out the importance of context in developing countries.

(Sammons et al. (1995) claimed that in the classroom there were factors that were linked to an effective school such as intentional teaching, this teaching should

be previously planned and should include explicit objectives and practices should be based on the objectives, another factor is the effective learning time, sometimes what counts in the classroom is not the time but what is learned during this time, another factor is monitoring the progress of the students, the teacher must make sure that their students are acquiring significant learning, discipline and positive efforts in the classroom must also be taken into account, in the classroom, not all students have the facility to learn and that is why students must give extra efforts and these must be taken into account as well as the high expectations of the teacher that are reflected in the confidence that the teacher has about the ability of their students. students, among others.

Sammons et al. (2015) described effective teaching as the ability to include and adapt educational materials and resources, for the different school grades and therefore to the different ages and educational needs of the students, these materials are a source of support for the students since they facilitate student learning, they also motivate them to continue learning.

These authors pointed out four important categories for an effective class: quality, adequacy, incentive, and time.

Quality refers to the ability of teachers to make information make sense to students, interest them and make it easy for them to remember.
Adequacy has to do with how teachers manage to adapt what they teach to the different needs and learning rates of students.

The incentive is related to the ease that teachers have to arouse the curiosity of the students and keep them attentive in following the contents.
Time refers to the time that is well occupied and appropriate to the pace of student learning.

The authors claimed that schools are part of a context that is influenced by demographic situations such as the context, and the number of people living in the community, they also mention new job opportunities as motivation for students to study to obtain a good workplace, economic activities that take place in the city as well as the new inhabitants, among other factors. According to Sammons et al. (2015) the Effective Schools Movement presents eleven factors that drive the measurement of an effective school, these factors are described in the text box:

Figure 1

Effective schools movement

Eleven factors for effective schools	
1. Professional leadership	• Firm and directed • Participatory approach • Excellent professional
2. Share vision and goals	• Unity of purpose • Consistency in practice • Collaboration and collegial work
3. Learning environment.	• Orderly atmosphere. • Attractive work environment
4. Teaching and learning as the center of school activity	• Learning time optimization • Academic emphasis • Focus on harnessing
5. Purposeful teaching.	• Efficient organization • Clarity of purpose. • Structured injuries. • Adaptive practice
6. High expectations.	• High global expectations • Communication of expectation • Intellectual challenge
7. Positive reinforcement.	• Clear and fair discipline. • Feedback.
8. Progress tracking	• Monitoring of student performance. • Evaluation of school performance

9. Student rights and responsibilities.	• Raise the student's self-esteem. • Positions of responsibility. • Control of work
10. Home school collaboration	• Involvement of parents in their children's learning.
11. An organization for learning	• Training and updating of school-based academic staff

Teachers and principals directly influence compliance with these 11 aspects through appropriate and productive engagement as well as teamwork with families. In summary, it can be said that the findings of the studies on effective schools point to the importance of elements such as the incorporation of parents, moderating negative influences within the school, encouraging productive interactions between the members that participate in the process, stimulating parents to collaborate in the education of their children and to visit the school.

2.2 Lev Vygotsky's social constructivism theory

Constructivism refers to both a theory of learning (how people learn) and an epistemology of learning (what is the nature of knowledge) (Harasim, 2017).

Harasim (2017) describes this theory as the meeting of the new information with the meeting of previous knowledge, it is here where the function and relationship of data arise to create new information. Harasim (2017) points out that constructivist learning theory focuses on the learner's role in creating meaning and building understanding. Learners are seen as responsible for interpreting and making sense of new knowledge. Although two authors are taken up who is in charge of showing the existing differences within the same constructivist current.

Harasim (2017) describes two main fields or perspectives are associated with constructivism, one with each theorist:

- The "cognitive constructivism" of Jean Piaget Harasim (2017) describes this theory as the way in which the student understands the world on his own, in this theory we speak of stages of biological development.

- The "social constructivism" of Lev Semyonovich Vygotsky according to Harasim (2017) emphasizes the relationship between the knowledge that the student acquires through the social environment.

"Lev Semyonovich Vygotsky (1896-1934) was a Russian psychologist, he is the current scholar most prominently associated with constructivism" (Harsim, 2017)

According to Harsim (2017), Vygotsky pointed out the importance in the characteristics of the context such as culture, Vygotsky assured that a person cannot develop in solitude. He also claimed that people learn by interacting with the environment and reorganizing their mental structures. Harsim (2017) points out some characteristics of Vygotsky's theory, this theory focuses its attention on learning through interaction with the social context Vygotsky said that all students could acquire knowledge from the interaction with the context in which they found themselves.

Harsim (2017) describes Vygotsky´s theory she points out that in this theory, the importance of social relationships for the cognitive, cultural and social development of students and in the student´s learning process. According to Harsim (2017), Vygotsky said that these social interactions also intervene in different areas of our life such as the acquisition of new words and the power to modify our thoughts, he also created the concept of the ZPD, the "zone of proximal development".

Figure 2
Zone of proximal development (Harasim, 2017)
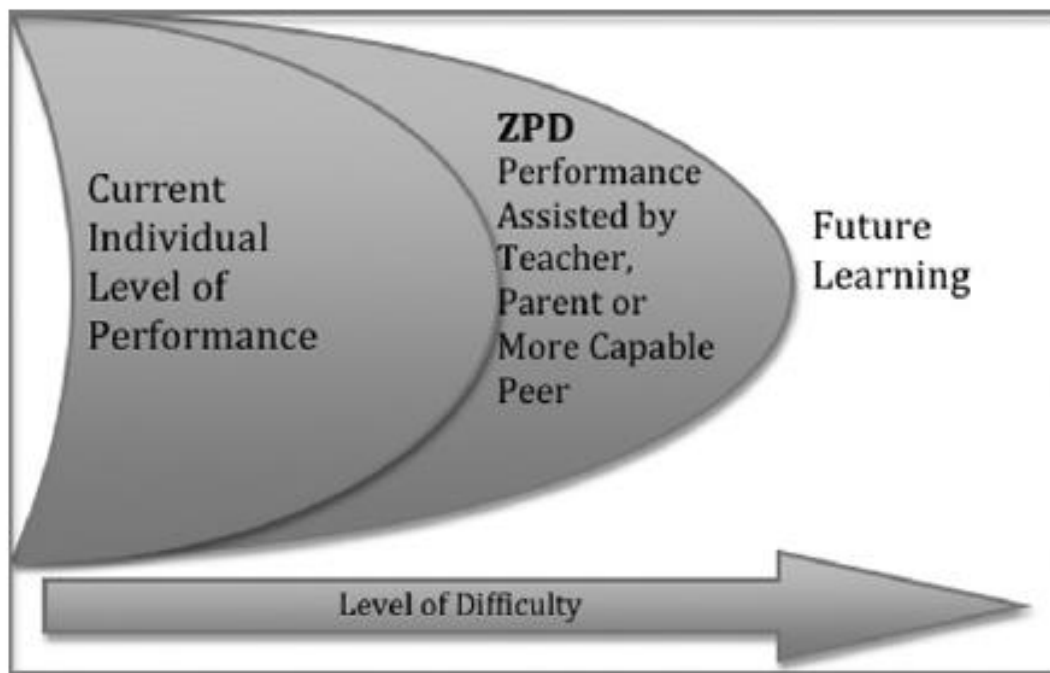
According to Harasim (2017), Vygotsky considered that socialization stimulated learners to generate higher cognitive functions individually but through social interaction. The main characteristics of constructivism have created approaches for the teaching process, according to the information indicated by Harasim (2017), the following four principles or key values:

1. Active learning.

Harasim (2017) points out that active learning focuses on the student, and the student must actively participate in the activities proposed by the teacher, it must be said that the proposed activities must be interesting, they must be relevant to the students, and contextualized to their environment of development and in this way, the students perceive that they have responsibility for their knowledge this allows students to be able to reflect and analyze their work and performance in class. In a few words, Harasim (2017) describes that the student is a subject who is interested, participates and takes responsibility for his own learning.

Harsim (2017) assures that students actively build their knowledge through teacher guidance, as the teacher encourages active learning rather than allowing students to passively receive knowledge from the teacher.

2. Learning by doing.

Learning by Doing is a favorable system for student learning since it allows the student to integrate knowledge and solve problems in the professional field, it brings the student closer to reality in the work environment, it also encourages student's values such as a sense of responsibility, discipline and willingness to work. Paper's constructionism Papert (1999) describes an educational philosophy this philosophy shows the way to the students, provides an example of how to do the tasks and encourages them to do the activities and not just talk about a topic Harasim (2017) (p. 71).

3. The zone of proximal development (ZPD)

According to Harsim (2017), the zone of proximal development provides students the notion to recognize their knowledge and understand new information. Harsim, (2017) also describes the zone of proximal development as also known as the distance between the level of actual development and the level of potential development. The difference between these two states is that the first one is determined by the independent resolution of problems by the student, this means that the student can solve problems with a low degree of difficulty, only with the help of his knowledge in this area very basic. In the second zone, the student can solve a more difficult problem without the help of the teacher. In a few words, the zone of proximal development is the distance between these two zones and the student must go through this zone with the help of a professional to reach the level of potential development.

4. Collaboration

Harsim (2017) highlights that this collaboration occurs specifically between the main actors in the educational process, students, teachers and it is also possible to include parents.

2.3 Meaningful Learning David P. Ausubel

According to Barriga & Hernandez (2002), Ausubel postulates that learning attached to various factors that actively intervene in its process such as ideas, thoughts, concepts, creativity. According to this author, meaningful learning is a type of learning in which a student associates the information that he has with the new information, in this way student makes a construction integrating the previous information with the new one. It is understood that learning is a process of reconstruction of knowledge.

Ausubel conceives the student as an active processor of information and points out that learning occurs when what the student already knows conflicts with what he should know.

Barriga & Hernandez (2002) say that meaningful learning implies very active processing of the information to be learned. The student must have pertinent previous ideas as a necessary background to learn, since without them, even if the learning material is well prepared, little will be what the student will be able to learn.

On the part of the teacher, it is important to be willing, motivated, and able to teach meaningfully, so it is also important that the teacher has relevant prior knowledge and experience. The authors (Barriga & Hernandez, 2002) mention that it is important for the teacher to keep in mind that they will face situations determined by the school context, the previous history of their students and that their field of

action is all those social learning and academics that you can promote in the students.

On the other hand, there are the contents and didactic materials, in which it is important to mention that (Barriga & Hernandez, 2002) affirm that the materials must have a potential logical meaning for the student, in case the materials do not comply with this characteristic, the content that the student learns may become a routine and meaningless, in this way the student loses interest in learning. This could be an opportunity for the teacher to enhance learning materials and also improve work experiences in the classroom and outside the classroom to bring students closer to more significant learning. According to the postulates of Ausubel, the sequence of organization of the curricular contents consists of progressively differentiating said contents, going from the general to the most detailed. Barriga & Hernandez mentioned that the constructivism proposal is based on the development of student's abilities and skills with the objective that learning is continuous and meaningful for students, above all, learning must be flexible and easy to understand for each student (2002).

3. Factors that influence the educational process

According to the information presented in the main theories, it is possible to recognize the factors that occur in a classroom and contribute to quality education. The theories present different factors, actions, and principles that describe some of the factors that influence the educational process.

It is important to carry out a thorough review of the available literature, to discover which factors intervene positively in the educational process as well as the factors that intervene negatively. Negative factors are understood as those factors that affect the educational process, such as not taking into account the concerns and needs of students and communities, and there is an excessive dependence of students on teachers, among others.

Positive factors are understood as those that contribute to the learning and comprehensive development of students. It is important to mention that this research emphasizes the positive aspects that influence the educational process. It is necessary to mention that the chosen theories are related to the structure of the educational model in Mexico, this is based on the constructivist theory, and the plans and study programs are created from the principles of this theory.

The factors described below do not cover all the variables of the subject, since the researcher selected the variables according to the principles aimed at education of excellence, established in the 3rd article of the political constitution of the United Mexican States and in the pedagogical orientations of the educational model in Mexico that is called The New Mexican School (NEM), this model promotes general orientations that enhance the reflection, design, and implementation of actions at two levels: School management and educational practice in everyday life. Therefore, these two levels proposed by the new Mexican school were taken as a reference and divided into two categories: school management and pedagogical orientations, later from the theoretical bases and what was indicated by the educational model, the variables were created.

3.1. School Management

The NEM has as its center the comprehensive training of girls, boys, adolescents, and young people, and its objective is to promote learning of excellence, inclusive, multicultural, collaborative, and equitable throughout the course of their training. This educational model promotes democratic, participatory, and open school management that implies the effective commitment of all its members and the community. "It promotes new forms of interaction between the different educational actors, between teachers, with managers, the participation of the community and mothers and fathers, as well as administrative staff" (Ministry of Public Education, 2019).

In this section, a relationship is created between 9 of the 11 principles of the effective school movement and between article 3 of the political constitution of the United Mexican States and in the pedagogical orientations and the 14 educational principles of the educational model in Mexico (NEM). It is important to point out that each principle that points out the effective school movement has specific characteristics for its better understanding.

3.1.1 Professional leadership.

Professional leadership can be reflected in the role of the school director, the director more than other members of the academic body, can be more sensitive to the context. Sammons et al. (2015) to create a change the role of a leader is important, that they have a vision with values and goals. In different literature, characteristics have been shown with successful leadership such as Strength in purposes, involving the academic body in decision-making, and professional authority in the teaching and learning processes. This principle is related to the new educational model proposed by the Ministry of Public Education (2019) it indicates that the active participation of all educational actors is a constant, and the opinions, suggestions, experiences, and knowledge have a substantive role in strengthening the functions. Specific characteristics:

Strong leadership: It is the ability to mediate negative changes and the help of local leaders such as government, and parents, among others is necessary.

Professional and outstanding: According to Sammons et al. (1995) an effective director is not only a senior administrator but a professional who is also an example for his teaching colleagues, he shows that he is prepared to solve the educational problems of the institution, that is why he is in that position. It can also

be pointed out that he is an outstanding professional for the actions carried out during his tenure and that he has contributed positively to the institution.

3.1.2 Share vision and goals.

Sharing the objectives is of the utmost importance so that everyone works in the same harmony and the objectives are achieved with the work of all. According to the educational principles created by the Ministry of Public Education (2017) number eleven points out the importance of teamwork among colleagues, sharing experiences, interests, and concerns with other colleagues, will generate joint responses on various topics.

It is true that in school management the interaction of teachers with management staff, supervisors, and technical-pedagogical advisors is essential. The Ministry of Public Education (2019) highlights that those in charge of administrative functions must provide advice, support, and follow-up to provide feedback to teachers and colleagues in their charge. For his part, Lee et al. (1993) cited by Sammons et al. (1995) describe the benefits of collaborative work and cooperative work, these stimulate effective communication, generate the creation of shared goals, and all these aspects are relevant for the proper function of an organization (p.36).

Consistency in practice: Teachers perform the role of positive role models for the student, in their relationship with students and teachers. "Avoid a rigid and corrective approach" (Reynolds 1976, cited by Sammons et al., 1995, p.37)

Collaboration and collegiate work: In this characteristic, teachers are interested and participate in decision-making and elaboration of school guidelines, according to form bonds of support and respect among their peers, these authors Sammons et al. (1995) mention that it is also possible that a sense of community

can be created, the teachers can share ideas so that they can learn from each other and in this way, they all learn about the experiences of their colleagues (p. 37).

3.1.3 Learning environment

According to Sammons et al. (2015), a school is determined in part by the vision and goals it has. In this characteristic it is important to retake the values, the objectives of the teachers, and the way they work together, teachers must work in an adequate work environment that motivates them to be better, it is also important that teachers maintain an orderly environment and encourage their students to maintain an orderly environment and an attractive work environment. Pedagogical principle number 14 refers to the importance of providing security to students and stimulating cordiality among students, that is welcoming that makes each student feel part of the institution, an environment that makes each student feel valued it is also important to create a collaborative and stimulating learning environment in the that students feel important and responsible for their knowledge. Ministry of Public Education (2017).

Orderly atmosphere: Sammons et al. (1995) pointed out that to generate a pleasant and positive climate in the classroom, it is necessary to stimulate student self-control and discipline. On the other hand, noise and disorder are factors that in the classroom can generate a lack of concentration in the students and can also cause a lack of motivation and have a direct impact on the development of the students.

Attractive work environment: The physical structure of a school can also affects attitudes such as student behavior and achievement. Regarding the importance of infrastructure, article 3 of the political constitution of Mexico exposed in the Official Gazette of the Federation (2019) establishes that schools are a fundamental space for the teaching-learning process. The Official Gazette of the Federation (2019) ensures that it is the state that must guarantee adequate teaching

materials, and adequate educational infrastructure for teaching, the state is also responsible for providing maintenance to each school, and the state must ensure that it provides the most suitable to help meet the objectives of education. For their part, Rutter et al. cited by Sammons et al. assured that abandoned buildings stimulate vandalism (1995, p.39), they also mention that it is important to exhibit the children's work, this stimulates the recognition of their work by their other classmates and the students can feel part of the institution when they see their work creations decorating the school.

3.1.4 Teaching and learning as the center of school activity.

The Ministry of Public Education (2019) mentions the basic purposes of the school are teaching and learning and according to the Mexican educational model, the teacher is the main actor, the teacher directs the students to the path of learning, and it is necessary for the teacher to develop the teaching practice integrating the context of the students to facilitate the students' learning, the teacher must also recognize the importance and contribution of education to the community, the importance of teaching practice and how its good performance influences the community. This principle points out two factors that influence student learning.

Organization of learning time: Interaction with students, time the teacher spends discussing with students, class punctuality, interruptions from outside the classroom. "It is not the weather as such that counts, but what happens during that time" (Sammons et al., 2015).

Academic emphasis: An important factor that influences academic emphasis is related to the knowledge that the teachers have of the subjects (Sammons et al., 2015) Concerning the Mexican educational model, it indicates that teachers have the essential knowledge to rethink and model the strategies that will be put into play in the classroom. In this sense, the Ministry of Public Education (2019) points out that according to the experience built in the classroom and according to the

knowledge of the teacher, planning in the school context is approached critically and subjectively.

the author Bennett (1992) points out a characteristic of ineffective schools, the constant change of teachers and the fact of teachers and academic staff, this author considered these characteristics as a problem that schools that seek to be effective must face. Especially in multi-age schools, this problem of changing teachers occurs frequently, sometimes teachers are not prepared to face the demands that arise in these schools.

3.1.5 Teaching with purpose

The quality of teaching is a central element of effective schooling, according to Sammons et al. (2015) quality is determined by the teaching staff that is in the institution, the hiring of teachers also plays an important role, in knowing the process by which teachers are selected and knowing how the replacement of teachers is carried out, who evaluates them, what evaluation determines that they are fit to work in the institution, are important factors to ensure the quality of the teaching staff. Also teaching styles and strategies are important factors related to student progress.

Efficient organization: This characteristic is determined by the organization that teachers carry out within the classroom to meet their objectives (Rutter et al, 1979, cited by Sammons et al., 2015, p.41)

Clarity of purpose: Sammons et al. (2015) point out that students must be always aware of the purpose of the content of the lessons they are going to learn.

Structured Lessons: Sallings (1975) mentions that the systemic teaching method generates improvements in student learning through open questions and feedback from the teacher to each student's response.

The efficient organization also generates positive learning, a classroom where students have enough work, a limited focus on sessions, and a well-defined frame of reference in which they are encouraged to have a certain degree of independence and responsibility to manage their work (Sammons et al., 2015)

Adaptive practice: Sammons et al., (2015) mention that when students' progress they show behaviors that make their learning evident and this helps the teacher to identify student learning and identify how students learn, this also helps teachers use appropriate strategies in the classroom. lessons. The multi-age classroom is heterogeneous, this is one of its main characteristics, which is why flexibility on the part of the teacher to modify and adapt their teaching style is of the utmost importance.

3.1.6 Positive reinforcement

Actions such as giving rewards, positive incentives to students, and mutual agreement between students and teachers on the existence of clear rules are associated with the probability of obtaining better results than punishment Sammons et al. (1995).

Clear and fair discipline: Sammons et al., (2015) point out that the construction of order in the classroom is through good discipline is obtained through the creation of regulation, this can be a mutual agreement between students and teacher. Frequent use of punishment can create a tense and negative environment.

Feedback: Rutter et al., (1979), cited by Sammons et al., (2015) These authors mentioned that to stimulate the positive behavior of the students, it is necessary to implement positive feedback, it is necessary to recognize the teachers for their good actions during the sessions (p.48).

3.1.7 Rights and responsibilities of students.

Sammons et al. (2015) point out that In effective schools it is possible that the teacher detects the effectiveness and acquisition of the knowledge acquired by the students, in this case a sign is that the students show a high self-esteem and motivation to learn.

Raise self-esteem: Mortimore et al, 1988 cited by Sammons et al. (2015) these authors found positive effects when teachers transmit enthusiasm to students and when they show them individual attention (p.52). When the students feel observed and when students feel the teacher's attention, students could feel important and this motivates them to continue working properly to receive recognition for the good work they do.

3.1.8 Home-school collaboration

Effective schools maintain a supportive and cooperative relationship between home and school, and studies have shown that this relationship has positive effects. It is the principle of effective schools, that goes hand in hand with an orientation of the educational model in Mexico "promote various forms of participation that can be carried out between the school and the community, thereby promoting greater roots in local life" (Ministry of Public Education, 2019).

Involvement of parents in their children's learning: According to this information, the Ministry of Public Education in Mexico and the Ministry of Public Education (2022) point out the importance of the articulation between the school and the local community, which is mediated by the construction of complex relationships between individuals whose fabric is sustained by a process of continuous training in that the construction of knowledge goes hand in hand with the construction of relationships established by groups or individuals in various areas of reality. It can be speculated that when parents and teachers have the same goals and

expectations for students, the combined support can function as a pathway to achieving goals.

3.1.9 An organization for learning.

Official Journal of the Federation (2019) points out that teachers will have the right to access a comprehensive education system, to receive training and updating which will be fed back through diagnostic evaluations, all to comply with the objectives and purposes of the national education system. This principle also reflects one of the orientations of the Mexican educational model: To enhance the authority and responsibility of the teacher from the accompaniment and in their practice. Teacher updating and accompaniment is an important topic to be discovered today in multi-age schools, since they have few specific updating and training courses for teachers who work in these schools, sometimes it is almost impossible for them to receive an update since the conditions of the context in which these schools are located, they are difficult to access or there is no internet signal, if teachers have to go to a course on school days, it implies that students are left without a teacher and therefore do not take classes.

School-based training and updating of academic staff: (Stedman, 1987 cited by Sammons, Hillman & Mortimore, 1995, p.52) these authors emphasize the importance of updating content, in this way the current and specific needs of the staff will be taken into account. This characteristic emphasizes something important since the courses that multi-age teachers can receive, in most cases are courses that are designed for teachers who work in entire schools, which means that they would be decontextualized to school problems in a school multi-age.

3.2 Pedagogical orientations

According to the new educational model presented by the Ministry of Public Education (2019), the teacher is a fundamental actor in the achievement of the learning of children and adolescents, so it is important that the teacher bases his work on taking into account the reality and the context of your classroom, you must recognize the impact of your actions at the community level. This section describes the theories that support this research, these are Zone of proximal development, scaffolding, meaningful learning, and the movement of effective schools.

The relationship between these theories and the fourteen pedagogical principles established in the new educational model is described. Constructivist theories were chosen since the characteristics of the Mexican educational model include features of the constructivist model.

3.2.1 Proximal Development Zone

Harasim (2017) describes the zone of proximal development as a distance that exists between two other levels of student development, the first is actual development and the other is potential development, the one between these two is the zone of proximal development.

To explain the zone of proximal development, the author Harsim (2017) shows a graph that is presented after the 3 characteristics that are described to understand the zone of proximal development: "The zone of real development (level of real development)" (Harsim, 2017) these are those problems that the child can´t solve without help, next is "the following is the zone of proximal development (ZPD)" Harsim (2017): This zone represents the distance between both levels of development. Between the actual development zone and the potential development zone. The last is the "zone of potential development (level of potential development)" Harsim (2017) this is the level of development that the child reaches after passing through the zone of proximal development, in this zone the student can perform exercises without the help of a professional.

In other words, children who are in the zone of proximal development are close to being able to perform a specific task autonomously, but they still need to integrate some thought keys, which with the proper guidance of an adult, in this case, the teacher, could accomplish that task. This collaboration brings with it the supervision and responsibility of the teacher for the fulfillment of the tasks of the students, this fulfillment leads the students towards learning, progress, and the consolidation of new knowledge. "The teacher is a fundamental factor for the achievement of learning of children and adolescents..." (Ministry of Public Education, 2019)

Pedagogical principle number three describes for effective accompaniment to develop adequately, emotionally, and intellectually, the attention and support of the teacher, the director, and parents are required, it is also necessary that the students show interest and active participation in their learning. "Before withdrawing the accompaniment, the solidity of the learning must be ensured" (Ministry of Public Education, 2017).

"A key principle of social constructivism is the pedagogical emphasis on the role of collaboration" (Harasim, 2017). The importance of collaborative work is also pointed out in the Mexican educational model presented by the Ministry of Public Education (2019), which says that this promotion of collaborative work starts with the participation of students in activities that promote physical culture, emotional support, intellectual development, and a culture of peace, aspects of the human being.

3.2.2 Vygotsky scaffolding

Scaffolding is an area in which the expert on the subject being worked on is located. The process of locating ourselves in that area and gradually withdrawing this aid is what Bruner calls scaffolding. Bruner (1978) proposes the concept of

"scaffolding" as a process of skills transfer, in which the adult supports the child in learning. "At the beginning, the support is great, and little by little it is withdrawing its control over the process until the child achieves learning". (Camargo et al., 2010).

The scaffolding constitutes all those actions, materials, and objects that are implemented in the class to facilitate the learning of the students as a whole, they are a provisional structure provided by the teacher, the parents, or among the more advanced students that serve as support to the student for the construction of learning, this support is withdrawn until the student can carry out the activities independently. The educational principle of the Mexican educational model, number six points out the need to promote collaborative work, "students should be allowed to debate, talk, exchange ideas among themselves and that students with more advantage help their peers" (Ministry of Public Education, 2017). The student must know that he shares the responsibility for learning with the teacher and his classmates.

The student becomes the protagonist of his learning and the teacher establishes himself as a mere guide who offers the students the necessary tools so that they are capable of solving the proposed tasks at all times. It starts from an interaction between teacher-student where both learn from each other and in which, in addition, the teacher increases the difficulty of each challenge, making the children develop the maximum potential of their abilities. Although if the teachers want the students to learn to do something, it is the teachers who must be in charge of showing the students how to do it, this allows "the scaffolding of thought" indicated in educational principle number nine, this principle indicates in conjunction with the Ministry of Public Education (2017), the important attribution for student understanding When teachers show students an example of the activity to be carried out, students will have a clear idea of what they are expected to achieve an understanding of the activity is facilitated.

In this theory, the contents are contextualized to the reality of the students, therefore, they always arise from the interests and motivations of the students, thus adapting to their learning rhythms and needs. Pedagogical principle number four indicates that "A close relationship with students must be established as the main basis for designing contextualized activities based on their interests and thus motivating them" (Ministry of Public Education ff Public Education, 2017). And it is related to this learning because it is usually student-centered, it also encourages students to participate and act in their learning, instead of being passive, students can participate, discuss, read books, and investigate, to be able to reflect and notice how is their understanding changing.

Regarding the pedagogical principles established in the educational model, principle number one states that "it should be promoted that the student is fully involved in his learning so that student is an active learner" (Ministry of Public Education, 2017) also pedagogical principle number five indicates that strategies must be designed so that students are questioned as they learn so that they reflect and can take control of their learning. According to Harsim (2017), the role of the constructivist teacher is to encourage and support students to build their knowledge.

3.2.3 Significant learning Ausubel

Instructional principles that are directed to the teaching task in the classroom are derived from this theory, Barriga & Hernandez (2002) these authors highlight some of them, contents should be presented with an organization and take into account a logical and psychological sequence in this way the learning is facilitated. It is also convenient to define objectives and learning content, this must-have continuity. On the other hand, the school contents must be presented as organized and must show a relationship with each other, they must also show a hierarchy and must not be shown as isolated data without order.

Barriga & Hernandez (2002) also mentioned that one of the main tasks of the teacher is to stimulate the motivation and active participation of the student, these authors point out the importance of stimulating active learning in the student, one way is to increase the potential of academic materials.

In general, in this theory, learning should be seen as a continuum in which the transition between phases is gradual, rather than immediate. According to pedagogical principle number two Ministry of Public Education (2017) established in the educational model, the student's prior knowledge must be recognized, encouraging them to express their concepts and proposals, and based on that they form their new learning

The importance of meaningful learning lies in the fact that unknown, abstract, and little related to the student's prior knowledge information is more vulnerable to forgetting, unlike the information with which students feel familiar, this information is generally linked to previous or applicable knowledge in their daily life. Pedagogical principle number seven established by the new educational model through the Ministry of Public Education (2017) indicates that the student must learn in circumstances that bring him closer to reality, and therefore it is important to contextualize the curricular contents.

For the Mexican educational model, it represents a challenge to make the student learn from situations that can be found in their daily lives and in this way apply the knowledge obtained through the contents.

For Barriga (2007), teaching strategies are thus defined as procedures or resources used by the teaching agent to promote significant learning, she is a specialist in talking about constructivist strategies, and points out that the quality of learning depends to a great extent on the teacher's ability to adapt his demonstration and description to the changing needs of the student. Students today use a variety of media to learn about their interests and needs.

Regarding educational principle number ten, this emphasizes the need to implement strategies that adequately integrate these current means used by the student in the classroom, in this way significant learning is also promoted in the student.

This chapter presents the objectives, a general objective, and two specific objectives, the research questions are also shown, a general question and two specific ones. Subsequently, the methodology used in the research is described, as well as the instruments used for the selection and collection of data. Qualitative data are also described through analysis and the results obtained through the application of the instruments are explained in detail. The thesis is summarized by a general conclusion, then the limitations of the study are mentioned, as well as the recommendations for educators, especially in rural areas, and some suggestions are made for future research on the subject.

1. Research Aims and Questions

The general objective of this study is to identify the elements that intervene in the educational process of the multi-age school in rural Mexico. To fulfill the general objective, two specific objectives are presented: Analyze the teaching strategies implemented by the teacher that contribute to the comprehensive development of students. Identify the relationship between the national education plan and program and the educational needs of students. To meet the objectives of the research, the following questions are formulated.

1) What elements are involved in the educational process of the multi-age school in rural Mexico?

2) How do the teaching strategies implemented by the teacher contribute to the comprehensive development of students?

3) How are the national study plan and program related to the needs of the students?

2. Research Methodology

This study used an ethnographic methodology, which uses observation and interview as instruments to collect the necessary information for the investigation. Regarding these instruments, the appropriate approach for this study is the qualitative method. The ethnographic methodology was established as the ideal for research, due to its characteristics that allow persuading the diversity of the actors located in complex realities Vargas (2017). The ethnographic methodology allowed us to know the agents that intervene in the educational process within the multi-age classroom in the rural area and through a qualitative method it was possible to obtain a deep understanding of what happens in the multiage school, this qualitative method also allowed the researcher to witness authentic and daily experiences of the agents that participate in this process. During the interview, the researcher made sure to ask clarifying questions for the interviewee, questions that collected the necessary information to achieve the objectives, and during the observations the researcher had the opportunity to confirm the information collected through the interview to later triangulate the information through the analysis and the qualitative method.

3. Contextual Framework

In the multi-age classroom, teachers must work closely with the students, making them think, reflect and understand, and find answers to their concerns, taking into account at all times that the diversity that exists in the classroom requires the teacher to pay special attention, allowing students to advance in their learning according to their characteristics from the level they are at, but unfortunately in most cases, the strategies that teachers want to implement are sometimes affected by the lack of teaching materials and scarce resources facilitate the learning process for students. This is one of the different problems faced by multi-age schools in the state of Mexico. During this investigation, a multi-age school located in the state of Mexico

is taken as a sample. The State of Mexico is located in the center-south of the Mexican Republic. Its territorial surface is 21,461 square kilometers, which represents 1.1 percent of the national territory. Its capital is the city of Toluca and it is made up of 125 municipalities with 4,786 localities. Nopaltepec is one of the 125 municipalities of the State of Mexico, bordered to the north and east by the State of Hidalgo and to the west and south by the municipality of Axapusco. Nopaltepec is made up of 4 localities: San Felipe Teotitlan, San Miguel Atepoxco, Venta de Cruz and Santa Inés Amiltepec. 5.3 kilometers south of the municipality of Nopaltepec, is the rural community of Venta de Cruz, which has a total of 146 inhabitants. Among the inhabitants, 10 babies between 0-5 years old, 19 young people between 6-14 years old, 94 adults between 15-59 years old, and 23 elderly people 60 years old or older. According to the National Institute of Statistics and Geography (2020) in the community, there is a total of 42 inhabited private homes, most of these have electricity, and drinking water service, 92.86% have a toilet or bathroom, and the average population has appliances, and only 42.86% have a private car, 19.05% have a computer at home, 16.07% have an internet network at home, and 80.95% have a cell phone. The community does not have a drainage system or a telephone line, there is also no public transport service, and the nearest community is just over 3 kilometers away.

The main source of work is the planting and harvesting of the "Nopal", this is a type of cactus that grows abundantly in this municipality, as well as the fruit of the nopal, has the name "prickly pear" which is harvested During the months of July and August, this is a fruit that during the planting and harvesting season is considered one of the main sources of work in the area, thus leaving an economic benefit for the region.

Another of the activities carried out by the inhabitants of this region to solve the economy is that of the maquila, that is, several sewing workshops employ the inhabitants basically when the season of prickly pear and nopal are low due to certain climatological factors that intervene in the production harvest, such as the

intense cold or droughts that make production scarce, it is then when the population lacks economic income and finds it necessary to work in the maquila workshops.

In terms of education, in this community, there is only one school that takes care of the inhabitants and it is the multi-age primary school, which is single-teacher, only one teacher is in charge of the groups of students from first to sixth year, as well as the school management. The teacher in charge of the school is Master Emanuel. He studied for a degree in primary education, at the "Escuela Normal De Teotihuacan" later, he completed a master's degree in educational sciences in 2010. Later he decided to take a diploma in multi-age education in 2013, he also has diplomas that accredit his attendance at various leadership and managerial courses.

The teacher began to work in 2007, as a teacher in a marginalized area in the municipality of Ecatepec located in the State of Mexico, in this school he only collaborated for 1 year, later he was removed to another rural community in the municipality of Acolman located also in the state of Mexico, where I collaborate for 2 years. After this time, the teacher decided to change schools. The school is located in the community of Tecamac, also belonging to the state of Mexico. In this school, the teacher imparted his knowledge for 1 year and 6 months and he was presented with the opportunity to work at the multi-age school. He was assigned the position of director, currently, he continues to work in this school and this year the teacher celebrates 11 years of working as a director and teacher in this institution.

The multi-age school is in operation in the morning, it is a public school and managed by the state. The school is made up of 3 classrooms that are distributed as follows:

The main classroom, which is the largest classroom in the entire school, is this classroom where you work with the 6 groups that are in the school, inside the classroom, there are different blackboards designed for the work by cycles.

The library and the computer room are located in this classroom. In the library, there are more than 950 books, some of these donated by students who have finished primary school, and some others are sent by the federal government. The computer area has 10 computers, all of which work and the students can use 9 and one for the teacher, at school, as well as in the community, there is no Internet network because of its distance, it is difficult to locate this service.

The last classroom works as a breakfast room for the students, here the students have hot food for breakfast this dining room is managed by the parents, and the pantry is donated by the municipal presidency, it is important to mention that this space is new in the school and will begin operating this school year.

There are two divided bathrooms, one for men and one for women, which do have drainage service and are equipped with what is necessary for a toilet. Students can enjoy a games area. The school is completely painted, it has a perimeter fence and it also has an arched roof that covers the yard. Currently, new furniture has arrived at the school, such as seats, tables, and chairs for the use of the students and the teacher, it is worth mentioning that these benefits were managed directly by the teacher in charge of the school and in conjunction with the federal government and the municipal presidency, economic support of up to $50,000 has been achieved Mexicans.

The textbooks used during the class sessions are sufficient, one for each student and it is the school supervision who is in charge of making them reach each school, and the Ministry of public education is the one who provides them.

Student enrollment during this school year is made up as follows: 1st grade has no student, 2nd there is 1 student, 3rd there is no student, 4th there are three students that make up this grade, likewise, there are three students in the 5th grade, and finally, there is 1 student in the 6th grade, having a total of 8 students.

The students walk to school since none of them have a private car, attendance is regular and they are disciplined and participative, students must wear a school uniform, but the economic level of most students is very low and they do not have the resources necessary to acquire it.

Regarding the participation of parents in the education of their children, most parents are very participative, they try to get involved in activities that require their support and show commitment and interest in the education of their children.

4. Participants

The data collection procedure was based on two instruments, the interview format prepared by the researcher, and the observation format prepared by the researcher. The semi-structured interview was conducted with the director in charge of the institution, let us remember that this school is unitary and only has one professional in charge, so this director also performs the teaching function, therefore, it was only necessary to conduct an interview. The interview was conducted by video call since the researcher is living in the city of Prague in the Czech Republic and the director of the institution is in the rural area of "Venta de Cruz" in Mexico. The researcher agreed on a convenient date with the director for the application of the interview, it is important to mention that in the community in which the school is located, sometimes there is no internet so the teacher moved to another community to be able to participate in the interview.

Regarding the observation, this was an indirect observation since the researcher lives in the city of Prague, the Czech Republic, and the school is located in the rural area of "Venta de Cruz" in Mexico. The researcher observed 6 sessions of 50 minutes each session on different working days, the sessions were captured through videos taken by an agent external to the institution that in this case served as support to the researcher. It was necessary to present documents that would allow the person in charge of recording the sessions to enter the institution, for the parents of the students to be aware of the objective of the investigation. The

researcher made a meticulous and detailed observation of each video. It is important to mention that the researcher had previously visited this school to learn about the infrastructure and the context. It is also important to point out that the researcher had already had experience working with multi-age schools since, during his university training, he did some professional practices in a school of this type.

4.1 Data collection tools

4.1.1 Semi-structures interview

Qualitative data collection tools collect data that are characterized more by being descriptive than numerical, are based on texts, and are often expressed in the participants' own words, this is the case of the semi-structured interview, which is flexible in time to gather information and can be adapted according to the topics that arise during the conversation. They facilitate conversation and are favorable for the interviewee to feel confident in expressing themselves honestly.

The interview was semi-structured, elaborated from dimensions created based on the characteristics of the constructivist theory, and linked to the practical educational orientation on a day-to-day basis, this orientation was extracted from the pedagogical orientations of the new educational model in Mexico (NEM).
The questions for the interview were made before the interview, the questions were open to collect as much information as possible, the order of the questions changed according to the answers if the teacher emphasized a topic, and the researcher asked more questions about that topic to know in-depth data. The researcher made sure that the teacher understood the questions so that the information was as reliable as possible.

It is necessary to mention that the researcher selected the dimensions that allowed them to identify the information required for the investigation and the fulfillment of the objectives.

4.1.1.1 Sample selection, conducting and analyzing the interview

According to Oakley (1998) the qualitative type interview, records data and questions in-depth information, these data are also reinforced during the interview.

The interview is also described as a technique that is developed through a conversation, its orientations correspond to specific purposes established in the investigation, and usually, the interview is used with a small number of participants. In this case, we speak of a unitary school, which means that the school has only one teacher, and he is in this case the only source of direct information.

It is necessary to mention that for this investigation another institution located in the rural area of Teotihuacan in the state of Mexico was also contacted, but the teacher in charge refused to participate in the investigation since she was there temporarily and her stay ended earlier in the time required for the investigation, it also did not meet the requirements such as being a full professor and time of experience, for example.

To contact the direct professor of the institution, it was necessary to go to the institution and let the professor know of the interest in carrying out the research and invite him to participate, the professor agreed and from that moment provided the information required by the researcher. The researcher proposed to the teacher the realization of an interview to which the teacher kindly agreed, later the researcher proposed a date to finalize the interview but the teacher found himself with a lot of administrative work. Later, a common date was agreed and due to the distance, the interview was conducted by video call, the google meet platform was used and the interview took just over two hours. The interview was audio-recorded, for teacher confidentiality, although it was possible to take a screenshot as evidence of the interview.

During the interview, open questions were asked that allowed the teacher to express himself freely and at the same time allowed the researcher to investigate in depth. The researcher needed to transmit confidence to the teacher, in this way the interviewee was expected to feel confident and honestly express the required information. It was also important for the researcher to be attentive and avoid interrupting the interviewee. Regarding the topics that were discussed in the interview, the researcher was attentive to the information and at the moment in which the teacher mentioned key points, the researcher asked more questions about that topic trying to cover all the categories specified in the script. At the end of the interview, the researcher recognized the teaching work and thanked the interviewee for his participation, also the researcher offered to the teacher, to share the finished research.

The analysis of the interview has the objective of understanding in depth the answer obtained. For this analysis, the thematic analysis method was used, identifying themes within the responses collected, including interpretation. It should be mentioned that during the analysis words that the teacher repeated continuously were detected and these words were taken into account together with intuition and with the characteristics indicated in the literature involved in the investigation.

4.1.2 Observations

According to McLeod (2015) observation is a technique that can be used in research with a qualitative method, observation also allows to discover of detailed information about the subject under study, and also makes it possible for the researcher to witness the reality that is developed in the field of research through this technique, it is also possible to carry out a context analysis. In particular, this research carried out an indirect observation, this type of observation is based on data collected by other researchers and recorded in newspapers, videos, magazines, books, etc.

According to the circumstances of the researcher who is living in Europe for study reasons, and the school under study is located in a rural area of Mexico, this reason it was not possible to personally carry out the observations, so it was necessary to record the sessions to that in this way the researcher could complete the observation guide. In this case, a person assigned by the researcher attended the school in different sessions and was in charge of recording the videos to later send them to the researcher to be analyzed.

To carry out the observations, the researcher used an observation script, this instrument is useful for the observer to focus specifically on what is the object of study, it is also the means that lead to the collection or obtaining of data and relevant information. For the construction of this script, dimensions were created based on some of the key characteristics of the effective school movement, as well as on one of the pedagogical orientations of the new educational model in Mexico, participatory and democratic school management.

4.1.2.1 Selection of the sample, realization and analysis of the observation

The elementary school of the multi-age organization was chosen for the context in which it is located, and for the characteristics it presents, it should be mentioned that this school is one of the few schools that continue to operate in the rural area of the valley of Teotihuacan located in the State of Mexico. This school is known to the researcher as it is relatively close to his hometown.

The interest in studying this school arises from the experience obtained by the researcher after performing social service in a school with this organization, by identifying the different deficiencies and witnessing the school dropout and lack of attention suffered by these schools, the lack of teaching materials and resources, and all the problems faced in this type of school. The researcher began to investigate data that could help him locate a multi-age school close to his hometown that was

easily accessible and safe, since access to the school where he was doing social service was far away, difficult to access, and insecure, in Mexico there are areas with a higher index of insecurity for women and that is why it was an important characteristic to choose this location.

One of the specific characteristics that drew attention to the choice of the school was that it has a multi-grade organization, it is located in a rural community, it has success rates and it is a low-income community. Finally, the school was located, the researcher visited the facilities, later he invited the teacher to participate in the research, and he agreed. It is necessary to mention that to carry out the observations, a document was required that would allow us formal access to the institution.

The institution had 20 students the previous school year, due to the pandemic developed in 2019 and the conditions of the rural area in which the school is located, there is no internet network and sometimes there is no electricity and parents do not count on enough resources to buy a computer or simply to be able to pay mobile data and communicate with the teacher, in this way the teacher was losing communication with the students and as a result, in the current school year only 10 students continue studying, of which two of they are listeners because they are 4 years old and they cannot enroll in primary school because in Mexico it is allowed to enter until they are 6 years old, but the teacher allows these students to enter since there is no preschool in the community, so the teacher motivates parents to enter the little ones as a listener so that they begin to develop skills provided by basic education.

Regarding the 8 students enrolled in primary school, 4 are women and 4 are men, this school year the teacher only attends 4 of the 6 compulsory grades in primary school. First grade has no students, second grade has one student, third grade has no students, fourth grade has three students, fifth grade has three students, and sixth grade has 1 student.

The observations were made on different working days from Monday to Friday, each observation took 50 minutes and 6 observations were made.

The observations were recorded by a person assigned by the researcher and this person was in charge of sending the videos to the researcher through Telegram, this application maintains the video quality, and this allows the researcher to have a clear vision of what happened during the sessions. In the annexes section, it is possible to find photos (see appendix D) that show the interior of the school and those pictures are the visual evidence the observations were made.

5. Qualitative Findings

This section shows the information obtained through the qualitative instruments applied, in this case, the semi-structured interview and the observation script, according to Sampieri et al. (2014) the analysis of qualitative data implies special attention since it is a process through which conclusions are drawn from unstructured and heterogeneous data. Data is collected for analysis and understanding to answer research questions and generate knowledge.

The researcher used the thematic analysis and started from a generality to arrive at the particular reality of the school, according to this the approach used was the deductive one.

It is very important to mention that for this research theories were chosen according to the orientations and principles indicated in the current educational model of Mexico, it should be noted that this model is based, among other theories, on the constructivist theory, which aims to provide education based on the harmonious development of all the faculties, abilities and skills of the students, equity, continuous development, significant learning, also points out the need for collaboration between teachers and family, among other characteristics. Therefore, the Social Constructivist theory, and the Significant Learning Theory, were ideal for

this research specifically for the objectives to be achieved. These two theories cover one of the orientations of the educational model: educational practice in the day-to-day (Pedagogical orientations).

Regarding pedagogical orientation (School management) it is covered by the literature on the effective school movement. An effective school is one "that promotes in a lasting way the integral development of every one of its students beyond what would be foreseeable taking into account their initial performance and their social, cultural and economic situation" (Murillo, 2003, p. 54) Concerning the educational model, this also points to comprehensive education and equity as objectives that must be met through the application of the educational model, this movement has 11 predetermined principles, of which the researcher chose 9 of these concerning the previous information.

5.1 Analysis of Interview

5.1.1 Zone of proximal development

During the introductory interview, the teacher was asked how many years he had been in service, he mentioned that he has 14 years in service. And his degree is a master's degree in educational sciences, he finished the university in a normal school (a school where it is possible to obtain a teacher's degree). At the multi-age school, he has been working for a little over 11 years.

The teacher was asked to describe what a school day is like at the multi-age school to which he replied that this type of school differs from fully organized schools because it works differently in terms of the content organization since in multi-age schools they work through common themes.

The teacher must carry out his planning per week and take into account the topics that he is going to work on and that all the groups have in common:

"I organize my planning in a way that allows me to see the same topic with all grades, for example, if this week I am going to work with fractions, I check in all the grades in which part of the math book the topic of fractions is located, and I create an example for each group depending on the group is the degree of difficulty of the exercise, it does not matter that it does not go in the order of the book, what matters is that the topics coincide for all the groups"

The teacher mentioned that, based on the common theme, he begins to design activities that allow him to work at the same time with all the groups, in this case, the teacher said:

"If the topic to review fractions, I give an introduction to the students on the topic, I describe the concept of what a fraction is and then I go to each grade posing a specific problem with a degree of difficulty according to the level"

The teacher assigns exercises to each grade and while the students work, the teacher pays attention to the other grades.

In this way, the teacher dedicates time to each grade trying to cover the basic knowledge of the subject. At this time, the question about what teacher support is like in a multi-age school was answered and complimented when the teacher mentioned that he tries to give students confidence so that they can honestly express their needs. He also mentioned that he works together with the students, and the students have the confidence to take the resources they need during the sessions.

The teacher was asked to describe how he organized the work in the classroom? to which he pointed out that generally, the way of working in the classroom was joining 1st and 2nd, then 3rd and 4th and finally 5th and 6th, since in this case, these groups are the ones that regularly in the contents of the books have

related topics. Although sometimes we work with groups from 3rd to 6th because the degree of the topics allows them to be introduced at the same time, and 1st and 2nd are excluded because with these groups the teacher works on literacy and topics such as learning numbers because children do not have this knowledge.

The teacher was asked what subjects they worked on more? He replied that Spanish and mathematics since they are the basis for working on the other subjects:

"If a child knows how to read, it is possible to introduce him to reading history texts or other subjects"

The teacher was asked what grades required more of his attention? To which he replied that generally first and second grades required more attention from the teacher since the students who are studying these grades do not have the same skills as the other students since they are relatively starting basic education. The teacher pointed out that he pays attention to these students so that in the following levels they become more autonomous.

How do you promote knowledge to your students? The teacher replied that this step is fundamental to student learning and he promotes knowledge through activities or examples that open up the students' perspectives.

"When working in a multi-age school, the students listen to the topics that are seen as each of the other groups, this gives the youngest students an idea of the learning they will acquire in the future, also in this way the other students they become familiar with the contents of the following grades to study"

The teacher pointed out that the books of multi-age schools are not contextualized, they use vocabulary that is difficult to understand, especially for 5th and 6th-grade students, so the teacher must be accompanying the students,

supporting them to understand the vocabulary described This way the students understand the main idea of the text. If necessary, the teacher exemplifies the contents relating them to the context.

5.1.2 Scaffolding

The teacher was asked to describe the content of his plan (see appendix E), the elements it contained, and how it was structured. The teacher pointed out that he was the one in charge of preparing the planning format according to the pedagogical needs and according to the contents that should be covered. Since currently there is no specific format that indicates to teachers of multi-age schools how to plan classes.

In this format, the teacher integrates the objective that he wishes to achieve, he integrates the key learnings, the common activities, the differentiated activities, and the evaluation section.

The teacher was questioned, in what way did he support the students to resolve their doubts? He answered that when the students work on a new topic and do not know anything about it, the teacher shows the students an example of how to apply the knowledge in a situation of daily life. And if the students have any doubts, it is the teacher who is in charge of providing them with the knowledge they needed to master the subject.

The teacher was questioned about what strategies he used to stimulate the autonomy of the students, to which he replied that in the first grades he pays special attention to the students achieving a satisfactory level in reading and writing, in this way the students will be able to the following grades to work more autonomously.

Another question was to describe how collaborative work is developed in the classroom, and the teacher replied that the strategies he uses as work in pairs allow

students to work collaboratively in such a way that 6th grade supports the 5th-grade students and the 4th-grade students support the 3rd graders, the 2nd graders support the 1st graders,

"I try to get the older students to support the younger ones, in this way the students who support, review the subject and the children who are supported, understand the subject"

Another question was to describe what learning strategies the teacher applied in the multi-age classroom? He answered that during the sessions he tried to apply strategies that would facilitate the students' learning. The teacher pointed to the elaboration strategy such as making summaries, answering questions, and word association.

What techniques does the teacher use in the multi-age classroom? The teacher described 2 techniques as the most used, brainstorming, which is implemented to know the previous knowledge of the students, also implements debates, where the students speak and express ideas about the topic that is being worked on.

"I implement techniques that encourage students to develop social skills"
"I try to apply strategies that allow students to associate previous knowledge with new knowledge"

The teacher was asked at what times of the session he performs teamwork, he replied that teamwork is essential to work in the classroom and is present during all sessions. Regarding this answer, the interviewee was questioned as to how teamwork works in the classroom. He replied that he divided the students by grades and later assigned roles to the students, asking the students who mastered the

subject the most to be the leaders, taking charge of the doubts of his other teammates.

The teacher was asked if at the end of the class he gave feedback to detect if the students had understood the subject, and he mentioned that before the end of the sessions, he always carried out an activity in which the students demonstrated the knowledge acquired during the session. and in this way, the teacher discovers if there is any topic that was not understood, and in the next session the teacher reviews this topic in greater depth. The teacher also mentioned that he provides feedback at the end of each activity to ensure that everything is being understood by the students. If something turns out to be difficult for the students to understand, the teacher pays special attention to support them in resolving any doubts.

Regarding this question, the teacher was asked about the didactic materials that he uses during the sessions, to which he replied that he uses different didactic resources such as videos that he projects to the students through his cell phone, the teacher also tries to use playful materials that facilitate the acquisition of concepts, skills, and attitudes to students. The teacher also said that most of the didactic resources are designed by him since in this way he ensures that the resources are contextualized and related to the contents that will be developed according to his planning. The teacher also adapts these materials according to the subjects they work on. The teacher recognizes that he uses videos that are related to the topic, that contain information regarding the topic to work on, and that show examples that are related to the context of the students. It is important to mention that the teacher pays for the Internet network that he uses when playing videos to the students.

The teacher was asked which subject he considered to make the most use of didactic material? He mentioned that mathematics since for students the subject of mathematics turns out to be complicated to learn, and it is necessary to implement materials that students can manipulate measure, and touch.

In general, the teacher performs experiments that show situations in the student's daily life, and in this way, they acquire knowledge faster.

"In some way, knowledge is the tool that gives independence to the student"

How do you encourage interaction between students? The teacher pointed out that interaction is present daily in the classroom.

"Through the activities that integrate all grades, I seek those students have interaction with their classmates and try to adapt the topics of each grade so that everyone can participate".

5.1.3 Significant Learning Ausubel

Regarding the question, what activities do you consider to facilitate learning for students?

The teacher replied that according to his experience in this school, he considers that the recreational material apart from facilitating learning for the students, also generates significant learning for them.

Regarding the question about whether the students show a willingness to learn? The teacher said that students do show willingness and desire to learn, and these desires to learn increase when the teacher presents activities that are fun, interesting for students, and playful.

The teacher was questioned: how do you motivate students to participate in class? The teacher described that the best way to motivate students was to create activities that were interesting for the students,

"The activities that I implement must be attractive and interesting for the students, otherwise, the students do not acquire the necessary learning"

When the teacher was questioned about how it stimulates the development of students' thinking? he replied that through the exercises of reflection and construction of ideas.

"When students work in teams, they express their ideas, their knowledge on the subject, in this way the other students compare their ideas with those of their peers"

The teacher was questioned about what is the subject that students like the most? he replied that Natural Sciences is the subject that students like the most because in this subject we can carry out experiments with playful materials, the teacher described that they also like the subject of history because the students are attracted to see videos about the events of history. And in the case of Spanish, the students do not have books of their interest to practice reading.

"In the community where the school is located, there is no library or any other place where students can go to buy a book to read or to get academic information"

The teacher was questioned about, to what extent does he consider the didactic instruments to support the students to understand reality? The teacher considers that through the didactic instruments the students obtain more real learning about everyday situations. The teacher relates the activities implemented in class with the context of the students since in this way he seeks that the students can give functionality to the learning and that they find meaning between what they have learned in school and the situations of daily life.

When the teacher was asked about what objectives does he take into account when making his plans? The teacher said that he pays special attention to implementing teaching-learning strategies that allow students to acquire significant learning, avoiding activities in which students must memorize information.

The teacher was also questioned: how is the educational content related to the context of the students? The teacher replied that the textbooks used in multi-age schools are not designed according to the reality of the students, sometimes the students do not understand the vocabulary that the books contain, since some words, mathematical problems, and texts, are decontextualized to the daily life of the students. In this way, the teacher also answered the question. To what extent do students understand the language of the content of the books?

How do you identify the interests of the students? The teacher said that he asks direct questions related to the topic that is going to be addressed in class,

"In a geography class, we talked about the planets and I asked the students what they called their attention to this topic, and the students asked about the stars"

Regarding the answers of the students, the teacher adapts the activities to be carried out, trying to integrate contents that are of interest to the students to maintain their attention of the students, since in a multi-age classroom it is easy for the students to be distracted by activities. from other groups.

Regarding the question, how do you introduce a new topic to students? The teacher said that he always starts from the previous knowledge of the students since in this way he can identify what the students know about the subject and how he can relate their previous knowledge with the new knowledge that he is going to teach.

What activities do you think allowing students to investigate, formulate ideas, and conclude? The teacher said that he repeatedly uses the videos as a tool to introduce students to a new topic, this allows him to work with the rest of the students while the other students watch the video. At the end of the video, the teacher asks the students what they understood, and rescues the knowledge in this way the teacher allows the students to think, formulate ideas, and relate knowledge and from this, the teacher begins to explain the new information.

Finally, the teacher was questioned about what method he uses to motivate students to work during the sessions? The teacher responded that he talks about the importance of the content with the students so that they are aware of their learning, and also mentioned that he provides some type of extrinsic motivation such as going out to play for 10 minutes in the courtyard.

Finally, the researcher thanked the teacher for the time and the data provided by the teacher, the researcher left a communication with the teacher open for the future, if at any time there is any doubt on the part of the researcher, the teacher is open to be able to respond.

5.2 Observation´s Analysis

The observations were indirect since the researcher obtained these videos through a person assigned by the same researcher; this person attended the school to record videos from different angles which allowed the researcher to have greater visibility.

During the observations, the development of the sessions is observed. In general, at the beginning of the sessions, the teacher receives the students and greets the parents at the entrance of the school.

Inside the classroom, the students and the teacher have books, sheets of paper, colors, scissors, enough chairs, and tables in good condition, in the classroom, there are 4 blackboards of which 3 can be used with a marker and one is electronic, the researcher realized that the electronic whiteboard was not used by the teacher. The room has two large windows that provide ventilation and light, and the teacher has a desk, a printer and a computer, in the classroom there is also internet but this network is paid for by the teacher as well as most of the teaching resources, these teaching resources they are mostly created by the teacher. Sometimes the students require materials and they take the materials themselves without the help of the teacher, it is perceived that the teacher provides an opening so that the students feel confident.

The students take their place and place their personal belongings on the tables. It is important to mention that the school furniture was recently changed thanks to the teacher's management. These tables allow the students to work in teams or pairs, that is, in the table, there is room for two people, these tables are also movable so they can be placed in any space within the room. It is also necessary to describe that the teacher makes the students responsible for the materials they must use during the sessions.

Regarding the use of school uniform, students do not wear the school uniform, only one student wears the school uniform.

The teacher organizes the classroom so that the students identify their workspace since the teacher places visible teaching materials according to the grades with which they work.

At the beginning of the session, the teacher explains to the students the topics and the way of working that he is going to carry out, he also mentions to the students the book of the subject and the materials that they are going to use and asks them

to prepare their workplace, if any of the students do not have the necessary material, the teacher looks for a way to solve the problem.

The teacher divides the students into groups, 2 work with the teacher, 4 work with the teacher, and 5 and 6 work together. In general, the teacher explains to the students, what topics they are going to see and asks if anyone has an idea about the topic they are going to learn, the students respond by giving ideas about the topic, and the teacher complements the ideas of the students and begins to explain the subject giving an introduction to the students, then presents the didactic material that they are going to use and the students begin to work as a team following the instructions that the teacher indicated. The teacher makes sure that all instructions are clear and allows the 5th and 6th-grade students to work independently, while the students work, the teacher pays attention to the smaller grades such as 4th and 2nd. Since during this school year, there are no students in the third and first grades. The teacher indicates the exercises that the second and fourth-grade students must do and what the students work on, he constantly supervises the other grades.

In general, in most classes, the teacher explains the subject and implements an activity in which the students can relate the knowledge acquired to real-life situations. In the end, the teacher asks the students what they learned, and what they liked. more about the activities, which was difficult for those who would like to delve into the subject. The activities that the teacher implements are mostly playful because he seeks to provide students with the possibility of linking creative activities with knowledge. In most cases the teacher does not need to encourage student participation since, as the group is small, the students participate without the need for the teacher to invite them to participate, on some occasions the students fight to participate first, and in these cases, the teacher reassures the students and makes them aware of the values that they must apply inside and outside the classroom.

In the case of the fifth and sixth-grade students, the teacher allows the students to be more autonomous since during the activities he only provides the

materials and gives instructions and the students carry out the activities practically alone, in a few cases they require the supervision of the teacher. The teacher gives the students time for each activity and the teacher tells them which activities are yet to be completed so that the students are aware of the time each activity should take. In some sessions, the teacher implements exercise that the students do alone, specifically in the subject of mathematics, at the end the students share the answers with the teacher and the teacher solves the students' doubts.

Usually, in the second and fourth grades, the teacher provides the necessary foundation for the students that will be useful to them in the following grades. Specifically, in the second grade, the teacher emphasizes reading, so that students understand texts, perform reading comprehension exercises, and in the subject of mathematics, the teacher provides knowledge about basic operations such as addition, subtraction, multiplication, and division.

In subjects such as natural sciences, the teacher allows the students to express their curiosities, sometimes the students relate themselves to topics about the field and the harvests. This happens since the context in which the school is located is surrounded by crop fields.

During a session, the teacher worked on an activity that he called "school store" during this activity he made all the students participate, the teacher adapted this activity so that the teachers had to perform mathematical operations mentally and using fake money that they created, the students brought objects that they can buy in a store in the community, such as sweets, canned food, soft drinks, among other objects. The students of smaller grades had to compare a few objects that allowed them to carry out an operation of a lower degree, on the other hand, the students of higher grades had to buy products that allowed them to carry out operations with a greater degree of difficulty, the teacher was a guide during this activity, that it is perceived that it was an activity that the students liked and they showed interest.

In some other sessions, the teacher made use of technology, in this case, he showed a video to the students as an introduction to a topic and later the teacher asked what the students had understood.

In the sessions, the researcher noticed that two children arrived at 9 am and the teacher received them and placed them on a table to work in pairs. The teacher taught these students content that corresponds to preschool education.

During the sessions, the teacher constantly reviewed the students' work, although the researcher realized that the groups, he paid most attention to were the second and fourth-grade groups. The fifth and sixth groups are more independent.

The teacher motivates the students to work quickly so that they do not get distracted, the teacher mentions that if everyone finishes a few minutes early, they can go out to play for 5 to 10 minutes in the courtyard, but this rule is for everyone if everyone finishes everyone goes out and if someone is missing, the companions must support him so that everyone can take a break.

At breakfast time, the students change classrooms and go to the breakfast room. The breakfast room has the necessary resources to serve the students. The researcher perceives that the ones who serve the students are the parents of the family, who organize themselves in their free time to cook breakfast for the students, each day of the week corresponds to different parents and so everyone participates.

The relationship that is observed between the teacher and parents seems to be a good one because the parents always show a willingness to support the teacher.
It is perceived that the students feel happy to see their parents serving them in the breakfast room, it shows emotion to see their parents participate in activities within the school.

During the students' breakfast, the teacher takes advantage of that moment to organize the classroom, if necessary, arrange the tables for teamwork, clean the classroom if necessary, and on some occasions, the parents take the opportunity to ask the teacher about the development of their children during the sessions, parents also ask about their children's behavior.

It is necessary to mention that the menu that the students eat is made through the organization of the parents and is also paid for by themselves. It is perceived that the ideas that the teacher gives to the parents are respected, that is, if the teacher asks the parent to clean the school, for example in the school bathrooms, and in the classroom, the parents support the teacher. It is also perceived that the teaching figure in this community is a figure that symbolizes respect, parents show that respect in a way that they support the teacher in the necessary activities within the school.

During some sessions, the researcher realized that the teacher answered emails and phone calls that he had to attend in his role as director of the school, and this took time away from his role as a teacher.
In the classroom there are extra chairs that are next to the blackboard, it is perceived that the space in the classroom is barely enough for the students to work in teams, in the classroom, there is furniture in which the teacher keeps teaching materials, but this furniture as well as the extra furniture, sometimes it turns out to be a hindrance for the activities.

Concerning the school library, this library is not working since it is used as a warehouse in which they place objects that are not used much, and this room no longer has more space, that is why it is necessary to store some objects inside from the classroom. The computers that are in the institution are current but during the reviewed sessions, the students did not use these computers.

6. DISCUSSION

This section aims to triangulate, discuss, and interpret the information collected through the qualitative method and the application of the semi-structured interview and indirect observation. The data collected was obtained by applying a semi-structured interview with the only teacher in the school and these data are compared and analyzed together with the observations that were made in the classroom during the time that the teacher taught.

6.1 Elements that intervene in the educational process of the multi-age school

It is important to define what factors intervene in the educational process in the multi-age school, factors that intervene positively, and factors that intervene negatively. This review will be carried out through the union and analysis of the findings obtained through the research instruments.

According to the data obtained through the interview and observation, the resources and didactic materials that the teacher implements in the classroom, the application of playful activities during the sessions, the strategies of teaching and learning that the teacher applies in the classroom, to the academic training that the teacher has, to the support and relationship on the part of the parents, the attitude that the teacher has towards his work, the motivation with which the students attend school, effective school management, the relationship of educational content with the context in which students develop, teacher support in the classroom.

During the interview, the teacher declared to the researcher that in a unitary school, a good school-community relationship, the relationship between teachers and parents is extremely important, since, in the absence of staff in the school, it is the parents who voluntarily provide the invaluable support to the teacher to make possible the function of the school. The third article of the political constitution of the United Mexican States declares that in Mexico basic education is free, to which the

teacher said that this is not possible, at least in a unitary school, since it is necessary to provide maintenance to the classrooms, pay internet network and didactic materials that are indispensable for teaching. Then it is the parents who provide the necessary resources to make the function of the school possible. The teacher also said that in rural communities the role of the teacher is more valued than in urban areas, since in urban areas the parents have university studies and that makes them feel superior to the teacher, and in this way, they demerit the role of the teacher. During the observations, this information was confirmed since the participation of the parents during the school day was present, the good relationship that exists between the teacher and the parents was evident, and it was also possible to observe the results of a good relationship between school and community.

The municipal government sometimes supports the school, providing materials for students to play sports, providing school uniforms, and teaching materials. This also speaks of proper school management, the teacher in his role as director is also in charge of all the administrative situations that this position entails. Good school management is evident in the school, this school has new furniture, and new computers, the facilities are painted, the toilets have drinking water, and the school patio has an arch-roof. In this way, the work of the teacher becomes visible in his role as director.

In the interview, the teacher mentions that he studied for a master's degree in educational sciences, and this professional preparation has allowed him to develop his skills as a teacher in a better way, although he pointed out that during his professional training, he did not receive any knowledge about how to work in a multi-age school, and currently many schools stop providing services because there are no teachers who want to work in this type of school since they do not have the knowledge required to educate in a multi-age school.

The teacher pointed out the importance of creating courses in which teachers can acquire updated knowledge about new strategies, activities, and techniques to

apply in multi-age schools, this information was confirmed during the observations since the teacher showed a work plan prepared by himself, he has used this format for 5 years. The teacher pointed out that there are also no books with content contextualized to a rural environment such as the one in which these multi-age schools are found, that in this case, it is the teacher who is in charge of adapting the content so that teachers can understand the information. This information was confirmed by observations as the books used by the students were the same books used by the full organization schools. And especially during the sessions, the books contained words, objects, and places, that the students did not know because the contents are decontextualized to their reality and as a consequence, the students showed disinterest when they did not understand the contents, in the interview the teacher mentioned that he always tried to rescue the most important knowledge on the subject by applying an activity according to the context of the students including vocabulary with which the students were familiar, the teacher said that he was always looking for playful activities to apply in the classroom since through these activities the students obtained the learning satisfactorily. This information was evident during the observations since the teacher, after explaining the topics, applied a playful activity that drew the attention and interest of the students, for which the student's showed emotion and impatience to carry out the activities proposed by the teacher. and the next day when the teacher asked about the topics that had been reviewed in previous sessions, the students related their knowledge with playful activities applied by the teacher.

In this way, the teacher ensured the significant knowledge of the students. It can be affirmed that the teaching work in this type of multi-age organization school is a major challenge for teachers who work in Mexico, although the teacher pointed out that "the most important factor of success in a school is motivation and love for the teaching work if a teacher shows up to work without motivation and only willing to collect a salary, sooner or later the teacher will leave the rural school, on the other hand, if a teacher does his work with passion and motivation, he finds all the positive reasons to continue working in the multi-age school".

It is important to mention that unlike other cases of multi-age schools, this school has benefits that other schools do not have, this makes the director's school management visible, and during the interview, the teacher shared that he performed administrative functions after finishing school day, it did not matter to provide extra time to perform these functions because what he did was for the benefit of the students and the community, currently, the teacher is managing economic support to improve the facilities and acquire new materials and resources for the students, in this way it seeks to make this school visible and motivate more families to enroll their children in primary education since in these communities school desertion is higher.

6.2 Teaching strategies that contribute to the comprehensive development of students

According to Eggen & Kauchak (2000) strategies are one of the three components of essential teaching skills whose combination and adaptation in the classroom context are decisive in promoting student learning.

According to the information obtained, the teacher mentions teaching strategies as one of the main factors that contribute to the comprehensive development of students. The didactic strategies allow the teacher to integrate resources to transmit significant learning to students. Angel (2017) describes that the use of various didactic strategies facilitates the teaching task for teachers and also stimulates active, participatory, cooperative, and experiential learning within the classroom.

During the interview, the teacher was asked to describe the work in the classroom, to which the teacher replied that the work in a multi-age classroom is different from that of fully organized schools, since in this type of school you work with different grades at the same time, which means that the classroom is made up of students with different characteristics such as ages, different genders, different

abilities and capacities, and different levels of maturity. This implies that the teacher is careful when integrating students into school activities.

The teacher pointed out that one of the factors that positively intervene in the development of students and serves as one of the most important tools for the teacher is teaching strategies. According to this information, Angel (2017) He pointed out the importance of the teaching task for the teaching-learning process, in the classroom it is the teacher who must create environments that facilitate learning.

The teacher mentioned in the interview that the strategies that he implements are created with a specific purpose that students obtain significant learning. During the observations it was possible to confirm what the teacher declared in the interview since the strategies that the teacher uses are visual such as illustrations, photographs, graphics, dramatizations, and strategies such as debates, which allow students to exchange their ideas, defend their points of view, frequently uses strategies in which students learn by making a product, in this way students develop skills where knowledge It is acquired through practice. The teacher mostly avoids developing theoretical classes since the students lose interest in learning, in this case, the teacher tries to carry out practical classes in which the students carry out experiments, and exemplify cases of daily life through some activity in the class. The teacher also implements problem-solving exercises in his classes, since in this way the students put into practice the knowledge previously acquired, with the application of this strategy it was observed that the students develop an interest when realizing in which situations of daily life could apply the knowledge acquired at school, also this type of strategies motivated and facilitated the participation of students. According to Coll (2008), the uses of this type of method, and the strategies derived from them, help students achieve significant learning, as they allow them to apply school knowledge to problems in their lives.

During the interview, the teacher mentioned that he also used strategies such as cooperative work, in teams, in pairs, which the teacher called "peer learning",

teamwork encourages students to strengthen their relationships with peers, in this way students develop socio-affective skills, practice values such as tolerance, respect, teamwork. The teacher also said that this was the strategy he used the most in the classroom and without this strategy it would be impossible to work in a classroom with a unitary organization. This information was confirmed when making the observations since when the students worked in teams, roles were assigned to each student in this way each student participated equally in the activity, at the end of the activity if any student had any doubts, their classmates supported the student to solve the existing doubt, in this way it is easier for students to understand since when a classmate explains it can be said that among classmates they use the same language and cognitive level and that facilitates understanding, also teamwork favors the emotional part of the students, the students. It is important to mention that the formation of teams within the classroom was according to the grade that the student was in, if the student was in sixth grade, he had to work with his sixth-grade classmates.

It is important to mention that to provide a comprehensive education to students, it is necessary to use strategies that strengthen the independence of students. In the interview, the teacher said that in the sessions he carried out activities that allowed the students to develop creativity, information that was confirmed through the observations, in the sessions the teacher stimulated the creativity of the students by proposing a task that the students carry out experiments on specific activities such as making a robot with recycled objects, on another occasion the teacher asked the students to create a model of the solar system using clay. For its part, Coll (2008) ensures that the development of critical thinking is promoted through the use of teaching resources. It is also important to use strategies where students work collaboratively through the integration of technological tools.

In the interview, the teacher mentioned that it also allows the students to strengthen their autonomy, this is beneficial for the teacher and the students since in the first years from first to third the students require more attention from the

teacher, and from fourth to fifth and sixth, the students are more independent and can work without sometimes requiring the support of the teacher. The researcher realized that English classes are not taught in multi-age schools, a situation that the teacher confirmed during the interview since the teacher does not know to teach this subject.

These strategies were the most visible strategies during the observations and mentioned by the teacher during the interview. It is necessary to mention that to achieve excellence in multi-age education, other competencies that need to be considered in teachers must be considered, for example, didactic planning, mastery of the contents to be explained, continuous and updated training, the use of didactic materials updated. It is also important to point out that to provide students with comprehensive education, the participation of parents in the educational process and in any other part where student learning is promoted is necessary.

6.3 Relationship between the national educational model and the needs of students

According to the Ministry of Public Education (2017), education has the purpose of contributing to developing the faculties and potential of all people, cognitively, physically, socially, and emotionally, in conditions of equality so that these, in turn, are fully carried out and participate actively, creatively and responsibly in the tasks that concern us as a society, at the local and global levels.

Artino & Konopasky (2018) ensure that it is possible to explain the learning process in the classroom through theoretical data and these data educational approaches, study plans, and evaluations are created. The Ministry of Public Education (2017) recognizes that it is the responsibility of the school to facilitate learning that allows children and young people to be part of today's societies, with updated content that is contextualized to the needs of the students, this also benefits

the students since it allows them to participate in its social, economic, political, cultural, technological and scientific transformations.

The educational model points out the importance of helping to develop the ability to learn to think and question oneself about various phenomena, their causes, and consequences to control personal learning processes to value what is learned together with others, and foster interest and motivation to learn throughout life.

During the observations, the knowledge that the teacher had about the demands of the Mexican educational model was evident, every one of these aspects was visible during the observations, some more frequently than others, but finally visible and were also mentioned during the interview. It can be said that the teacher tried to work effectively, regarding the principles proposed by effective schools aimed at successful school management, they were evident, they were immersed in the educational process within the multi-age classroom. The teacher performing his role as director shows professionalism and successfully leads the community, stimulates teamwork and shares work objectives with students and parents to motivate them to participate, and generates a learning environment so that classes are attractive to students despite the reduced space in which they work, the teacher motivates students to maintain order and cleanliness in the classroom, when a student commits a mistake, the teacher gives his attention to be able to correct misbehavior.

Regarding the structure of the sessions, the teacher provides information obtained from the books suggested by the Ministry of education, and in most cases tries to adapt the contents so that the students understand the subject correctly. It is necessary to point out that according to the instruments and the research carried out, in the case of this school there is a good teaching practice, due to the experience, the professional preparation of the teacher, the knowledge that the teacher has about the objectives of the educational model because the teacher has a passion for teaching, due to the awareness that the teacher has about the responsibility of being a guide for the students, it also influences that the teacher

feels valued in that community, the parents value and appreciate his work. These characteristics make the teacher give students the best of themselves in the professional field.

According to the data obtained, it can be said that the educational model is focused on the educational needs of the students, which is not contextualized to the educational needs of the students they are the plans and programs of study and consequently neither the contents of the textbooks that are used in the classrooms. The objectives established in the study plans and programs are difficult to achieve in a multi-age school since they do not take into account the deficiencies that intervene in this type of classroom, and the number of working hours is very short for all the work that a single teacher must carry out, in the specific case of the unitary multi-age school the teacher is the one who is in charge of the school management and during the interview, he mentioned that on many occasions he must leave the students without classes, and for this reason, it is not possible to cover the educational content required during the school year, the teacher must cancel the classes for administrative reasons such as managing new economic support that benefits the school. Overtime work is not paid for by the government, and the workload intensifies at the end of the school year, for these and other situations the teacher declared that the majority of teachers prefer to change schools, which is why multi-age schools suffer constant changes of teachers and those who suffer the consequences of these changes are the students.

From the perspective of the Educational Model, "The pedagogical practices of teachers should contribute to the construction of a supportive and effective learning community, where all its members support each other" (Barron & Darlin Hammond, 2015). But how teachers are going to contribute to the construction of a supportive learning community without the abandonment felt by teachers who work in a multi-age school is also a negative factor that affects the fulfillment of the objectives proposed by the educational model, regarding this, the teacher during the interview expressed that when he began his teaching work at the multi-age school, the first

months were very complicated for him since he felt the need to resign, he mentioned that teacher support is needed, specific courses of teaching update that proposes updated content that provides support and guidance to teachers who work in the field of multi-age schools. On the other hand, there is the problem of the scarcity of teaching resources, even though "The curriculum suggests that the school should rely on the digital tools at its disposal to encourage students to develop skills for their use" (Ministry of Public Education, 2017). In the case of the multi-age school, as well as in the case of many other rural schools, there are no spaces for computer classrooms, there are no resources to pay for an internet network, sometimes the schools do not have electricity and specifically in the multi-age school under study, there is no classroom for students to learn to use a computer.

As these problems are found more in a multi-age organization school, finally the educational model is not a problem, the problem is decontextualization, abandonment, and all the consequences that are derived for these reasons. Learning is not an end in itself but always has a goal is the reason for learning, for his part Carda (1986) ensures that when the reason for learning has an important meaning for the student, it is ensured that the student usually puts more effort and willingness to learn, you can also acquire knowledge faster.

7. CONCLUSION

Children who attend primary education are in a decisive stage of their lives and if they are not provided with adequate conditions for their learning children who attend primary education are in a decisive stage of their lives and if they are not provided with adequate conditions for their learning, according to the Ministry of Public Education (2017) the consequences can be serious since the development of students may be deficient, and are also prone to losing the ability to think, understand and be creative students may lose or not develop their skills, students may have problems working in a team satisfactorily, sometimes the knowledge of the students will be limited to resolve conflicts in real life, most of the time students are unable to express their needs and are unable to communicate clearly, this could

cause changes in their state of mind due to deficiencies during their development. Also, the Ministry of Public Education (2017) is responsible for primary education in Mexico, and primary education has the responsibility to provide students with the necessary knowledge that will serve as the basis for continuing higher education, regardless of said knowledge, they must develop in themselves the skills, habits, and values necessary to achieve a comprehensive education. Although it seems that these objectives are not being fully met, according to the Program for International Student Assessment around "3% of advantaged students in Mexico, and almost no disadvantaged students, demonstrated high proficiency in reading" (PISA, 2018)

Wenger (1998) mentions the importance of students' commitment is required to participate in their learning and that of their peers. At this stage, it is also essential that teachers dialogue with children, that they are interested in what they feel, and think and promote trust and security that children feel that there is an adult who listens to them, understands, and supports them. The Ministry of Public Education (2017) mentioned the importance about get children to verbalize their experiences and express what they do, how they do it, why and for what purpose.

The main interest of this thesis is to fill the information gap that existed about the factors that intervene in the educational process in a multiage school, specifically in a unitary school, since for the teacher it represents a challenge to work with two or three groups of different ages at the same time, the challenge is greater when the school only has one teacher who is in charge of the school management, taking care of all the administrative and school management aspects and, on the other hand, developing the study plans in the classrooms. The need to know what factors determined whether the education that was being provided in the multi-age school was of excellence as indicated by the new educational model. This need led the researcher to carry out an ethnographic investigation, with a qualitative method, applying a semi-structured interview and guided observations, the data analysis was carried out with a deductive approach.

Education in a multi-age classroom means working with heterogeneous groups, integrating children of different ages, different thoughts, emotions and with different interests. Students are often grouped to work on different learning activities, sometimes working with younger children or with children older than themselves. In most cases, the students of multi-age school work with the same teacher for more than a year, in the case of the unitary school, the students work with the same teacher for six years.

The multi-age school for the Mexican educational system is taken as a means to bring education to rural areas, remote, difficult to access, and with a small population. This impression is obtained by the researcher through the realization of this investigation, the teachers who attend these schools are presented with greater challenges than in a fully organized school, these schools represent a professional challenge for teachers, regarding the data obtained, the Multi-age school is capable of meeting each one of the proposed objectives proposed by the Mexican educational model, but with the help of teacher refresher courses, classrooms equipped with educational resources contextualized to the rural environment. Although it is necessary to highlight the findings of the investigation since it was discovered that the interpersonal aspects of the teacher also influence the educational process, motivation, love for teaching, and awareness of the importance of the teaching profession are factors that intervene in the educational process, if the teacher puts these factors into practice, multi-age education would be developed in a better way even with the shortcomings in which it is currently developed, as demonstrated by the teacher of the multi-age school. Up to a certain point, we can talk about the benefits for students of studying in a classroom with a heterogeneous organization.

(Gaustad, 1997) points out some benefits of classrooms in multi-age schools, when students with different characteristics, tastes and needs are grouped together, isolated behavior may be reduced in students. Since children most of the time must work as a team and on behalf of the community. Teaching practice in these

classrooms facilitates the use of appropriate instructional practices for the development of active learning and the integrated curriculum with good management and trained personnel, these schools would go from being abandoned schools to being successful schools, effective schools that motivate the inhabitants of rural communities to study and in this way, the educational gap that exists in Mexico would be reduced in rural areas.

The teacher pointed out that the family and community are also an important part of unitary schools since learning opportunities are provided by the family, the community, and the school. The importance of the school, family, and community relationship, the context also plays an important role in student learning as mentioned in Vygotsky's theory of social constructivism. The Ministry of public education (2017) describes the role of each of the participants that influence the educational process of a student, for example, the family teaches role models through daily interaction, and for its part, the community teaches cultural values and ways of relating through life on the street and the media and the school teaches knowledge and skills of coexistence through various educational and recreational activities.

Recommendations

a) This study recommends the accompaniment and pedagogical advice of teachers through the formation of groups made up of teachers exclusively from multi-age schools and with the accompaniment of authorities such as supervisors and school directors. These groups can organize video call sessions at least once a month in which they share doubts, successful experiences, activities, and teaching methods applied in their classrooms. This type of group has a significant influence on teachers and the preparation and improvement of educational work. At the same time with the participation of supervisors and their advisory team who have the professional skills to provide support to teachers.

b) Promotion and tutoring of consultancy and pedagogical support to new teachers, in this way the most experienced teachers serve as advisors to teachers who have just entered the teaching profession. In this way, new teachers find support and experience from a teacher who works with the same resources, and on the other hand, the experienced teacher could also obtain new ideas from the recently graduated teacher. This assignment of tutors could be carried out by teachers from the same schools or different states of the republic, this would enrich the teaching experiences.

c) This research proposes the strengthening of the collegiate work among teachers, the presence of support teachers in schools for many teachers who are about to graduate, they can be (students of normal schools, students of educational sciences, or, failing that, students interested in working as teachers) through professional practices or social service, the realization of these will provide work experience and above all empirical learning. And for the benefit of graduate teachers, their workload is reduced. It could happen through the realization of an agreement with the Ministry of public education and the universities.

d) This research proposes that the educational model be flexible and not rigid, through the realization of a curriculum for multi-age education, in which the organization of curricular contents by common themes is made, this would facilitate educational practice for teachers, would save time for teachers when planning, since this organization would facilitate the contextualization of content and would allow curricular adjustments to be made during classes.

e) This research proposes the creation of educational materials for attention to multi-age groups, these materials can be created and distributed by the Ministry of public education, and the materials can be designed to stimulate self-study and independent work in students.

f) This research proposes that in the classroom the development of learning activities be carried out by work corners, that students are responsible for keeping their workplace clean, in order, spaces divided by grades within the classroom, it is also good that the students decorate their work corner with their work done in class, in this way they share their creativity with their classmates.

Limitations of the study

It is necessary to point out that within the most important limitations was the global pandemic of Covid-19, this represented an important challenge for the investigation since when the researcher was in Mexico, she tried to make observations and it was impossible for her since the classes were given virtually, but it is important to point out that due to the rural conditions in which the students live, none of them have access to the internet and neither do they have a computer at home, so the teacher found an adequate way of working to the conditions, the teacher wrote a sheet with the tasks to be solved during the week, the teacher prepared this sheet by grade from first to sixth grade, indicating the pages of the book and activities that the students had to complete, in that work sheet the teacher included information that would be useful to students such as concepts about the tasks to be carried out, brief explanations and examples, the teacher left a copy for each student in the school and a parent was in charge of delivering it to all the children of the school, this because they could not have communication through any Electronic device. This is why the researcher did not have any option to make observations, later the researcher traveled to Prague, the Czech Republic to continue the master's studies and here the distance limitation was presented.

When the students returned to the classroom, the researcher no longer lived in Mexico, so she decided to use the indirect observation method. Another limitation was at the time of the application of the interview since the teacher did not have

enough time to attend to the research, the teacher was working most of the time, teaching, and managing support for the school. There is another limitation that is the time change, between Mexico and Europe there are 7 hours of difference, if the researcher required some information from the teacher, the researcher had to work during the afternoons and nights to be able to obtain the necessary information since the teacher he finished his working day between 4 and 6 pm and in Prague time it was 11:00 p.m. to 12:00 a.m.

Suggestions for future research

The first suggestion is that a large-scale study is carried out. The study that is suggested is that they take into account multi-age schools specifically with unitary organization, according to this research, different problems were detected in unitary schools since the teacher does not have colleagues who can support him, the teachers are alone with all the school implications.

It is necessary to carry out a study taking into account the most disadvantaged rural areas, according to the National Institute of Statistic and Geography (2020) in Mexico there are 32 states and, in each state, there are 2,471 municipalities, within these municipalities, there are small communities that to this day there is no exact record of the number of communities. And it is in these communities where the most disadvantaged and forgotten multi-age schools are found by the Mexican national educational system.

It is suggested to carry out a follow-up study of students, what happens to the students who finish their studies in a multi-age primary school? If in most communities there are no secondary schools for students to continue their studies, there are also no preparatory schools and much fewer universities near these communities. It would be interesting to know what happens to those students who finish their studies in a multi-age school. How many of them obtain a professional degree? Those are good questions to answer according to PISA "in Mexico, 45% of

students have a growth mindset" (PISA, 2018) but speaking specifically of low-income students "in Mexico, less than one in ten high-achieving disadvantaged students do not expect to complete

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Appendix A. Declaration of informed consent

Declaration of Informed Consent

Teacher´s name. ...., Date ....

      I declare that I have read and understood the information sheet that has been given to me, that I have asked the questions that arose about the project and, that I have received sufficient information about it.

      I understand that my participation is completely voluntary that I can withdraw from the study at any time without having to give reasons.

      I freely give my consent to participate in the Research Project entitled "**Educational implications of the multi-age classroom in rural areas of Mexico: a case study**". Directed by Bc. Monserrat Sánchez Martínez. Who has the main objective of completing the research to obtain a Master's degree from the Charles University in Prague, Czech Republic

      I have also been informed that my data will be protected and included in a non-profit investigation.

      Taking this into consideration, I GIVE my CONSENT to cover the objectives specified in the project.

          Venta de Cruz, municipio de Nopaltepec,   date:

                    Signature

Appendix B Interview

Educational implications of the multi-age school in rural Mexico: the case of an elementary school

The objective of the interview: Obtain information about the teaching strategies implemented by the teacher that contribute to the integral development of the students.

Date; June 20, 2022

Teacher's name:

Level of study:

Teaching experience:

1.- Zone of Proximal Development

• Tell me what a school day is like at the multi-age school.

• What strategies do you use most during the sessions?

• How is the teacher´s support in the classroom?

• How did you organize the work in the classroom?

• What subjects did they work on more?

• What grades require more of your attention?

• How do you promote knowledge to your students?

2.- Scaffolding

• Describe the content of your planning.

• How did you support the students to solve their doubts?

• In what moments of the session do you work as a team?

• describe how collaborative work is developed in the classroom.

• What learning strategies did the teacher apply in the multi-age classroom?

• What techniques does the teacher use in the multi-age classroom?

• Do you usually provide feedback during sessions? how?

• What teaching resources do you use during the sessions?

• Teacher, which subject did you consider to make the most use of didactic material?

• How does it stimulate interaction between students?

3.-Significant Learning Ausubel

• Do students show a willingness to learn?

• What activities do you think make learning easier for students?

• How do you motivate students to participate in class?

• How does it stimulate the development of students' thinking?

• What strategies do you implement to encourage student participation during class?

• What is the subject that students like the most?

• To what extent do you consider that the context influences student learning?

• How is the educational content related to the context of the students?

• Are the class exercises based on the needs of the students?

• How do you identify the interests of the students?

• How do you relate the interests of the students with the school contents?

• To what extent do the students understand the language of the content of the books?

• How do you relate previous knowledge to new knowledge?

• What activities do you think allowing students to investigate, formulate ideas, and conclude?

Interview Pictures

The image shows a screenshot at the time of applying the interview to the teacher, the interview was conducted through the google meet platform. The researcher is in the lower right image and the teacher is in the upper left image. The interview took just over two hours.

Appendix C

Class observation script

IDENTIFICATION DATA					
Teacher´s name		Date			
School´s name		Observation number			
School location		Observation time			
Number of students		Additional information:			
Grades					

School Management				
Evaluation criteria	**Specific criteria**	**Assessment**		
		Yes	No	Observation
Professional Leadership	• Firm and directed			
	• Excellent Professional			
Share Vision and Goals	• Consistency In Practice			
	• Collaboration and Collegial Work			
Learning Environment.	• Orderly Atmosphere.			
	• Attractive Work Environment			
Teaching and Learning as The Center of School Activity	• Learning Time Optimization			
	• Academic Emphasis			
Purposeful Teaching.	• Efficient Organization			
	•			
	• Clarity Of Purpose.			
	• Structured Injuries.			
	• Adaptive Practice			
Positive Reinforcement.	• Clear and Fair • Feedback.			
Student Rights and Responsibilities.	• Raise The Student's Self-Esteem.			
Home School Collaboration	• Involvement of Parents in Their Children's Learning.			

An Organization for Learning	• Training and Updating of School-Based Academic Staff			

Appendix D

Observation Photographs

School´s garden

In the photographs you can see a tin roof managed a few months ago, this is a result of the good management carried out by the director in charge, for the benefit of the students.

School´s Bathroom

School´s Kitchen

The image shows the facilities of the dining room for the students, it has a small refrigerator, a cupboard to place the pantry, and two tables with benches so that the children can have their food. Parents take turns attending this dining room likewise, this dining room is maintained by the parents.
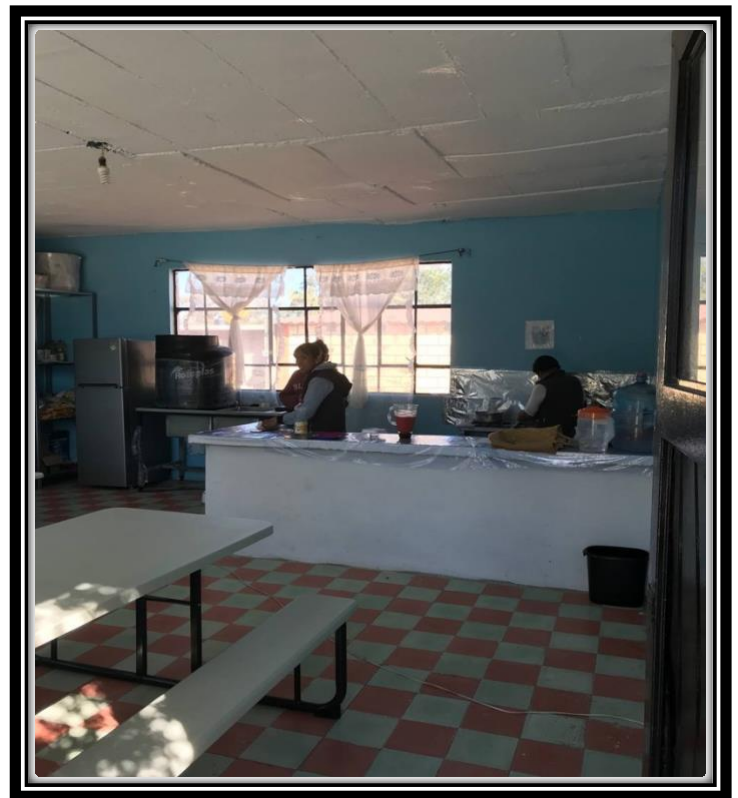
School´s Library

The image shows the library, which is used as a warehouse, in the absence of its own space to store teaching materials and resources, the teacher must occupy this area.
As shown in the image, the students have a bibliography, but in most cases, the books are very old and are out of context.

Technology's room

The computer room is located in this same room, in the photo some very old computers can be seen, some computers are more current, although there is no adequate space for students to work.

Classroom

This image shows the facilities of the only classroom, here you can see that there are 3 blackboards to instruct the students, one of these is electronic, but it is not in operation since sometimes the school does not have electricity and the internet signal does not work. The classroom has few teaching resources from which the teacher can support their classes

Appendix E Planning format

En esta sección se estipular los criterios a ser evaluados del producto que se espera obtener del alumno.

SE UTILIZARAN:

GUÍA DE OBSERVACIÓN Y REGISTRO DE DESEMPEÑO

CICLO ESCOLAR: _____

ESCUELA: _____   GRADO Y GRUPO: _____

PROFESOR: _____   PERIODO: _____

CONTENIDOS:

3° elaboración e interpretación de representaciones graficas de fracción

4°,5° y 6° Obtención de fracciones equivalentes con base en la idea de multiplicar o dividir al numerador y al denominador por un mismo número natural

Conversión de fracciones decimales a escritura decimal y viceversa

Evaluar el aprendizaje por parte del maestro.

ALUMNOS	A S P E C T O S					
	Participación	Sigue instrucciones	Resuelve los ejercicios	Participación en el juego	Disciplina	TOTAL
1.						
2.						
3.						
TOTAL						

RANGO		
A) NO 0	B) REGULAR 1	C) SI 2

GUÍA DE COEVALUACION PARA TRABAJOS EN EQUIPO

ASPECTOS A EVALUAR	Alumnos			
Asistió puntualmente a trabajar en equipo y ayudo activamente a resolver los ejercicios				
Respeto su tuno y compartió sus estrategias de solución con sus compañeros				
Mostro interés en el trabajo				
Participo en equipo con respeto y cuido los materiales				
Total				

RANGO	
FRECUENCIA CON QUE CUMPLIÓ	PONDERACIÓN
SIEMPRE	5
A VECES	3
CASI NUNCA	1

Evaluar el aprendizaje por parte del alumno.

Observaciones: _____

_____

_____

Profesor que elaboro _____   Vo.Bo. del director escolar

_____   _____

Profr. Erib Emmanuel Garcia Garcia   Profr. Erib Emmanuel Garcia Garcia

Escuela primaria Benito Juárez C.C.T. 15EPR4514X Zona Escolar P053, ubicada en Plaza principal frente al kiosco, Venta de Cruz Municipio Nopaltepec estado de México.

Planeación multigrado 3°, 4°, 5° y 6°		Fecha: 24/04/2018
GRADOS:	(3°, 4°, 5° Y 6°)	
Nivel:	Primaria General.	
Contenido:	3° Elaboración e interpretación de representaciones graficas de las fracciones. 4°,5° Y 6° Obtención de fracciones equivalentes con base en la idea de multiplicar o dividir al numerador y al denominador por un mismo número natural • Conversión de fracciones decimales a escritura decimal y viceversa	
Intención didáctica	3° Que los alumnos analicen el significado de una numero fraccionario para representarlo gráficamente o para referir con numero una representación gráfica. 4°,5° Y 6° Que los alumnos utilicen diversos recursos para sumar o restar fracciones mentalmente. • Que los alumnos identifiquen la expresión con punto decimal de una fracción común sencilla (medios, cuartos y décimos).	
Estrategia:	Se usaran planeaciones multigrado donde se tomen un TEMA COMÚN o CONTENIDO COMÚN de acuerdo al interés y necesidades de aprendizaje de los alumnos; así como donde se incluyan las siguientes estrategias didácticas generales: - Uso de material concreto. - Análisis de situaciones concretas. - Uso de medidas no convencionales y convencionales. (Mediciones, comparaciones) - Análisis de conceptos. - Uso de algoritmos convencionales. Teniendo presente el nivel que deben alcanzar los alumnos en cada grado de acuerdo al Plan y programas de estudios. Por lo que dentro de la planeación se propone ACTIVIDADES PREVIAS COMUNES, donde se toma el tema articulador que será transversal en los demás grados; así como ACTIVIDADES DIFERENCIADAS donde en cada grado se enfocaran a resolver problemas de acuerdo a su nivel de conocimientos y avance. Se utilizara para ir obteniendo información sobre los avances la evaluación formativa dentro de las que se incluyen: INSTRUMENTO DE OBSERVACIÓN Y REGISTRO DE DESEMPEÑO, GUÍA DE OBSERVACIÓN SOBRE EXÁMENES PRÁCTICOS y la COEVALUACION.	
Descripción:	Como se ha mencionado en la parte de las estrategias se usara una planeación multigrado porque se está trabajando es una escuela unitaria, además permite aprovechar el tiempo dentro del aula, así como permite la socialización de los procedimientos y actividades dentro del grupo, enriqueciendo y retroalimentando los conocimientos que se contextualizan en un primer momento. A CONTINUACIÓN SE PRESENTA UNA PLANEACIÓN DE ESTE TIPO CONSIDERANDO LOS ASPECTOS ANTERIORES: **ACTIVIDAD PREVIA COMÚN** En forma grupal se entregara a los alumnos una hoja. Recordando mediante lluvia de ideas que es una fracción se elaborara un concepto con las participaciones de los alumnos, del mismo modo se definirá las partes que las componen y lo que representan cada una. Una vez comprendido se establecerá que la hoja blanca que se le dio a cada uno representara un entero y comenzaremos a doblarla en diferentes fracciones para ejemplificar que es el numerador y el denominador asi hasta formar con papiroflexia un portarretratos. Entero 1/2 1/4 1/8	

Con ayuda de pedazos de hoja de forma rectangular se elabora la representación gráfica de las fracciones que se les entregara en una hoja.

fracción	Representación grafica
½	
¼	
3/8	
2/4	
1/8	

ACTIVIDAD DE DESARROLLO COMUN

Resolverán los siguientes cuestionamientos tomando como referencia la tabla anterior: ¿Cuántos ¼ caben en 1/2?, ¿Cuántos 1/8 cabrán en ½? Etc. (se realizaran las ejemplificaciones en el pizarrón).

En binas elaborar un tabla de variación proporcional directa con ½ y ¼

Equivalencias 1/2	
entero	
cuarto	
octavo	
decimo	
doceavo	

Equivalencias 1/4	
entero	
octavo	
decimo	
doceavo	
dieciseisavo	

PUESTA EN COMUN. Analizar las tablas para saber ¿cómo obtuvieron los resultados? ¿qué sumaron? Y se establecerá la relación por ejemplo ½ x 2 = 2/4, ¼ x 4=4/16 Comentando las fracciones equivalentes.

ACTIVIDAD DIFERENCIADA POR CICLOS

3 GRADO JUGARAN CON EL JUEGO DE DOMINO DE FRACCIONES EN EL QUE TENDRAN QUE RELACIONAR LA FRACCION CON SU REPRESENTACION GRAFICA

5, Y 6 GRADO: JUGARAN EN EQUIPOS DE 4 PERSONAS DOMINO DE FRACCIONES EN CUAL RELACIONARAN FRACCIONES, DECIMALES Y PORCENTAJA UTILIZARAN LOS CONOCIMIENTOS ADQUIRIDO.

MATERIALES:
HOJAS BLANCAS
MATERIAL IMPRESO

DADOS
DOMINO DE FRACCIONES PARA TERCERO
DOMINO DE FRACCIONES PARA 4°,5° Y 6°

Appendix F ISCED structure of school in Mexico