TECHNOLOGY INTEGRATION EFFECTS
ON TEACHERS' ACHIEVEMENT

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This article investigates the effects of technology integration on teachers' achievement. The previous literature in this regard was reviewed and a sample of teachers was chosen from 7-9 grade teachers. The sample consisted of 50 teachers males and females with different years of experience and different number of training courses. The questionnaire included paragraphs about the effect of technology integration on their achievement in school and in teaching. The results showed a great effect of technology integration on teachers' achievement. The results also showed no differences attributed to teacher's gender and that there were differences attributed to teacher's years of experience and number of training courses.

The article shows the aspects in which the achievement of teachers was influenced by technology integration.

Key words: ICT, Teacher's development, technology integration, teacher's achievement.

Acest articol investighează efectele integrării tehnologiei asupra realizării cadrelor didactice. Literatura de specialitate anterioară în acest sens a revizuit investigarea profesorilor, fiind selectați profesori cu grade ştiinţifice. Proba a constat din 50 de profesori bărbaţi şi femei cu vârste diferite, cu experienţă şi număr diferit de cursuri de formare. Chestionarul a inclus punctele cu privire la efectul de integrare a tehnologiei pe realizarea lor în şcoală şi în procesul de predare. Rezultatele au arătat un efect mare de integrare de tehnologie pe realizarea cadrelor didactice. Rezultatele au reflectat, de asemenea, că nu există diferenţe atribuite genului profesorului şi că au existat diferenţe atribuite anilor profesorilor de experienţă şi numărul de cursuri de formare. Articolul prezintă aspectele în care realizarea cadrelor didactice a fost influenţată de integrarea tehnologiei.

Cuvinte cheie: TIC, dezvoltare profesorului, integrare de tehnologie, realizarea profesorului.

Эта статья исследует последствия интеграционных технологий по достижению уровня преподавания. В литературе по данному исследованию рассматривались преподаватели, которые имеют научные степени. Выборка состояла из 50 учителей мужчин и женщин разных возрастов, с опытом и разным количеством курсов повышения квалификации. Анкета включала вопросы о влиянии интеграционных технологий по их реализации в школе и в процессе обучения. Результаты показали большое влияние интеграционных технологий на повышение уровня преподавания педагогических кадров. Результаты также отразили, что не влияют гендерные различия преподавателей, а влияют опыт преподавателей и число курсов повышения квалификации. В статье рассматриваются аспекты повышения педагогическими кадрами уровня преподавания под влиянием интеграционных технологий.

Ключевые слова: ИКТ, развитие учителя, интеграционные технологии, достижения учителя.

Introduction. In recent times schools require teachers to obtain a range of effective teaching strategies to meet the needs of their students. Teachers strategies consist of the different teaching approaches and strategies he or she uses to facilitate effective learning by students. Effective teaching requires deep thought about what the teacher is doing and the effects of his or her accomplishments on student social and academic learning. Using a teaching strategy that has a solid theoretical foundation will make the computer a more effective teaching tool (Arends, 2001).

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The three aspects of knowledge as technological, pedagogical, and content knowledge, and the need for teachers to integrate subject-matter knowledge with both technological and pedagogical proficiency are needed for a successful teaching career. Effective teaching is not based on who a teacher is, but on what a teacher does in terms of preparation and applying plans into the teaching-learning environment (Mishra and Koehler, 2006).

Technology integration into the classroom has a major role in creating rich learning and teaching environments. It is clear that the success of the effective use of technology in classrooms highly depends on teachers who are responsible for integrating technology and mentoring using it successfully.

The 2008 National Educational Technology Standards (NETS) for teachers are:

1.   Simplify and Motivate Student Learning and Creativity – Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.

2.   Plan and Develop Digital-Age Learning Experiences and Assessments – Teachers design, develop, and evaluate authentic learning experiences and assessments incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S.

3.   Model Digital-Age Work and Learning – Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.

4.   Stimulate and Model Digital Citizenship and Responsibility – Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices.

5.   Engage in Professional Growth and Leadership – Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. (https ://sites .google .com /a/capeelizabethschools. org/techplan/home/strategies).

1.1 Purpose

The purposes of this article are:

The purpose of this article is to investigate the effect of technology integration on teachers' achievement . It also aims to define this effect and to know the teachers' viewpoints in this regard and the differences between their viewpoints in light of some variables such as gender, years of experience and number of training courses.

1.2 Significance

There are not much studies that concentrate on the effect of ICT on the teacher. Many researches have primarily addressed the implications of learning with ICT for students or factors influencing the implementation of ICT by teachers. In this article we are going to obtain more insight into the effect on teachers and his or her changing roles using ICT in teaching.

So, it is necessary to investigate the effect of technology integration on teachers' achievement and to define this effect and to know the teachers' viewpoints in this regard and the differences between their viewpoints in light of some variables such as gender, years of experience and number of training courses.

The results will be important for teachers and principals, in addition to teaching process as a whole.

1.3 Definition of Terms

ICT: Information and Communication Technology

Technology integration: the use of technology tools in general content areas in education in order to allow students to apply computer and technology skills to learning and problem-solving.

Techer achievement: The extent to which teacher has achieved his educational goals.

Professional growth is defined as changes in the performance, knowledge, views, or perceptions of teachers (Ross & Bruce, 2007).

Literature Review

Ross & Bruce (2007) stated that teachers' role in the classroom can be viewed as a continuum. The teacher as a traditional lecturer and imparter of knowledge in accordance with objectivist views of learning. And the teacher as a coach, observer, and facilitator. This suits the constructivist view of learning. Teaching in pupil-centered learning environments demands a different attitude of the teacher from teaching in traditional instructional settings. Teachers will need to move from providing face-to-face teaching and text-based learning to facilitating individualized, interactive, media-based learning, and learners will need to be empowered to accept far greater responsibility for their own learning.

Angeli & Valanides (2009) indicated that that the teacher stimulates the pupils to solve problems by ways of modelling, coaching and scaffolding. Modelling refers to the teacher showing the pupils how to carry out a certain task, while coaching means the teacher is providing feedback while the pupils are carrying out the task, and scaffolding is providing cognitive support with regard to a task the pupils cannot carry out themselves. The teacher's support gradually vanishes ('fading'). The gradual shift from teacher-centered learning to pupil-centered learning is time-consuming and requires skillful teachers.

Clarke & Hollingsworth (2002) concluded there are several roles teachers fill when they are helping children to learn in computer-enriched classrooms. They serve as instructors to children in the use of computers. As children gain more experience, the teacher's role moves to that of a coach. By using computers themselves, teachers can also serve as models to children. Finally, teachers must be critics of computer software, learning to select the best software to enhance children's development. Teachers' role does not change simply by using the computer in the classroom: 'The change occurs only to the extent to which a shift of responsibility to the learners occurs. The more responsibility and freedom is given to the learners, the greater the shift in the teachers' role'. In a study of the use of multimedia in a Dutch secondary school, four multimedia learning environments were implemented in geography education. There was a gradual shift from a structured learning environment, in which pupils were being instructed step by step, to an open-ended learning environment, in which pupils were expected to conduct a small scale research. After the experiment ended, the teachers kept working with these learning environments. However, they skipped some elements of the open-ended learning environments (e.g. a role-play), and added more instructions. It is necessary for teachers to change their teaching style when incorporating ICT in educational practice.

Arends (2001) mentioned that in the assessments of ICT projects in education, teachers report a shift in their role, from the central manager of the learning process towards a facilitator or coach. She states that the most commonly shared theme among studies of the impact of classroom computer use on teachers' roles is that the classroom becomes less teacher-centered. Teachers using computers in their classrooms increasingly see themselves as facilitators of learning rather than as 'authority figures whose job is to instruct knowledge.

Ertmer (2005) reported that the implementation of ICT resulted in the use of 'centers for learning', which allowed the pupils to discover knowledge for themselves, working in small groups. Teachers noted a switch from teacher-centered to student-centered instruction, resulting in the learners becoming more self-motivated and more active.

Teachers observe that their teaching role became more like that of a 'guide' or 'director' when working with ICT. Some studies show that the shift in their role which is often reported by teachers, is not always noticed in the actual behavior of the teacher in the classroom. It was noticed that teachers utilizing interactive videodisc in their classrooms, remained in control of the instruction process, in spite of the supposed shift towards a more pupil-centered learning environment.

Hew & etal (2007). reported that many applications of ICT are incorporated into existing teaching routines, instead of facilitating more pupil-centered learning. Research shows that very often the new 'application' tools are adapted to the teachers' existing style. In this way, teachers teach 'the same things in mainly the same ways that they have been teaching, and then on the side they're sticking computers in'.

Jimoyiannis (2010) conducted a study with regard to the use and the effects of information technology (IT) in education in the United Kingdom, it is concluded that 'teachers using IT often considered that computers were to be used to complement rather than change existing pedagogic practice, whether it be 'traditional' or 'progressive'.

In the study on teachers and technology conducted by the Office of Technology Assessment in the United States of America, The teacher's professional development, it is concluded that ICT can be of use to teachers to enhance their professional development.

Donnelly& etal (2011) concluded that teachers' are evolving towards a new style of teaching when using ICT and that ICT provides teachers with opportunities to broaden their horizons, and communicate with colleagues, as well as other experts all over the world.

Donnelly& etal (2011)stated that a sufficient use of technology in human networks may contribute to the support of critical decision-making of teachers and trainers. Training is another crucial factor in the professional development of the teacher.

The impact of ICT on the teacher's task perception

Marwan & Sweeney (2011) in a study of teachers' views with regard to their use of ICT in educational practice in Ireland, found that teachers felt more motivated and effective in their work as a direct result of using ICT. The use of ICT has been reported to improve the teachers' attitudes towards education.

Teachers reported an increase in job satisfaction, which they attributed to the increase of teacher-to-pupil interaction during the lessons in which multimedia were used. Teachers use technology to support different, more student-centered approaches to instruction, in which students conduct their own scientific inquiries or projects or engage in collaborative activities, and the teacher assumes the role of facilitator or coach were more satisfied in their job.

In a study in which teachers were asked to evaluate the effects of ICT on their work and accomplishment. A majority stated that using the computer made their work more interesting while there was also strong support for the notion that the computer motivated pupils and therefore made a teacher's job easier. Third place in the ranking was support for the proposition that pupils benefited from using ICT. A significant number of teachers also felt that ICT made their teaching more effective while a small number felt that computers made little difference to their work.

Donnelly& etal (2011) included that working with new technology was expected to reduce teaching effort and save teacher time, but that it at the same time increases teaching load. She stated that the teachers involved in ICT implementing became enthusiastic about their teaching and began to work together during weekends in order to prepare and share computer program uses. As a result of using ICT, teachers felt they were able to spend more time with individual pupils instead of managing the whole class. Teachers were more comfortable with students working independently, presented more complex materials, tailored instruction more to individual needs, adopted new roles, and spent less time lecturing.

Method. The quantitative method is used to investigate the viewpoints of teachers about the effect of technology integration on teachers' achievement.

1. Participants. The participants were 50 (Grades 7-9) teachers males and females with different years of experience and training courses.

2 Procedure. A questionnaire was handled to 50 teachers of different to answer its paragraphs.

3 Tool. Dear teachers:

This tool is used to measure the effect of technology integration on teachers' achievement.

Pls. answer these questions:

Gender: ☐ Male   ☐ Female

Years of experience: ☐ less than 5   ☐ 5-10   ☐ more than 10

No of training courses: ☐ less than 3   ☐ 3-5   ☐ more than 5

	Strongly agree	agree	Neutral	Don't agree	Strongly disagree
Computers help me improve my work better .					
Computers make it possible to work more productively.					
Computers can allow me to do more interesting and imaginative work.					
Most things that a computer can be used for I can do just as well myself.					
Computers can enhance the presentation of my work to a degree which justifies the extra effort.					
With computers teachers are acting as coaches instead of as lecturers.					
With technology integration teachers give hints and clues rather than direct answers.					
With technology integration teachers have less control of the lesson content.					
Teachers have more diagnostic and achievement instruments to evaluate the pupils' progress.					

Results:

1. The results showed that there is a strong effect of technology integration on teachers' achievement as shown by the sample.

2. There were no significant statistical differences between male and female teachers in the effect of technology integration on teachers' achievement.

3. There were significant statistical differences between teachers in the effect of technology integration on teachers' achievement attributed to years of experience in favor of the category 5-10 years .

4. There were significant statistical differences between teachers in the effect of technology integration on teachers' achievement attributed to no of training courses in favor of the category more than 5 training courses.

Recommendations:

Based on the above findings, the researcher recommend the following:

1. To enlighten teachers about the great effect of technology integration on their achievement.

2. To help teachers to provide a technology environment in their classrooms.

3. To provide technology assistance in the school from which teachers can benefit in implementing technology integration.

4. To provide teachers with training courses about effective use of technology in teaching.

5. To enhance teachers' technology integration abilities and skills by delivering workshops about effective technology integration.

6. To encourage teachers with incentives for outstanding technology integration in their classrooms.

Conclusions:

There are increasing needs to integrate ICT in schools and the different options in this regard have produced new roles for different sides of educational process. The following may be concluded through revising this article:

- Extracurricular responsibilities of the ICT teachers, decrease their educational efficiencies.
- Technology integration improves teachers' performance.
- Teachers have positive perceptions about ICT teaching and about their subject matter and pedagogical knowledge.
- ICT has a significant effect on the teachers. There are very high levels of achievement reported by teachers, increasing teachers' skills and confidence with ICT, improving teachers' understandings of the role of ICT in teaching and learning.

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