

The effect of using in computer skills on teachers' perceived self-efficacy beliefs towards technology integration, attitudes and performance

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Abstract

The current study analyzes the relationship between the apparent teacher's Self-efficacy and attitudes towards integrating technology into classroom teaching, self-evaluation reports and computer performance results. Pre-post measurement of the Computer Technology Integration Survey (CTIS) (Wang et al, 2004) was used to determine the confidence level with of 60 science teachers and 12 mixed-major teachers enrolled at the Lebanese University, Faculty of Education in the academic year 2011-2012. Pre –post measurement on teachers' attitudes towards using technology was examined using an opened and a closed questionnaire. Teachers' performance was measured by means of their ActiveInspire projects results using active boards after their third practice of training in computer skills and ActiveInspire program. To accumulate data on teachers' self-report, this study uses Robert Reasoner's five components: feeling of security, feeling of belonging, feeling of identity, feeling of goal, and self-actualization which teachers used to rate themselves (Reasoner, 1983). The study acknowledged probable impacts of computer training skills on teachers' self-evaluation report, effectiveness of computer technology skills, and evaluations of self-efficacy attitudes toward technology integration. Pearson correlation revealed a strong relationship $r = 0.99$ between the perceived self-efficacy towards technology incorporation and teachers' self-evaluation report. Also, the findings of this research revealed that 82.7% of teachers earned high computer technology scores on their ActiveInspire projects and

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33.3% received excellent grades on computer performance test. Recommendations and potential research were discussed.

Keywords: Self- esteem, Activeinspire pre-service training, Perceived self –efficacy, Computer technology performance

1. Introduction

Computer technology has become a basic aspect of modern life. The fact that information can now be transferred with the press of a button has posed new challenges on education. Saad (2012), stated that the spread of Information and Communication Technologies (ICTs) in schools in Lebanon has triggered the importance of preparing preservice teachers to teach with technology.

Similarly, the President of the Center for Educational Research and Development (CERD): Dr. Leila Maliha Fayad, (MEHE,2012,p.2) stated that in a digital age, schools need teachers and learners ready to meet the challenges of teaching, learning, and working in a hyper-connected, collaborative, creative, and information-rich world. She added that teachers and students need just-in-time and just-as-needed access to computers in their classrooms to support content-based instruction. She stressed on their needs and access for experts and resources and the ability to use powerful and high-speed Internet tools such as video and multimedia.

In this regard, the Ministry of Education and Higher Education (MEHE) and the Center for Educational Research and Development (CERD) recognize that technology can equip learners with the necessary knowledge, aptitudes, competencies, and expertise to meet the demands of a digital world (MEHE, 2012). However, technology is needed to be embedded in a curriculum that focuses on promoting the skills and competencies necessary in the workforce of today and tomorrow. Also, there is a need to have the ability to communicate using electronic tools, collaborate with online communities, organize data, evaluate information, and create new knowledge (MEHE,2012).

Furthermore, the Lebanese Minister of Education and Higher Education, professor Hassan Diab (2012; as cited in MEHE, 2012, p.1) stated that an essential component of Lebanon's Education Reform Strategy and Action Plan (LERSAP), announced in October 2011, is employing and harnessing information and communications technology (ICT) to support teaching and learning, as well as educational management and leadership. He considered this component as an important contribution to the strategic goal of transforming education in the Lebanese schools. Hence, he reported that the economic, social, and personal needs of our young people in the 21st century will be influenced. In year 2012, the Ministry of Education and Higher Education (MEHE), announced a five –year plan to establish a strong foundation for ICT in education, called "Lebanon's National Educational Technology Strategic Plan" that aims at harnessing the potential of new technology to reform education (MEHE, 2012). Accordingly, the Director-General of Education for the Ministry of Education and Higher Education Mr. Fadi Yarak (2012; as cited by MEHE, 2012, p.3) said that the globalization is amplifying the importance of knowledge and information across all societies. He added that Lebanon fully understands the role of information and communications technology (ICT) in addressing the implementation of educational reform for improved and equitable access to quality education for all learners. Also, he stressed on the national responsibility to enable our children to benefit from and contribute to the Teaching and Learning in the Digital Age: Lebanon's National Educational Technology Strategic Plan to guide the integration of ICT into the general education system. He described the strategic plan as a set of principles, goals, and objectives, serving as a series of decision points over a five-year period. Consequently, ICT can create new potential opportunities for students and teachers to acquire lifelong learning, information management, and analytical skills, while ensuring equitable access to education for all, only when it is integrated into the curriculum, instruction, and assessment by skilled teachers supported by strong leaders (MEHE, 2012, p.3).

Accordingly, for the goals and objectives of the strategic plan to be institutionalized and diffused throughout the school system, it is recommended in Action 5 (MEHE, 2012, p.81) that those working in MEHE's regional education offices and CERD's regional centers will need more training, support, and resources. They will also need budgeting authority, financial resources, procedures, and policies by which they can help to implement, support, and assess the goals of the national educational strategic plan, as well as mechanisms to communicate with MEHE and CERD. In addition, it is recommended in Action 5 that they must have standards by which their efforts at the regional level are monitored and assessed. Furthermore, MEHE (2012, P.83) recommended Action 8 which insists in providing ongoing, extensive professional development to teachers so that they know how to integrate technology into curriculum, assessment, and instruction. Yet, without ongoing classroom-based support to help them internalize what they've learned in professional development, teachers will either fail to implement or abandon new instructional methods, particularly in the face of difficulties, such as a lack of resources, technology problems, an examination system misaligned with instructional practices, or lack of principal or colleague support. Moreover, teachers need the assistance of a school-based support person from within their school or region mainly who understands the educational system, curricular requirements, good instruction, and effective uses of technology in order to unlearn less-than-optimal teaching practices and learn approaches that are important to student learning (MEHE, 2012).

Roblyer (2003) stated that teachers have a primordial influence on educational technology. Teachers' observation on technology are how they respond with it, how they pertain it with their teachings, and how it assists the objective of achieving their vision of teaching and learning will influence potential years of computer technology in education. Hardy (2003) said that the time spent on exploring technological potential in some teacher education programs poses some problems for those programs. Moreover, many in-service (presently teaching) and pre-service (now in training) teachers think that they are not skilled and often lack suitable tools to apply educational technology in their classrooms (Hardy, 2003). However, Hardy (2003) argued that even though pre-service teachers receive official practice in instructional technology, most new teachers do not have sufficient awareness about integrating computer technology into curricula and their proficient practice. This leads to the question, why are Lebanese public teachers so uncertain to adapt to technology where it can immensely assist them?

One probable motive for the nonexistence of variation toward technologically-enhanced, student-centered pedagogy could be because of the lack of computers in classrooms in the Lebanese public schools. Another reason could be related to the outlooks that teachers embrace. According to Chen (2008), teachers attribute to their previous theories and involvements when trying to assimilate technology into their instructional exercises. These past philosophies can inspire the growth of extraneous concerns concerning technology integration and correlated instructional teachings. Pan and Carroll (2008) stated that teachers' theories are most likely produced throughout their time consumed in the classroom, either as teachers or students. Consequently, teachers are required to adjust their opinions and ponder in new techniques about students, subject materials, and the teaching-learning procedure in order to adopt the incorporation of technology. (Pan & Carroll, 2008, p. 38). Furthermore, Park & Ertmer (2007) suggested that these vicissitudes must be executed through exercises that stress the contemplation about the individuals' beliefs and hands-on occurrences. In addition, Pajares (1992) and Bandura (1997) emphasized that attitudes compels to action programs or objectives that guide people's conclusions and performances motivating people to exploit upon their viewpoints. Maintaining that structure in mind, this research learning will evaluate modifications in teachers' judgement as suggested by their self-efficacy with courtesy to technology integration skills in their classes after coaching in Active Inspire curriculums.

Existing literature in computer self-efficacy is missing a sequence of qualitative and quantitative reports. Wall (2004), suggested that the quantifiable analysis on computer self-efficacy needs qualitative follow-ups (such as interviews). However, so far, there has not been much exploration that syndicates the two techniques. Hardy (2003) stated that some studies conducted on preservice teachers (teachers under training or preparation) did have a blend of mixed-methodology reports, but

there was no effort to advanceconfirm the research questions. This study used the quantitative approach due to inability to follow –up with teachers in their classroom settings because of summer vacation. Teachers were asked by the course technology coordinator program to prepare their projects during the summer 2012 at home as part of their final project. Consequently, the qualitative part was not conducted.

2. Background and Significance of the problem

In March 2003, Charles Clarke(as cited in AL-Badawi Hafez; 2013) said that Information and communication technologies (ICTs)goes right through the education system from early years to higher education and helps boost standards. Also, he added that ICT can make a real difference to teaching and can engage and excite students of all ages, particularly when education system evolves in the next few years, the role of ICT will become increasingly important.

Numerousproposals had been launched in Lebanon, the first proposal was heldby the British Council in 2005, which started coaching teachers from the private and public sectors on ICT skills to incorporate Word, Excel, PowerPoint and different web tools in their lesson plans. Other projects in Lebanon were joint ventures between the British Council and the Center for Educational Research and Development (CERD).The first project is ICT for teachers of English, Science and Math, and the second is Strategic Leadership in ICT (SLICT) for school directors (Abou Hamad Chahine, 2013). In the same element, the Lebanese University launched a project to teach public teachers (2009-2010 until 2012), in the Faculty of Education in Lebanon computer skills in a technology course. Both the Lebanese University and other private universities, are challenged by graduating prospective teachers'proficient of using the full potential of educational technologies pedagogical affordances in their future teaching of specific academic subjects.

In fact, Albion (2001), Wang, Ertmer, & Newby (2004) reported thatfew studies have been conducted that investigate the nature of self-efficacy in teaching with technology and little research that has attempted to identify the relationship between attitudes towards computer technology, teacher preparation, and the perceived ability of a teacher to effectively integrate technology into their teaching practice. Also, Albion (2001) mentioned that slight research has been attempted to distinguish the affiliationamongst attitudes regarding technology, teacher preparation, and the professedcapability of a teacher to essentiallyassimilate technology into their teaching practice.

The importance of this pilot study is revolved around adding its outcomes to the literature .Moreover, information about the usefulness of technology as viewed by the science teachersand their eagerness for technology integration might enhancethe pre-service teachers to progress their keenness for technology integration. In addition, this pilot research might be a proposal for ICT use in the Lebanese schools, as long as the request and the application of the Activeinspire program in the teaching and learning process needs time to be expanded in most Lebanese school (Kibbe, 2012).

3. Definitions of Terms

3.1 ActiveInspire: is the software used in this study with the Promethean ActivBoard. ActivInspire provides teachers with the tools needed to create flipcharts (a flipchart as being an interactive powerpoint) and interact with other digital resources.Also,ActivInspire comes with hundreds of free resources to enhance teachers' presentations (Promethean,2013).

3.2 Self- efficacy: Bandura (1997) describes perceived self-efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments.” As this applies to the integration of technology into education, self-efficacy beliefs toward technology integration have been theorized to be a determining factor in how well a teacher is able to effectively use

technology to improve teaching and learning (Albion, 2001; Enochs, Riggs, & Ellis, 1993; Kellenberger, 1996; Wang, Ertmer, & Newby, 2004a).

3.3 The terms ICTs (Information and Communication Technologies), educational technology, and the broader term technology are interchangeably used along this study we can simply define as “any technology through which we get information is called information technology” (khan,2013) Technology in the broadest sense is the application of modern communications and computing technologies to the creation, management and use of knowledge. According to Khan (2013), it refers to equipment such as computers, data storage devices, networks and also communication devices.

4. Methodology

4.1. Description of the Sample

In the study, there were 72 students, 60 science teachers (French and English sections), and 12 mixed majors registered in teacher preparation programs (2010-2012) at the Lebanese University, Faculty of Education, Deanery. Of these participants, 18.33% were male teachers and 81.67% were females. All of the participants were in their second semester year of a teacher preparation program. The mean age of the participants was 30 years old. The goal of this course is to help prepare students to integrate education design and technology into their classroom teaching and curriculum.

4.2. Survey Instruments

The study used statistics composed via a survey instrument originated from an existing survey instrument, the Computer Technology Integration Survey (CTIS) instrument (Wang et al., 2004a). The (CTIS) aimed to determine participant's confidence level with integrating technology into classroom teaching (Wang et al., 2004). It includes twenty-one statements using a five-point Likert scale ranging from 1, SD (Strongly Disagree) to 5, SA (Strongly Agree). All twenty-one items were positively and consistently worded with the initial stem of —I feel confident that...I....

For purposes of quantifying survey results, each of the 21 survey items had five choices using a Likert scale, which were assigned point values ranging from 1 to 5. The following point values were assigned to each descriptor:

1=strongly disagree; 2=disagree; 3=neutral; 4=agree; 5=strongly agree. Participants' survey results were quantified into three categories using the aforementioned assigned point values: low-to-medium technology self-efficacy, with a point range of 22—72, medium-to-high technology self-efficacy, with a point range of 73—89, and very high technology self-efficacy with a point range of 90—105.

This survey was stated in a study “Factory Influencing Teachers' Technology Self-efficacy: A Case Study” (Farah, 2011). The author for both content and validity reviewed this survey. The content validity of this survey was found to be convincing after a panel of experts in the area of self-efficacy reviewed the survey items. The evidence of construct validity is mainly empirical in nature. A factor analysis was conducted on the survey data gathered in the similar study and the researchers found the survey to be a valid instrument for measuring the constructs.

Another instrument is a questionnaire used to measure the attitudes toward technology formulated by the coordinator of the technology course (assembled of seven open ended and seven closed ended questions).

These two questionnaires have been used to evaluate the anticipated approach and effectiveness of computer technologies. After data collection percentages were calculated related to willingness to use computer technology in teaching and learning, and perceived usefulness of computer technology.

In addition, the Robert Reasoner's Teachers Self-Evaluation Scale, RRTSES, was administered at the end of the training course to collect teachers self-rated evaluation reports, as Reasoner (1983) called Teachers' self-esteem scale, on five elements: feeling of security, feeling of belonging, feeling of identity, feeling of goal, and feeling of self-actualization. Teachers rated themselves based on 4 Likert scale (Agree, 1=Always, 2=Usually, 3=Sometimes, 4=Rarely), the calculated total grade on each self-esteem element will be classified into 5 categories: I Need help (less than 22), Accepted score (22-26), Good (27-31), Excellent scores (32-36), Brilliant (37-40).

Moreover, final grades on computer Activeinspire projects were also obtained after the summer vacation to measure teachers' computer skills and performance (Reasoner, 1983).

4.3 Procedure

Current research seeks to understand the relationship between teachers' self – efficacy towards computer integration, their attitude toward ICT and performance on computer grades. Survey methodology is facilitated through the use of the questionnaire technique, which was employed in this research.

This study focused on two measurements before and after completing a course on the integration of technology into teaching practices at the Lebanese University, Faculty of Education- Deanery. The surveys mentioned above used for the pre- and post-tests measured attitudes towards computer technology and perceived self-efficacy beliefs toward integrating technology into teaching. Also, teachers' self –rating skills, and computer grades were collected at the end of the course. Prior to data collection, approval was received from the Dean of the Faculty of Education, the head of the department of Education Technology, and participants for data collection involving human subjects.

Four qualified trainers holding masters and doctoral degree in information technology taught 72 public teachers (60 science teachers and 12 mixed major) computer skills and train them on Activeinspire program using the SMART interactive white board. The participants, Public teachers, were enrolled in the Lebanese University to earn an educational certificate in the academic year 2012. The course started in February 2012 and ended in July 2012. Participants were taught how to integrate word, excel, PowerPoint and web tools in their lesson plans after which they handed in lesson plans and projects using Activeinspire activities. The objective of this course is to help arrange students to combine education design and technology into their classroom teaching and curriculum (Kibbe, 2012). Furthermore, importance was placed on the usage of activities templates, presentation tools by means of an interactive white board. Also, goals involved designing a good flipchart, creating and editing profiles, importing from other applications, importing and exporting resources. Therefore, the participants, the public teachers, will be able to present the Activeinspire project at the end of the course and directly after the summer vacation. Pre- test regarding the teachers' attitudes and self-efficacy towards computer integration using the attitude questionnaire (7 opened and 7 closed questions) and the Computer Technology Integration Survey (CTIS) was collected in February –March 2012. Post –tests were administered in September 2012, after the Participants sat for their computer final exam, they were given a break in order to feel relaxed while answering the 2 surveys questions. It is worth noting that the assigned Activeinspire projects were a major component of computer grades, and were assessed and evaluated by the same 4 trainers under the supervision of course coordinator. As a follow up on the training and for evaluation purposes of teachers' performance, the coordinator and Head of Education Technology department (HOD) conducted classrooms examination during and at the end of the computer course to compare teachers' grades which were the basis of granting the education certificate. In September 2012, teachers filled in the post- attitude questionnaire (7 opened and 7 closed questions), and the Computer Technology Integration Survey (CTIS), as well as the Robert Reasoners' teachers' self -rating scale in order to evaluate their self –efficacy towards computer integration skills in their lesson, attitudes and self –rating after their final exam. In fact, Participants integrated the Activeinspire program in their projects and they demonstrated the computer skills in

their final exams in order to earn the education certificate. Hence, computer skills and Activeinspire project grades were collected in October 2012. Data were analyzed using SPSS version 13 to analyze teachers' self-efficacy score (CTIS) and version 17 software to analyze RRTSES using Pearson correlation values, means, and standard deviations.

5. Theoretical approach: Self-efficacy theory

Introduced in the early 1970s, Bandura's theory of self-efficacy is a key concept in social cognitive theory. Chao (2003) stated that the theory triangulates the relationship between the individual's personality, behavior and environment. Self-efficacy can be best described as the individual's decisions of their aptitudes to perform specific and trained courses of behavior(s), or to finish specified tasks (Bandura, 1997). Also, Cassady (2000) mentioned that self-efficacy indicates as to whether tools and aptitudes are essential to achieve certain tasks. Existing theoretical tactics to the addition of technology recognize that learners' computer understanding, skills, and proficiency do impact on their observed self-efficacy. In turn, Jungert and Rosander (2010) claimed that rising self-efficacy is demanded to improve learners' academic presentation and the institutional environment. As a means of seeking a local catalyst for effective change, there appears wisdom in seeking new knowledge related to these key issues. That is, teacher beliefs and habits as well as their levels of confidence and related competence using the new technologies in schools. The research discoveries testified below support accompanying understandings (Jungert and Rosander, 2010).

6. The research questions

The following research questions were probed:

- 1- How do teachers perceive their self-efficacy as measured by The Computer Technology Integration Survey (CTIS) in regard to the integration of ICTs into their current training and prospective pedagogical teaching approaches?
- 2- Are the perceived teachers' self-evaluation subscales such as feeling of self-actualization and feeling of goal as measured by Robert Reasoner Teacher Self Rating Scale is associated with their results on Activeinspire computer program?
- 3- How do teachers change attitude with technology integration, and how has their usefulness of technology with respect to science classroom changed over the course of instruction?
- 4- What tools did teachers prefer to use to effectively institute technology into their science classrooms?
- 5- After learning about the various methods of integrating technology into the science curriculum, was there positive momentum toward incorporating technology into their final projects or still favoritism toward using a more classical teaching approach?
- 6- What is the effect of Activeinspire training on teachers' post self-efficacy (CTIS) measurement, technology integration and computer performance?
- 7- What is the level of self-actualization and goal subscales of teachers as measured by RRTSES?

7. Results

7.1. Overview

The mean evaluations of all of the elements, showed in Table 1, indicates a change from the start of the course as compared to the end of the course. Assessments in perceived rankings of teachers' self-efficacy with technology assimilation were higher at the end of the course. To assess variations within

each group, Table 2 uncovers contrasts of change in self-efficacy beliefs concerning technology integration were completed using a paired-samples t-test for each group. The pre-test and post-test rankings of perceived self-efficacy evaluations were compared in order to recognize any noteworthy fluctuations in these ratings over the course of the semester within each group. The investigation suggested that noteworthy alterations in self-efficacy ratings happened in all groups. Significant modifications in computer technology integration occurred in both of the Physics and mixed majors classes, but no major deviations were distinguished in either of the Chemistry nor Biology classes.

Table 1. Mean ratings of self-efficacy toward technology integration

Group	Pre-Test		Post-Test	
	Mean	St. Dev	Mean	St. Dev
1. Physics	2.22	12.52	89.61	12.52
2. Biology	2.93	11.30	83.70	11.30
3. Chemistry	2.81	9.20	88.71	9.20
4. Mixed Major	2.57	10.64	86.45	10.64

7.2. Evaluating Changes within each group

The contrast of alteration in self-efficacy views towards technology assimilation were made using a paired-samples t-test for each group. The pre-test and post-test ratings of perceived self-efficacy ratings were compared in order to identify any significant changes in these ratings over the course of the semester within each group. The analysis in Table 2 indicated that significant changes in self-efficacy ratings occurred in all groups. Significant changes in computer technology integration occurred in both of the Physics and mixed majors classes, but no significant changes were detected in either of the Chemistry nor Biology classes.

Table 2. Changes by group self-efficacy ratings

Mean Difference (pre vs. post)	
Group	Self-efficacy
1. Physics	15.91*
2. Biology	7.47*
3. Chemistry	8.61*
4. Mixed Majors	13.42*

* indicates significant difference ($p < .05$)

7.2. Relationship between RRTSE and CTIS

Examination of the relationship between RRTSES mean and CTIS mean scores revealed a high value of Pearson's correlation $r = 0.99$. Table 3 shows a linear relationship indicating that the teachers' self-rating reports on Reasoner's five elements are highly correlated with teachers' self-efficacy value on CTIS.

Table 3. Pearson's Correlations

Mean Self-efficacy	Mean RRTSES
37.04	2.93
37.4	2.64
36.37	2.22

37.37	2.57
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r = 0.99

7.3. Pre/Post attitude Surveys

Pretest results related to the attitude towards technological skills and computer revealed that 18.33 % of teachers attended a class using Interactive Whiteboard as compared to 66.66 who did not. Also, 80% like to see how Interactive Whiteboard works since 46.66% have partial awareness about ICT. Thus, 83.33% like to use technology in the teaching as compared to 16.66% only

In examining the original pre-survey questions for this action research analysis, we exposed that 46.66% of teachers had inadequate experience of technology in concerns to science education, i.e., they concentrated predominantly on cell phones, computers, and calculators. However, 80% like to know about the communicating board that can be incorporated into science since 18.33 attended a class using an interactive white board.

The post survey discovered an intense, yet positive, change in teachers' helpfulness of technology, including, for example, SMART boards, cameras, and videos. Moreover, there was confident change in mindsets and 80% of teachers stated that they like the use of the White Board because it facilitates teaching.

The assimilation of diverse technological tools (78%), the use of Smart board, and iPad model applications ("apps") as well as other simulations from websites in students' post science plans proved a transformation in their perception in regards to technology assimilation as mirrored by their good computer averages.

The analysis of teachers' opinion regarding their final Activeinspire projects and activities clearly showed that they enjoyed those activities that integrated technology and technological tools. They stated that the technology lessons were more organized, updated, creative, enjoyable, and engaging. Thus, 80.0 % emphasized that Lebanese schools should be supplied with these interactive boards in all levels in order to increase teacher-student interaction as well as students' academic performance and classroom organization.

Accordingly, the evaluation of post attitude survey related to Activeinspire final projects revealed that 80% of teachers' beliefs regarding technology integration could influence their use of technology. In fact, post test revealed that 78% of teachers will use various technological tools such as the use of Smart board, and iPad simulation applications ("apps") as well as other simulations from websites. Also findings showed that the teachers' lesson plans incorporated the use of Activeinspire program and other technology tools which demonstrated a change in their perception regarding technology integration. Consequently, they had acquired the learned computer skills as reflected by their good computer averages.

7.4. Final Computer Projects

The evaluation of teachers' final Activeinspire projects in Table 5 revealed that 82.7% received good scores and Table 4 revealed that 33.3% of teachers received good computer grades, which means that most of the teachers had acquired the computer skills as they integrated technology in their lesson plans.

Table 4. Computer average scores

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Need help	3	4.2	4.2	4.2
Accepted	11	15.3	15.3	19.4
Good	27	37.5	37.5	56.9
Excellent	24	33.3	33.3	90.3
Brilliant	7	9.7	9.7	100.0
Total	72	100.0	100.0	

Table 5. Activeinspire Average

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Fair	10	9.6	9.6	9.6
good	54	82.7	82.7	92.3
very good	8	7.7	7.7	100.0
Total	72	100.0	100.0	

7.5. The RRTSES results:

The purposefulness of this study was to conclude if teaching computer skills and the application of Activeinspire computer program) had an effect on the depended variables (teachers' computer self-efficacy, attitudes and computer grades and Activeinspire project scores). The data from this research reveals that participants, after computer teaching and Activeinspire training, were able to be affirmative about applying technology. This was obvious by their post surveys, self-report, and post science computer final projects presenting a confident attitude toward technology integration. The findings recommend that familiarity and viewpoints can inspire teachers' use of technology in the classroom, especially as proven by their final projects grades. A positivity for using technology established along with understanding and proficiency, leading to an added self-efficacy in technology integration (Cullen & Green, 2011). This recommendation overlaps with the Person's correlation $r=0.99$ suggesting that teachers have high self-efficacy scores to meet the various technology use in science classrooms in order to boost student learning. Endorsing science learning with technology would yield the greatest importance in educational involvement for students. The research examined helps us grasp the mentality of teachers with concerns to technology integration. It offers an opening for teachers to discover and expand technological content information and improvements, which escalates their self-confidence with technology use in a science classroom.

Furthermore, it offers the opportunity to modify their insight about technology integration through the science methods course. Nevertheless, research is constantly an ascending climb, as we must still

conclude to what degree teachers truly realize technology-enhanced lessons in their classrooms once they have finished their teacher education programs.

8. Discussion and Conclusion

A crucial discovery of this study is that the RRSES subscales reported by teachers was an element in their computer self-efficacy status. Specifically, it was established from a relationship between teachers' RRSES subscale scores using the Pearson correlation. The most important correlation was revealed between the sense of actualization and the sense of goal with 0.484 correlation is significant at 0.01 level, and another good correlation is shown between the sense of goal and the sense of belonging with 0.54 correlations significant at 0.05 level. Consequently, when teachers planned their lessons their goals were to integrate technology appropriately as they become competent with computer skills (Saad, 2013).

This finding proposes that there is a demand in teacher preparatory institutions to familiarize some form of computer-usage, encouraging courses that would specifically assist the science preservice teachers. Such targeted courses would empower these students will help in catching up with their science concepts, increase their computer self-efficacy and abilities which might enhanced the efficient assimilation of computer technology into their lessons, when they start teaching .

Moreover, the outcomes recommend that science teacher should be encouraged to register in an advanced computer training course. This would boost computer usage in this vital area that operates as the establishment years for young students. Further, there is a much higher necessity in teacher preparatory institutions to present some form of computer-usage uplifting courses across all levels in all areas and to follow –up teachers in classrooms to help in computer usage after technology training.

9. Limitations

A simultaneous qualitative and quantitative data would enhance potential research on computer self-efficacy for preservice teachers (Creswell, 2003; Tashakkori and Teddlie; 2003; 1998). More specifically, follow-up interviews with in -service teachers would contribute in acquiring more thorough data on the qualitative portion of a study of this subject. Potential research needs to inspect pre and post computer self-efficacy viewpoints of preservice teachers' education programs thereby further investigating a production that the current study probed at in the preservice program. Also, additional research can contain teachers' follow-up in their classes in order to give reaction about their performance. Finally, more research into the instructional design, improvement and delivery of important and appealing educational technology learning practices for pre-service teachers to advance their computer skills, their self-efficacy, and their teaching practices with technology is desired (Roblyer, 2003; Parker, 1993).

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