

## The effect of computer integration in teaching on the learning process among students

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### Abstract.

The computer is a tool that provides teaching and learning options that did not exist in the past, and it does so because of a number of features it possesses: dynamic storage of information in large quantities, its presentation through audiovisual means, interactivity and communication with databases with many people at the same time, and expression and presentation. The computer is designed to solve the problems resulting from the constant growth in the number of learners and the considerable expansion in the quantity and scope of universal knowledge, which requires the learner to have the skills to function in a world of information and technology. These are the skills of independent learning, the handling of databases, the use of electronic communication, and more. Computer applications at the school help to promote the intellectual ability of the learner, improve the ways of imparting knowledge to the individual in the heterogeneous class, renewing the teaching process and renewing the school's transformation into an active and autonomous institution.

**Keywords:** Computer Integration, Teaching, Learning Process

### Introduction

In recent years, many studies have been done to show the positive effects and the importance of using computers in classrooms as an integral part of teaching. It is clear that the technology and computers have revolutionized almost every aspect of humans' lives. Technology has changed the way we communicate, entertain, manage and create information, and since education mainly revolves around communication and information, it is natural that technology is going to affect education nowadays. As a teacher, this connection got me thinking about what would happen if we integrate technology and computers intensively into the learning process, and how would it affect the students' learning?

My modest research is divided into four sections. In the first section, you will be presented with the main question and sub-questions of the research. In addition to the goals and importance of the study case. In the second section, you will be presented with the theoretical frame of the study, where I am going to focus on the role of the computer in teaching and in learning. I am going to present theoretical backgrounds that support the notion of using technologies in classrooms, such as: the importance of the computer in the teaching process, how can teachers use computers as a helpful tool for teaching, the positives and negatives of using computers in classrooms, and finally, tips for teachers on how to use and integrate technology into their classrooms. In the third section, the pragmatic frame of the research will be stated. You will find: the study approach, the study society, the study sample, and the study tools. Last but not least, in the fourth section, you will be introduced with the results and the recommendations of the study.

**Research Question:** How does computer integration in teaching impacts students' learning.

#### The Purpose of the Research:

-To highlight the importance of integrating computers and technology during the educational process, and how much it can help the students and even teachers to reach to a more efficient stage of learning.

-Presenting teachers' opinions on computer usage during the teaching process.

-Proving that using computers during class makes teaching and learning much more interesting and fun.

**The Importance of the Research.** -This research could open eyes for the Ministry of Education on what actually happens in schools as a result for using or not using computers in the process of teaching.

-This research could help the teachers, who are interested in using computers or teachers that are already using them, to understand the ways of how a computer should be used best and to provide them with helpful tips.

### Review of the Literature

**The History of Computers in Education.** Since the early 1970s, computers had been inserted into classrooms with so much enthusiasm. However, the question was how to integrate those computers and how to put them into use as tool that can enhance and help the learning and teaching process. School were so much excited to insert computers in classrooms, however, they forgot the side effects it would have on the younger generation, the students. Moreover, no specific rules or curriculum were accompanied with the use of computers in schools, which made it less efficient compared to nowadays. Computers continued to develop in education till 2005. Ministries of education were still studying the effects of internet and computers in classrooms. Until in 2011, computers had become an integral part of the educational process; whether in elementary, junior high, high schools, or even colleges and universities, computers were part of the student's world (Wallace, 2004).

**The Importance of Computers.** Due to the progress of computers and their rapid development, they had interred almost every field of work; from universities, to businesses, to hospitals...etc. They have become an electronic device that all people of all ages are using either for fun, communication, businesses and education. This wide spread is due to several reasons: Computers are devices that work fast and easy with the ability to store and process a huge amount of information and programs. Their aim is to improve the effectivity and efficiency of our work (Wallace, 2004). Moreover, computers can work for long periods of time without fatigue and without being affected with the external environment. Despite this widespread of computers, a question is asked "what roles should computers play in the teaching and learning processes?" and the answer is, there are many. First of all, the use of computers in teaching and learning processes improves future employment opportunities by preparing students for a world centered on advanced technology. Secondly, the use of computers in the teaching and learning processes allows students to be familiar with the processing of information and also to measure and prepare them. One of the possibilities and limits of the computer to live in an environment of a technological nature is an open environment, open locally and globally. Finally, the use of the computer will improve the quality of teaching and learning and learn about the latest developments in science in all fields (E. C., 2012).

**Strategies for Using Computers in Teaching.** Computers provide a wide range of different uses of different levels in the process of education. Here I am going to present some of the strategies I found most important and inevitable for teachers to learn:

**Learning about computers.** The focus of this approach is on teaching the skills of programming and computer processes, including what is known as computer literacy programs. In addition, it focuses on the learning of using many software programs like Word, PowerPoint, and Excel... etc.

**Computer assisted learning.** The computer can take the role of a student's partner or the teacher himself. It can also provide direct individual or group lessons for students. In addition, the computer can provide many programs that can resemble real life situation without having to worry about the dangers of effects. For example: you can show the students a video about road accidents to teach them safety, without having to worry about taking them into the real life field which is dangerous. Educational games are another example for computer assisted learning. The goal of educational games is to create an atmosphere that encourages and excites the child to learn, as well as they contribute to teaching students some positive trends and desirable values such as patience, strength of observation, argument and logic, linking results with their causes and issuing sentences, and the most important characteristic is that it stimulates the learner's motivation and that it is suitable for all different educational stages also provide information more purposefully and more effectively.

**Computer assisted instruction.** The computer is here as the source of information, or as the laboratory role of the learner's ability. It is used to teach the learner or to provide additional training related to a particular skill using the following techniques:

**Practice:** training is the exercises provided by the teacher after explaining the subject theoretically in the classroom, a series of exercises in order to increase the student's skill in solving mathematical and basic processes of collection, subtraction and multiplication Division and others. The program then promotes this response so that it learns if it is correct and gives another opportunity if the response is wrong to correct the error.

**Private tutoring or education:** In this type of technique, the study material is presented in the form of frames or so-called. It has screens to be studied by the learner and then questions that are followed by answers. Some activities involve returning to frameworks for learning and returning to questions and activities whenever the answers are invalid. This is one difference for training and practicing in the traditional way, where there is no presentation of an educational subject, but a question and answer (Bordbar, F., 2010).

**Computer managed instruction.** Computers can be used in the educational organization for the coordination of students, the development of school schedules, the recording and follow-up of students, library systems, the use of personnel, and the use of computers as research tools for the school. Moreover, educational use of computers could also be in the process of classroom management: such as the registration of learners on the computer, the placement of students studying in the class.

### **Instructions for teachers when using computer education**

The tutorial is a series of several points that have been carefully designed to lead the students to master one of the topics in the least time with the least amount of mistakes. First, clarifying the educational objectives to be achieved by the program for each student. Second, tell the students about the amount of time available for computer learning. Then, Focus on providing students with the most important concepts or experiences that are needed and collected during education. After that, explain the steps or responsibilities that the student must follow to accomplish that program. Then, guide students to know how to assess their achievement of the required types of computer education. Next, determine the activity that will be done by the students after the end of learning the program. And finally, each student will receive the appropriate version of the program will be used and provided on his device (Inan, F. A., Lowther, D. L., Ross, S., Strahl, J. D., 2010).

### **Methodology**

**The research approach.** Mainly, the research will be qualitative. Which is going to be based on interviews with teachers in the field of teaching.

**The research society.** The research was done in elementary, junior-high and high schools in Arab districts from the north and the south of Israel.

**The research sample.** 12 Teachers in schools were interviewed.

**The research tools.** interviews

#### **Interview one:**

1) "I think that computers play an important role in the life of students nowadays. There is no house without at least of computer in it. Students use computers and technology daily in their life, and because of that, I think that integrating computers in the teaching and learning process should be a must. Kids nowadays are more attached to technology and devices rather than books and papers, so we can present them with the material they have to learn on these devices."

2) "Yes, I have used the computer so many time in most of my lessons. I usually use it to demonstrate pictures or videos in order to awaken the sense of creativity in students. Sometimes to explain a subject that seems way too far for most students to imagine, but with the use of computers, you can absolutely create proximity between the taught material and the students."

3) "I have taught lessons without computers and lessons with computers, and I could clearly see the difference between the lessons. In regular lessons, the students don't seem to be as motivated and excited as in computer integrated lessons. They don't participate as much and they are not as discipline (probably because they feel bored). I notice that even the less advanced students are motivated to participate in computer integrated lessons."

4) "Yes, I have noticed improvements in my lessons. The amount of material I can pass to students in a computer integrated lesson is much more the material I can pass in regular lessons. Probably because the computer can cut the time of writing on the board or drawing to illustrate an idea to the students. Moreover, the students seem to like the lesson more when I use the computer, therefore, their grades become higher."

5) "Although I know that it going to be more work to me, yes, I do consider using the computer in my lessons. The first time is absolutely going to be hard for the teacher to teach most of his lesson on computers since it's going to consume his so much time and work to get all the required materials on computers, but the years to come are going to be so much easier since you already have everything there."

#### **Interview two:**

1) "I think it is very important to integrate computers into the classrooms, especially here in the Negev. Students seem to be a little far away from technology and computers which will affect their futures when they eventually go to study in universities or colleges."

2) "Yes, I have used computers in teaching some of my lessons and I gave the students to do projects on computers to present it in the class. However, it was very difficult for them do projects (even simple ones) because they are not quite familiar with the use of computers."

3) "The difference is very clear. The students seem to be more interested in lessons with computers than regular lessons. They always want to participate and are excited to practice and do questions during the lesson. Unlike in regular lessons where I have to deal with behavioral problems and the students seem sleepy."

4) "Yes, I could say I noticed so improvements on my students' achievements. But really, they were not that drastic since I can't use the computers in all of my lessons or work on different programs with them. But other than that, using computers does give improvements, no doubt."

5) "I would really love to consider the use of computers in a consistent phase, but I know there is going to be a problem for students to cope with it. Why? Not all students here have computers in their homes, and they are not given computer classes to teach them how to use different software, so if you want to give a student a project to prepare with the help of computers, it is going to be a very hard, probably impossible, mission."

**Interview three:**

1) "I think it is fun to integrate computers into the classrooms, but I don't believe there is a need for it. It only consumes more time and effort and the students' results are probably going to stay the same."

2) "I have used the computer a few times in my teaching career to illustrate to the students the (human's body) and the different organs in it, and that was it."

3) "The lessons are absolutely more interesting to the students when you use computers and technology and you can really make sure that they get the material. But also, you can do the same thing without the help of computers. The only disadvantage would be a less interesting lesson."

4) "I can't tell you if I notice any improvements on students since I don't really use the computer, but I can imagine that there would be better results if I integrated the computer in my lessons."

5) "No, I wouldn't. I find very difficult for me to use the computer. I am not really that familiar with technology. Adding to this, the fact that our students (In the Negev) are not well taught on how to use computers and technology for their education. So both sides are not helping, unfortunately."

**Interview four:**

1) "In my opinion, integrating computers in classrooms is very interesting, and of course, without any doubts, it has so many advantages on the process of teaching and learning. I also think that it lifts the education in schools to higher level."

2) "Yes, I always use computerized lesson. I always have my computer with me. I use it to present the material to the students in an interesting way, I use images, sounds, and videos to stimulate students and to get them more interested in my lessons. And for sure, if I had access to the computers room in the school, I never miss the chance to take the students there."

3) "The Difference is huge, at least that's how I see it. My students seem to anticipate my lessons because they know that a computer is going to be used and they feel excited about it since its way different from the traditional teaching style. They all enjoy the lessons and are happy to work with their classmates since I divide the class into pairs to work on computers."

4) "Yes, their grades are absolutely improving. You can especially see the improvement on the less advanced students. They become more motivated to work since you give them exercises that suit their educational level."

5) "Yes, I would for sure. I think that the use of computers develop so many abilities for the students not only allowing them to get the material more efficiently. However, I do think that teachers should be trained on the use of computers in classrooms. Because if we integrate computers in the variety of lessons the students take, we would absolutely see higher grades and achievements in all the school's subjects."

**Interview five:**

1) "It is very important and necessary to integrate computers in teaching. Especially for younger grades in elementary schools the kids need so many visual aids to be attracted to the subjects and the computers is one of these aids and the most important."

2) "Most of the time I use the computer in my classes. I can show the students the animals they learn about, where they live, how they communicate. And because I teach in an elementary school, I think it is very important to show younger students pictures and to get them involved in technology."

3) "The difference is so huge. The students are more attached to the subject, they do not misbehave as much, and they like to participate more."

4) "The students are more likely to answer questions correctly when the subject is taught with the integration of the computer. They also seem to remember the material better since they connect it with the pictures of the videos they saw."

5) "Definitely I would. It makes easier for me to pass material to the student and I don't have to make a lot of effort in explaining some notes since the computer can do all the work for me."

**Interview six:**

1) "It is important to make the computers available for the students in the teaching and learning process. A computer should not be used only by the teacher to illustrate material and to make them easier, but

also should be used by the students to give them the chance to discover more solutions and to reach conclusions by themselves."

2) "Sure, I often take my students to the computers room. I usually start by explaining the subject of the lesson, then divide the class into small groups, and ask each group to search and explore about a certain subject. At the end, the students are asked to present their discoveries in front of the class."

3) "There is a noticeable difference for sure. The students seem to take more responsibility towards the lessons and the assignments they were given."

4) "Obviously there are improvements. When I give my students the chance to explore a certain subject by themselves, the materials and information seem to get stuck in their heads, and they seem to feel more attached to the subject of the lesson."

5) "I would like to have all my lessons computerized, but it seems too impossible for now. I don't think the school can afford to offer more computers for students since they cost a lot. But you can always find a way to integrate the computer into your lessons."

**Interview seven:**

1) "I do support the idea of integrating computers into the classrooms. However, I think it going to be very challenging to most teachers to deal with it. And not all students can master the use of computers very well."

2) "No, I have never used computers while teaching, but I have observed lessons where teachers used the computers and integrated them into their lessons for the purpose of final projects."

3) "There is a touchable difference. The atmosphere in the class changes a lot from traditional classes. The teachers seem to do the least amount of effort unlike the students who have to do the most effort, which is something good."

4) "According to the scanning exams of the students, there seems to be improvements in the students' results when computers are used. They also seem to become more responsible towards their role as students."

5) "Yes, I would consider more integration of computers into education. However, I do recommend that teachers take special courses to learn how to efficiently use the computers in the right ways."

**Interview eight:**

1) "In my opinion, I find the use of computers in classrooms so much fun, for me and for my students. It is true that a computerized lesson takes a lot of preparation and work from the side of the teacher, but when you get to teach the lesson it makes it so much easier for you and more challenging in a good way for your students."

2) "Sure, I do use the computer and I give the students computerized assignments and exams to do. I also use programs like Kahoot to challenge the students and to make them excited when practicing a certain subject."

3) "A computerized lesson is much more exciting for the students and they also take it more seriously. They feel more independent and they are more motivated during the lesson. They participate, they answer questions, they ask for help...etc."

4) "Sure there are improvements. When the students have an exciting learning experience they tend to memorize the materials easily and that reflects directly on their grades and their motivation to study and aim well in exams."

"I would diffidently consider the integration of computers into classes. It's going to raise the level of education in Arab school here in Israel and we could see better results in the Metzav exams. But you will need more professional teachers who are willing to use computers in their classes and to give most of their times to prepare computerized lessons."

**Interview nine:**

1) "Computers are devices that must be used in today's education. As you know, our students are so open to the world of internet and computers that they may know to use it better than you and me. That's why, teaching them with only books and board is not enough. We have to make the teaching style more interesting to them and suitable for their style of living."

2) "Yes, I have used computers with so many different programs and techniques while teaching. I present presentations to pass knowledge to my students during class, I communicate with my students via email and ask them to send me homework on emails. I also give the students at the end of each semester a project to work on in the school and at home that is of course graded. Most of the work I ask my students do demands computer and technology even though I am a teacher of language."

3) "The difference is literally crystal clear. The students become more excited and motivated to learn. They take responsibility for their homework and their role as students. The less advanced students are given a chance to shine in the classrooms since you give them assignments with considering their educational level, so they start progressing with the rest of their classmates."

4) "Improvements are touchable from the very first minute. The students are better behaved, they participate enthusiastically especially those who face difficulties, and they feel more comfortable during computerized lessons since no one can see their answers or progress but the teacher."

5) "Sure, I would consider the use of computers consistently. If not the whole lesson is computerized at least part of it should be. I think it's very important to make each lesson computer- integrated since it lifts the level and quality of the lesson."

**Interview ten:**

1) "I am with the idea of integrating computers in education, but not for an extended level. I think that students should be given the chance to appreciate regular books and to use their handwriting quite often; because too much computer can have side effects on the students."

2) "I have used computers few times in teaching for illustrating materials and make my students more imaginative and creative. However, I never give my students assignments that are computerized since have to get used to writing on papers and to enhance their handwritings."

3) "No doubt that computerized lessons are much more fun for the students because it's something that they do not do every day. They are excited to participate actively in class and they seem to catch the subjects much faster. At the end a computer is considered as a visual aid."

4) "It depends on the way you use the computer inside the class. If you only use it to present pictures and boring materials, no, there will be no visible improvements. However, if you use it to give the students a chance to explore and discover points by themselves, then yes, you will see pretty visible improvements."

5) "No, as I said, I do believe that students should be given a chance to practice writing of papers and reading from books. But I do not deny the importance of computers and I do suggest that a computer should be used from time to time."

**Interview eleven:**

1) "Integrating computers into the lessons is a very important step in my opinion. Our world today depends on technology and computers. Moreover, computers and technology play a very important and large role in the students' daily life, so why shouldn't we integrate them into teaching? Of course we should."

2) "I have absolutely taught some computerized lessons, and I also did a few exams on Google Forms. I always present PowerPoint presentations that have organized and categorized materials in them to make it easier for the students."

3) "There is a difference for sure when you integrate a computer into teaching unlike when you don't. The quality of your lesson becomes better with computer, the material becomes clearer for the students as it is organized way better than in books."

4) "Yes, I have noticed improvements in the achievements of the students. When you give the students an assignment to do on the computer with the help of their peers, they seem to take more responsibility to do and to give the best they can in order to achieve the best results."

5) "Yes, I would gladly consider the integration of computers consistently into the classrooms and into education in general. But as you know, not all teachers are eligible to use the computer in the correct ways. I think if we give teachers more completion courses on how to integrate technology and computers into education that would be a great idea."

**Interview twelve:**

1) "In my opinion, integrating computers into classrooms is a smart way to teach students nowadays. Students are very attached to their computers and cellphones devices, and if we teachers want to be smart enough to get our students to be motivated and active in the teaching and learning process, we should consider integrating computers as tools to help us reach the students in a fun way."

2) "I have used computers in some of my lessons. I use them to help make some materials clearer and more convenient for students. I also use computers to do computerized quizzes."

3) "The difference is very obvious. The educational atmosphere in the class changes a lot in a good way, the students participate more actively, they are more interested in the lesson, and they behave better in class."

4) "Yes, I have noticed some improvements in the students' grades and results. Moreover, I gave the students the chance to work in pair and groups that combine students of different educational levels, and it paid off really good."

5) "Yes, I would recommend using the computer consistently into the learning and teaching process. I think all teachers should be integrating computers into their classrooms because it makes the educational atmosphere high quality."

### **Compatibility of the interview results with the theoretical material**

The major idea that I got from the answers to the interview questions is that most teachers in Southern and Northern districts are integrating computers into the classrooms. However, most teachers are only integrating computers just to illustrate materials and explain certain subjects to the students. The idea of having the students to work with computers to find materials, do projects, and present their works, it still limited. Most of the answers did support the notion of integrating computers into the classrooms, however, some teachers said that using the computer consistently adds more work on them. Some teachers, for example, find it difficult for them to cope with the use of computers, those were the older generation of teachers who do not really mingle a lot with technology and it seems that they prefer the traditional style of teaching since it is easier for them. Other answers showed that some teachers are willing to integrate technology more into their lessons, but the barrier standing in front of them is the students themselves. Those teacher were mostly from the South. They explained that most students there do not have access to computers at their homes, and the schools do not have a sufficient number of computers for students to work with. Another problem was, is that computer science is not taught seriously at schools. Students are not familiar with the use of the different software such as (Word, PowerPoint, Excel...etc.)

A lot of teachers supported the notion of integrating computers intensively into classrooms. However, they do not see enough support from the school itself or the Ministry of Education. And they added that teachers who are willing to use computers should be specialized and tutored before since not all of them are qualified to use computer efficiently.

### **Results and Recommendations**

As stated in the introduction to this work, the computer - as a tool - goes and fulfills many more functions and it is significant in our lives. Despite the momentum in which the computer was introduced into the educational system, there has been a certain delay in recent years regarding its assimilation methods.

The existing computer is not just a word processor that fulfills graphical works and other functions. Its main importance is the possibility of using it as a means of accessing databases of any kind, anywhere and at any time even inside the classrooms and lessons.

The rapid development of the electronic communication system, and the databases in any field, give the computer a different role in the school system. The education system, which wants to be a leading factor in society, must be relevant, connected to the reality in which it operates, and meaningful to its target audience and to the society at large and to progress as life goes by. Moreover, during this research, it came clear that the majority of teachers want and are willing to integrate computers into their teaching, however, the barriers that stand in their way are external barriers, such as not having efficient amount of computers for students and not having students ready to use computers. On the other hand, some teachers are not qualified to use computers and technology, or they find it difficult to cope with such teaching method because of the lack of exposure to technology. So, based on what came clear to me during this research, my recommendations would be:

- The educational system should seek effective ways of exploiting, integrating, and merging the computerized environments in the learning processes, and in creating new learning environments that help foster autonomous and independent learners.

- The educational system must train educators and teachers who can guide the learners in these environments, in ways that will advance them toward the realization of the educational vision, educators who will be able to use the means of computer assisted learning and make them relevant to their advancement and professional functioning .

- The teachers must ensure integration between the goals, subjects and target audiences and the possibilities that the computer environment offers. This will allow the teacher to enhance the learning process and provide a broad platform for learning researches and projects, an active learning process, access to information sources, adaptation of learning activities to individual differences in learning styles, abilities, needs, interest and prior knowledge of learners.

- New methods of learner assessment and methods derived from the nature of tasks and interaction with others should be incorporated. Creating opportunities to encourage self-esteem of learners, creating an environment that combines constructive process assessment, while encouraging students to think critically.

- The integration of the computerized environments will be based on the subjects studied in the classroom, while opening the class to additional stimuli for those existing in it, extending to a variety of sources of information, to large communities, to information processing and presentation programs.

- Students should be trained to use the information retrieval needs to find different software for processing and presenting information that will fit into their learning style and expose them to different forms of interactive communication.

- The educational system must acquire, develop, and make computer available to the teachers and learners that will be available in every classroom and in any other place in the school where learning takes place, computers that will be connected to open and closed databases that will contribute to achieving the goal of "computer integrated lessons".

- Finally, the educational system must draw attention to the students' need for taking computer science classes in order for them to know and to handle the use of computers in general. From access to information, using the internet, become familiar with different computer programs, etc.

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### Appendix

#### Interview questions:

- 1) What is your opinion about integrating computers and technology into the classrooms?
- 2) Have you used the computer in at least one of your lessons? What the purpose for using it?
- 3) How can you describe the difference between a computer integrated lesson and a traditional frontal lesson?
- 4) Have you noticed any improvements on students with computer integrated lessons? (Discipline, achievements, participations...etc.)
- 5) Would you consider using the computer consistently in the teaching process? Why or why not?