ICT as an Efficient Methodology for Increasing the Quality of Didactic Processes: The Implementation of Contemporary Strategy in Our Schools Research Carried out in Middle Schools Including Grades 6 through 9 in the County of Gjirokaster

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Abstract

This article aims at engaging the teacher into using the new technologies for a more effective teaching\learning process, for the achievement of the objectives of the subjects. The integration of the ICT also aims at providing students with the necessary study skills, research and work in a world of the technology of information and communication, a digital world. The use of ICT in class facilitates the work of the teachers and students, and makes it more attractive and easier to understand, facilitates the teacher-student communication, makes the achievement of the objectives of the class easier, and also stimulates critical thinking. In this way by using this technology in class, the internalization of information by the student is done in a shorter and for a more long-term period. But to achieve these teachers are required to be better prepared scientifically and should also have satisfactory computer skills. The sources of information that the student uses are various, the book, his friend, the group, his family, the community, radio, television, media etc., but a decisive role for an active learning in class is playing and will play even more in the future, learning based on technological means. To this end the training of the teachers should be a priority of the RED\EO. The pilot classes and the recommendations of this article, should be taken into consideration or help the Gjirokaster-RED in its today's effort to reform learning, so that this maybe more effective, and qualitative, to try to catch up with the requirements of our times.

1. Introduction

One of the objectives of MES since 2004 has been the improvement of quality of the teaching process. That is why the improvements of the educational sytem started precisely with the review of the curricula and the modernization of the educational process.[1] In this context, education should be able to predict the new rhythms of society and prepare citizens to be able to face the continuous tranformations. In the improvement of the educational system an important place plays also the use of ICT. The strategy of ICT in education is also part of the National Intersectorial Strategy of ICT. The further spread of Information and Communication Technology in the content of the school has been an objective of MES since 2011. The improvements made in the field of Information and Communication Technology (ICT) during these years has been very fast. In the past, information was rare, and the only source of information for the student was the teacher. Today the sources of information are many. Today school is under the pressure of the need for change. For this, the fast development of information, requires changing the methods and practices in education. MES is working for the drafting of the teaching plan, where the Information Technology subject be included in the first grade of the primary education. When we talk about the introduction of technology in schools, we do not mean only the student\computer relationship and also a number of devices like desktop, notebook, digital camera, local network, bluetooth, internet, dvd, etc; and programs such as text processor, tutorials, simulators, emulators, e-mail, digital library, but also the manner in which this technology will be integrated and used to realize the main objectives of the teaching process. This is one of the ideas that we aim at introducing through this article. But ICT is used also as a means to improve the quality of living. Different kinds of technologies intervene to help people with different kinds of physical or cognitive handicaps.

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[1] MASH, *"Strategjia Kombëtare e Arsimit Parauniversitar 2004-2015", Tiranë, 2004, fq17*

1.1 Motivation

To write this article we were stimulated by the surveys carried out in the middle schools including grades 6 through 9 in the county of Gjirokaster. As stimuli served several factors like: the use of the Internet which is a part of everyday life of teachers and students, the internet is playing and will play an evermore important role in society, the problems that the school faces in the implementation of ICT in the educational –learning process, the way in which we use technology in education is more important than the fact if we use it or not .

1.2 Aim

The use of ICT in class makes teaching\learning process more effective and realizes the achievement of the pedagogical objectives .

1.3 Methodology

The methodology used in this article is mainly based on these *methods of scientific research:* the filing of literature, surveys in various middle schools, to investigate the situation, the achievements and defects, free conversations, interviews and opinion polls for which were questioned students, teachers, school principals and parents to gather their thoughts and opinions about the use of this strategy in school, the personal opinion about our experiences and the experiences of our colleagues in school and work .

2. The Situation of the Use of ICT in the Schools of Our County

Gjirokastra county, as an integral part of the Albanian education, has been involved in the "The Integration of ICT in the teaaching process" initiative. Seen from this aspect, RED has extended its scope to these plans:
- The highlighting of the capacities in Gjirokastra county, who are familiar with ICT and the creation of a staff with training capacities.
- The training of all the teachers in the basic computer programs and the most used operation systems
- The creation of digital libraries in schools.

The specialists of RED themselves were trained in these programs and later the work in this field was extended to include the groups of teachers according to their needs. In the Gjirokastra county the training sessions have become more intensive and the teachers at the end of their training have undergone a test organized by AIST (Albanian Institute of Statisitics and Technology) and they have been accordingly awarded a points certificate with 2 credits. The situation of the trained teachers is as follows.(Table 1)

Also 14 school principals have been trained by the EPICT Centre. (Table 2)

Then we rightfully ask the question: How effective are and how have all these training sessions affected the introduction of ICT in the teaching process? The first steps towards the creation of some digital libraries, although modest have been taken in all the schools. Teachers, mainly the Bio-chemistry and Geography teachers are using technology more and more in their classes.

But which are some of the tasks waiting to be carried out according to the RED specialists?
- The structuring of class and the use of ICT to help it.
- The orientation of students toward the right addresses for the gathering of information .
- The use of ICT wisely during the classes.
- The sharing of positive experiences with teachers, who are more experienced in this field.
- The use of ICT in all the school projects, where there is an involvement of students from different classes and different age -groups.

In the training sessions attended by teachers and school principals, can be seen their interest in getting familiar with softwares, but this interest of theirs sees computer as an appendix in the teaching process. But a lot of work needs to be done so that technology be an integral part of every class. One of the objectives MES for the year 2001 has been the training of all the teachers of pre-university education within 2-3 years in IT.

3. The Role of Technology in Class

More and more emphasis is being put on a more effective teaching and learning process. One of the links of this process, which in our days is getting more attention, is the use of the Information Technology in class, where we can rightly say that it presents a new challenge to the teacher.

The integration of ICT in the teaching process aims at equipping the students with the necessary study skills, research, and work in a world of technology of information and communication; a digital world [2].

But what do we understand by the term integration of technology in class?

The use of ICT in support of the objectives of the subject, in improving the quality of the teaching process, its introduction in class as part of the daily class activities.

Now teachers use elements of this technology in class. The fact that 35.8%

of the teachers who were questioned use internet, the monitor and different CDs, whereas 64.2% of the teachers (here are included the rural area teachers) do not use elements of ICT.

The power of this technology helps us to act in the field of education with elements which were impossible before. The use of this technology enables us to support the modern pedagogical thinking, according to which everybody is able to learn, but the ways are different for everyone of us. It is precisely for these goals that deep reforms have been undertaken during the recent years in the curricula of pre-university education, reforms which have modernised the content of the school texts by adapting them to the needs of the society.

Starting from 1994 a lot of changes have been made to the curricula. In the National Strategy 2004-2015 it is said: The time has come to finally resolve the dilemma: "Will ICT remain a separate subject in schools or will it be integrated into other subjects"?[3] so, the MES has undertaken reforms and pursued policies, whose goal is to improve the quality of education, to speed up and strengthen the introduction of the Information and Communication Technology (ICT), and also to adapt the school curricula to the needs of the job market. The curricula should develop in the students the skills of using ICT, the skills of using the Albanian language and foreign languages. The curricula of ICT is part of the new core of the curricula of the middle schools education. Students will be introduced to ICT since the first grade. But the curricula and technology will continue being a problem.[4] The use of technology as a curricula will require continuous re-shaping. We will be forced to ask ourselves how will technology affect our environment.[5] Although the traditional models of the curricula have their own values, the future requires new content to meet the impetuous changes. But what does the new curricula aim at doing compared to the old one?

According to Adriana Sula the new curricula introduces these novelties:[6](Table 3)

Why should technology be used in class**?** *Its use has some advantages.* The benefits of ICT are numerous. It brings a great amount of information, is a fast and efficient way, brings about unexpected reactions, is attractive in its use, engages all the students, enables the students with special educational needs equal opportunities with their peers, communication and interaction of the child, self confidence at school and in the environment where he lives. Computer and other technological devices are a source of pleasure. The child receives praise whenever he\she carries out a task, and this thing gives him much confidence and increases his desire to be sucsessful.

The use of ICT in class has its limitations, they consist in:
- The lack of training for teachers
- The lack of devices and software for the students
- Lack of financing, because the cost of these devices is often high.
- Inconsistency between the programs.

3.1 The integration of technology in class has its own limitations

During the process of the transformation of technology into an integral part of the teaching process, teachers encounter

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[2] *Adriana Sula, MES , The Integration of Technology of Information and Communication in Education, International Conference on ICT in Education in Albania, Vlorë 2012.*

[3] *MES "The national strategy for the development of pre-university education 2004-2015",Tiranë 2004, pg. 18.*

[4] *Prof.dr.Kraja, M., The Pedagogy , Tiranë 2006, pg 187.*

[5] *Allan Horsten, Francis Hunkins, cited work , The Curricula, pg 556*

[6] *Sula, Adriana, MES The Integration of the Technology of Information and Communication in Education ,The Conference : "ICT in Education ,Vlorë 2012.*

some obstacles. The biggest obstacle is the need for time necessary for training and also the resources at the disposal of the educational –teaching process. Teachers need to learn how to use the computer, but this takes time. Training and the lack of human resources is another concern. Without computers in classes and without proper softwares to support the subject, integration would not be complete. When teachers are asked to integrate technology, they should bear in mind :
- To use the new devices of the teaching process such as computer and internet.
- To change the way they teach their students.

Technology is among us. Our future will see more of its use. Now students will come to school being more and more able to use the computer. According to the statistical processing before and after the training of the teachers using ICT in the teaching process, a notable change can be seen in the involvement of the students in building their knowledge in class before and after the training. (Table 4)

Teachers should use it to achieve the educational objectives. There are four qualities we should bear in mind when we use technology in education. The first, technology should put the human values and educational objectives values above the economical goals. Second, teachers should be clear about the educational goals of using technology. Third, its use should not be seen as the fastest solution to the problems of the teaching process. Fourth, there shoud be developed devices through which information is gathered and exchanged.[7]

According to Sandholtz, Ringstaff, and Dëyer (1997), the integration of technology includes five stages: introduction, adoption, adaptation, its use according to the goal and invention.[8]

a) At the introduction stage, teachers use mainly material based on text. Teaching process is traditional, with activities directed by the teacher. Technologies used in the teaching process are the blackboard, books, notebooks, and projectors. While trying to use the computer in this traditional environment, teachers face problems and difficulties.

b) When teachers pass into the adoption stage, they show concern about the integration of technology in their daily plans. The strategy of the teaching process is still dominated by the traditional teaching process and the work in class. At this stage, technology is used to to explain to the children how to use technology. The daily activities include the keyboard, the text processors, or some practical activities. Teachers start to treat problems and develop strategies to resolve them. Although the technical problems still exist, teachers start to solve some easy problems, problems such as paper damage or changing the ink of the printer at this stage.

c) At the next stage, takes place the adaptation and the integration of the new technology into the traditional practices in class. Teachers' explaining the lessons, the work in class, keep dominating the teaching process, however in 30%-40% of the time in class students use text processors, databases, some graphical programs, and supporting packages related to certain subjects. Productivity is a major issue. Computer should be used to save time and to generate extra work .

d) Sandholtz decribes the stage of using technology more like an evaluating criterion than a stage. Teachers understand the benefit of using technology and apply it without much effort as a means to do their real work. Students work with computers continuously. Learning based on projects is obvious.

e) The invention stage. Teachers experiment with new models of teaching and manners of communication with students and other teachers. They reflect on the teaching process and old models. The advanced individuals should support the others by mentoring them into integrating technology.

Nevertheless, the specialists of the curricula and the teachers should be careful when using technology. Talbot warns us not to be over enthusiastic about the use of computer, bacause, if we use computers and other technologies wantonly, we might turn our students into the machines they use and into individuals, as they really are.[9]

3.2 A daily teaching plan based on ICT

How to develop, implement and evaluate a class based on ICT
1. To create clear objectives of the learning process, which will be realized through the use of ICT.
2. The structure of a class should be appropriate for the introduction of the elements via ICT

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[7] *Orstein,A.C, Hunkins, F.P, The Curricula, the basics , principles and problems, ISP,Tiranë 2003. Pg 556*

[8] *Çipi, Eva, Hyso, Alketa, The stages of the Integration of Technology and the obstacles that teachers might face , International Conference on ICT in Education in Albania, Vlora, 15 June 2012, pg 11*

[9] *Talbott, St. L., The Future Does Not Compute (E ardhmja nuk bën llogari), (Sebastopol, Calif.: O'Reilly&Associates, Inc.,1995)*

3. The implemenation.
4. Class evaluation.

To set clear goals concerning the learning process.

The objectives should be measureable and accessible by the students. After this you can use the following questions to choose your objectives. What structure and technology can support these standards? How are the styles of learning and the needs of students treated in this class? What skills are deemed as necessary that students should have? Will your students be motivated by this class?

3.3 The structure and the implementation of a class.

Has anyone created a class with the help of ICT? How do you think to structure a class? How can you find other classes? How not to adapt an existing plan? In the Green Package we can find a class, or even in the Plastic Planet CD, where we find elements of ICT.

3.4 To evaluate the efficiency of the class

Were the objectives realized? Did the students learn what they were hoping they would? Did the students learn anything according to the standards? Can you evaluate the students' homework? which strategy of teaching was more effective? What could you have done differently to make this class more effective? What would make you change the next time? Below we offer the indicators which evaluate the sources of learning based on ICT during class. This instrument might serve also to identify the needs of the teachers to be trained.

4. Daily Planning

Subject: Earth sciences
Grade : IV with 23 students
Topic : The atmosphere and its composition
Methods: Guided discussion, learning by sharing ideas, think and exchange thoughts (the experts group), ICT
Objectives:
At the end of the student should be able to:
Describe the elements of the atmosphere and its importance to life on earth
1. Define the term atmosphere
2. Show which are the ingredients of the atmosphere
3. Describe the layers of the atmosphere
Means: Internet room with 10 computers, internet connection, projector, globe, different images taken from the internet
Resources: The address where these data can be found
Key concepts: Atmosphere, troposphere, stratosphere, mesosphere, ionosphere.

5. Class Structure

The stages of structure	Teaching strategies	The activities of the students	The organization of the students
Prediction (the preparation of the students)	Guided discussion	Riddles Stimulating discussion. Debating ideas	Working with the whole class
Building knowledge (content processing)	Learning (D.D.M)	Co-operative learning	Work in group. Work with the whole class.
Strengthening (consolidation of learning)	Think, exchange thoughts.	Stimulating discussion. Debating ideas.	Working in pairs. Work with the whole class.

5.1 Prediction: Guided discussion

Students take their seats in the computer room and play the game "Expressions puzzle".
How do foreigners call our country? Albania

E-ISSN 2281-4612
ISSN 2281-3993

Academic Journal of Interdisciplinary Studies

MCSER Publishing, Rome-Italy

Vol 2 No 3
November 2013

How is our planet called? Earth

Which Is the highest natural elevation of the earth's surface? Mountain

With what do we measure time? Clock

What does the rotation of Earth around the Sun form? Seasons

How is the lowest point of the earth's surface called? Field

What does the movement of air causes? Wind

The condensation of the atmospheric water vapour causes……….. Rainfall

A name which starts with the letter A Anila

 With power point I show all the answers students have found in the puzzle game.

Stimulate the student to observe carefully and to identify the word which is formed from the first letters of the words of the game. I write on the board the word which Is formed to build the map of the concept based on the knowledge they have about the atmosphere.
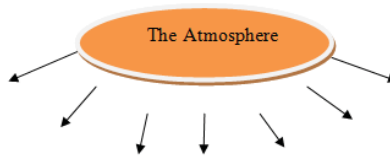
After filling in the map they are acquainted with the objective of the class.

5.2 The building of the knowledge: The DDM technique

After they count from 1 to 3 they are grouped according to the numbers where they form 3 groups. Students begin work by completing the chart according to the DDM technique in the first two columns. In the "I Know" column they write the knowledge we have written in the map of the concept. In the "I Want to know" column they display different questions about the things they want to know.

I know	I want to know	I learnt
-The air surrounds the world -The elements of life on Earth -Protects the Earth -Colourless gas, without smell, with no taste -Invisible -It Is everywhere -It consists of oxygen and carbon dioxide -In it takes place the circulation of the water	-What it is made of? -How does it stand above the Earth? -What happens in the atmosphere? -Why does it get thinner the higher we go?	-The atmosphere is a mixture of gases -In it happen the atmospheric phenomena (rain, snow, wind) -Is made up of layers -Troposphere, stratosphere, mesosphere, ionosphere, exosphere (the characteristics for each layer are given). -Its altitude starts from the zero level of the sea until 100km-150km -The higher we go the thinner the air gets, the amount oxygen diminishes -It Is characterized by temperature, pressure and air humidity

After the two columns of the chart are completed, I give them the address (www.usborne-quicklinks.com) (www.en.wikipedia.org/wiki/atmosphera) (sq.wikipedia.org/wiki/ajri) where they search for information about the atmosphere. Students work while having in front of them also the findings from the internet and also the books.

Students work is helped also by the questions which are displayed in the monitor.

- What is the atmosphere?
- How Is the atmosphere built?
- Which are its components?
- What causes the pollution of the atmosphere?

After this the three groups finish work with the table with the columns, by gathering the data collected by the children. Special attention is paid to the "I learnt" column, where they are introduced to the new information. The groups complete each –other's thoughts.

5.3 Consolidation: think, exchange thoughts

I give images of the earth on the monitor. The globe is also in front of us. I pose the students the question to generate discussion:

What would happen if the atmosphere keeps being polluted?

They exchange thoughts in pairs and later they discuss them with the whole class.

Later they work with the book, where the key words are explained.

Minitest: Which are the layers of the atmosphere.

Task: Draw the layers of the atmosphere according to the picture in the book and complete the data concerning them from the internet or The book of Knowledge . (www.usborne-quicklinks.com)

The evaluation of the students:

The evaluation is done based on the finding of the material and on the definition of the atmosphere, its components and phenomena.

6. Conclusions

Through this article we tried to make it clear to the teachers what they expect from the integration of technology and the problems this integration faces. The integration is a vision. How can we better realize this vision for the future of the education?

1. Every beggining of the year RED\EO should identify the needs that each teacher has for his training.
2. The REDs should study the needs for training and qualification of the teachers still part of the profession, and based on these studies, should search at the agencies which offer these trainings.
3. The REDs should coordinate the work with the university and the organizations interested in education.
4. The universities and the faculties of teaching, should have a greater impact on the scientific, psychological and pedagogical preparation of the teachers-to-be and should be in concordance with the needs imposed on the professionals the schools prepare nowadays.
5. The university curricula, should match the current needs of our educational system and contemporary needs in the preparation of the teachers.
6. The necessary steps for the readiness of the computer laboratories, laptop-videoprojectors sets should be taken from the beginning of the school year, to enable the integration of the ICT in the process of teaching
7. Teachers should make use of the CDs which have been sent to the schools in the recent years, like the ones sent in the framework of the QEE project (Quality and Equality in Education) also the CD of the virtual laboratory, the material of the IRISOFT etc.
8. The CD rooms of the schools should be enriched also with CDs where the lessons which are most highly praised by the schools can be found. Based on this should be planned also teaching plans, especially in high schools and in the upper cycle of the middle chools, not only in the framework of the subject projects, of the optionals, but also of the participation in national competitions.

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Appendix

Table1.

Nr.	County	Teachers in total	Year 2010	Year 2011	Trained teachers
1.	Gjirokastër	357	99	98	197
2.	Përmet	202	33	64	97
3.	Tepelenë	341	20	31	51

Table 2

Nr	County	Principals
1.	Gjirokastër	7
2.	Tepelenë	4
3.	Përmet	4

Table 3

Existing curricula	New curricula
The basic concepts and programs	Creativity and innovation
Social, ethical and human problems	Communication and co-operation
The use of technological means to produce materials	The use of ICT to search
ICT as technological means of communication	The use of ICT for critical thinking, the solution to the problems and the taking of decisions
Technological means to search for information	Digital ctizenship, search of information, fair ethical and legal use
Starts in the VII grade	It is introduced in the Ist grade
	It is based on "the ICT standards for the students "

Table 4

	City	Village	Before	After
Gjirokastër	3 classes	2 classes	35%	54%
Tepelenë	2 classes	3 classes	23%	51%
Përmet	1 classes	4 classes	27%	44%