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**“THE INFLUENCE OF TEACHER’S ATTITUDES AND BELIEFS
INTO TECHNOLOGY-RELATED SKILLS, AT UNIDAD
EDUCATIVA TUMBACO DURING THE 2010-2011 SCHOOL
YEAR.**

AUTHOR: Collaguazo Carrera, Héctor Gonzalo

DIRECTOR: M.S. Ponce Medina, Miguel Vinicio

CO-DIRECTOR: Lic. Mg. Pinto, Monica

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CARRERA DE LINGÜÍSTICA APLICADA AL
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**Héctor Gonzalo Collaguazo Carrera
1711408573**

DEDICATION

This work is dedicated to God because he guided me and provided me with the wisdom and all the requirements to accomplish this project.

My family especially my wife Miriam and kids Edison, Sofia, Domenica, who have been by my side giving me affection, trust and unconditional support to move forward, to meet another stage in my life and are the reason and the reason that led me to follow overcoming day to day, to achieve my most cherished ideals of excellence, they were the ones in the most difficult times gave me their love and understanding so that they can be overcome, I want to leave them a teaching that when you want to achieve something in life, no time or obstacle that prevents it so that it can be achieved.

To my dear Parents whose fondly, love and example have made me a person who can deal with values as: Husband, Father and Professional.

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RESUMEN

Este documento ha sido realizado en la Unidad Educativa Tumbaco donde los maestros no tienen suficientes habilidades en el uso de las nuevas tecnologías, también se trata de identificar las causas de la falta de conocimiento y capacitación del maestro en el uso de las nuevas tecnologías y su aplicación. Por lo tanto, el propósito de esta investigación consistió en la búsqueda de factores como las actitudes y creencias relacionadas con el uso de las nuevas tecnologías en la enseñanza. Otro propósito fue estudiar cómo mejorar las habilidades a través de las nuevas tecnologías, y su relación entre las actitudes de los maestros hacia las nuevas tecnologías. Este trabajo se centró en el desarrollo de habilidades en el uso de las nuevas tecnologías y explorar si las creencias de maestros afectados en habilidades relacionadas con la tecnología. Se aplicó el método de estadística descriptiva e inferencial para analizar y desarrollar una investigación más detallada con el uso de encuestas a los profesores y estudiantes; quiénes eran los actores clave que ayudaron a detectar este problema, que desinteresadamente dieron su colaboración una vez que se explicó la técnica utilizada. Con los resultados obtenidos en el proceso de investigación se ha encontrado que los profesores no tienen formación suficiente en el uso de la nueva tecnología en la educación para el beneficio de la escuela y los estudiantes, también hay problemas internos como la falta de equipo de cómputo y el entrenamiento del personal, la actitud negativa y el conocimiento insuficiente a las nuevas tecnologías, la falta de habilidad y práctica en el uso de las nuevas tecnologías y la falta de apoyo de las autoridades. Como resultado de las deficiencias encontradas durante la investigación, se propuso el plan y la implementación de cursos y talleres sobre el uso de las nuevas tecnologías y conocimientos básicos de software y hardware dirigido a directivos y docentes de la Unidad Educativa Tumbaco utilizando las técnicas apropiadas para una excelente asimilación de cuestiones impartidas.

PALABRAS CLAVE:

- ✓ **ACTITUDES Y CREENCIAS**
- ✓ **HABILIDAD TECNOLÓGICA**
- ✓ **CONOCIMIENTO TECNOLÓGICO**
- ✓ **ENTRENAMIENTO TECNOLÓGICO**

ABSTRACT

This paper was performed at Educational Unit Tumbaco where teachers do not have enough skills in the use of new Technology, also tries to identify the causes about teacher's lack of knowledge and training in the use of new technology and its application. Hence, the purpose of this research consisted in finding out factors such as teachers' attitudes and beliefs related to the use of new technology in teaching. Another purpose was to study how to improve the skills using new technology, and its relation between teachers' attitudes towards new technology. This work focused on the development of skills in the use of new technology and explore if teachers' beliefs affected into technology-related skills. It was applied the descriptive and inferential statistics method to analyze and develop a more detailed investigation with the use of surveys to teachers and students; Who were the key players that helped detect this problem, who selflessly gave their collaboration once was explained the technique used. With the results obtained in the research process has been found that teachers do not have sufficient training in the use of the new technology in education for the benefit of the school and students, there are also internal issues such as lack of computer equipment and trained teaching staff, negative and inadequate knowledge attitude towards new technology, lack of skill and practice in the use of new technology and lack of support from the authorities. As a result of the shortcomings found during the investigation, it was proposed plan and implementing of courses and workshops about the use of new technology and basic knowledge of software and hardware aimed at managers and teachers of the Educational Unit Tumbaco using the appropriate techniques for excellent assimilation of imparted issues.

KEYWORDS:

- ✓ **ATTITUDES AND BELIEFS**
- ✓ **TECHNOLOGY SKILL**
- ✓ **TECHNOLOGY KNOWLEDGE**
- ✓ **TECHNOLOGY TRAINING**

PART ONE

RESEARCH PROBLEM

1.1 IDENTIFICATION PROBLEM

The teachers at “UNIDAD EDUCATIVA TUMBACO” do not have enough technology-related skill, teachers should receive personal support and training for gaining experience in use new technology in the learning-teaching process.

The first cause is the lack Administrative support and resistance to change, is important to obtain support of the main authorities to develop the level of preparedness of teachers in the use of new technologies.

The negative teachers’ attitudes and insufficient knowledge towards computers is the cause for teachers experience some kind of anxiety or resistance to use new technology in the classroom.

Finally, the insufficient teachers’ skills in use new technology is the main cause resistance to use new technology as a teaching tool.

Effective integration will depend on a larger extent trained and supported teachers (UNESCO, Bangkok, 2003). The greatest challenge of the schools has been the provision of adequate support to teachers in as far as acquisition of appropriate technical skills important for integrating computers in the classroom.

Teachers feel unprepared to learn and integrate technology in their classrooms; there is not doubt that technology plays an important role in the schools, considering the wide range of computer applications in today’s world. Consequently, teachers must be prepared to use computers in their instructional practices and do it pedagogically efficient. Effective use of technology involves considering the concepts, skills, and issues you expect students to learn, selecting technologies to offer related opportunities for student learning, and implementing strategies for best use.

Rakes and Casey (2002) found that teachers need to understand the innovation of technology and be trained in how to integrate technology into their classroom, not just learn how to use computers and computer programs.

In preparing teacher candidates to effectively integrate technology into their future classrooms, they need to work in classroom environments that support a variety of technologies that include best practice lesson planning and classroom experiences. They should be allowed to work with model technology integration processes that best support the curriculum and enhances student learning. Teachers need training in environments that support technology integration in curriculum areas that can be replicated in their own classrooms, and not only in training to use educational software and skill development. Teachers' beliefs can and should become an important focus of educational inquiry but that this will require clear conceptualizations, careful examination of key assumptions, consistent understandings and adherence to precise meanings, and proper assessment and investigation of specific belief constructs.

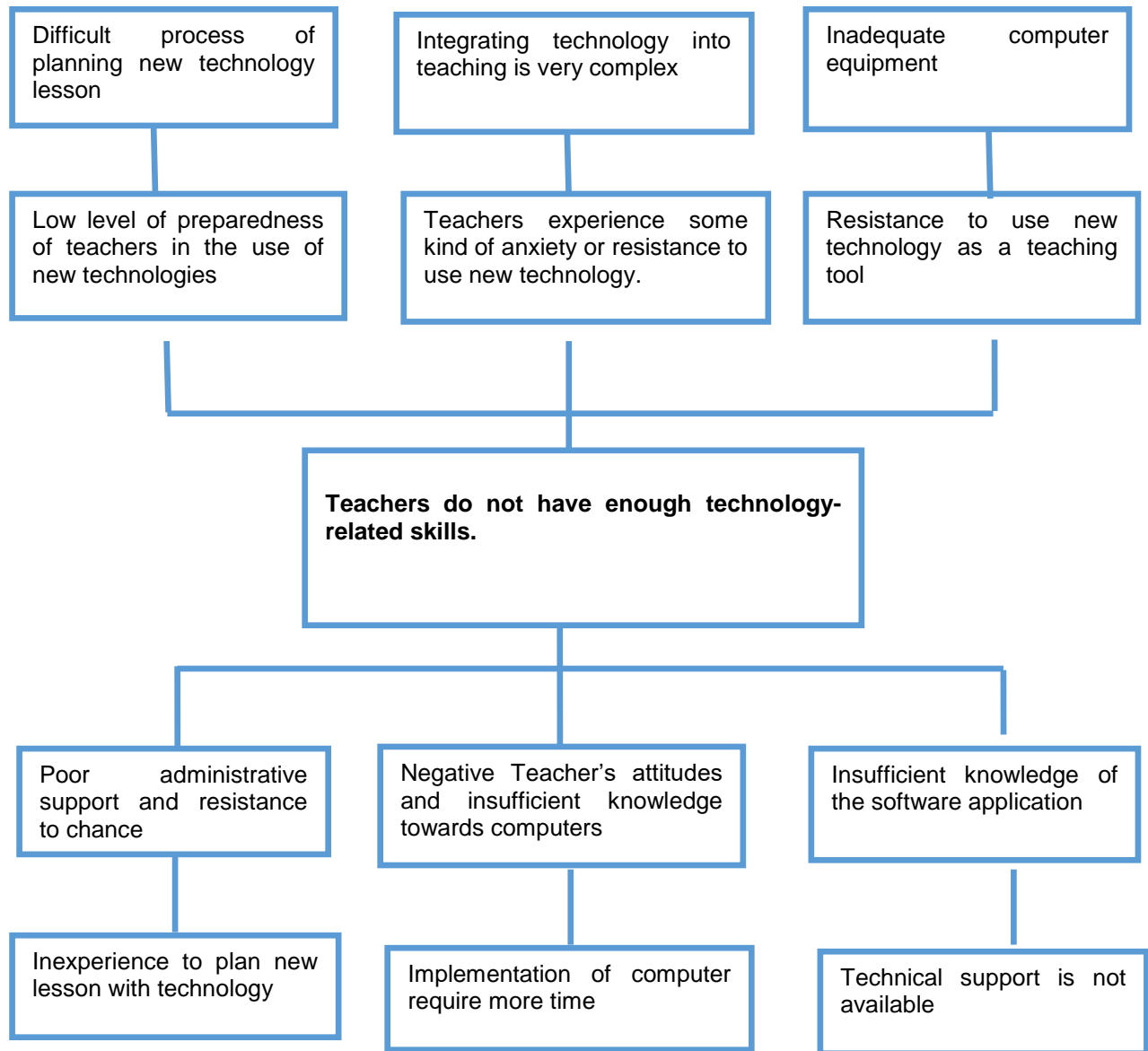


Figure 1 Problem tree

1.2 PROBLEM FORMULATION

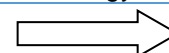
This work took place at Educational Unit “Tumbaco” located in the valley Tumbaco, and it was focused on 25 students and 15 people who are teachers in this school. The question this study tries to answer is: How influence teacher’s attitudes and beliefs into technology-related skills?

1.3 Variables matrix

Cuadro 1
Variables matrix

VARIABLES	DEFINITION	DIMENSIONS	SUBDIMENSIONS
Teacher’s attitudes and beliefs.	Teachers’ beliefs refer to internal constructs that help teachers interpret experiences and that guide specific teaching practices (Nespor, 1987; Pajares, 1992). According to Fang (1996), “teacher’s beliefs are shaped by many factors. Among them are the influences of discipline subculture, the quality of pre-service experience in the classroom, and the opportunity for reflection on the pre-service experience..... Regardless of the forms they take, a teacher’s beliefs or philosophy can affect teaching and learning in one way or the other” (p. 50).	Importance Process of forming	<ul style="list-style-type: none"> • Thoughts, perceptions and behaviours • Psychological effect of change • Knowledge and skills • Value in the educational process • Teacher’s will • Pedagogical beliefs • Self-efficacy beliefs about technology • Value that technology offers • Perceptions about effectiveness
Technology-related skills.	The ability to learn, communicate effectively, collaborate, and problem solve about computer-technology-related tasks and projects; and the ability to use technology to support your work with people things data information and the ability to support others in the use of technology, such as	Technology knowledge	<ul style="list-style-type: none"> • Teachers training • Technology support • Personnel development • Enthusiasm and motivation • Ability to use technology

To be continued



<p>setting up computer workstations, computer troubleshooting related issues, maintaining repairing computers related equipment.</p>	<p>Types of technology used in classroom</p> <ul style="list-style-type: none"> • Promote better learning process • Effectiveness of computers • Increase retention • Access course material • Numbers of computers • Computers labs <p>Barriers to integrate Technology</p> <ul style="list-style-type: none"> • School investment • Time or experience • Curriculum for instructional purpose • Computer training
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1.4 OBJECTIVES

1.4.1 General objectives

To determine the relationship between the teacher's attitudes and beliefs into technology-related skills.

1.4.2 Specific objectives

1. To suggest the planning courses and workshops to enhance the skills of teachers in the use of technology in teaching
2. To understand the theoretical basis on teachers' believes and technological-related skills.
3. To find out the teachers' experience and skills in use technology.
4. To identify the teachers' barriers related the use of technology in education.
5. To analyze the teachers attitudes towards the new technology.
6. To survey if teachers attitudes and beliefs affect into technology-related skills.

1.5 JUSTIFICATION

It is important to acquire good skills to use technology in the teaching-learning process, to develop this skill is necessary teacher training, allowing it to be better teachers and members of society with sufficient knowledge to teach students using New Technology.

In recent years much attention has been focused on the use of technology in classes and many researches have been surveyed. Nowadays the traditional classroom teaching has changed more and more into a virtual environment where different issues about learning has to be taken into account. The students have to be motivated in the learning situation and the material has to be easily at hand. Learning has dramatically changed over recent decades when technical revolution has brought different opportunities to learn via the Internet (Lahtinen 1997).

Use of a variety of education technology enriches and strengthens learning environment in a way that the students will learn a foreign language effectively. Computers are among the most popular instructional technology in a classroom setting. In a classroom, the teacher perceives and defines a teaching situation, makes judgments and decisions, and then takes actions. Therefore, to improve teacher preparation and teaching practice, educators should pay more attention to teacher beliefs because these beliefs profoundly influence decision-making processes and teaching practices. On the basis of their beliefs about teaching, educational goals, and student learning, teachers choose specific strategies and materials to deal particular situations.

In the “Educational Unit Tumbaco”, according to the data that were analyzed, it is possible to conclude that the insufficient of technology-related skills might be the lack time, limited access and high costs of equipment, lack or vision or rationale for technology use, lack of teacher training and support.

The purpose is to show the benefits about Teacher's training in Technology use, because experience is always a big factor in determining computer literacy among teachers.

PART TWO

CHAPTER I

EDUCATIONAL UNIT TUMBACO

1.1 History

The educational unit “Tumbaco” is the result of the effort of men and women with an enormous vision. It is the fruit of the confluence of ideas and aspirations of better days for the future generations of the parish and the Homeland in general.

The institution was founded soon after the application to have an educational institution of intermediate level was carried out by the representatives of public and private organizations in Tumbaco. Resolution N° 248, inacted on September 25, 1972, authorizes the operation of the particular evening school in Tumbaco. The ministry of education currently mediates this resolution.

Through supreme ordinance N° 1080, published in the official registration of October 8, 1973, the schools of basic cycle in Tumbaco are nationalized. Therefore, these schools belong to the same Educational Unit category as the other nationalized schools in Ecuador by means of Ministerial agreement N° 430 of February 14, 1991.

The Tumbaco National High School, which is currently an integral part of the Educational Unit, has contributed to the education of the youth of the valley for 40 years. The institutional school facility has two locations: one located in the parochial head, on Gonzalo Pizarro Street between Guayaquil and Francisco of Orellana, with an extension of 2800m², and the other in the Neighborhood Tola Chica in the sector of la Morita with an extension of 6.8 hectares.

During this time, the institution has grown in all aspects. As a result, it is now considered to be an important referent of the development of the parish. The Tumbaco Educational unit is implementing the Educational Institutional

project which integrates the student, according to the requirements of modern society, into the productive matrix with the objective of elevating the quality of the student's life in the material and human environments. At the same time, they strengthen their integral formation by means of the knowledge he or she gains, the exercise of various ethical and moral values (pillars of our society) and their intellectual development which gives them ample knowledge and understanding of the world around them.

1.2 Infrastructure

The Tumbaco Educational Unit has one block with a physical space of 2.800m². The School Victor Manuel Peñaherrera operates in the morning. The school Benito Juarez operates in the afternoon and the Tumbaco Educational Unit in the evening. This is a governmental high school. Next to it, there is a historical church.

1.3 Educational Model

Educational standard is a part of both dialectical and historical materialism, which integrates the individual into society and, to a certain extent, determines their social, political and economic status. Countless interpersonal exchanges take place with the conviction that human activity takes place in that social environment, both in active interaction and intercommunication. The study of any social phenomenon, especially with the human being as an essential element, is impossible to do without knowing its history. Choosing not to ignore the history of the phenomenon, but to isolate it instead (this does not mean decontextualizing), allows us to get to know its essence. The process of development of each individual cannot be out of context. Ignoring the individual history of a person's development in the concrete conditions of their environment, of the dynamics that it is produced as well as the time in which they lived leads to false conclusions. The unity of the mind must relate to the subject's activity, because personality is determined by historical social conditions. Conscience develops as one engages in different forms of activity such as work, education and the arts.

One must understand that these are socially determined. This position has been overshadowed by various empirical approaches and theories. For example, dualism, pragmatism, positivism and isolationism separate the individual from society, not taking into account the history of his or her life. Therefore, this approach is part of the laws of dialectics. It offers a new understanding of human beings, always prone to change and transform.

1.4 The Pedagogical Model

The constructivist classroom presents the learner with opportunities to build on prior knowledge and understanding to construct new knowledge and understanding from authentic experience. Students are allowed to confront problems full of meaning because of their real-life context. In solving these problems, students are encouraged to explore possibilities, invent alternative solutions, collaborate with other students (or external experts), try out ideas and hypotheses, revise their thinking, and finally present the best solution they can derive.

Contrast this approach with the typical behaviorist classroom, where students are passively involved in receiving all necessary critical information from the teacher and the textbook. Rather than inventing solutions and constructing knowledge in the process, students are taught how to "get the right answer" using the teacher's method. Students do not even have to "make sense" of the method used to solve problems.

According to the charisma, the essence of education is the passion towards young people and the art of offering confidence, love what they love and walking with them in their search for their goals.

The preventive system gives to the teaching theories a big and meaningful significance; this includes knowledge, religion and amiability in a whole system. It means to help the student by "walking together", that is by helping and giving advice and a hand whenever they need it.

CHAPTER II

THE TEACHERS' BELIEFS

According to M. Rokeach, an important concept in understanding teachers' thoughts, perceptions, behaviors, and attitudes is teacher's beliefs. Rokeach argued that all beliefs include a cognitive component representing knowledge, an affective component arousing emotions, and a behavioral component guiding actions. Therefore, knowledge is a component of belief.

Although knowledge and beliefs are "inextricably intertwined" (Pajares, 1992, p.235) Nespor (1987) suggested that beliefs are distinguished from knowledge because the propositions or the concepts of belief systems do not require consensus between the belief holder and the outsider and because beliefs are usually disputable.

Green (1971) argued that some beliefs are more central to belief systems and more resistant to change than are other beliefs because the former beliefs are held with "passionate conviction" (p.53). In contrast, peripheral beliefs are held with less psychological strength and further from the belief systems' core.

Pajares (1992) stated that people have beliefs about everything and that to conceptualize a belief system is to recognize that the belief system contains various beliefs connecting to one another. Clusters of beliefs focusing on a construct form an attitude (Rokeach, 1968). Teachers' attitudes about education including attitudes about schooling, teaching, learning, and students are usually represented as teacher beliefs.

As Pajares argued, a person's existing beliefs can affect the person's perception and acceptance of new ideas; likewise, teacher's existing beliefs may function as a filter through which new ideas can pass and can partially transform the teachers.

2.1 Attitudes and Beliefs

The decision of how to use technology in the curriculum ultimately depends on individual teachers themselves and the beliefs they hold about technology (Ertmer, 2005). In one study, students expressed concern that it often appeared that their teachers did not understand that technology plays a significant role in students' lives outside of school. These students believed that if teachers had a better understanding of this, they would bring more technology into the classrooms (Spires, 2008). In other words, teachers' attitudes about student use of technology can serve as a significant barrier to its integration.

Beyond their feelings regarding the technology tools themselves, the integration of digital tools into the curriculum is also shaped by the teachers' beliefs. Researchers have found that technology implementation is directly determined by the educational philosophies and pedagogy of the classroom teacher (Grant, Ross, Wang, Potter, & Wilson, 2004.) Furthermore, teachers who view technology as "a way to keep kids busy" and who do not see the relevance of technology to the designated curriculum are unlikely to incorporate it (Ertmer, Addison, Lane, Ross, & Woods, 1999). Teachers who held these beliefs commonly granted computer time only after regular classroom work was done as a reward for the completion of assigned tasks. They did this because they believed that other skills and content knowledge were more important. In other words, the specific feelings and preconceptions educators have about digital tools and their instructional purposes can serve as a significant barrier (or, conversely, an advantage) to their integration into the curriculum.

In the media center, as in the classroom, the attitudes of the staff affect the effectiveness of technology integration. In a library in which the librarian is more comfortable with books and papers, print encyclopedias, almanacs and the like will be the main source of research. Even when the librarian is invested in utilizing technology, attitudes of the library staff or other school staff can affect its use. As with institutional barriers, the attitudes of the

school leaders and administration can also be a barrier to technology integration.

2.1.1 The importance of teachers' beliefs

In the 1960s, Robert Rosenthal (b. 1933) began examining expectancy beliefs and self-fulfilling prophecies -research that has remained robust into the early 2000s. When teachers expect students to perform (i.e., high or low), they behave in differential ways that bring about the expected performance. In *Pygmalion in the Classroom: Teacher Expectations and Pupil's Intellectual Development* (1968), Rosenthal and Jacobsen documented how teachers' beliefs about student ability can be subtly manipulated such that teachers believe some students to be more able than their peers and how their beliefs about student ability affect students' actual achievement.

Measuring the power of teachers' beliefs about student intelligence became important. In 1973 W. Burleigh Seaver conducted a naturalistic experiment to examine the effects of teachers' expectations of students' performance given the performance of a high or low achieving sibling in their class in a previous year. Underlying this study was the assumption that teachers expect siblings to perform similarly given their shared family context and/or genetic makeup. Using school records, and controlling for the younger siblings' actual intelligence, older siblings were classified as either high or low performers and younger siblings' performances when they had the same or different teacher were examined.

Teachers' beliefs are a form of subjective reality: What they believe is real and true. Their beliefs guide their decision-making, behavior, and interactions with students and, in turn, create an objective reality in the classroom, what students experience as real and true. Teachers' beliefs shape their planning and curricular decisions, in effect determining what should be taught and what path instruction should follow. Moreover, their beliefs are not always a reflection of accepted notions in the field. In a 1998 study of teachers' and students' understandings of knowledge (from prior experience and formal

instruction in school) and beliefs, Patricia Alexander and colleagues found teachers and students recognize beliefs and knowledge may not overlap:

These findings suggest teachers may hold beliefs that are in conflict with their physical and social realities; but that, nonetheless, inform their practice. Moreover, these findings suggest that teachers cannot assume an understanding of another person's (i.e. another teacher or their students) decision-making even when they share a knowledge base. Teachers need to dig deeper to try to uncover the beliefs, the personal tenets that drive their own, their colleagues', and their students' behavior.

2.1.2 The Process of Forming Teachers' Beliefs

Teachers' beliefs are developed in the course of their careers. Teachers' implicit theories of teaching are the products of teachers' efforts to make sense of their experiences and to generate a basis for effective action in the classroom. These beliefs are acquired in a "clinically way of looking at the world" which is similar to the methods experienced by medical doctors. Given the unpredictability and uniqueness of classroom events, teachers have to resort to their own beliefs particularly in pedagogical situations when formal knowledge is not available, it is disconnected, or cannot be retrieved (Nespor, 1987).

Teachers' beliefs are shaped by personal experiences (Richardson, 1996). By personal experiences, Richardson (1996) includes aspects of life that go into the formation of world view; intellectual and virtuous dispositions; beliefs about self in relation to others; understandings of the relationship of schooling to society; and other forms of personal, familial, and cultural understandings. Ethnic and socio-economic background, gender, geographic location, and life decisions may all affect an individuals' beliefs that, in turn, affect learning to teach and teaching". In particular, it seems that culture makes a differential effect on teachers' beliefs (p. 105).

The formation of beliefs and teaching practices are affected by other factors (Laurenson, 1995). Laurenson (1995) claims that because of the influence of behaviorism, there has been great pressure on teachers to align to a strict and rigid set of instructional objectives which has restricted teachers' creativity. Also, administrative constraints like enforcing lesson plans are accountable for the development of negative beliefs about teaching. Likewise, Laurenson (1995) suggests that teachers sometimes choose easier academic tasks that result in smooth learning environments rather than planning lessons where students are challenged with difficult work. Laurenson (1995) stated that limited knowledge of the subject matter, such as knowledge of technology, inhibits teachers' ability to organize a lesson effectively. Finally, many teachers come from an education background where the only technology was the blackboard. Although funding, equipment, lack of time, and knowledge are known obstacles to successful technology integration, a critical component in meeting teachers' technology needs is responding to teachers' beliefs toward technologies (Lam, 2000). Teachers' beliefs are essential in considering how a teacher teaches, thinks, and learns. Hope (1997) wrote that teachers basically had to contend with two factors with technology adoption: (a) the psychological effect of change and (b) learning to use computer technology. Understanding teachers' beliefs toward technology plays an essential role in successful technology adoption. Access to technologies increased teachers' "opportunities for successful teaching experiences, thereby contributing to greater confidence in their instructional ability. They also noted that teachers who interpret their interactions with computers as indicative of high ability grow in self-confidence, regardless of their experience" (Ross, Hogaboam-Gray, & Hannay, 1999). Research reveals that before teachers use technology for instruction they must be personally convinced of its benefits and must see the utility of using a particular technology (Lam, 2000). Successful technology adoption in teachers' classrooms is dependent upon school administrators providing an individualized, differentiated process of training and implementation (Gray, 2001).

2.1.3 How teachers' beliefs operate

Essentially beliefs function in a way similar to a lens on a magnifying glass. They clarify and guide interpretation of what may be ambiguous or unfocused. Generally, teachers interpret ambiguous situations in ways that are consistent with their beliefs. Beliefs also serve as a foundation for setting goals and standards by framing what is viewed in detail and focusing teachers' attention and energy. Similarly, they delimit what is peripheral, determining what teachers do not see, emphasize, or examine. Because beliefs help teachers to make sense of what they experience in the classroom, they create meaning for teachers.

Debate continues about the extent to which teachers' beliefs and their identity as teachers are the same. The literature on teachers' beliefs suggests teachers may simultaneously hold beliefs that are inconsistent, in conflict, and even contradictory and still see themselves as a teacher. Fred Korthagen posits teachers are likely to be the most effective when their beliefs are aligned with each other and with the field.

That beliefs are intimately tied with teachers' sense of self (be it their personal identities or their teaching identities) is consistent across the literature, and, for this reason, beliefs tend to be resistant to change. In the face of information that challenges their beliefs, such as policy inducement to reform, to modify/include new populations of students, or to innovate with new technologies, teachers tend to feel threatened (Fecho, 2001; Gregoire, 2003). This reaction constitutes a fundamental challenge and, at times the paradox, of practicing and pre-service teacher education. The problem is to figure out how can teachers be encouraged to approach research in education, professional development, and policy reform with open minds.

2.1.4 How teachers' beliefs change

There is an inherent tension in the field of teacher beliefs between the call for teachers to habitually confront and revise their beliefs and the need for teachers to identify and preserve beliefs that serve them well. On one hand, at some point teachers inevitably have some maladaptive beliefs because the nature of childhood, the demands of society, and the curriculum change. On the other hand, there is an assumption in the literature, particularly with regard to beliefs about diverse students and best practice, that teachers' beliefs are bad and need to be changed. The danger of this thinking is that in order to protect their sense of self as good persons and as effective and altruistic teachers, teachers may defensively hold on to beliefs that do not serve their students. What appears to be a dichotomy here need not be. What teachers need to be encouraged to do is honestly face their beliefs in their entirety, evaluating which beliefs serve them, their content, and their students and which do not.

Mere awareness of beliefs may not be motivating enough to create change. Nearly all theories of conceptual change would argue that there needs to be some cognitive dissonance by which teachers see their beliefs do not work given serving a specific student population, teaching a specific concept, or enacting desired outcomes. Dissonance challenges teachers by forcing them to face failures, however small. When studying adaptive teaching Lyn Corno and colleagues (Corno & Snow, 1985; Rohrkemper & Corno, 1988) describe how adaptive teachers face dissonance and learn from it. Corno contends adaptive teaching involves monitoring which students are struggling and identifying the sources of the struggle. She argues that failures can have meaning and can transform teaching. In some cases, student failure can point to beliefs teachers have that are holding students back. Can teachers reframe failure to help themselves grow professionally? By thinking of students' struggles as "functional failures" (Rohrkemper & Corno, 1988; p. 303) teachers can modify what they are doing to help their students learn and, in doing so, help themselves to work more effectively with

all students and their subject matter. What makes this so hard, according to Michelle Gregoire Gill, is helping teachers learn to interpret failure (or educational reform) as a challenge and an opportunity for growth rather than as a threat.

Perhaps the most challenging parts for administrators and teacher educators are building in the time and providing teachers with the tools necessary to engage in productive reflection (Davis, 2006). Elizabeth Davis describes the ways reflection on beliefs can go awry and makes three recommendations. First, teachers should be encouraged to move beyond describing what they see and experience and to analyzing what is happening in their classrooms. Second, teachers should be encouraged to think about problems from an alternate perspective, particularly their students'. Third, to put an end to dichotomous thinking, teachers should be encouraged to integrate what may feel like competing tensions and create space for new solutions. Fundamentally, doing so entails a shift from either-or to both-and thinking. In other words, instead of teachers feeling like they have to choose between following their beliefs or participating in reform, when reform is important, teachers should seek ways to align their beliefs with the reform.

2.2 Beliefs about Technology in Teaching and Learning

Honey and Moeller (1990) conducted an exploratory study of teachers' thinking related to how and why they use or do not use technology in their teaching. The authors of the study conducted interviews with twenty teachers to determine whether or not there were discernible patterns in teacher' pedagogical beliefs and practices which facilitate or detract from technology integration. They found that, while the high-tech teachers represented a fairly homogenous group in terms of their pedagogical beliefs, low-tech teachers tended to be more heterogeneous as a group. Among the low-tech teachers, those teachers with student-centered beliefs were hesitant about using technology because of their personal fears and inhibitions. The teachers in this group who held more traditional classroom practices feared that technology might "alter their relationship of control and authority with their

students" and they also believed they did not have the time for any additional activities. There was a further group of teachers whose practices were student-centered and who would have liked to use computers in their teaching but who did not because of either lack of equipment or scheduling problems in the computer lab.

The high-tech teachers in their study engaged in activities such as collaboration, project-oriented work and hands-on activities, inquiry-based and discovery-based learning. These teachers perceived themselves as learners and expressed a belief in the need for different learning styles and learning requirements for students. These teachers perceived technology as a facilitating tool and one that enhanced the curriculum. Honey and Moller noted that there was a widespread belief among this group of high-tech teachers that technology could expand students' horizons, make learning more fun and more meaningful, allow them more time to help individual students, and allow them to take a more process-oriented approach to teaching that involved small-group work and project-oriented activities. In general, this group of teachers used their student-centered pedagogical beliefs to facilitate the effective integration of technology into their curricula and made a conscious and deliberate effort to find applications that support the kinds of student-centered practices that prevail in their classrooms.

For teachers whose educational beliefs and practices are traditional, there exist different and much more complicated barriers for technology integration. In order to integrate technology into their curricula as the high-tech teachers have done, the very nature of their practices would have to change. In order to bring about such change, however, different layers of the educational system would have to be effected, ranging from changing how assessment is done to helping teachers rethink how students learn and develop.

2.2.1 Implications for classroom teachers

If there are three clear messages throughout the literature on teachers' beliefs, they are, first and foremost, that teachers' beliefs have profound impact on classroom life; that the beliefs that impact students are layered, multi-dimensional, sometimes implicit, and difficult to change; and that teacher who fail to examine their beliefs may bring about unanticipated consequences in the classroom. Without intending to, teachers may set aside valuable curriculum, overlook or marginalize students who need them, misinterpret students' motives or behavior, and limit their potential as professionals. Conversely, teachers who are willing to explore their beliefs, and how their beliefs relate to practice and the professional knowledge base, can capitalize on the beliefs they hold to promote students' intellectual growth, autonomy and reciprocity, and equity in their classrooms. Moreover, they create spaces for their own growth as they identify and revise beliefs that do not serve them, their students, or their schools.

2.2.2 Teacher's beliefs about technology

Teachers' beliefs refer to internal constructs that help teachers interpret experiences and that guide specific teaching practices (Nespor, 1987; Pajares, 1992).

According to Fang (1996), teacher's beliefs are shaped by many factors. Among them are the influences of discipline subculture, the quality of pre-service experience in the classroom, and the opportunity for reflection on the pre-service experience. Beliefs are still considered the best indicators of the decisions individuals make throughout their lives. Kagan (1992) cited significant evidence supporting the relationship between teacher beliefs and their decisions about classroom practice.

According to Miller and her colleagues (2003), teachers' beliefs about technology are comprised of three related, but independent components: pedagogical beliefs about teaching and learning, self-efficacy beliefs about

technology use, and beliefs about the perceived value of computers for student learning.

2.2.3 Beliefs about the value of technology

Cuban (1999) noted that teachers have received conflicting advice about how to integrate technology in the classroom and so are skeptical about the value that technology offers. Some studies (Becker, 1999; Zhao & Frank, 2003) found that teachers who placed a more positive value on computers tended to use computers more frequently in their instruction. That is, beliefs about the value of computers greatly enhanced teachers' perceptions about the effectiveness of computers for teaching and learning. As such, the perceived relevancy of technology in the classroom can have significant impact on subsequent use in the classroom (Kellenberger, 1997).

CHAPTER III

TECHNOLOGY RELATED-SKILL

There are many reasons for the lack of deeper knowledge of technology integration by teachers, including teacher apathy, district budget limitations, lack of leadership, and lack of availability of training. Yet, the greatest inhibitor to technology integration is time. It takes many hours of use and planning to learn the possibilities of a computer software application and have time to explore possibilities for integration.

According to Morehead & LaBeau (2014), Teachers' knowledge of the software application is limited consequently; applying it to a meaningful learning context in the classroom is a difficult task. This process needs direction and support and must be a collaborative effort using the combined knowledge base of classroom teachers, administrators, and curriculum support personnel and technology facilitators. Therefore, lack of support, time, leadership, and collaboration and knowledge of the curriculum content leads to lack of efficacy teachers has regarding how to integrate technology into the classroom.

It is for this reason that not only the method has to go hand in hand with the technology, but the teacher has to be prepared and it needs to develop many of the skills that are detailed below. It is not necessary for a teacher to develop them all, but the more dominate better prepared and will be adapted to the teaching of the century.

1. Create and edit digital audio.
2. Use social bookmarking to share resources with and between learners.
3. Use blogs and wikis to create online platforms for students.
4. Exploit digital images for classroom use.
5. Use video content to engage students.
6. Use infographics to visually stimulate students.

7. Use Social networking sites to connect with colleagues and grow professionally.
8. Create and deliver asynchronous presentations and training sessions.
9. Compile a digital e-portfolio for their own development.
10. Be able to detect plagiarized works in student's assignments.
11. Create screen capture videos and tutorials.
12. Curate web content for classroom learning
13. Use and provide students with task management tools to organize their work and plan their learning.
14. Use polling software to create a real-time survey in class
15. Understand issues related to copyright and fair use of online materials.
16. Use digital assessment tools to create quizzes
17. Find and evaluate authentic web based content.
18. Use digital tools for time management purposes.
19. Use note taking tools to share interesting content with your students.
20. Use of online sticky notes to capture interesting ideas.

3.1 Computer skills

Computer skills refer to the ability to use the software and hardware of a computer. Being "computer functional" is usually what is meant by one with computer skills; computer literacy is only really evident in advanced computer skills.

3.1.1 Basic computer skills

- Knowing how to power on the computer
- Being able to use a mouse to interact with elements on the screen
- Being able to use the computer keyboard
- Being able to shut down the computer properly after use

3.1.2 Intermediate skills

- Functional knowledge of word processing

- How to use e-mail
- How to use the Internet
- Installing software
- Navigating a computer's file system

3.1.3 Advanced skills

- Programming
- Understanding the problems of data security
- Use of a computer for scientific research
- Fixing software conflicts
- Repairing computer hardware

3.1.4 Troubleshooting Skills

Teachers who use technology in the classroom need to have some problem solving skills in order to survive. There are an infinite number of technology problems, some small, some large, that can appear without notice at any given time. This makes using computers in the classroom a risky undertaking and sometimes stressful for teachers. Teachers' descriptions of troubleshooting problems are the war stories of using technology in the classroom. All teachers who have used a computer in the classroom have a story to tell and no two stories are exactly the same.

While listening to the troubleshooting and glitches stories these teachers told, some similar patterns began to emerge. Teachers need to have a personal comfort level using computers before they are likely to use them in the classroom. Most important, perhaps, is the fact that the teachers develop their own strategies for how to work through the problems they encounter. Amy described her problem solving strategy as a series of levels or stages she goes through to solve the problem.

3.2 Types of Technology Used in the Classroom

Given below are some of the most basic types of technology to use in the classroom that would help you understand the importance of technology in the classroom that is appreciated by many teachers.

3.2.1 Smart board

A number of teachers may not be aware of the benefits of using a Smart Board in the classroom as a teaching tool.

While the traditional white board already has everyone's attention, the electronic device is a new technology that is slowly gaining popularity due to its interactive power.

The digital screen allows images from the computer to be displayed on a board. It can also be modified on the screen itself, using a pen or a highlighting tool. Its touch screen feature allows teachers to run programs directly from the screen simply by tapping the application with her finger and even makes scrolling easy.

Smart Boards are becoming an essential component of every classroom. Some reasons for this trend is that:

- It can accommodate different learning styles. Tactical learners can use the screen and learn by touching and marking at the board, audio learners can have a discussion and visual learners can observe the teaching on the board.
- It is neater and does not have the cleanliness hassle and is therefore easier to maintain.

Most teachers understand the "why" but struggle with the "how". Here are some ideas on how you can use Smart Boards.

- Use it as a tool for note-taking. Students can come and write important points on the board. Alternately, you can appoint a student to type out

notes on the computer while you talk, so that the other students can view and take them down.

- Brainstorming in the classroom can be fun with a Smart Board. You can not only put together text/ ideas but also images, diagrams or videos.
- Classroom games can be played with ease on the board. Board games in particular can be played on the board itself.
- All forms of media, videos, photographs, graphs, maps, illustrations, games, etc. can be used on the board, making it incredibly dynamic in nature. This expands the range of content that you can use for teaching or presenting new information.

A lot of new software is available for free on the internet that can be easily integrated. There are many forums and websites that aim to help teachers by providing Smart Board ideas and activities. Explore these for more ideas.

The Smart Board is tomorrow's technology and is bound to change the look of classrooms forever. Using smart boards in your classroom can help you stay ahead with technology that could make the education process simpler and perhaps even more productive.

3.2.2 Whiteboard

It is an easy to use device that is used in combination with computer and a projector. Your board can be quickly transformed into a computer screen which can be viewed by all the children in the classroom. Movable objects, sounds, and pictures can make the lessons as well as teaching interesting and easy to understand.

3.2.3 Projector

A projector is again one of the types of technology that has wide applications in the classroom. A teacher can present a lesson using

meaningful and colorful transparencies that grabs the attention of the students immediately. A teacher can also present notes in the similar manner, where a student can read everything from the last bench as well. Apart from this, using a projector with computer has more benefits. You can show students many documentaries, short study films, or PowerPoint presentations that contribute to increased retention.

3.2.4 Sound Amplifiers

Sound amplifiers are very useful and are widely used in big classrooms. At times, many students cannot grasp what the teachers are saying because they cannot hear them. At such times, sound amplifiers are useful as they make the teacher audible to all the students. Many research studies have concluded that a clear and audible voice can grab the attention of the students that results in better learning. After realizing the importance of technology in schools, many schools also use mike system where a student can ask the question sitting on his own desk without having to shout.

3.2.5 Software and Computers

Students can access books, notes, dictionaries, encyclopedias on their PCs with the help of Internet technology and special educational software that are extremely user-friendly and promote better learning process. Some educational software are fun to use as they teach children through games, pictures, charts, and graphs etc. Such things hook the interest of a student for longer time and make even the boring subject an exciting one.

These were some of the types of technology in the classroom that are easy to use. These technologies are beneficial as students can use them for learning, practicing, and expanding what they have learned. The advanced technology allows students to access course material or a syllabus easily. It also encourages the participation of each student in the learning process which is crucial for better understanding of the subject. These technologies also help teachers in better classroom management. Today, when children are so tech savvy and love spending time with gadgets, these various types

of technology in the classroom can provide them with stimulus, making learning or studying a fun activity.

3.3 Barriers to Integrate Technology

For many schools, the dream technology program is just that a dream. Teachers do not have the time or experience to properly integrate technology into the classroom. Media specialists lack the resources to create the type of learning environment students need. Administrators do not have the technical wherewithal to create a cohesive plan. Additionally, many educators mistakenly believe that any technology is good technology. This means that, at times, the introduction of technology may be a barrier in and of itself. For example if a media specialist begins haphazardly introducing different software, hardware or other digital tools without concrete reasons for their use, he or she may believe that the media center is fully technologically integrated and may begin to avoid other tools that are more supportive of his or her goals. In other words, gratuitous technology use can be a barrier in and of it and can do a disservice to student achievement.

In a 2006 study, Hew and Brush found six general barriers typically faced by K-12 schools in the United States and other countries when integrating technology into the curriculum for instructional purposes. These include lack of resources, inadequate knowledge and skills, institutional barriers, attitudes and beliefs, assessment and subject culture and the frequency of each one is demonstrated in the chart below. The subject headings in this section are from this study as they are particularly relevant to this discussion.

3.3.1 Computer Technology Experience

Experience is always a big factor in determining computer literacy among teachers. According to Lu (2002), length of time of computer use is the predominant factor that determines teachers' level of perceptions in computer technology competencies. Lu also noted that computer experience was positively related to teachers' comfort, liking, and value of computer

technology competencies. Huang and Padron (1997), Liao (1993 and 1995) and Padron (1993) also found that the longer teachers used computers the more comfortable they felt working with computers and rated computers as more valuable. Golden (1997) noted that teachers, who do not have proper experience working with computer and lack computer training, would not feel comfortable using computer. Yang, Mohamed, and Beyerbach (1999) supported this contention when they found that computer-related experience does influence computer anxiety. The study found that educational experience was related to computer anxiety even after taking into account, and making appropriate statistical adjustments for initial difference in computer related experiences.

3.3.2 Technology knowledge

Technology knowledge is knowledge about hardware and software technologies as well as the skills required to utilize them. Typical technology training for teachers has traditionally focused upon this type of knowledge so that teachers acquire such skills. However, it is important to consider that as technologies evolve, teachers must continue to adapt to changes.

3.3.3 Lack of Resources

Many educators bemoan the lack of resources in the classroom, whether it comes in the form of limited technology, limited access, insufficient time, or inadequate technical support. For educators in lower socio-economic districts, this can be particularly difficult to overcome, as ever increasing budget cuts necessitate even fewer resources than before. This lack of resources is evident in four areas.

- **Lack of technology:** Without adequate hardware, software, internet access, and the like, teachers and media specialists may find it difficult to truly integrate technology. For schools and teachers with limited budgets, this may seem to be an insurmountable issue.

- **Insufficient access:** Educators can also find lack of access to technology a barrier. When the school does not have appropriate amounts and suitable types of technology in locations where teachers and students can use them in appropriate ways, then the technology is meaningless. Zhao, Pugh, Sheldon, and Byers (2002) found that although schools often have computer labs, teachers might not have easy access to them if they needed to compete with other teachers for laboratory time.
Even in the library, which is the second most technologically dense area of the school after the computer lab, there is limited access (Harwood & Asal, 2007). In the library, students can typically only visit during their scheduled class visit time. When open access is permitted, it usually occurs before or after school. This means that it is limited by bus schedules and after school commitments. Even when computers are available, they are less meaningful if they do not have a variety of relevant and up-to-date software and a relatively fast internet connection (Harwood & Asal, 2007).
- **Scarcity of time:** Integrating technology into a curriculum can be truly time-consuming, especially when it must be aligned with curriculum, standards and other goals. Educators must spend hours previewing websites, gaining familiarity with hardware and software, and acquainting themselves with various programs. Teachers who are willing to work longer hours to do this often pay a personal price in “burn out” and an eventual exit from the school (Hew & Brush, 2006).
- **Inadequate technical support:** Teachers and media specialists rely on technicians to assist them in utilizing different technologies. In most schools, researchers find that these technical support personnel are often overwhelmed by teacher requests and are therefore unable to respond appropriately (Cuban, Kirkpatrick & Peck, 2001). Therefore, technology remains broken or functioning on a lower level while teachers wait for technical support. The time it takes for the educator to research and repair the technology personally is also daunting and serves as a further barrier to implementation.

A lack of resources can particularly inhibit integration in the media center. Since students in the library typically deal with tangible items books, encyclopedias, computers and the like- creating a technologically integrated curriculum may seem daunting when the things are not present. Additionally, classes and individual students typically visit the media center for a short period of time, often on only a weekly basis, making a scarcity of time even more of a challenge to overcome. For the average media specialist, a lack of technology, time, and access are the most difficult barriers to overcome when planning an effective integration of technology.

3.3.4 Inadequate Knowledge and Skills

Even when the proper resources are present, teachers often struggle with an inadequate knowledge of specific technology, technology-supported pedagogy, and technology-related-classroom management. For many educators, particularly those who did not grow up with computers or the internet, technology can be a frightening concept. It may be easier to pass up the use of a tool rather than admit to inadequate knowledge. Therefore, this can serve as a significant barrier and may be demonstrated in three different ways.

- **Lack of knowledge of specific technology:** When a teacher finds a specific technology to be overwhelming or frightening, he or she is unlikely to incorporate it into the curriculum. For example, teachers may not attempt to utilize any technology-related activities with their students if they have not first learned basic skills such as saving to a home drive. Particularly in a secondary school environment, teachers may worry that students are more adept at technology than they are and will thus be reluctant to teach with it. When teachers have not had training in specific technologies, or do not have the time to discover the features themselves, it can prevent technology integration into the curriculum.
- **Inadequate knowledge of technology-supported pedagogy:** While some teachers may understand how to use digital tools, they may

struggle with how to use them to improve instruction. Since most professional development involves technical instruction in the mechanics of a technology, teachers may not learn how to use it to support the curriculum. In other words, teachers are taught the mechanical basics of a digital tool, but not the ways in which to effectively integrate it in a classroom. As described in *The Ideal Tech World*, the ultimate goal of technology integration is technology as a transformation. When teachers do not understand the different ways in which technology can function within pedagogy, they are more likely to simply adopt technology without properly integrating it into the curriculum. While the technology may still be present, a lack of knowledge of technology-supported pedagogy serves as a barrier to meaningful integration.

- **Insufficient knowledge of technology-related-classroom management:** Classroom management has been identified as the most important factor influencing student learning (Wang, Haertel, & Walberg, 1993). Although the rules and procedures established in a traditional classroom can apply in a technology-integrated one, there are additional policies that must be included and adapted once classrooms incorporate technological tools (Lim, Teo, Wong, Khine, Chai, & Divaharan, 2003). For example, a media specialist might have to introduce rules such as how many pages one can print, how to properly use MP3 players or limits on how long each student can use a computer. If educators find it too cumbersome to manage a class that is utilizing technology, they will simply avoid its use.

In the library media center, with its greater number of resources, inadequate knowledge and skills can serve as an even more intimidating barrier. The typical library may have books, computers, printers, scanners, listening or recording devices, televisions, DVD players and more. Learning both how to use these specific technologies and how to incorporate them into the curriculum can be a daunting task. In many cases, it may be easier for the librarian to simply not use innovative tools because of a lack of training or insufficient knowledge. Since the library media center typically functions as the place where teachers can access and check out different technology

tools, a librarian that is not purchasing or integrating these tools will serve as a barrier to the technology integration of the entire school.

3.3.5 Institutional Barriers

Factors outside of the classroom, including leadership, school time-tabling structure, and school planning can all prevent effective integration of technology. These can be especially difficult to overcome, as they are all outside of the individual media specialist's control. Additionally, they may not become immediately apparent, but rather only after initial efforts have been made. The institutional barriers that can prevent technology integration include:

Leadership: When principals are unsupportive or uninformed about technology usage in the classroom, students are less likely to utilize any type of digital tools. This is often because principals hold the purse strings and, as such, have the power to finance different technology efforts. More commonly, however, leaders that are uninterested in technology will simply place focus elsewhere. If a principal places a strong emphasis on, for example, writing skills, technology integration can and does go by the wayside.

School time-tabling structure: Because of inflexible scheduling, most students only have a continuous block of less than an hour to do work in any one subject (Becker, 2000). This rigid time constraint does not allow teachers to experiment with different types of teaching tools, digital or otherwise. When students cannot utilize digital tools in the classrooms, they are less prepared to work with them in the library media center.

School planning: When schools do not take time to create comprehensive technology plans, teachers, students and other school members are confused about how and when to appropriately use technology. Having no concrete plan in place serves as a barrier to educator and student usage of the internet and other forms of technology.

For the media specialist, institutional barriers can be especially frustrating. For example, the school scheduling structure can be rigid and

inflexible, particularly when it comes to "specials" such as visiting the library. Activities such as assemblies, fire drills, and standardized tests often happen at the expense of library time. In elementary schools, teachers must schedule their days very particularly, incorporating time for reading instruction, math instruction, foreign languages, and other content areas. Visits to the library media center must be worked in within these activities, leaving little time for technology. In most secondary schools, students do not visit the media center on a regular basis, severely limiting the ability of the media specialist to offer direct technology instruction. Institutional barriers can be very difficult to change and, such as; can inhibit many librarians from creating a fully integrated technological program.

3.3.6 Technophobia

Many people experience some kind of anxiety or resistance to using new technology. According to Goldsborough (2003), many people struggle with technology, avoid learning how to use it, or fail to take full advantage of it. When people do not know how to use technology, they may have some kind of fear or anxiety about using it. This resistance to new technology is known as technophobia or the fear of technology. Such a fear can play an adverse role in a person's adoption or rejection of a particular innovation, or can cause anxiety or apprehension. When factors of anxiety and attitude are combined, the concept of technophobia begins to emerge (Brosnan, 1998, p. 10). Anxiety regarding technology may often produce resistance to the use of such technologies. Morreale et al. (2001) suggest that technophobia is often based on unfamiliarity with a medium (p. 185).

The results showed that the students experienced higher levels of anxiety when they were under time or goal pressures, or when the technology failed or somehow malfunctioned. Those with knowledge and experience had less anxiety than those who did not know how to operate the equipment. It seems as though person's inability to efficiently utilize a particular technology may increase technophobia, if they lack the necessary knowledge or skill to

operate it.

3.3.7 Inhibitors of Technology Integration

There are many reasons for the lack of deeper knowledge of technology integration by teachers, including teacher apathy, district budget limitations, lack of leadership, and lack of availability of training. Yet, the greatest inhibitor to technology integration is time. It takes many hours of use and planning to learn the possibilities of a computer software application and have time to explore possibilities for integration.

Teachers' knowledge of the software application is limited consequently; applying it to a meaningful learning context in the classroom is a difficult task. This process needs direction and support and must be a collaborative effort using the combined knowledge base of classroom teachers, administrators, and curriculum support personnel and technology facilitators. Therefore, lack of support, time, leadership, and collaboration and knowledge of the curriculum content leads to lack of efficacy teachers has regarding how to integrate technology into the classroom.

Additionally, the evolution of technology created other challenges for teachers as they struggled to 'keep up' with the speed of technology changes. The evolution of the computer, the demands of society, the school community, and the political control of education by textbook companies blurred the teachers' conceptions of the purpose of technology in teaching. Teachers viewed computer technology as disconnect from the curriculum. A disconnect means that teachers see no relevance between what the students need to know and what they can construct, find or ponder with computer technology. Additional challenges to technology integration occurred as educators envisioned computers as a new instructional management tool.

CHAPTER IV

TEACHER'S BELIEFS AND TECHNOLOGY RELATED-SKILLS

Teachers' beliefs refer to internal constructs that help teachers interpret experiences and that guide specific teaching practices (Nespor, 1987; Pajares, 1992). According to Fang (1996), "teacher's beliefs are shaped by many factors. Among them are the influences of discipline subculture, the quality of preservice experience in the classroom, and the opportunity for reflection on the preservice experience". Although labeled a "messy construct" by Pajares (1992), beliefs are still considered the "best indicators of the decisions individuals make throughout their lives". Kagan (1992) cited significant evidence supporting the relationship between teacher beliefs and their decisions about classroom practice.

According to Miller and her colleagues (2003), teachers' beliefs about technology are comprised of three related, but independent components: pedagogical beliefs about teaching and learning, self-efficacy beliefs about technology use, and beliefs about the perceived value of computers for student learning

One of the pertinent factors contributing to the usage of computer is that teachers need to be computer literate and thus be given appropriate training in computer usage. Different people hold different views about computer literacy. They are those who take a literal interpretation of computer literacy. They regard writing and reading computer programs as the basic skill of a computer-literate person.

Briefly, computer literacy is the ability to understand and to use computers. If teachers were to use computers, they must possess the necessary knowledge and skills. The knowledge refers to the understanding of computer terminology, and the ability to identify components, to describe applications, and to analyze social and ethical issues that arise in using computer. On the other hand, skills refer to the ability to perform basic operation, to print, and to use computers for a variety of application such as

the word processing, spreadsheets, databases, graphics, information storage and retrieval, and computer-assisted instruction.

Training too plays an important role in a teacher's readiness to use computers. With regards to the issue of having attended formal computer courses, it was identified through numerous studies that there is a significant relationship between usage of computers and computer training. Training makes a positive difference to those who receive it.

Thus, it is important that appropriate computer training is given to teachers to develop positive computer-related schemata that would help to increase further interactions with computers and eventually it will increase the usage of computers.

4.1 Teachers' Attitudes toward Technology

Loyd and Gressard (1986) showed that positive attitudes toward computers are positively correlated with teachers' experiences. With familiarity, anxieties and fears tend to decrease and confidence increases. Lillard (1985) found that knowledge has a positive impact on teacher attitudes toward technology. Summers (1990) stated that one of the most common reasons for teachers' negative attitudes toward technology is the lack of knowledge and experience in this area. Gressard and Loyd (1985) also established that perceptions of the potential usefulness of computers can influence attitudes toward computers. The amount of confidence a teacher possesses in using technology may greatly influence his/her effective implementation in the classroom. Positive teacher attitudes toward computers are widely recognized as a necessary condition for effective use of information technology in the classroom (Woodrow, 1992).

Gardner, Discenza, and Dukes (1993) have determined that computer anxiety is a major cause of resistance to using computers. This and other research indicates that increased computer experience reduces computer anxiety in many student teachers. However, it may depend on the type of computer experience (McInerney, McInerney, & Sinclair, 1994). Beasley and

Sutton (1993) found that at least 30 hours of instruction and practice were required just to reduce anxiety about technology. These authors contended that reducing uncertainty is just the first step to becoming confident and competent users of technology.

The successful use of computers in the classroom is dependent on the teachers' attitudes toward computers (Lawton & Gerschner, 1982). Educators are often resistant to using computer technology in the classroom, so changing teachers' attitudes is a key factor in fostering computer integration (Marcinkiewicz, 1993/1994). Stevens (1980, as cited in Violato, Mariniz, & Hunter, 1989) identified teachers' attitudes as well as expertise in using computers as major factors in the adoption of computers in the classroom. Koochang's (1989) research also found computer experience to be significant regarding attitudes toward computers. Although teachers' attitudes have not typically been considered in the introduction of computers into the classroom, future successful implementation will need to address teachers' attitudes toward computers (Hunter & deLeeuw, 1988, as cited in Violato et al., 1989). According to a research study examining the relationship between teacher attitudes and computer skills, it is critical that teachers possess both positive attitudes and adequate computer literacy skills to successfully incorporate technology into the classroom (Hignite & Echternacht, 1992).

4.1.1 Teachers and Technology

Through the experience of working with teachers could see that many do not know how to use a computer or surf the Internet, much less have an e-mail. This is a first obstacle in integrating technology into the teaching-learning process. Apparently it could represent a high economic cost training of these teachers.

My suggestion is that teachers trained in technological areas to train their colleagues in time for the "Update" and the inter-semester periods. With this not only is canceled an economic expenditure; but also allows interaction among teachers themselves. Teacher training projects should be made by

the directors of the schools according to the needs of their teachers themselves.

Thereby can be set training systems that allow the teacher to acquire a personal, pedagogical and technical knowledge. Some and some students may know more than the teacher on a computer, but not on the processes of learning and teacher interaction.

The teacher must be updated at par with the technological development because if you do not know will learn how to teach children and young people to learn. The use of technology should help teachers to understand that teaching and learning are two sides of the same coin; because if only teach what you know and only gives what he has and does not have the initiative and attitude to learn cannot have an adequate performance to the development of society in different aspects.

We have inadequate teacher preparation to face the fast and relentless economic, social, cultural and technological changes; the inadequacy of pedagogical models to work with children and young people requires new forms of interaction and showing other behaviors, values and interests; the lack of mastery of science and knowledge for teaching and widening gap with the latest advances in science and technology; little versatility of teachers to address new divisions of labor in the socio-educational field: preschool, primary, secondary, etc.

Similarly should be implemented pedagogical proposals that incorporate all the means at its disposal to promote the teaching and learning and a strong and efficient teacher training in a cultural context characterized by technological development, diversity of forms of communication and process transformations in modes work.

It is necessary to train teachers in the use of technology to enable the domain of new media and its integration into the curriculum and teaching. The integration of technology can generate changes in the short, medium and long term in classrooms in ways that benefit the student learning

process. These resources can generate attractive activities and innovative work without their existence would be impossible to program. However, these resources alone cannot generate a major change in education. It is the teacher who should and can cause the change in classrooms helped by these resources.

4.1.2 Teachers' attitudes and computer technology training

There is a positive relationship between computer technology training and teachers' attitudes (Becker et al., 1999; Gobbo & Girardi, 2001). Training can significantly impact the ways in which a teacher embraces technology tools in the classroom. In an examination of teaching styles and technology integration in Italy, results "appeared to indicate that both personal theories of teaching and the level of competence with technology play a major role in how teachers implement technology and in their perception of their own and their pupils' motivation" (Gobbo & Girardi, 2001, p. 63).

4.1.3 Teachers' attitudes and computer experience

Dupagne and Krendl (1992) noted that computer experience often fosters positive attitudes towards computers; moreover, the lack of computer instruction often accounts for teachers' low confidence level when they initiate computer activities. This feeling of low confidence often results in high anxiety towards computers. High anxiety can lead to negative attitudes and eventually negatively influence the learning process.

According to Abas (1995a, Blankenship, 1998 and Isleem, 2003), teachers' attitudes have been found to be a major predictor of the use of new technologies in instructional settings. Christensen (1998) states that teachers' attitudes toward computers affect not only their own computer experiences, but also the experiences of the students they teach. In fact, it has been suggested that attitudes towards computers affect teachers' use of computers in the classroom and the likelihood of their benefiting from training. Positive attitudes often encourage less technologically capable

teachers to learn the skills necessary for the implementation of technology-based activities in the classroom.

4.2 Teachers' Beliefs Regarding Technology Use

Teachers' beliefs have been emphasized previously especially in terms of teacher efficacy beliefs, expectations about students' achievement, and students' motivation. However, little research has been conducted focusing on teachers' beliefs regarding technology use. Nonetheless, there is some research to suggest that there is a relationship between teachers' technology uses and their pedagogical beliefs.

Parr and Tillema noted that encouraging teachers to develop new beliefs and stick with them is difficult. Even when teachers have a strong set of pedagogical beliefs, these ideas are often challenged and overruled by the conditions of the teaching environment. In other words, a pre- or in service teacher who believes strongly in student-centered learning may quickly adopt a teacher-centered approach when faced with an overloaded schedule, lack of administrative support, or other barriers in the classroom.

Although teachers agreed that technology makes their home, work, and school lives easier, technology integration is considered a difficult process. Because computer technology is a relatively new phenomenon in the school environment, teachers still consider technology integration to be a complex process.

According to Miller, teachers' beliefs about technology are comprised of three related, but independent components: pedagogical beliefs about teaching and learning, self-efficacy beliefs about technology use, and beliefs about the perceived value of computers for student learning. Russell, Bebell, O'Dwyer, and O'Connor found these three components to be the main predictors of teachers' classroom technology uses.

Documented successful belief change after engaging pre-service teachers in authentic displays of teaching through these authentic

experiences, pre-service teachers developed a better understanding of constructivist practices, became more effective at implementing constructivist methods, and achieved meaningful reflections on the nature of teaching and learning.

Because the problem situations are messy, confusing, and complex, students need to gather information in order to understand, define, and solve the problems. During an authentic problem solving process, students are able to set their own goals and develop their own approaches. Under the guidance and coaching of a skillful teacher, students work collaboratively to inquire, investigate, and plan their learning activities.

4.2.1 Contribution of computer technology to teaching and learning

There are numerous benefits of computer technology when it is integrated deliberately and comprehensively into teaching and learning (Apple Education Inc., 2009). These benefits are as follows:

Computer technology supports student achievement. When integrated into instruction appropriately, computer technology has significant positive effects on student achievement in reading, literacy, mathematics, and science.

Computer technology engages students in learning and content creation. Integrating computer technology into formal learning and engaging students to create and publish their own work for a worldwide audience make institutions more relevant, resulting in higher levels of student achievement.

Computer technology increases access to education, virtual communities, and expertise. Schools and universities often provide students in disadvantaged communities their only access to computing devices and the Internet.

Computer technology fosters inclusion. Computer technology is instrumental in providing solutions that help schools and universities create

inclusive learning environments that engage all students regardless of ability, disability, background, or learning style.

Computer technology helps prevent dropouts. The National Dropout Prevention Centre cites computer technology as one of 15 strategies that have the most positive impact on the high graduation rate.

Computer technology facilitates differentiated instruction. Computer technology can help teachers provide personalized, just-in-time instruction for all students, which are especially important when supporting underperforming students, English language learners, and students with disabilities.

Computer technology empowers learning and research in critical STEM fields. Computer technology, including scientific simulations, computer labs, and visualization tools, is an essential tool for inquiry-based learning, advanced research, and collaboration in the science, technology, engineering, and mathematics (STEM) fields for higher education.

Computer technology strengthens career and technical education. Computer technology gives teachers the opportunity to prepare students with new kinds of knowledge and skills that are in demand in high-growth emerging industries.

Computer technology extends the learning day. Access to a computer and an Internet connection can support learning beyond traditional school and university hours and classrooms.

Computer technology supports teacher quality. Research shows that ongoing, job-embedded professional development makes the most difference in improving teacher quality; computer technology enables online learning as well as access to web resources and virtual communities of practice.

Computer technology enables timely and innovative assessments. Technology-based assessments can make tests easier to administer and score, answer the need for more frequent classroom-based assessments,

enable teachers to expand feedback through better communications with students, and provide real-time feedback and guidance.

4.2.2 Using Technology in the Classroom

The teachers felt that technology lessons take more time to plan for other reasons than just their inexperience in planning the lessons. Organizing a classroom lesson involves making decisions about which instructional strategy would be most effective for the lesson and the students. The teachers have tried and continue to experiment with different teaching strategies to determine which are the most effective for students in their classrooms. Effective lesson design also involves understanding the technology application well enough to understand how it will best be used in the classroom. Finally, the teachers also have to prepare the machines, sometimes check out equipment, or load software before the lesson is ready for use with students.

The teachers must understand how to use the technology resources effectively with students when they design the classroom lesson. Eddie feels that some teachers don't spend enough time with a technology resource to fully understand it before they use it in their classroom.

4.2.3 Barriers to teacher's use of computers

Barriers to using technology in education includes lack of teacher time, limited access and high costs of equipment, lack of vision or rationale for technology use, lack of teacher training and support, and current assessment practices that may not reflect what is learned with technology. The need for teacher training and the lack of expertise are major barriers to using the microcomputer and related equipment. With computer competence, teachers' anxiety decreases and their attitudes toward computers improves with hands-on computer literacy courses.

Teacher time facilitates the areas of being able to experiment with new technologies, to share these experiences with other teacher, to prepare lessons using the technology and to have the time to attend technology courses or meetings. Learning how to use new technology includes the time the teacher needs to become competent with the computer as a personal tool but also as an instructional tool. Teachers need to train and develop their skills outside of the regular school day so they can concentrate on instruction and training objectives. After the teachers become knowledgeable about using technology, they need time to transfer the skills learned into infusing technology into the curriculum.

Unfortunately, many teachers find hardware and software availability are limited in their schools. The costs of upgrades, support, and training, hardware and software are often not considered in school planning. Many times technology is placed too far from the classroom and much of the hardware is too old to handle the new software applications. Older schools found it difficult to meet the wiring needs to use telecommunications.

4.2.4 Teacher's view of technology

Many studies have investigated teachers' attitudes toward the use of technology and their anxiety about using technology. These studies are particularly important because a teachers' attitude about computers and related technologies can positively or negatively influence their students' attitudes toward technology.

In the past, the failure of new technologies in education has been blamed on the teacher's inability to adapt the new technology to his or her teaching style.

A number of studies and reports reveal that both new and veteran teachers feel inadequately prepared to use computers in their classroom. A study of elementary teachers college indicated that, the more computer experiences a teacher has, the greater the indication that the teacher will feel

comfortable and have positive attitudes toward technology. On the other hand, the same research shows that having computer anxiety prevents teachers from using technology. It is important that educational leaders understand teachers' attitudes toward technology before they attempt to provide relevant technologies to the classroom and integrate them into the curriculum.

The growth of technology as an instructional tool will depend on teachers' attitudes about these technologies and their ability to use them for instruction and administrative purposes. In the past, studies have shown that many teachers are struggling to make efficient and effective use of today's technologies. Many teachers often do not have favorable attitudes toward the effectiveness of technology, even when it is viewed as an effective instructional strategy.

Many studies have shown that there is a positive relationship between the use of computer technology and the effectiveness of teaching and learning. The Educational Testing Service indicated that, when properly used, computers can serve as important tools for improving student achievement. This report also indicated that, when computers are used to teach higher-order concepts and when teachers are trained and direct students to such applications, computers are associated with significant gains in math achievement as well as improvements in the social environment of the school. Additionally, this study found that, when computers are used for drill and practice, computer use is unrelated to achievement and, in some cases, can be harmful.

The literature shows a significant difference between the attitudes of teachers toward technology and the expectations of the public and professional organizations. These expectations are difficult for teachers to understand because educational technology presents a number of problematic issues for teachers. Teachers need support and training to positively integrate technology into their classrooms. Training programs must not only be designed for teachers to improve their skills with technology but

also help teachers change their attitudes toward the use of instructional technology.

CHAPTER V

OTHER CAUSES OF THE CORE PROBLEM

5.1 Administrative support

Support from different levels of the school organization is one of the key elements needed for successful implementation of technology in education. Administrators can provide the conditions that are needed, such as school-wide policy, incentives and resources. Administrative support and involvement is critical to the successful integration of technology. The study by Bloemen et al., (1999) constantly shows that the commitment and interest of the principal is the most critical factor for successful implementation of any school innovation-especially technology. The provision of support for all of their personnel and involving them in various aspects of technology usage is critical both at schools and every level of office.

Leadership plays a key role in the implementation and integration ICT in education. Many teacher- or student - initiated ICT projects have been undermined by lack of support from above. For the implementation and integration of ICT to be effective and sustainable, administrators themselves must be competent in the use of the technology, and they must have a broad understanding of the technical, curricular, administrative, financial, and social dimensions of ICT use in education. Colleagues as well as school and district administrators must provide ongoing support for long-term change to be successful (Dwyer, Ringstaff, and Sandholtz, 1997). This shows that support and encouragement from the school leaders and other concerned bodies is important in the implementation and integration of technology in education.

5.2 Lack of Professional development

The lack of professional development and support has acted as a barrier to the effective use of technology in education. In many schools, teachers feel unprepared to learn and integrate technology in their classrooms. Yet for students, they have the knowledge of using this technology for educational

purposes. There is a lack of training programs to teach these teachers on ways they can use technology to simplify their job and also make it easier for their students to learn better. When it comes to remote schools or low level classes, teacher will act as a link between students and technology, because these students are not well informed on how to use technological tools like computers in the classroom. So if teachers have no training skills on using technology for educational purpose, then students will also miss out on these skills. This is a common practice in public schools, because private schools are business entities which are operated on competitive advantage, so they emphasize the use of technology in the class and their teachers are well trained and well equipped with technological tools for education.

5.3 Technical support

As (Voogt) described that technical support is not always available, this implies that teachers need to be able to have basic troubleshooting skills to overcome technical problems when ICT is applied. Technical support is one part of the implementation and integration of ICT in education system. It should be considered as integral part of a school's overall ICT procurement strategy and responsibility for ensuring that good support systems are in place with school leaders. Effective technical support enables the implementation and integration of ICT to function effectively and efficiently. Without it teaching staff may not have the confidence to use ICT in their teaching. Such ICT support can range from installing hardware to setting up and maintaining the overall activity and even to providing support in the school to other colleagues. Whether it is provided by in-school staff or external service providers, or both, technical support is essential to the continued viability of ICT use in a given school. While the technical support requirements of an institution depend ultimately on what and how technology is deployed and used, general competencies that are required would be in the installation, operation, and maintenance of technical equipment, network administration, and network security.

5.4 Infrastructure in technology implementation and integration

Collis (1996) defines infrastructure as the physical equipment (hardware and software) that enables a network to function. In order to have a teaching learning process or education system supported by technology, the availability of suitable infrastructure is essential (Law et al., 2000). This implies that it is very difficult to focus on implementation of technology to support learning unless schools and other educational establishments are provided with basic technological infrastructure and facilities.

In relation to connectivity, a study by Pelgrum and Anderson (1999) disclosed the existence of huge differences between schools in different countries regarding the availability of ICT equipment and facilities and access to the Internet. Not only this but the study also observed that, over a four-year period many countries covered in the study developed rapidly in terms of equipping their schools with computer hardware and software. Although computers were widely distributed, and their number was increasing continually and significantly reports from many researchers indicate that shortage/lack of computers remain a problem at different schools and countries. Majority of respondents from most of the countries covered in the study considered/saw shortage/insufficient number of computers as a major obstacle.

5.5 Access Issues

The access issues are related to both home and school. Access at school that is limited is not enough to convince teachers to invest time and energy in learning how to teach with technology because it is not a reliable access for them. Shared equipment and labs rarely provide motivation for the teachers to learn new skills and plan technology lessons. Teachers will rarely spend the additional time to plan a technology lesson if they are not assured that they will have access to a machine or machines on the day and time when they need them. These teachers reported having little interest in learning about technology and planning lessons until they actually had a machine in

their classroom. The barriers of working with someone else's equipment or environment has been discussed in existing literature (Denk, Martin & Sarangarm, 1993).

The teachers were more inclined to plan a teaching strategy that adapted to a limited number of computers that were always available as opposed to a more desirable strategy that was dependent on the availability of scheduling a lab or shared equipment. In the settings that Eddie, Pat, and Claire teach in, the complexity of matching schedules of lessons and labs has not been a problem very often because they are early adopters and other teachers are not competing with them for time in the labs.

Home access was identified as very important to the teachers as part of the process of integrating technology into their teaching. It allowed them to learn new skills, troubleshoot, review materials, do their grades, and teacher productivity tasks at their convenience. Home access to a computer was important because the teachers did not usually have time during the school day to work on new projects. Even though time at home to work is also limited, it provided them with additional opportunities to spend time on the computer. The teachers also felt they were more inclined to work at home on the machine in the evenings and on weekends than return to school during those times to work on a machine there. Home access was important enough to these teachers that they had invested in not one, but at least two home computers, with one teacher upgrading to her third machine. All five of these teachers upgraded their personal home machines during 1996, citing processor speed, memory, and Internet access as the primary reasons to upgrade.

5.6 Time Issues

The issue of time in the process of integrating technology into teaching is very complex. There are a number of issues that the teachers explained that all seem to boil down to time. Time can be used as an excuse for not starting or doing a task, however, these teachers were all incorporating and working

on advancing their use of technology in the classroom as opposed to not starting at all. Even though they identified time as a constraint or limitation, they had all found enough time somewhere to get started using technology in their classrooms. They would all have liked more time to work on developing new lessons and technology skills, but the complexity of finding time had not stopped them from progressing in the process. From this perspective, it seemed to be necessary to break down the time issue to investigate why it was so prevalent in the teachers' responses.

Computers can be effective teaching tools in the classroom, however, they are complex machines and require knowledge and skills to operate them. Knowing how to operate them and integrate them effectively into a teaching strategy or method requires an even higher skill level. These skills take time to acquire. The learning curve is much steeper for a computer than previous educational technology tools. The overhead projector has an on/off switch and a focus knob with newer models adding a second bright/brighter switch. Televisions have more switches and settings, however, once set up, they turn on and off fairly easily without much adjustment required on start up, not to mention the fact that most people have about 20 years of experience using TVs when they start using them in the classroom. The VCR has replaced the 16mm film projector in most classroom settings, and even though both of these items are complex to operate in their own way, they still do not compare with the complexity of the computer as a teaching tool.

Computers have an on/off switch and from there the complexity grows exponentially. The computer has an operating system, which might be updated and changed, that the teacher should have some knowledge about in order to use the machine effectively and problem-solve small glitches. There are individual applications, each requiring different knowledge and skills, running under the operating system. Increasingly, it is common for computers in a school to be connected to a network or LAN which requires another level of knowledge and skills to use effectively. Hooking up peripheral equipment such as a display device or a SCSI device such as a

scanner or external drive creates the need for an additional set of skills. All of these numerous computer skills have exceeded the on/off switch complexity of the overhead projector. The difficulties in using computers has been cited as a concern for teachers and workers in existing literature (Croft, 1994; Schofield, 1995; Yeaman, 1993). Given that some basic computer skills are a prerequisite, the time and experience necessary to learn the skills becomes an issue.

"Not enough time" is a universal constraint for all types of tasks. And while it is identified as a constraint in using technology by these teachers, I think it might be better defined as an issue of "scheduled time" versus simply saying there is "not enough time." The teaching day is broken into many small blocks of time. In the case of secondary teachers, one block of time is usually set aside for planning time which the teacher might be able to use to work on integrating technology. Of course, there are numerous other things which must be completed during this same time slot in the teacher's day. Elementary teachers rarely have any planning time in their day at all. The only school time available is after school duty time which again is taken up with meetings and the other duties necessary to survive the following day with students. The teachers have to create and implement the new lessons within the reality of being prepared for the other classes they must teach when the next school day starts. The other duties they are required to perform do not stop because the teacher would like to learn and design an innovative lesson in their classroom.

"Scheduled time" adds complexity to the process of using and learning technology because teachers have to match their schedules to plan and develop new lessons, as well as get troubleshooting help when they are stuck. The teacher is ruled by the schedule during the day and has very little control over his or her time during the school day. In such a scheduled environment with many things to be done, sitting on hold, waiting for tech support to solve a problem, is usually not an option. The teachers may wait several days to get help with a technology problem or question, even if the

tech support people have the same time available in the schedule as the teacher, due to the numerous impromptu duties that must be performed during the school day.

It seems that "scheduled time" is a contributing factor in forcing teachers to work at home or on personal time to integrate technology. The scheduled time issue is not unique to the school setting. The time teachers have at home is also scheduled around families and household duties as well. Personal time during the summer was identified as being valuable (and maybe the teacher's only "unscheduled time") for learning and designing classroom technology lessons.

The time constraint for teachers using computers is a consistent theme in existing literature (Cuban, 1993; Marcinkiewicz, 1995). Gallo and Horton (1994) identified the necessity for uninterrupted time for teachers to become comfortable with using the Internet. Knupfer (1993) asserts meaningful implementation of computer technology requires more time; time that is additional beyond the normal teaching day. All of the teachers in this study put in time after school, on weekends, and during the summer to acquire, practice and use their technology skills.

5.7 Vocational Education Teacher and Computer Technology Application

Knowledge of computer technology and computer-based technology has become tremendously important to technical and vocational teachers in the new information age. Vocational and technical teachers have realized the value and usefulness of computer technology in their programs. However, they do not have the necessary skills and knowledge to use it effectively for instructional purposes. In order to ensure that technical and vocational education will remain valuable to the educational system, vocational and technical programs must continue to enrich the programs to prepare students for the workplace and society. In order for teachers to do that, they must continue to value computer technology and seek ways to connect program

and instructional management with appropriate computer technology, especially the Internet.

Teachers' competency in computer technology is essential if they are to be successful instructional leaders as they use and transfer this competency to their students. Certainly, this computer technology foundation is a necessity for all teachers and students. Lu (2002) noted that computer technology has a great effect on teaching and learning vocational programs. Computer technologies are developing at a rapid pace, carrying the potential to deliver vocational education to more learners in more satisfactory ways. Vocational education teachers should be encouraged to participate in professional development activities to acquaint them with the uses of computer technology for improving teaching effectiveness. Vocational and technical teachers will continue to be challenged by these new technologies and must be able to use these new technologies that are continually changing the ways how people live, work, and learn. Moreover, Bork (1985) noted that the application of computer technology use in education would be very important and would become the dominant delivery system in the next 25 years. According to Wanocott (2001), computer technology and computer based technologies have become a popular teaching tool for technology instructors. With the high quality of graphical-user interface, high speed processing, and affordability, computer use in preparing the workforce has come of age. The educational software designer is now able to design and develop multidimensional educational software that includes high quality graphics, stereo sound, and real time interaction.

Miller (1997) found that, overall, vocational teachers understand the importance of computers in education. The problem is technical and vocational educators today face the challenge of utilizing and integrating computers and related technologies into their instruction in a manner that enhances student learning and achievement. According to Bailey, in the educational community, the level of technology integration can deeply affect what teachers do and what their student's experience.

5.8 Vocational and Technical Teachers Computer Technology Training

Computer training is a crucial factor for increasing the effectiveness and knowledge of using computers among teachers. According to Birkenholz and Stewart (1991) lack of training in using computers was a major barrier to using the microcomputer and computer related equipment. In 1991, Fletcher and Deed found that computer anxiety decreased with an increase in computer training and attitudes towards computer, improved with the completion of a hands-on computer literacy program.

Fletcher and Deed also recommended incorporation of additional computer courses in vocational teacher education programs, as well as in-service training for secondary vocational teachers to decrease anxiety and increase computer confidence and knowledge. Wetzel (1991) noted that, because of the advance of computer technology today, many of the computer competencies can be achieved by effective integration into the entire pre-service curriculum. Wetzel also proposed a model for pre-service preparation that includes a core computer literacy course, and a method course in which instructor's model computer integration and technology-rich field experiences. Kotrlik and Redmann (2000) also stated that the pre-service programs should strengthen their emphasis on the computer technology knowledge and skills of pre-service vocational teachers.

Miller (1997) stated that vocational teacher educators from all major program areas revealed that the traditional computer tools, especially word processing, are receiving regular use in the pre-service classroom. On the other hand, newer technologies such as authoring software and multimedia applications are not yet integrated into the pre-service curriculum on a regular basis. Miller also concluded that the vocational teachers realized the potential usefulness of computer applications and acquired skills through various methods.

5.9 Planning Technology Lessons

Once the teacher has access, has acquired some skills, and is ready to start teaching with technology, the difficult process of planning new technology lessons and developing classroom projects begins. This chapter provides a description of how the teachers plan for and use technology in their classrooms and the changes they see as a result. As the teachers described their time concerns in using technology in the classroom, it became evident that how and what they planned was an essential part of understanding this process. All teachers create and write lesson plans. It is when the lesson planning involves something new that it appears to take more time and be more stressful due to the inexperience with the content or the materials. Planning new lessons with technology is not an exception. The teachers compared it to using a new reading program, new curriculum or the first year teaching a new course.

Planning technology lessons is time consuming for teachers because they are inexperienced in using computers in the classroom. There are new classroom management issues to think through, web searches for sites and information to be done, projects to be developed, software to be loaded on machines, and problems to be solved in preparation for the lesson. All of these things require more planning time and skills of the teacher than if they were using a traditional classroom lesson which they are more experienced in planning and teaching. Eddie used the analogy of being a first-year teacher to describe how he feels about planning and developing technology lessons for his classroom. I asked him if it took longer to plan a technology unit based on the World Wide Web than if he would have planned it using traditional teaching materials.

2.6 Hypothesis system

2.6.1 Working Hypothesis

The teacher's beliefs influence into the technology-related skills.

2.6.2 Null Hypothesis

The teacher's beliefs do not influence into the technology-related skills.

PART TREE

3 METHODOLOGICAL DESIGN

3.1 Research Type and Design

This was applied, descriptive and field study. The technique for collecting data was a survey. The study is correlational, quantitative and transversal.

A qualitative research design was employed in order to have valid data for the study and to gain a more accurate picture of the reality of the issue raised by the research questions and objectives (Denzin and Lincon, 2000). The method used to collect qualitative data were survey. In order to compare and determine the relationship between the teachers' and students' views towards using new technology in the classroom, a quantitative research design was used.

3.2 Population and sample

The participants for this study were 15 teachers 5 women and 10 men, 3 were teachers of English Language 1 had sufficiency and 2 were graduate degree, and 12 taught other subjects all teacher were graduates in science education with different specialties, 25 students 9 women and 16 men, age between 18-23 years old that attended the Second Bachelor specialty accounting of basic education at Unidad Educativa Tumbaco.

3.3 Field work

The field group work took place at Educational Unit Tumbaco, in July 2010. The technique for gathering data was a survey with specific questions to get the information needed.

3.4 Instruments for data collection

Survey was the technique used to gathering data in this research project

3.4.1 Survey

For this study, two sets of surveys were designed. The first survey was distributed to English language teachers and others specialties. The aim of the survey for the teachers was to find out their views about the use new technology in the classrooms, which skills they think can be enhanced through new technology, why they employed or avoid the use new technology in language classrooms, to find out the difficulties of using new technology; and to obtain information about the strategies teachers use to understand to improve the skills in use new technology. The second set of survey was distributed to the students. Students had almost similar questionnaires like the teachers to find out their views about the inclusion of new technology and their daily activity and why they use or avoid use new technology in classrooms. All English teachers and 25 students were requested to answer the surveys. It was both close and open ended questions for both respondents.

3.5 Data processing and analysis

The data obtained were analyzed using descriptive statistics and inferential statistics. Quantitative data was tabulated and compared by using LIKERT'S scale, Chi-square and coefficient of contingency.

PART FOUR

4 TESTING THE HYPOTESIS

4.1 Graphical exposition of results

4.1.1 Data matrix of questionnaires

Table 1
Data matrix teachers

VARIABLES QUESTIONS	YES	NO	A little	Total
1. Do you think that technology is a valuable tool in the English classroom?	8	5	2	15
2. In your opinion, do students learn better using new technology?	4	10	1	15
3. Do you use new technology to make easier the students learning process?	12	3	0	15
4. Have you attended any course in order to get skills and experience in the use new technology?	2	11	2	15
5. Are you trained to use basic applications such as word processors, spreadsheets, and presentation programs in the classroom?	5	9	1	15
6. Do you think that the high cost of high cost of equipment could be a barrier to integrate new technology in the classroom?	14	1	0	15
7. Do you think that the lack time for training could be a barrier to use new technology in teaching?	15	0	0	15
8. Have you ever experienced any kind of anxiety or resistance to use new technology?	11	3	1	15
9. Are you motivated to use new technology to improve teaching?	2	5	8	15
10. Would you like to be trained to use the new technology in the English classroom?	12	2	1	15
TOTAL	85	50	15	150

4.1.2 Analysis of results

Source: Survey: Administered to Teachers

Carried out by: Hector Collaguazo

1. Do you think that technology is a valuable tool in the English classroom?

Table 2

Teachers' data result to question 1

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	8	54%
NO	5	33%
A LITTLE	2	13%
TOTAL	15	100%

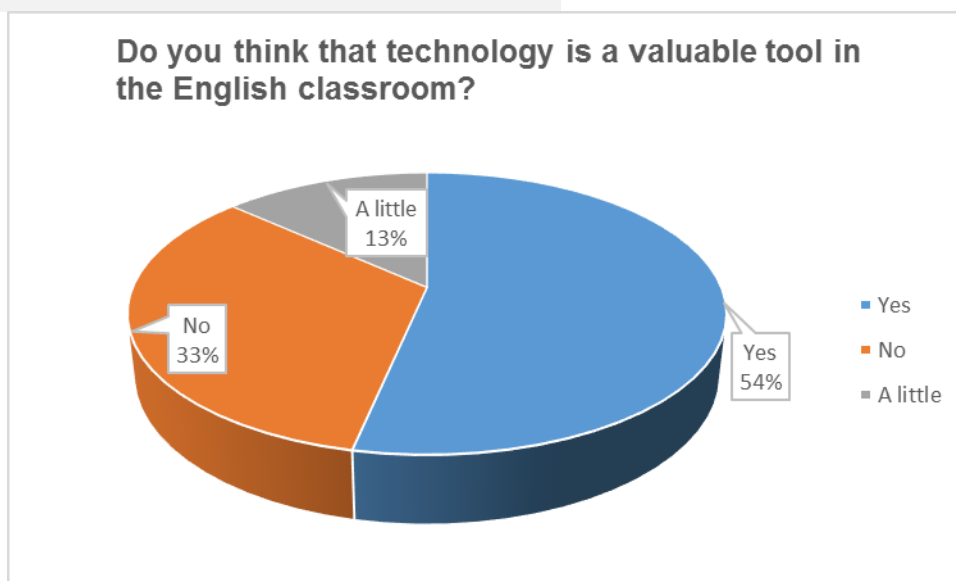


Figure 2 New technology valuable tool

ANALYSIS

According to these results, 54% of teachers answered that new technology is a valuable tool, while a 33% said that is not a valuable tool new technology and 13% think that it is little valuable tool.

2. In your opinion, do students learn better using new technology?

Table 3

Teachers' data result question 2

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	4	66%
NO	10	27%
A LITTLE	1	7%
TOTAL	15	100%

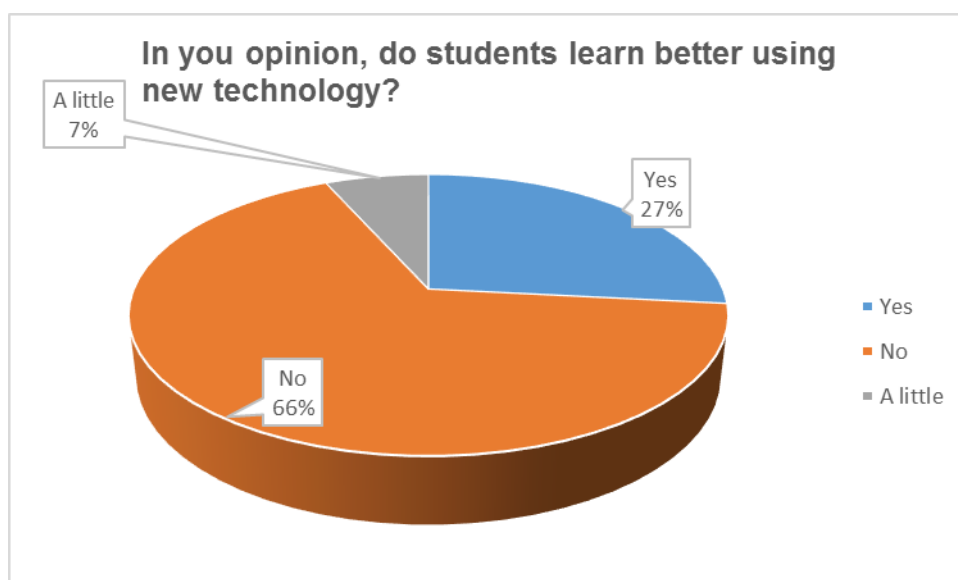


Figure 3 Students learn better using new technology

Analysis

The 66% of teachers answered that students don't learn better using new technology. The 27% of teachers said that students learn better using new technology. While the 7% the teachers said that new technology do not help develop student's capacity.

3. Do you use new technology to make easier the students learning process?

Table 4

Teachers' data result to question 3

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	12	80%
NO	3	20%
A LITTLE	0	0%
TOTAL	15	100%

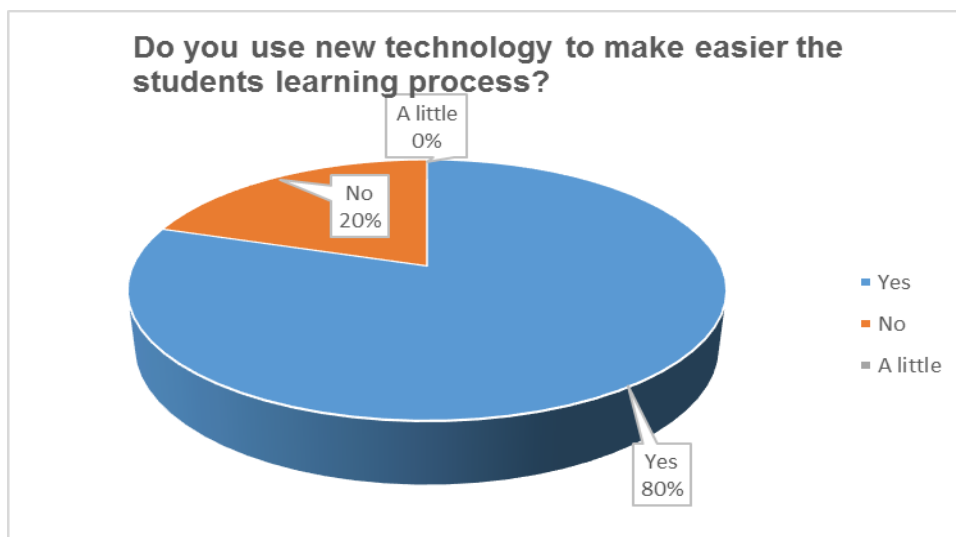


Figure 4 Students use technology make easier learning process

Analysis

A high percentage of 80% of teachers answered that students learning process make easier when use new technology, while that 20% of teachers said that students when use technology is complicated learning process, because do not have enough experience in use them.

4. Have you attended any course in order to get skills and experience in the use new technology?

Table 5

Teachers' data result to question 4

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	2	13%
NO	11	74%
A LITTLE	2	13%
TOTAL	15	100%

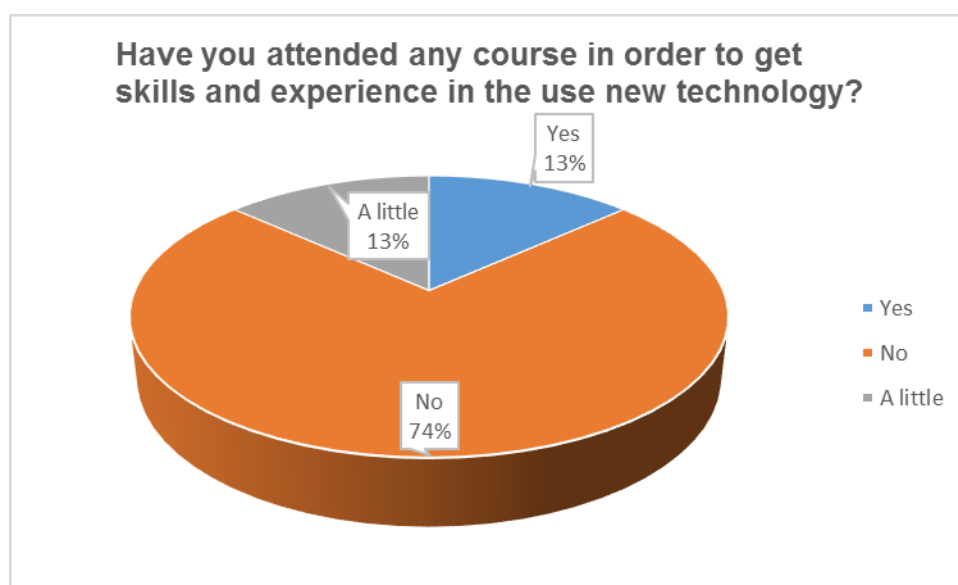


Figure 5 Attended any course to get skills

Analysis

The 74% of teachers said do not attended any course to get skills and experience in use new technology because, do not have administrative support, and the 13% said a little attended courses to develop the skills to use new technology.

5. Are you trained to use basic applications such as word processors, spreadsheets, and presentation programs in the classroom?

Table 6

Teachers' data result to question 5

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	5	33%
NO	9	60%
A LITTLE	1	7%
TOTAL	15	100%

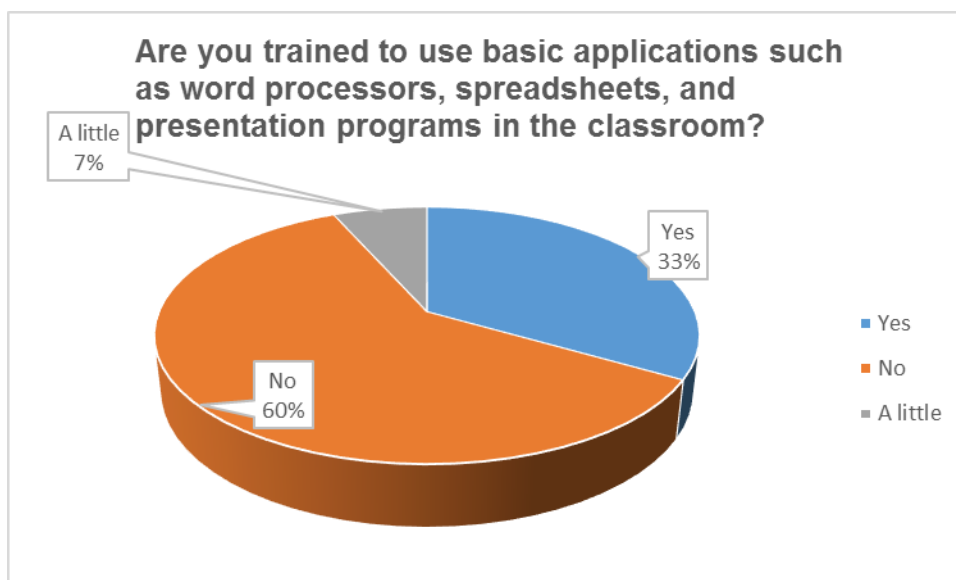


Figure 6 Teachers' trained to use basic applications

Analysis

According to the survey realized the 60% said that don't know use the basic applications, 33% said are trained to use basic applications and another a little 7% said to know how use basic applications and presentation programs in the classroom.

6. Do you think that the high cost of equipment could be a barrier to integrate new technology in the classroom?

Table 7

Teachers' data result to question 6

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	14	93%
NO	1	7%
A LITTLE	0	0%
TOTAL	15	100%

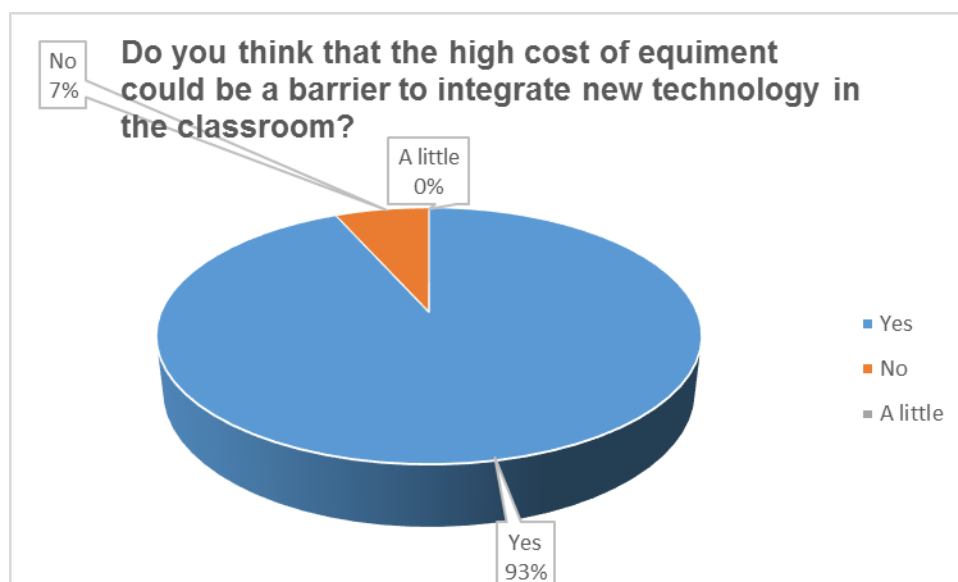


Figure 7 High cost of equipment is a barrier

Analysis

The 93% of teachers said that the high cost of equipment is a barrier to integrate new technology in the classroom, while only the 7% said that high cost is not a barrier to integrate new technology in the classroom.

7. Do you think that the lack of time for training could be a barrier to integrate new technology in teaching?

Table 8
Teachers' data result to question 7

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	15	100%
NO	0	0%
A LITTLE	0	0%
TOTAL	15	100%

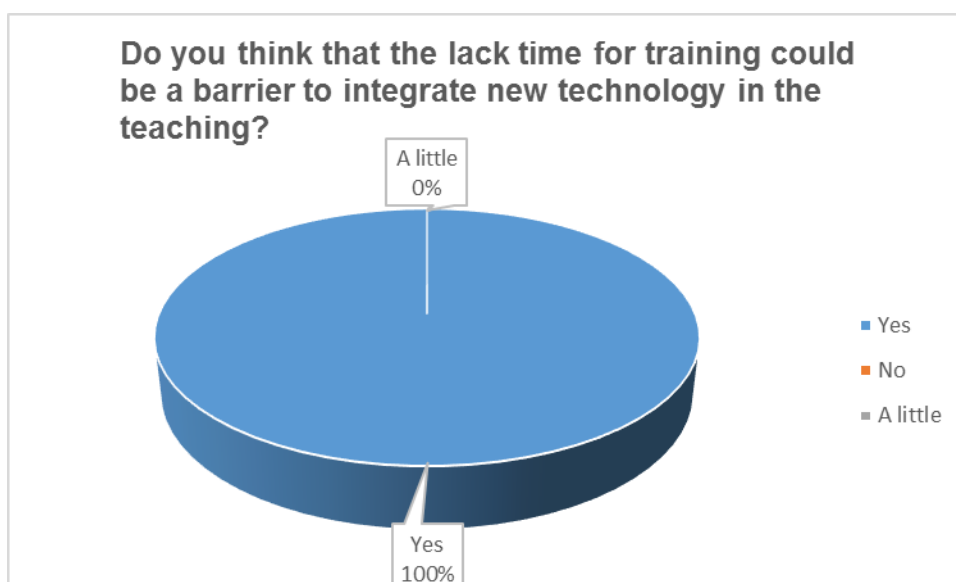


Figure 8 Lack training and time

Analysis

According to the survey, the 100% of teacher affirm that the lack of training and time is a barrier to integrate new technology in the classroom.

8. Have you ever experienced any kind of anxiety or resistance to use new technology?

Table 9

Teacher's data result to question 8

ALTERNATIVES	FREQUENCY	PERCENTAGE
YES	11	73%
NO	3	20%
A LITTLE	1	7%
TOTAL	15	100%

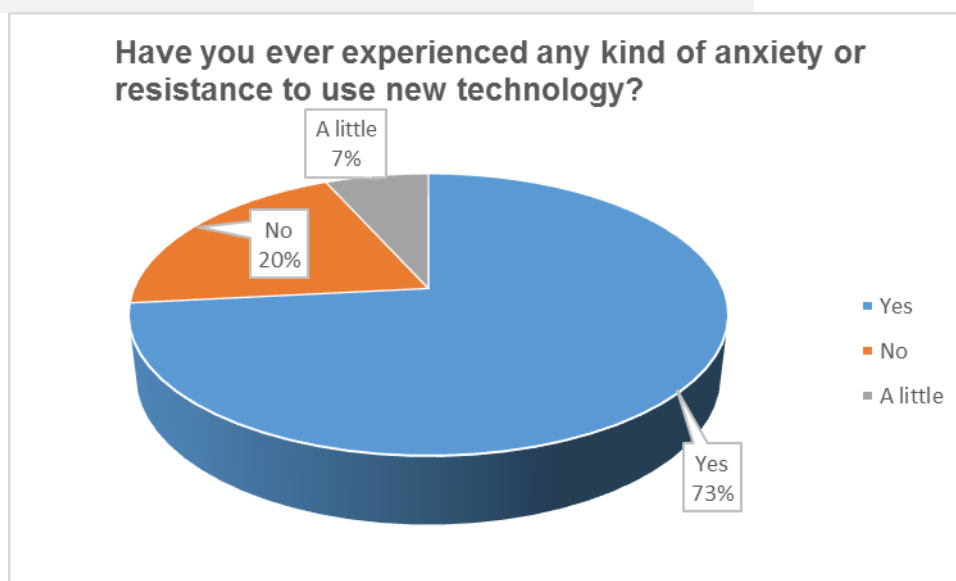


Figure 9 Experienced any kind of anxiety or resistance

Analysis

73% of teachers said that experienced any kind of anxiety or resistance to use new technology in the classroom, and the 20% said that never experienced anxiety or resistance, a little 7% experienced anxiety or resistance to use new technology.

9. Are you motivated to use new technology to improve teaching?

Table 10

Teachers' data result to question 9

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	2	13%
NO	5	33%
A LITTLE	8	54%
TOTAL	15	100%

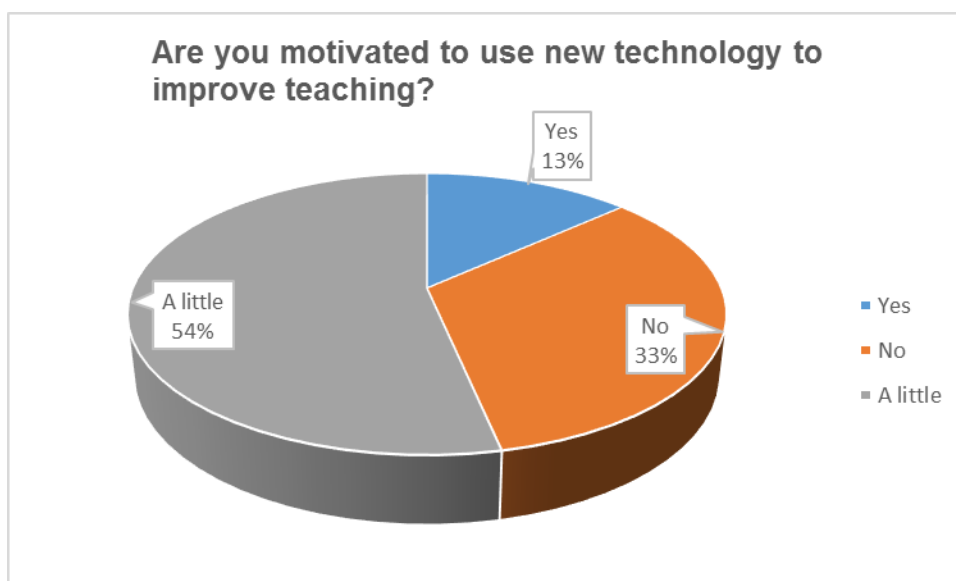


Figure 10 Motivation to use new technology

Analysis

The a little 54% of teachers are motivated to use new technology and 33 said that do not receive motivation to use technology, while the 13% said to be motivated to use new technology.

10. Would you like to be trained to use new technology in the English classroom?

Table 11
Teachers' data result question 10

ALTERNATIVES	FREQUENCY	PERCENTAGE
YES	12	80%
NO	2	13%
A LITTLE	1	7%
TOTAL	15	100%

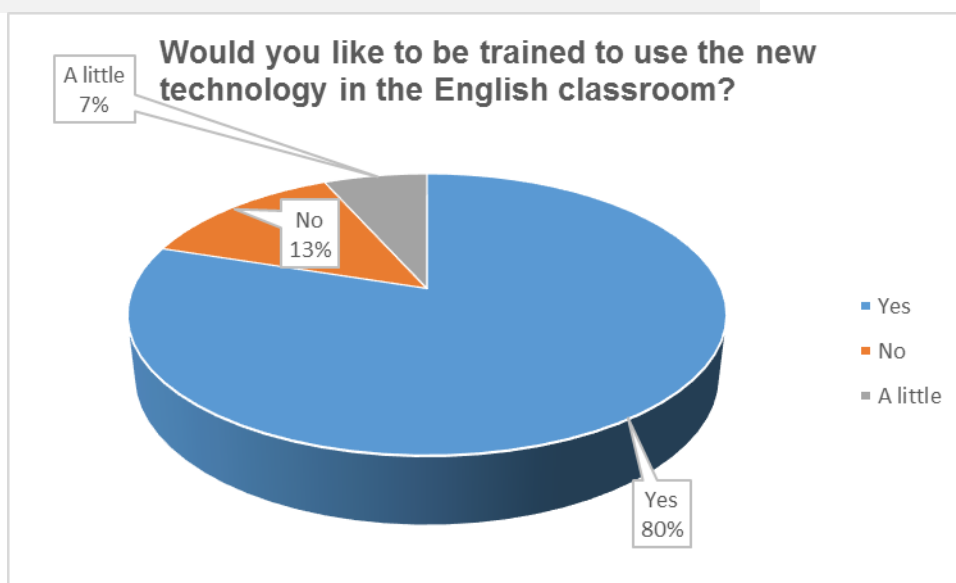


Figure 11 Training to use new technology in the English classroom

Analysis

According to the survey, 80% of teachers said that they would like to be trained to use new technology in the classroom, while 13% do not have interest in being trained to use new technology in the classroom.

Table 12
Data matrix of students

VARIABLES QUESTIONS	YES	NO	A LITTL E	Total
1. Do you enjoy learning English when the teacher use new technology in the classroom?	18	4	3	25
2. Do you think teachers have enough experience in using new technology?	3	20	2	25
3. Do you think teachers are prepared to solve any problems about hardware and software during the classroom activities?	5	15	5	25
4. Are teachers using internet, digital media tools to enhance students learning?	9	13	3	25
5. Are teachers integrating video clips into Power Point presentation in the classroom?	5	16	4	25
6. Do you think that teachers are trained to give support and share knowledge online?	5	20	0	25
7. Do you think that teachers are prepared to create visual aids for teaching?	8	12	5	25
8. Do you think that teachers have positive attitude toward new technology?	4	19	2	25
9. Do you think that teachers avoid using the new technology because they don't trust in its efficacy?	20	5	0	25
10. Would you like to learn English by using new technology?	17	8	0	25
TOTAL	94	132	24	250

Source: Survey: Administered to Student's
Carried out by: Hector Collaguazo

1. Do you enjoy learning English when the teacher use new technology in the classroom?

Table 13
 Students' data result to question 1

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	18	72%
NO	4	16%
A LITTLE	3	12%
TOTAL	25	100%

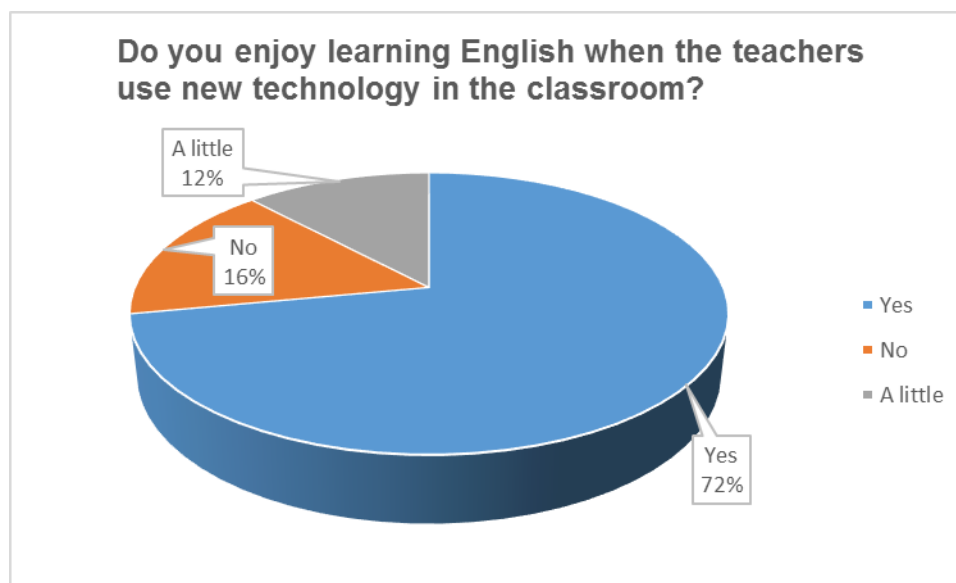


Figure 12 Students enjoy when teachers use new technology

It is shown that 72% of students said to enjoy when use new technology in English classroom, 16% said that do not enjoy, while a little 12% enjoy when teachers use new technology in classroom.

2. Do you think that teachers have enough experience in using new technology in the classroom?

Table 15
Student's data result to question 2

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	3	12%
NO	20	80%
A LITTLE	2	8%
TOTAL	25	100%

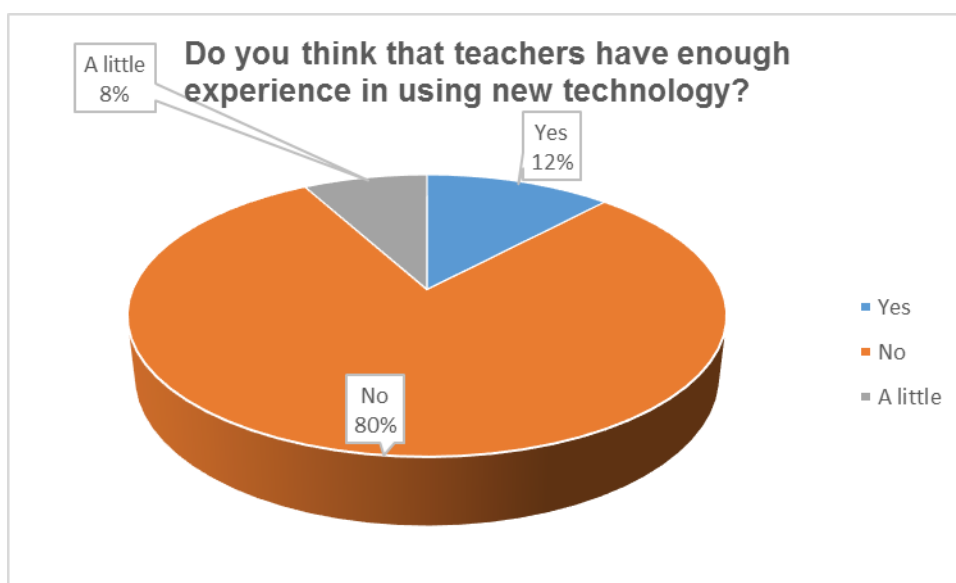


Figure 13 Teachers experience in use new technology

Analysis

In this question, It is shown that 80% of respondents said that teachers' do not have enough experience in use new technology, 12% of students said that teachers have enough experience in use new technology in teaching, while a little 8% said that teachers show to have experience.

3. Do you think teachers are prepared to solve any problems about hardware and software during the classroom activities?

Table 14
Students' data result to question 3

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	5	20%
NO	15	60%
A LITTLE	5	20%
TOTAL	25	100%

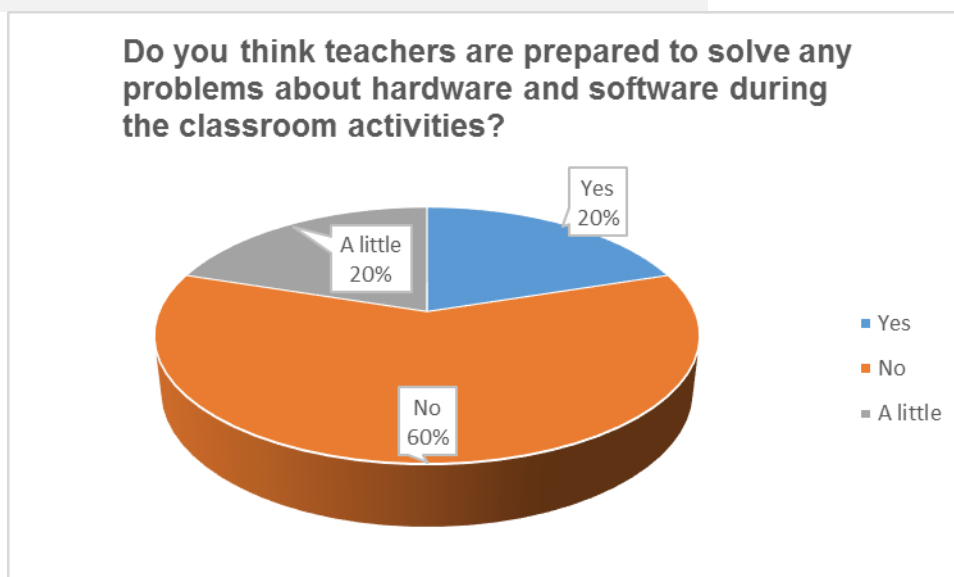


Figure 14 Solve any problems about hardware and software

Analysis

In this question, it is shown that 60% of respondents said that do not have knowledge to solve any problem about hardware and software, while other 20% said that teachers are prepared to solve any problems and a similar percent said that teachers know how to solve problems about hardware and software.

4. Are teachers using the Internet, digital media tools to enhance students learning?

Table 15
Students' data result question 4

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	9	36%
NO	13	52%
A LITTLE	3	12%
TOTAL	25	100%

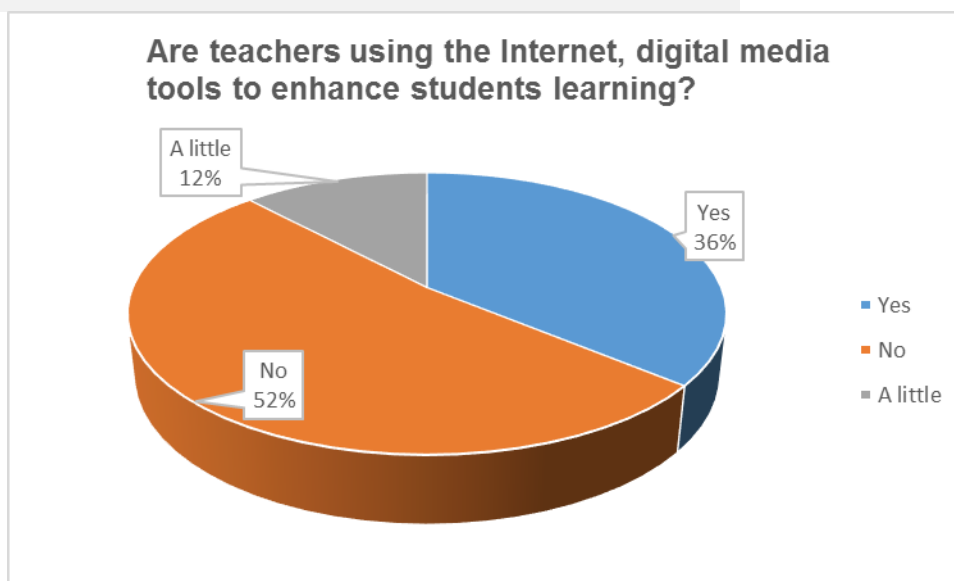


Figure 15 Teachers use internet, digital media tools

Analysis

In this question the 52% of students said that teachers do not use the Internet, digital media tools to enhance students learning. And other 36% affirm that teachers use it in teaching, while 12% said teachers use a little.

5. Are the teachers integrating video clips into PowerPoint presentation in the classroom?

Table 16
Students' data result to question 5

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	5	20%
NO	16	64%
A LITTLE	4	16%
TOTAL	25	100%

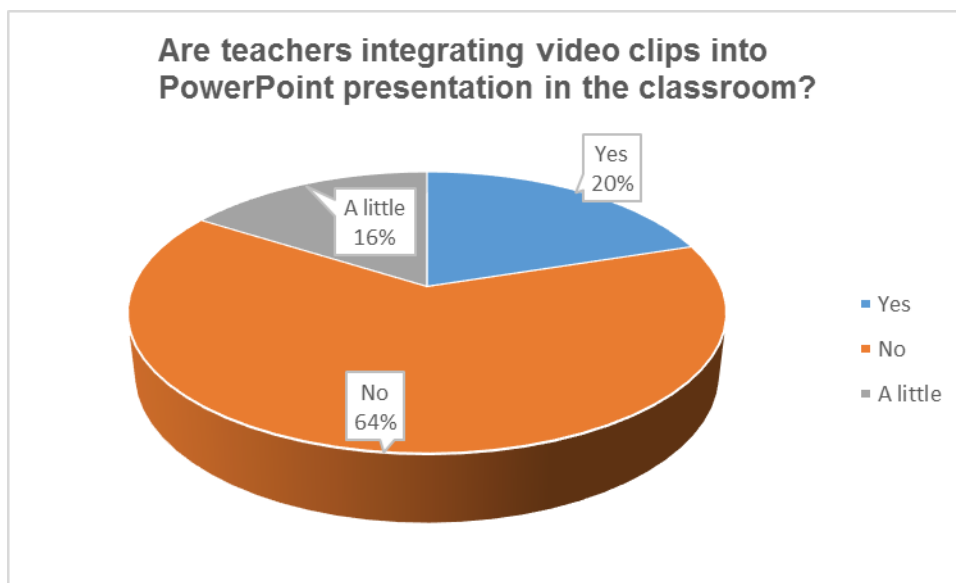


Figure 16 Teachers integrating video clips in classroom

Analysis

The 64% of students said that the teachers do not integrate video clips into PowerPoint presentation, the other 20% affirm that teachers have experience to create power point presentations, while 16% integrate a little.

6. Do you think that teachers are trained to give support and share knowledge online?

Table 17
Student's data result to question 6

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	5	20%
NO	20	80%
A LITTLE	0	0%
TOTAL	25	100%

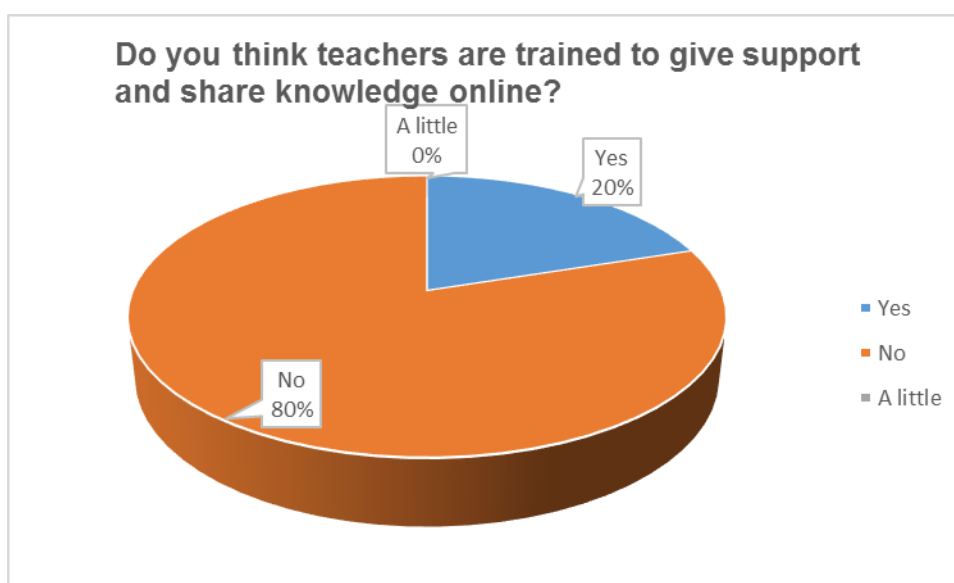


Figure 17 Give support and share knowledge online

Analysis

According this question the 80% of students said that the teachers are not trained to give support and share knowledge online, and other 20% said that teachers have experience to give support.

7. Do you think that teachers are prepared to create visual aids for teaching?

Table 18
Students' data result to question 7

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	8	32%
NO	12	48%
A LITTLE	5	20%
TOTAL	25	100%

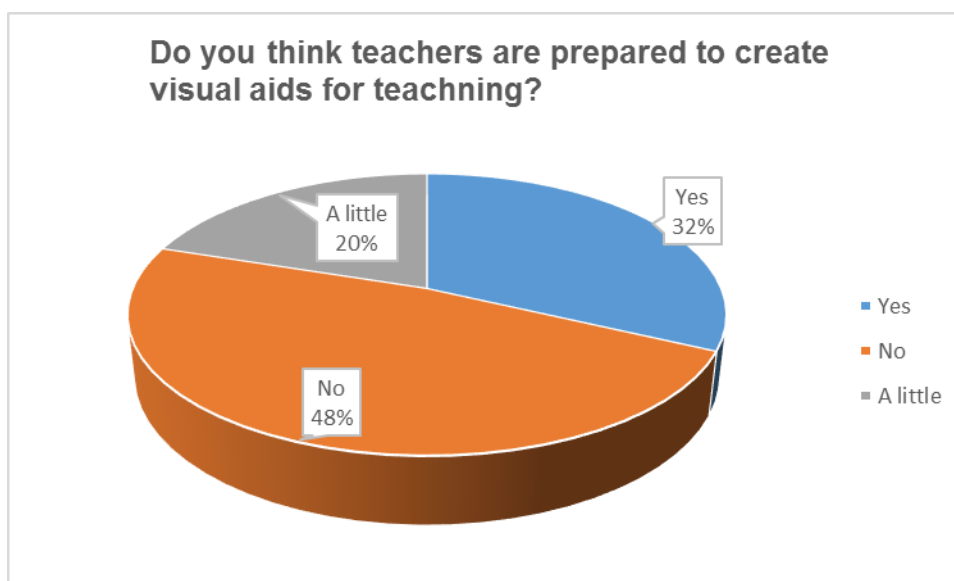


Figure 18 Teachers create visual aids for teachers
Analysis

In this question the 48% of students said that teacher are not prepared to create visual aids for teaching, and 32% of the students said that teachers are prepare to create visual aids for teaching, while the other 20% said teachers create visual aids a little.

8. Do you think that teachers have positive attitudes toward new technology?

Table 19
Student's data result to question 8

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	4	16%
NO	19	76%
A LITTLE	2	8%
TOTAL	25	100%

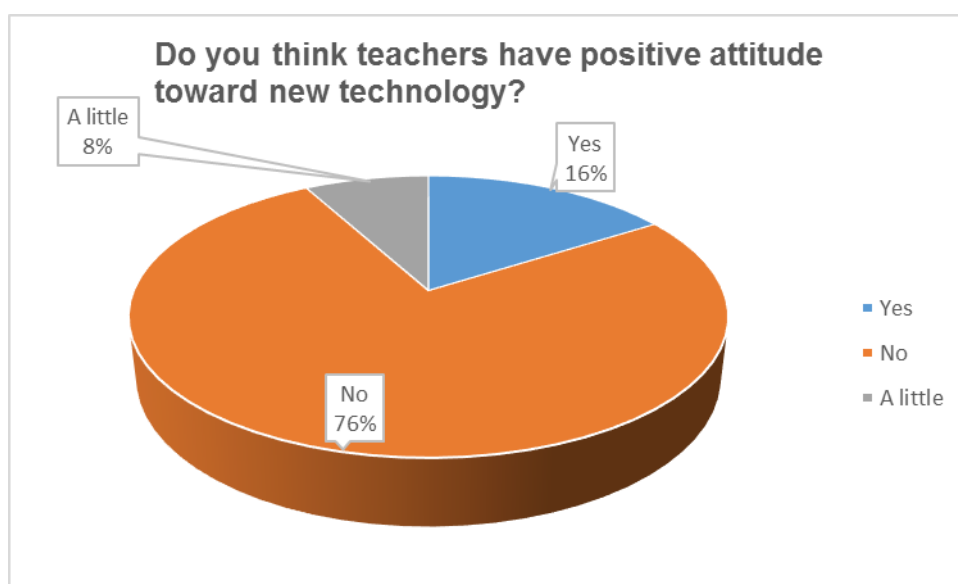


Figure 19 Teachers attitudes toward new technology

Analysis

In this survey we can see that 76% of the teachers are not have positive attitude, and other 16% said that teachers have positive attitudes, while 8% said that teachers have little positive attitude.

9. Do you think that teachers avoid using the technology because they do not like it or do not trust in its efficacy?

Student's data result to question 9

Table 20
Student's data result to question 9

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	20	80%
NO	5	20%
A LITTLE	0	0%
TOTAL	25	100%

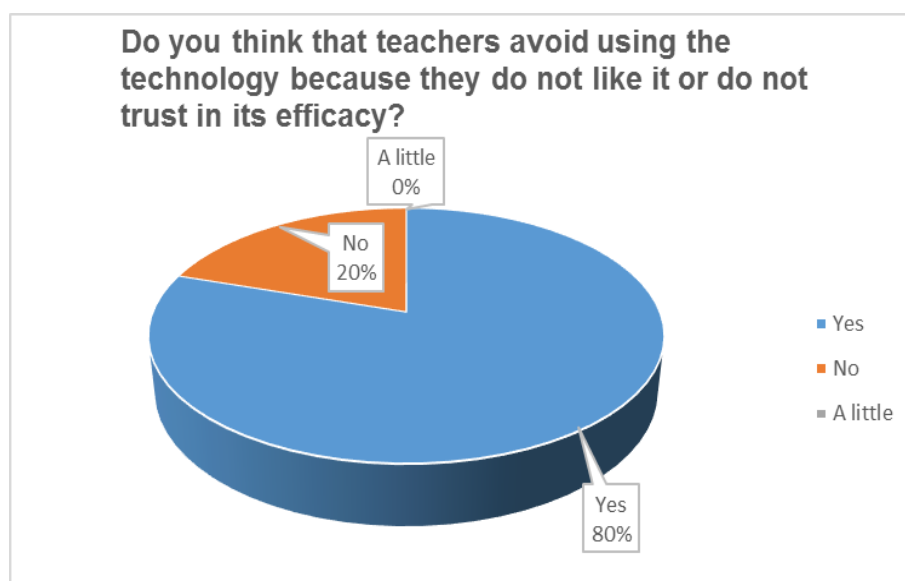


Figure 20 Teachers avoid use new technology
Analysis

The 80% the students said that the staff of teachers do not like it or do not trust in its efficacy, and the 20% of the students said that have trust in its efficacy.

10. Would you like to learn English by using new technology?

Table 21
Student's data result to question 10

ALTERNATIVES	FRECUENCY	PERCENTAGE
YES	17	68%
NO	8	32%
A LITTLE	0	0%
TOTAL	25	100%

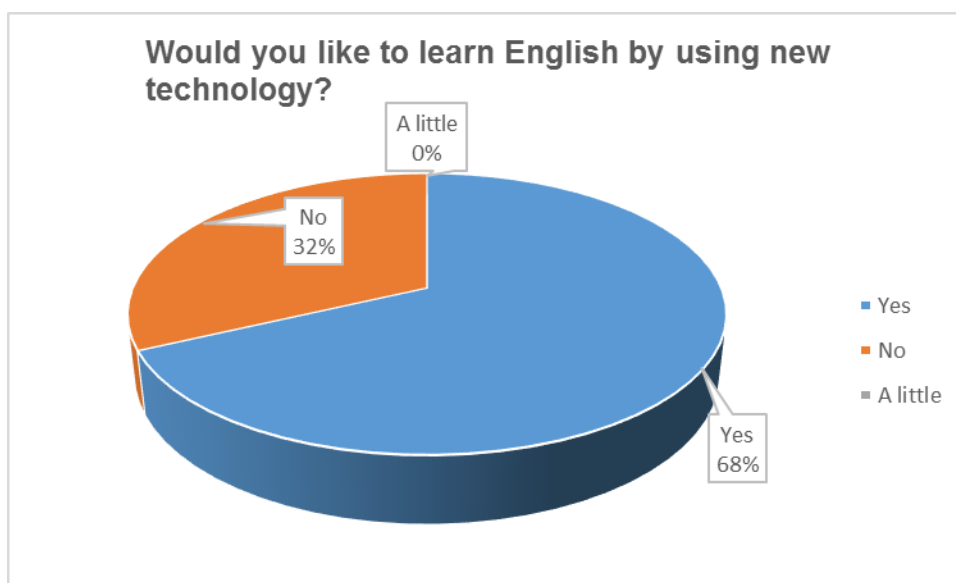


Figure 21 Learn English using new technology
Analysis

The 68% the students said that would like to learn English by using new technology, and the 32% of the students said that do not would like.

4.2 Verification of the hypothesis

Table 22
Teachers Chi-square analysis

TABLA DE FRECUENCIAS OBSERVADAS					TABLA DE FRECUENCIAS ESPERADAS			
	YES	NO	A LITTLE	TOTAL		YES	NO	A LITTLE
PREGUNTA 1	8	5	2	15	PREGUNTA 1	8,6	4,8	1,6
PREGUNTA2	4	10	1	15	PREGUNTA2	8,6	4,8	1,6
PREGUNTA 3	13	2	0	15	PREGUNTA 3	8,6	4,8	1,6
PREGUNTA 4	2	11	2	15	PREGUNTA 4	8,6	4,8	1,6
PREGUNTA5	5	9	1	15	PREGUNTA5	8,6	4,8	1,6
PREGUNTA 6	14	1	0	15	PREGUNTA 6	8,6	4,8	1,6
PREGUNTA 7	15	0	0	15	PREGUNTA 7	8,6	4,8	1,6
PREGUNTA 8	11	3	1	15	PREGUNTA 8	8,6	4,8	1,6
PREGUNTA 9	2	5	8	15	PREGUNTA 9	8,6	4,8	1,6
PREGUNTA10	12	2	1	15	PREGUNTA10	8,6	4,8	1,6
TOTAL	86	48	16	150	FORMULA	15*86/150	15*48/150	15*16/150
F.OBSERV.	F.ESPERADA	CHI.QU.TABULAR						
8	8,6	0,0418605		NIVEL DE CONFA	95%			
4	8,6	2,4604651		θ	5%			
13	8,6	2,2511628		DEGREE.FREE	18			
2	8,6	5,0651163		VALOR CRITICO	28,87			
5	8,6	1,5069767						
14	8,6	3,3906977						
15	8,6	4,7627907						
11	8,6	0,6697674	((F.OBS-F.ESP)^2)/F.ESP					
2	8,6	5,0651163						
12	8,6	1,344186						
5	4,8	0,0083333						
10	4,8	5,6333333						
2	4,8	1,6333333						
11	4,8	8,0083333						
9	4,8	3,675						
1	4,8	3,0083333						
0	4,8	4,8						
3	4,8	0,675						
5	4,8	0,0083333						
2	4,8	1,6333333						
2	1,6	0,1						
1	1,6	0,225						
0	1,6	1,6						
2	1,6	0,1						
1	1,6	0,225						
0	1,6	1,6						
0	1,6	1,6						
1	1,6	0,225						
8	1,6	25,6						
1	1,6	0,225						
CHI.Q CALCULADO		87,141						
VALOR CRITICO		28,87						

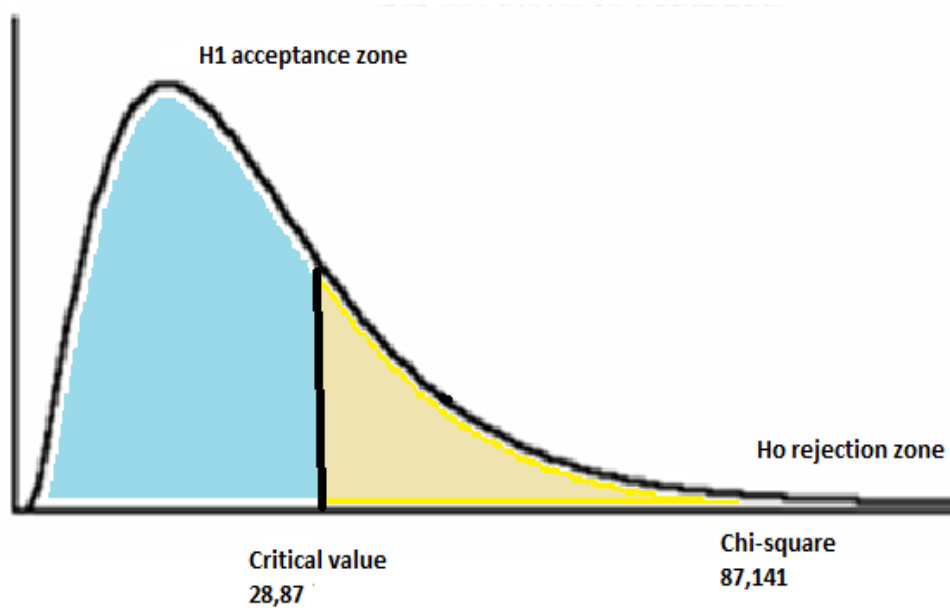


Figure 22 Teachers Chi-square analysis

Chi-square calculated= 87,141
Confidence level= 95%
Probability= 5%
Degree Free= 18
Critical value= 28, 87

STATISTICAL DECISION

Once chi-square was calculated 87,141 and the critical value 28, 87 it is notable that chi-square is higher than the critical value, therefore the null hypothesis is rejected.

Table 23
Students Chi-square analysis

TABLA DE FRECUENCIAS OBSERVADAS				TABLA DE FRECUENCIAS ESPERADAS				
	YES	NO	A LITTLE	TOTAL		YES	NO	A LITTLE
PREGUNTA 1	18	4	3	25	PREGUNTA 1	9,4	13,2	2,4
PREGUNTA2	3	20	2	25	PREGUNTA2	9,4	13,2	2,4
PREGUNTA 3	5	15	5	25	PREGUNTA 3	9,4	13,2	2,4
PREGUNTA 4	9	13	3	25	PREGUNTA 4	9,4	13,2	2,4
PREGUNTA5	5	16	4	25	PREGUNTA5	9,4	13,2	2,4
PREGUNTA 6	5	20	0	25	PREGUNTA 6	9,4	13,2	2,4
PREGUNTA 7	8	12	5	25	PREGUNTA 7	9,4	13,2	2,4
PREGUNTA 8	4	19	2	25	PREGUNTA 8	9,4	13,2	2,4
PREGUNTA 9	20	5	0	25	PREGUNTA 9	9,4	13,2	2,4
PREGUNTA10	17	8	0	25	PREGUNTA10	9,4	13,2	2,4
TOTAL	94	132	24	250	FORMULA	$25 \cdot 94 / 250$	$25 \cdot 132 / 250$	$25 \cdot 24 / 250$

			NIVEL DE CONFIANZA	95%
			θ	5%
F.OBSERV.	F.ESPERADA	CHI.QU.TABULAR	DEGREE.FREE	18
18	9,4	7,86808511	VALOR CRITICO	28,87
3	9,4	4,35744681		
5	9,4	2,05957447		
9	9,4	0,01702128		
5	9,4	2,05957447		
5	9,4	2,05957447		
8	9,4	0,20851064		
4	9,4	3,10212766		
20	9,4	11,9531915		
17	9,4	6,14468085		
4	13,2	6,41212121		
20	13,2	3,5030303		
15	13,2	0,24545455		
13	13,2	0,0030303		
16	13,2	0,59393939		
20	13,2	3,5030303		
12	13,2	0,10909091		
19	13,2	2,54848485		
5	13,2	5,09393939		
8	13,2	2,04848485		

3	2,4	0,15
2	2,4	0,06666667
5	2,4	2,81666667
3	2,4	0,15
4	2,4	1,06666667
0	2,4	2,4
5	2,4	2,81666667
2	2,4	0,06666667
0	2,4	2,4
0	2,4	2,4
CHI.Q CALCULADO		78,224
VALOR CRITICO		28,87

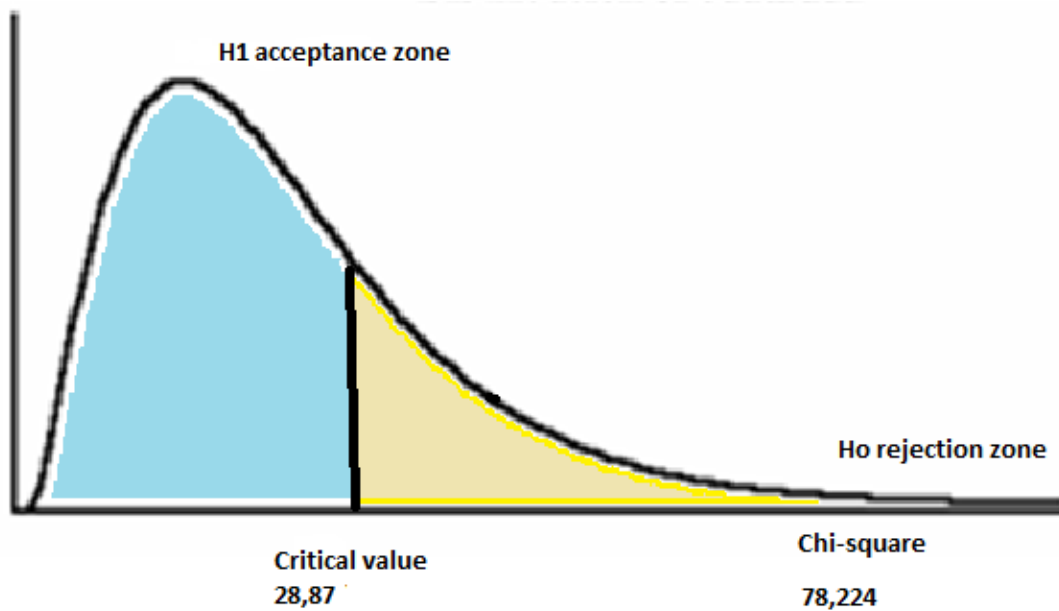


Figure 23 Students Chi-square analysis

4.3 Conclusions

- a) The Null hypothesis is rejected, therefore the working hypothesis is accepted “the teachers’ beliefs influence into the Technology-related skills”.
- b) Insufficient technology-related skills in Teachers at Educational Unit “Tumbaco” is influenced by several factors like lack of resources, inadequate knowledge and skills, institutional barriers, negative attitudes and beliefs as it is demonstrated in questions formulated to Teachers’ and students.
- c) Teachers are not trained to give support and share knowledge online because they do not have enough experience.
- d) The successful use of technology in the classroom depends on the teachers’ attitudes toward these tools.
- e) Students affirm that enjoy learning when teachers’ use new technology in the classroom.
- f) Many teachers experience some kind of anxiety or resistance to using new technology.
- g) Teachers do not have the time or experience to properly integrate technology into the classroom.
- h) When teachers use new technology in English classroom, students enjoy learning.
- i) According to the students’ survey, teachers are not trained to give support and share knowledge online.
- j) Students affirm that teachers do not trust in its efficacy in use new technology.
- k) The students would like to learn English using new technology

4.4 Recommendations

- a) Teachers should attend course or workshop to get skills and experience in the use new technology.
- b) Implement annual training plan to use basic applications such as word processors, spreadsheets, and presentation programs in the classroom.
- c) Strengthen outside of the regular school day to develop skills in use new technology to improve teaching.
- d) Implement use the Internet, digital media tools to enhance students learning.
- e) Computer tools and resources must be used in many different ways to support teaching and learning.
- f) Promote the use video clips into power point presentation in the classroom.
- g) Prepare teachers' to solve problems about hardware and software.
- h) Emphasize positive attitude toward new technology.
- i) Consider training teachers' to give support and share knowledge online.
- j) Implement computer equipment for practicing in free time.
- k) Motivate teachers to use new technology in classroom, to make easier the students learning process.

PART FIVE

5 THE PROPOSAL

5.1 Analysis of stakeholders

Analysis of stakeholders

Table 24
Analysis of stakeholders

GROUPS	INTEREST	PERCEIVED PROBLEMS	MANDATES
Students	Students want to have access to course materials published on the world Wide Web.	Students faced multiple technology-related difficulties.	Motivate to the students use new technology.
Teachers	Teachers need to acquire a personal, pedagogical and technical knowledge to reduce anxiety to use new technology.	Inefficient technology-related skills use.	Acquire skills to use new technology to facility the teaching-learning process of the students.
Administrators	Administrators Support teachers and students to implement new technology training as educational tool.	Teachers do not have enough experience and knowledge in the use of new technology.	Contribute to the implementation of e-learning technology and encourage to teachers to use new technology in teaching activities.

5.2 Problem tree

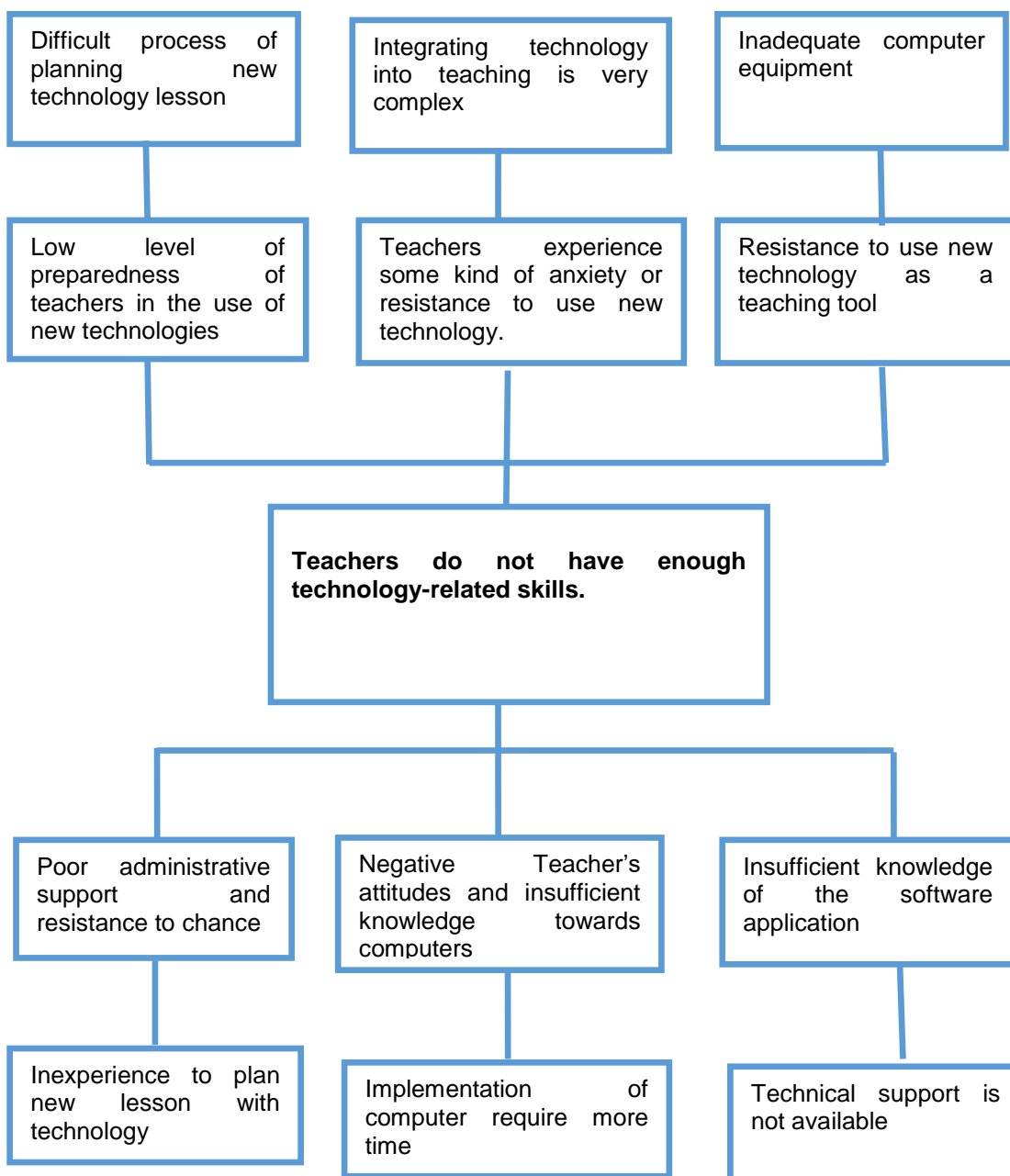


Figure 24 Problem tree

5.3 Objectives Tree

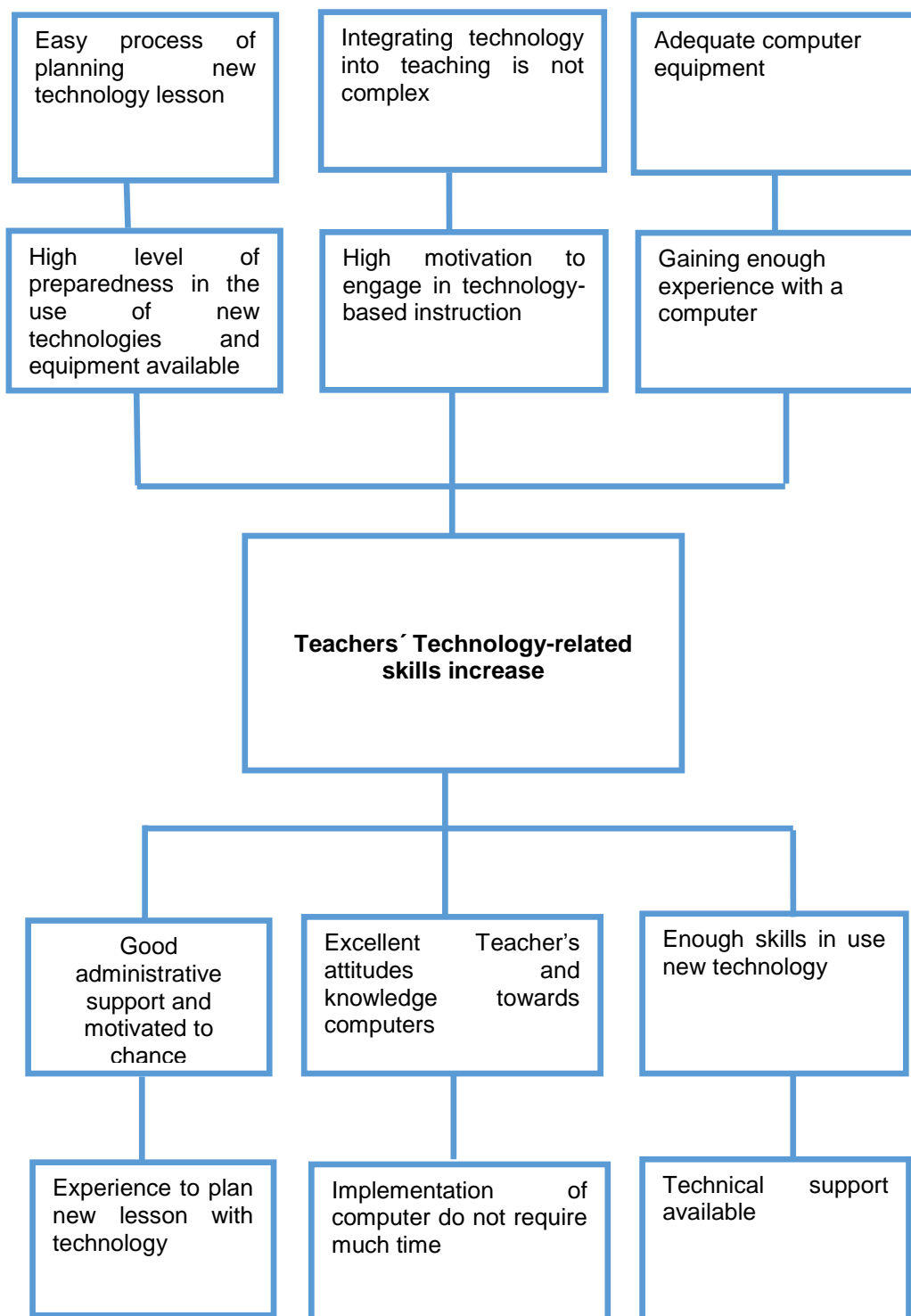


Figure 25 objectives tree

5.5 Analytic Structure of the proposal

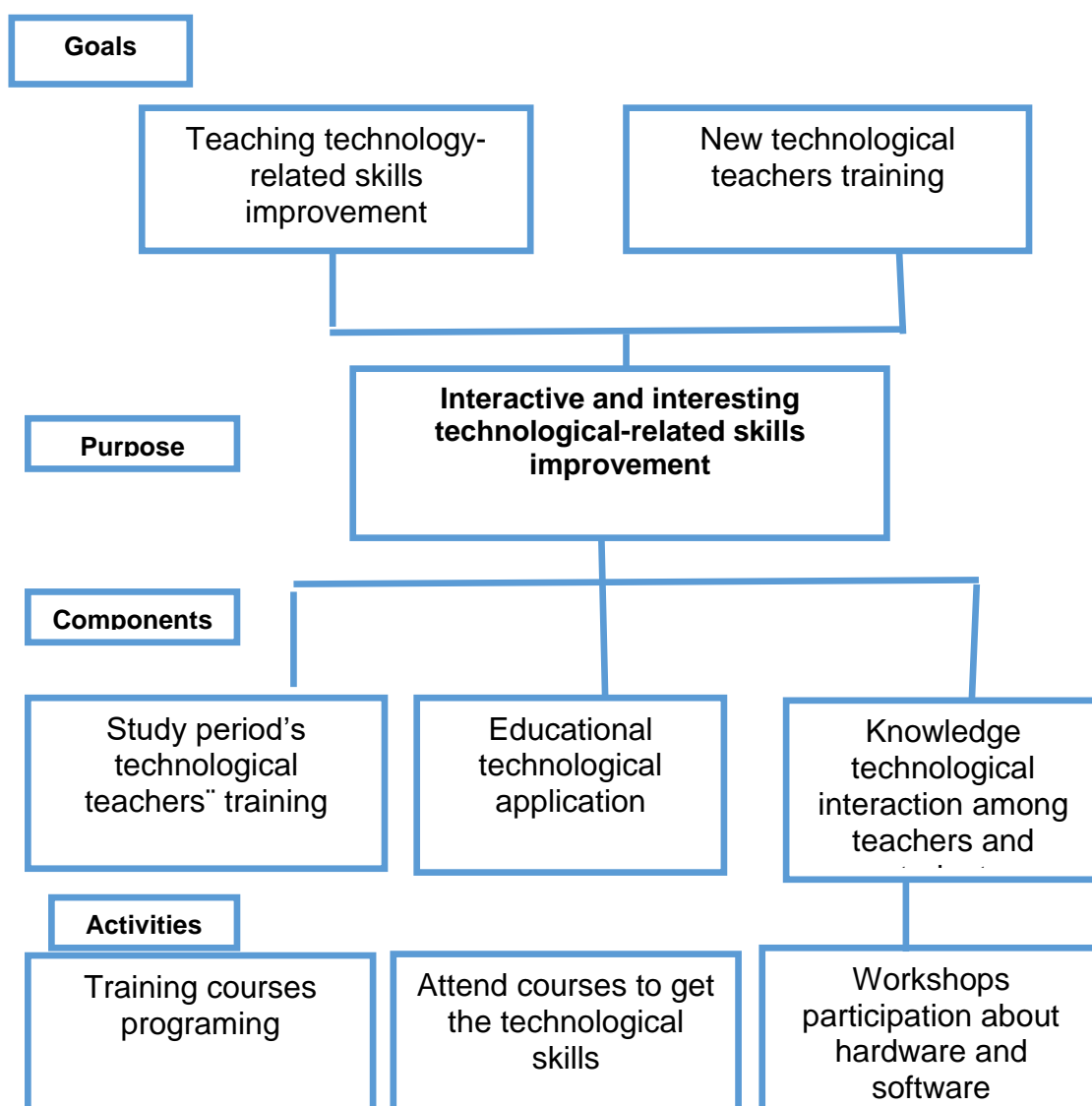


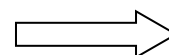
Figure 27 Proposal

5.6 Logical framework matrix

Table 25
Logical framework matrix

Narrative Summary of objectives	Indicators	Verification Media	Supposes
<p>Goals</p> <p>1. Teaching technology-related skills improvement</p> <p>2. To obtain good experience in use computer like effective teaching tools in the classroom.</p> <p>Purpose</p> <p>To improve teachers technological-related skills</p>	<p>54% of teachers have positive attitudes toward new technology.</p> <p>60% of teachers show enough skills and knowledge in the effective use of instructional purpose.</p> <p>85% of teachers show adequate knowledge and skills in use computer in the classroom.</p>	<p>Survey interview</p> <p>Test about computers skills</p> <p>Test</p>	<p>Teachers will feel motivated and interested in the learning process.</p> <p>Teachers are interested in develop their skills outside of regular schools day.</p> <p>Using computers in the two processes of teaching and learning saves time and effort for both the teacher and the learner</p>
<p>Components</p> <p>Teachers get technological trainings every school periods.</p> <p>Application of technology in education.</p> <p>Teachers share their knowledge to their peers and students.</p>	<p>90% of persons use new technology to use with their course, and participate in online discussion groups.</p> <p>66% students improve their learning process.</p> <p>20% teachers share knowledge and communicate between students.</p>	<p>Statistical of access to the forums and chats.</p> <p>Language tests results</p> <p>Workshops evaluations</p>	<p>Computer-based instruction can effectively enhance learning.</p> <p>Teachers use technology efficiently.</p> <p>Teachers and students can share knowledge easily.</p>

To be continued



Activities	Resources	Costs
Training courses programming	Coordinator	\$ -
Attend course to acquire knowledge and skill in use new technology.	Teachers Computer Internet	\$1200
Participate in workshops to practice and training in the use of hardware and software.	Computer book Internet Trainer	\$ 500

5.7 Budget

Table 26
Budget

Resources	Costs
Tutor	US\$ 1,200
Laptop Computer	US\$ 850
Printer	US\$ 80
Ink cartridges	US\$ 80
Scanner	US\$ 200
Copies	US\$ 50
Sheets of paper	US\$ 20
Bibliography	US\$ 200
Binding	US\$ 10
Internet account for six months	US\$ 120
English-English dictionary	US \$ 150
TOTAL	US\$ 2,960

5.8 Activities Schedule

Table 27
Activities schedule

Activities	Aug.	Sept.	Oct.	Nov.	Dec.
Project elaboration	X				
Development theoretical framework		X	X		
Diagnostic test (pre-test)				X	
To look for information about capacitation cost and financing.			X	X	X
Summative evaluation				X	
Elaboration of the proposal		X			
Final report					X

5.9 Evaluation

For the evaluation of the hypothesis we are going to use as tool questionnaires. The focus was on the activities done by the teachers and students, and their indicators of the project. In the evaluation of the results, the relevant objectives were the components, the aim and purpose of the logical framework.

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