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# The influence of using the information and communications technology in primary education

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## Abstract

The effective use of the Information and Communication Technology can be one of the basic indicators of the educational progress, in general. The aim of the implication of the concept of ICT in the education in R. Macedonia is to train the teachers to use that technology, the educational process to be based on the principles of the interactive teaching, with an accent on the creative learning, critic thinking, the problems solving and instigation of the modern educational technology. By using the ITC, the pupils are enabled to develop their informational and communicational abilities as a support of their learning.

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*Keywords:* ICT; primary education; influence; pupils’ interest and active participation.

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## 1. Introduction

In R. Macedonia the aim of the integration of the ICT in the teaching within the primary education is to involve, examine and discuss the effective, technological improved practice that can help the teachers to exceed the challenges that will arise from the attempts for integrating the technology in the curriculum. The integration of the ICT is much more than a simple use of the hardware and software. For the teachers, the biggest challenge is to define how to use the new technology for the teaching’s aims. Even though the teachers understand the theoretical concepts very easy they need special concrete ideas that will help them with the initial experiments with the new technology. Many of the teachers and the educational policy’s creators are wrong because they think that the ICT’s integration approaches more to the computer as to a special subject- informatics, than as to a mean for improving the process of teaching.

The use of Information and Communication Technology in the primary schools’ education helps the pupils in the following situations:

- In coming to information, their selection and interpretation.
- In recognizing the models, connections and behaviors.
- In modeling, forecasting and hypothesizing.
- In testing the authenticity and correctness.

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- In re-evaluating and modifying their work in order to improve its quality.
- In communicating with others and presenting ideas.
- In evaluating the work.
- In increasing the efficiency.
- ICT helps them to be creative and to accept risks.
- In building the self-confidence and independence.

The classes include an active use of the Information and Communication Technology in the evaluating, organizing, integrating, estimating and presenting the information. ICT can include, but it is not limited only to:

- Getting information, for example by using the internet, through compact discs, searching the files located in the net systems or computer files and communication, team work tools;
- Organizing the information, for example by using table calculation and data-base;
- Integration of the information, for example by using different programs as the programs for writing and/or productive software;
- Creating information by using for example writing programs, special programs;
- Evaluating the information by using writing programs, programs for reports and blogs;
- Showing information by using multimedia tools such as drawing, mapping, pictures and video.

With the use of the Information and Communication Technology in the primary education's teaching the pupils are enabled to use and to develop their informational and communicational abilities as a support to their learning. The pupils are enabled to support their work by using ICT:

- To search through different sources, to select and synthesize information, to satisfy their needs and to develop abilities for examining their own abilities;
- To develop their ideas by using the ICT, to improve their work and to increase the quality and the correctness of it;
- To exchange and to share the information, directly or through electronic media;
- To check, modify and evaluate their work, by critically referring to its quality and development.

## 2. Research Methodology

In the Republic of Macedonia, through the project E-SCHOOL in collaboration with the Ministry of education and science, the Information and Communication Technology is included in the curriculum. The following ICT-applications are included: Microsoft Word, Microsoft Paint, Microsoft PowerPoint, Microsoft Excel, Microsoft Publisher, Microsoft Front Page, Blogs, E-Mail and Internet Explorer. The results from the previous research showed that the most frequently used ICT applications in the teaching in the primary education are Microsoft Word, Excel and Power Point.

Subject of this research is: The areas of influence by using the ICT- applications in the teaching within the primary education by accenting the active participation of the pupils in the primary education, the pupils' interest about the curriculum.

According to the subject of the research this research is developmental, because through it is enabled development of concrete solutions about the use in practice.

According to the time (space) criteria of the researches, this research is transversal, because an educational phenomenon is being examined at the same time on different places and in different educational institutions.

According to the contents, the aspect of viewing the subject, the research is social, because a phenomenon that happens within the framework of the educational process is being researched.

The method of the pedagogical research is descriptive, because a description of the pedagogical phenomenon has been done, introduction to the characteristics of the phenomena, access to seeing over the connection of the phenomena and their influence for improving the pedagogical practice.

The aim of this research is assessment of the areas of influence as a result of the use of the ICT in primary education teaching.

With this research we come to cognizance that will be applicable in the educational practice. The cognizance accepted by the teachers will be used as a motive for more frequent use of the ICT in the teaching within the primary education, as a mean for improving the educational process.

General hypothesis: The use of the ICT-applications Microsoft Word, Microsoft Excel, and Microsoft PowerPoint by the teachers in the teaching within the primary education has a positive influence over the pupils' progression.

In this research were used the following procedures:

- Individually oriented interview with the teachers, through which we come to certain data about the use of the ICT- applications (**MICROSOFT WORD, MICROSOFT EXCEL, MICROSOFT POWERPOINT**) in the primary education
- Investigating the teachers, through which we come to their meaning about the use of the ICT-applications (**MICROSOFT WORD, MICROSOFT EXCEL, MICROSOFT POWERPOINT**)
- Observation that enables direct following of the teaching in the primary education in which the ICT-applications are used.

From the instruments for registering in this research were used:

- Reminder for an interview, aimed to the teachers, that consists questions about the use of the ICT-applications (**MICROSOFT WORD, MICROSOFT EXCEL, MICROSOFT POWERPOINT**) in the teaching within the primary education especially in which part of the class they are most used and in which phase of the process (the intensity of ICT-applications used by the teachers and the phases of the class they are used).
- Formal questionnaire aimed to the teachers who use the informational-communicational technology in the teaching. There are the areas of influence of the ICT-applications in it, the influence of the ICT-applications (**MICROSOFT WORD, MICROSOFT EXCEL, MICROSOFT POWERPOINT**)
- Record for observation, where are included the areas of influence of the ICT-applications.

The population of this research consists of 20 teachers who have attended the training about the ICT's integration into the teaching and who use the ICT-applications (**MICROSOFT WORD, MICROSOFT EXCEL, MICROSOFT POWERPOINT**) as well as the pupils from the same classes from the following primary schools: "Elpida Karamandi", "Stiv Naumov", "Dame Gruev", "Goce Delcev" and "Kole Kaninski" in Bitola.

The sample, when it comes to the teachers, is suitable because from the previous research about whether the ICT-applications to be used in the teaching, it was established that these teachers exactly practice the ICT-applications (**MICROSOFT WORD, MICROSOFT EXCEL, MICROSOFT POWERPOINT**) and that is how we set the areas of influence.

The sample for observation of the math classes includes 20 school classes, each class of every teacher who have attended the instruction about the integration of the informational-communicational technology and who uses the ICT-applications (**MICROSOFT WORD, MICROSOFT EXCEL, MICROSOFT POWERPOINT**) in the teaching as well as the pupils from the same classes.

### 3. Conclusion

According to the teachers, the ICT-application MICROSOFT WORD is used more frequently in the introduction and the main part of the classes for new material and in the main part of the exercise lessons; while very rare the same ICT-application is used in the final part of the lesson for new material, exercise lessons. The ICT-application MICROSOFT EXCEL is used more frequently in the introduction of the classes for new material, exercising and revising and in the final part of the exercise lessons, but rarely in the main and the final part of the classes for new material. The ICT- application MICROSOFT POWERPOINT is used more frequently in the introduction and the main part of the classes for new material and in the main part of the revising lessons and rarely in the final part of the classes for new material, the introduction, the main and the final part of the exercise lessons and in the introduction and the final part of the revising lessons.

With the use of the ICT-application MICROSOFT EXCEL by the teachers in the classes for new material, exercising and revising the active participation of the pupils is increasing. With the use of the ICT-application

MICROSOFT WORD by the teachers on the classes for new material, exercising and revising the active participation of the pupils is increasing. With the use of the ICT-application MICROSOFT EXCEL by the teachers in the introduction and the main part of the classes for new material, exercising and revising the pupils' interest about the curriculum is increasing. With the use of the ICT-application MICROSOFT POWERPOINT by the teachers in the introduction and the main part of the math lessons for new material, exercising and revising the pupils' interest is increasing.

From the analysis of the results from the research all the certain hypothesis are accepted:

- With the use of the ICT-applications MICROSOFT WORD, MICROSOFT EXCEL and MICROSOFT POWERPOINT by the teachers in the teaching in the primary education the active participation of the pupils is increasing.
- With the use of ICT-applications MICROSOFT WORD, MICROSOFT EXCEL and MICROSOFT POWERPOINT by the teachers in the teaching in the primary education the pupils' interest about the curriculum is increasing

With this the general hypothesis is confirmed: The use of the ICT-applications MICROSOFT WORD, MICROSOFT EXCEL and MICROSOFT POWERPOINT by the teachers, influences positively on the pupils.

With the use of the ICT-applications by the teachers:

1. The active participation of the pupils in the educational process is increasing (in the introduction as well as in the main part of the classes for new material, exercising and revising lessons)
2. The pupils' interest about the curriculum is increasing (in the introduction as well as in the main part of the classes for new material, exercising and revising lessons).

The use of the ICT-applications MICROSOFT WORD, MICROSOFT EXCEL and MICROSOFT POWERPOINT by the teachers has a positive influence on the pupils in the primary education.

At the end we can conclude that the Information and Communications Technology has a positive effect over the improvement of the teaching in the educational process.

The senses from this research should be accepted by the teachers and applied in the educational practice. They are motive for more frequent use of the Information and Communication Technology in the teaching as a mean for improving the educational process.

## References

- Anđrić, V. (1986). *Metodi i tehnike istraživanja u psihologiji odgoja i obrazovanja*, Zagreb: Skolska knjiga.
- Bognar, L. & Matijević, M. (1993). *Didaktika*, Zagreb: Skolska knjiga.
- Bratanić, M. (1993). *Mikropedagogija*, Zagreb: Skolska knjiga.
- Danić, M. (1998). *Tehnologija učenja i nastave*, Novi Sad: Univerzitet u Novom Sadu. Zrenjanin: Tehnički fakultet "Mihajlo Pupin". Beograd: Institut za pedagoška istraživanja.
- Glasser, W. (1999). *Nastavnik u kvalitetnoj školi: posebne sugestije nastavnicima koju u razredu pokušavaju primeniti ideje iz knjige Kvalitetna škola*- Zagreb: Educa.
- Група автори. (2005). *Национална програма за развој на образованието во Република Македонија 2005-2015*, - Скопје : Министерство за образование и наука на Република Македонија.
- ISTE. (2008). *Nets for Teachers 2008*. Retrieved September, 2009 from [http://cnets.iste.org/students/s\\_profiles.html](http://cnets.iste.org/students/s_profiles.html)
- Itković, Z. (1997). *Opća metodika nastave*, Split: Književni krug.
- Министерство за образование и наука. (2007). *Концепција за деветгодишно основно воспитание и образование* - Скопје : Биро за развој на образованието.
- Mušanović, M. (2002). Retrieved September, 2009 from <http://www.pedagogija.skretnica.com/marko/kolegij.as>.
- Проект Е- школо. (2006), *Прирачник за корисници за иновативно користење на ИКТ во наставата во основните училишта*, прва фаза, Скопје.
- Проект Е- школо. (2006), *Прирачник за корисници за иновативно користење на ИКТ во наставата во основните училишта*, втора фаза, Скопје.
- Смилевски, Ц. (2006). *Методологија на истражување*, Битола: Универзитет „Св. Климент Охридски“, Педагошки факултет