

# Teaching technology training, an urgent need for the incorporation of information technologies in primary schools in Mexico

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**Abstract:** The educational factor is a strategic point for any country, as this directly affects the development and growth of a country. In Mexico is no exception, so you should implement support of various kinds to promote and raise educational levels of the population, including the support of information technologies, to assist in the continuous improvement of this, especially train teachers as they are the main instrument for the dissemination of knowledge. This information was collected in 6 Public elementary schools, in the municipality of Ecatepec in Mexico, through field research techniques such as interviews and observation, applied to teachers and parents, while complementing them with 48 applications.

**Keywords:** Information Technologies, Training, Elementary Schools

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## 1. Introduction

The educational aspect is one of the main factors that every country should be viewed as strategic to develop and grow as a competitive country, and that doing so has many sides to benefit, to cite one example, the increasing support for education with aim of improving educational quality and access this provides better development opportunities for its people, and citizens better prepared with different perspectives.

This should guide efforts to promote education in a comprehensive manner and conducting academic research in order to ensure better use of resources.

In this paper, the aim is to show that based on the research conducted and the results thereof, is required to analyze the whole environment surrounding education including training of teachers, which are the main instrument dissemination of knowledge to the student, in addition to this guide such training to ensure successful incorporation of information technology to support the education sector.

Failure to do, the feedback that must exist for improving is truncation, added to that the use not correct of technologies as support the education sector in the long term is an investment little profitable and the real goal of using technology be lost

## 2. Methods

### 2.1. Type Scientific Research

The characteristics of this research to include the following types of research:

Descriptive, Exploratory, field and propositional. According to Fernandez, Narez & Garcia (2008) descriptive research is the characterization of a fact, phenomenon, individual or group, in order to establish its structure or behavior.

Explanatory research is responsible for searching the reason of the facts by establishing cause-effect relationships. In the field Research also used, in which the main techniques used were: interview, survey and observation.

The survey according to Hernández Fernández & Baptista (1997) is a technique for acquiring information of sociological interest, using a questionnaire previously developed.

While the structured interview according to Sabino (2002) is characterized by rigidly, identical questions and in the same order to each of the participants, who must choose the answer between by two, three or more alternatives that are offered.

On the other hand, the non-participant observation according to Hernández et. al (1997) indicates that is the systematic, valid and reliable record of behavior or behavior.

Finally the proactive investigation, According to Del Rincon, Arnal, Latorre & Sans (1995) suggest that part of a diagnosis, establishing goals and strategies are designed to achieve the objective.

## 2.2. Type of Technological Research

The type of technological intervention research, according to García (2005), is a finished item, which includes the application of knowledge in specific products that solves a problem, meets a need, facilitates the task, done efficiently or provides comfort.

## 2.3. Methodology of Scientific Research

Due to the nature of this study the methods following were also used:

1. Analysis and synthesis. According to Fernández et al. (2008), The analysis Theoretical is a procedure by which a complex whole is broken down into its various parts and qualities. While mentally synthesis establishes the link between the parties previously analyzed and allows discover essential relations and general characteristics between them.
2. Systemic functional structure. Its action is evident in the interplay of ideas, connecting concepts, systems coupled with recommendations and strategies; it

becomes an important avenue for the explanation of the research object.

3. Inductive says Castillo de la Peña (2010), is the reasoning, from the knowledge universal to about knowledge particular.

## 2.4. Technological Research Methodology

Dante says (2006) that technological methodology is a systematic way of performing, managing and administering a project to perform with high chances of success. The methodology, is the lifecycle object-oriented, this allows the code to be reusable.

## 2.5. Comparison of Technological Development Methodologies

Given the nature of research methodology is used in this object oriented life cycle and object oriented. Then shown in Table 1, a comparison between different methodologies.

Why the object-oriented methodology is selected? According to Dante (2006), the object-oriented methodology, it organize components based modules, in each component is independent of other; this allows the code to be reusable.

Due to the before, various blocks be develop in system, further to separate the duties of each of the blocks, depending on the purpose of each module, it create functions that can be shared between them.

This research employs the methodology of lifecycle object-oriented, according to Table 2.

Table 1. Comparison between methodologies

General methodologies	Advantage	disadvantages
Structured methodology	Decomposes into small individual modules	It is cannot reuse code  Is complex as increases the number of modules
	It is easier to solve small problems	
	Division of Process under complexity	
	It organize modules based in components	
Object Oriented Methodology	Each component is independent of other	Is complex as increases the number of objects
	The code is reusable by another process	
	Easy to maintain	
	Division of Process under complexity	

Source: Dante (2006), Comparison table of programming methodologies, Implementation and debugging Zigzag, Chile, pp.20

Table 2. Comparison between different methodologies

Detailed methodologies	Advantage	Disadvantages
Linear life cycle	It decomposes Overall activity in steps separate, that are performed general	It not accept feedback between stages  It is very expensive to resume an earlier stage, detected a fault Inflexible rigid model There are many restrictions for application If mistakes have been made and are not detected in the following process, is expensive and difficult to return to the problem The results cannot be displayed until it is in the final stage
	Easy divide tasks and provide time	
	Ease of management and administration	
	iterations allowed	
life cycle in pure waterfall	It has a simple planning	
	does not require personal highly skilled	

Detailed methodologies	Advantage	Disadvantages
life cycle oriented to objects	Each functionality requested by the user is regarded as an object	It is cost in time each development, depending on the magnitude of the project
	It is a flexible model	
	Supports better the uncertainty of user requirements	It requires staff with knowledge
	Helps reduce the complexity of the problem, allowing continuous improvement project	
	It can be used in any language	
	It is a versatile model	

Source: Dante (2006), Comparison table of programming methodologies, Implementation and debugging Zigzag, Chile. Pág. 21 - 34

### 3. Educational Context in Mexico

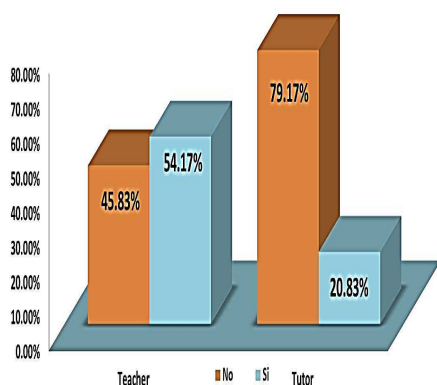
Public education supports creation and provision in Article 3 of the Constitution of the United Mexican States in 1917 (House of Representatives, 2012), and the creation of the secretariat of Education in 1921, bringing education and consolidated national education system at least normatively, although until several decades progress has been at the expense of politicians, union agreements, not understanding that education is above individual interests, and that its growth (administrative, operational) should not be conditioned.

If we add that the role of the incorporation of technology in the primary education sector becomes more complex, the problem is that over time without implementing the research technologies to support their inclusion, education regarding the incorporation of technologies will remain neglected.

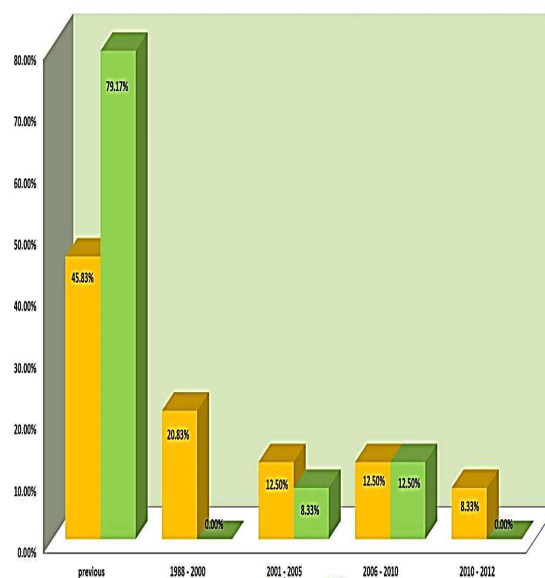
Therefore, it is important to continue with researches and more about incorporating technology in education, in any activities. Not enough with good intentions

### 4. Results

The results of the investigation are described below. Note that these results, derivatives were obtained the application of an instrument (surveys), aimed at teachers and parents of public primary schools in the municipality of Ecatepec de Morelos, State of Mexico



Graphic 1. Teachers and parents who have taken computer courses



Graphic 2. Computer courses taken by teachers and parents in the last 6 years

#### 4.1. Education Update

Is observed a deficit of 45.83% compared with computer courses for teachers, which is an important factor for the incorporation of information technologies. On the other hand, even though he left 54.17% of teachers have taken courses, only 20.83% have taken in the last 6 years, according to Graphics 1 and 2.

Which means, that only 24 of every 120 teachers have been trained in the indicated time interval, when they should all be trained and take at least one course per year.

In the case of parents, is more serious since only 12.85% has been updated in the last 6 years, which means that for every 120 parents, only 15 have taken course of computer. It should be noted that it is essential and urgent that training for teachers on information technology, with the aim of incorporating these technologies with the greater success possible.

#### 4.2. Propose

Recommend alternatives to raise levels of technology training and the education levels around the teaching and administrative staff of public primary schools, in order to incorporate with success the technology, particularly information systems. It is proposed to train teachers of

public primary schools in relation to the use and exploitation of technological. To do this, it is recommended to train teachers and then to parents who are interested in taking these training, in the next order:

1. Teachers who are between 18 and 30 years old.
2. Teachers who are between 31 and 40 years old.
3. Teachers with between 41 or older.
4. Management Authorities of the public elementary schools

The order of technology training, it is because teachers are those used and developed directly using information systems, on the other hand intends to make distinctions for ages, to take advantage of educational inertia they have. Subsequently proposes training to the administrative authorities of public elementary schools that will be gradually involved in using the system.

Finally parents so they can gradually incorporate the use of technology. It is suggested that teachers take at least 4 courses per year, about technology refresh related context and about the use of information technologies and finally about the appropriate use of technology.

It suggests that technology training programs are developed and evaluated by the academic sector relying on public universities. The reason to consult the academic sector is for the support to evaluate and update the programs continuously.

## 5. Conclusion

It is urgent, that researches are conducted mainly academic nature, in order to that supports the integration of technology, and especially is contemplated in this incorporation the training of teachers, staff and parents, in coordination with the relevant authorities to maximize their use and monitoring of such systems in order to improve these features that will be require. It is difficult to think of incorporating technological element in isolation, as it requires the training to the persons. This implies not only technological but also cultural evolution, since the incorporation of the information system impacts both municipal authorities and society as a whole.

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