Technology in Teaching, as an Empowerment of Innovative Education

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Abstract: The aim of this paper is to present an overview of the importance of teaching competencies, achieved through use of technology, so that the learning process is perceived as one of the pleasures offered during the process of education. Nowadays, in the pandemic conditions, education is facing great challenges. The education of students from online learning is another challenge, which puts in dilemma the teaching and learning process. We live in an era where teaching process is going through rapid changes, information sources have a wider scope of action and certainly the effects are visible. The implementation of technological innovations in education sector is a new challenge for students and teachers. Transitioning the teaching and learning process from the auditorium to home environment requires professionalism and dedication from the teachers, who should use a different approach to continue developing their academic preparation. Based on this point of view, we have treated the role of education in shaping the student and the society as well, considering the process in the new context, re-dimensioning the relationship between students and teachers, in the new conditions of subjects and inter-subjects' integration, bringing not only a new “face” of the curricula, but also the new role of the teacher in our schools. The global information we face every day is reflected in everyone's language and communication. The purpose of education is to prepare students to understand and actively participate in the process of critical and creative thinking. This study is based on a methodology that includes both quantitative and qualitative aspects. Quantitative, because this research has been extended to several schools in the city of Tirana, through surveys and questionnaires, to emphasize how much these technological innovations are being used in elementary, middle and high education. Qualitatively, the information is summarized through tables and charts.

Keywords: Technology, Language competence, Teaching process, Communication, innovation

Introduction

Pre-university and higher education are going through a period of reforms both in structure and content, which without doubt impacts our lives, and even more impacts students, teachers and all other parties involved in this process. Teaching is undergoing rapid changes; information technology (“IT”) is playing an important role in the transmission of information where its information sources already have a wider scope of action and of course the effects are visible. The wide use of IT in all life processes has become a vital necessity worldwide. As in any areas of life, IT has been incorporated into the curriculum framework of education, bringing a radical turn in the development of learning culture, making knowledge more accessible to all students. The application of IT in teaching offers great benefits for students and increases their conceptual and perceptual skills during the lesson by facilitating the learning process.

Integrating the technology into teaching and learning does not only mean using computers and software productively but as well as using the internet and computer networks for teaching and learning purposes. Technology brings dynamism to teaching and learning, puts students in control of their own learning, allowing for independent development progress. Curriculum generally is the most important factor in the education process. Based on the Albanian legislation, the core curriculum document is the basic document, which...
regulates the progress of learning process and describes the learning results for each key competence and
learning area, curriculum implementation methodologies, student assessment and time distribution (curriculum)
for each area. The core curriculum document precedes and assists on compiling other curriculum package
documents such as: subject programs, curriculum guidelines, etc., which stand at the core of the learning and
teaching process. It determines what students should know and be able to do, which values should be cultivated
in them, how they should be trained for coexistence and tolerance, how they can actively contribute to social
and personal well-being (arsimi.gov.al).

In pre-university education’s curriculum, media education is included in the core curricula for elementary,
middle and high school education, which is treated as separate topic in different subjects (but not as a separate
subject). Media education can also be selected as a course of choice or interdisciplinary module and project. IT
is treated as a separate subject in middle school education (grade 6-9) and high school education (year 1-3).
Another reason why this subject is included in pre-university education, is that, today, teaching is not classical
and students learn not only in school but also from media, newspapers, radio, television, internet etc. The use of
multimedia in teaching aims to elaborate the language strategies that media communication uses both in speech
and writing.

According to Italian linguist Claudio Marazzini, the ability to communicate is the key to success in a world we
are already used to call it “global”, comprising the word, image and sound as the representative costume of
information that is turning the communication in a myth (Marazzini, 2001).

In today's society, a subject like this, is necessary, so as the individual influenced from all sides with
information, is able to develop the basic skills for critical autonomous competence, to be able to distinguish
the interests of media from the one of the public’s and to be able to show the type of relation that exists between the
word, image, sound etc. Today we can say that the curriculum in pre-university education has become
comparable to many other contemporary European and regional experiences. This is reflected in the changes
with a substantive structural ideological character. Today, the technology teaching curriculum, as well as many
other curriculums, is guided by the same scientific, methodological principles. In this curriculum, the fields of
study and digital competencies are well defined, where exists a concrete connection between key and subject
competencies. The curriculum emphasizes the exploration and understanding of different dimensions of
everyday life. It fosters the relations between school learning and real life.

Digital competence gives to the teacher a different innovation to formulate and develop learning, and in this
case, we are not just talking about the first concept of this subject such as knowing and using the computer as a
physical tool, but how technology directly affects the process of teaching, and how a good understanding of it
makes teachers more creative and innovative during the lesson. Digital competence is taught as a subject in the
curricula of teaching degrees in universities, where it makes it possible for teachers and students not to consider
this subject as a routine, but to learn and expect that this subject opens many horizons and creativity
perspectives.

**Technology as a didactic innovation in teaching for the empowerment of innovative education**

A well-known American scholar and expert on education and teaching, Michael Prensky states that nowadays,
students have not had only a gradual change comparing to past generations, nor they simply changed their
jargon, clothes, body ornaments or styles, but a great change has happened. They spend their lives surrounded
by technology, using computers, video games, digital music players, video cameras etc. Technology has become
like a mother tongue. Today's teachers need to learn how to communicate in the same language and style as the
one of their students (Prensky, 2001).

Education, the formation of pupils and students with digital competencies, requires teachers to be equipped with
the appropriate technological skills and their ability to learn how to use technology as an innovation that
supports the teaching and learning process. Specifically, university auditors through training of their teachers,
enable them to implement a new curriculum, based on competencies, to implement didactic innovations in
teaching, where the student is at its center, so teaching takes on an inclusive character. In these pandemic
conditions, online learning stimulated the distance learning; the material was used virtually, through online
platforms and the influence of technology in teaching and learning process was used as another didactic
innovation, applied by teachers and educators, bringing the next challenge into the learning process and treating
it as a strategy in educational policies.
Finding and choosing teaching methods adapted to the goals and competencies, which needed to be achieved, is one of the best active ways, through which, students should be involved in the learning process. Undoubtedly, the quality of teaching and learning makes the relationship between teacher and student a communication vessel; giving and taking with each other. Technology should be treated as a didactic innovation where creative interactivity, in the process of teaching and learning, leads the student towards differentiated learning, including him in both the group learning activities, but also in research and creative activities.

Prensky argues that technology in the teaching process, supports the learner's thinking process, enhances his ability to focus on learning, improves comprehension and transfers the content to long-term memory. General use of information and communication technology fosters changes that are spread in all areas of human life. Bax wrote that Prensky's views are simple, that his terminology is opened to be challenged, and that his claim, that teachers simply need to change their approach to adapt to young people who are “digital natives”, ignores the essential elements of the nature of learning (Prensky, 2001).

Information and communication media channels related to the storage, processing and transmission of digitized information (Adell, 1997). Cabero has synthesized the most basic features of new innovation technologies as the following: interaction, momentum, innovation, high parameters of image and sound quality, digitalization, its impact more on processes rather than products, automation, interconnection and diversity, all of them bring success into learning (Cabero et. al., 1999)

The ability of the teacher to keep the interest of students alive and at the same time to well-manage the classroom and teaching process, turns the lesson into art; precisely, the use of technology in education, has broken the boundaries of the way of communication between the student and the teacher. According to Cabero, the effective use of techniques, methods and strategies in teaching, enhances effective learning and in particular, supports the four key components of learning: active participation, team work, frequent interaction/feedback and real connection between process and classroom management. Technology can be considered as an important integrative, vibrant, contradictory and educational discipline (Cabero, 2020).

This way of transitioning, from traditional teaching to interactivity, creates learning processes that allow students to create, work together, and make the learning process as an interesting game. The teacher, using the methodology, gives solutions to a series of problems, making it possible to emphasize the importance of creativity, in the use of technology. How can a student become more creative?

Creativity and motivation, as a center of innovation.
Creativity to learning as the key components of the course, etc.

All of these topics make it possible for teaching and learning to be well-balanced, interactive and successful. Innovative teaching develops and creates the personality of the critical, free, independent, creative, human, educated, multicultural student, who welcomes all current progressive changes, in the society in which he lives and works. In the scientific article published in the electronic journal "Educational Technologies", no.7, November 1997 Jordi Adell argues that, education, in a society where information is widely available, should be a factor of social equality and personal development, a fundamental right and not just a market product. New technologies must precede the questions: Are our schools prepared to face this challenge? Are we training children and young people for the future? (Adell, 1997). IT is not just impacting the teaching methodology, but it has the potential to further enhance the kind of foundational experiences of teachers and students using the tools, that will help them transform the professional teaching environment of their professional life and technological culture which traverses everything (Adell, 1997).

Technology helps the teaching process, as it provides orientation models in children and young people’s thinking and behavior. But, on the other hand, it is noticed, that the same orientation models can be easily imitated. While once children were oriented according to the model of their parents (teachers, artisans, farmers, traders, etc.), today, a good part of these models are taken by technology, mass media, etc. (Gjokutaj, 2009). The influence of technology in the process of teaching and learning is an element of creative interactivity into this process. The use of a large number of techniques and strategies in the learning process makes the lesson successful. We list some of them such as: group discussion (in pairs, small groups, large groups), learning through games, collaborative learning, activities that develop critical thinking, simulation situation, video observation, debate pros and cons, discussion of practical situations, outline of a story, author's question, blank missing words etc.
The inclusion of technology in teaching and its integration with different subjects, makes it possible to achieve subject and inter-subject competencies, for example film sequences; animated film with fairy tales such as “The Ugly Duck”. The teacher brings the visual side as in the fairytale. The illustration makes it possible to increase the children’s focus, which will lead to the fulfillment of competencies, set by the teacher in his textbook. Students, when involved in experiments or research, become more creative and learn from their work, but also from their mistakes. They are more social and cooperative when they work in groups. The motto of the American philosopher Benjamin Franklin “Tell me and I forget, teach me and I may remember, involve me and I learn.” has become a part of me, making me, more careful, to listen to what my students say, how they work and create and I am definitively proud to work with a generation where we, the educators, learn from them. Learning through action or research, experimentation, makes our students more creative and more practical. Progressive pedagogy greatly influences learning, inspiration and new ideas.

Research

In order to improve my work, but also to understand and reflect on the issues that this period brought, I made practical research. I relied on a methodology which includes quantitative and qualitative aspects. Quantitative because this research is extended to some schools in the city of Tirana, where through surveys and questionnaires, has been emphasized how much technology is used and the innovations it brings to Pre-University Education. In terms of quality, demonstrating it in tables and graphs, research instruments; questionnaires were prepared, while teacher and student surveys were used as a technique. The questionnaires were distributed to schools and completed by teachers and students. Then a data analysis was done. Students and teachers were involved in the research in order to get as comprehensive information as possible and to have a more realistic picture of the situation. (Table 1).

<table>
<thead>
<tr>
<th>Practical Descriptions</th>
<th>Evaluation Levels</th>
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<tbody>
<tr>
<td></td>
<td>Very Good</td>
</tr>
<tr>
<td>Is the school equipped with computers?</td>
<td>3%</td>
</tr>
<tr>
<td>Are computer rooms functional?</td>
<td>5%</td>
</tr>
<tr>
<td>Are the school facilities equipped with Wi-Fi?</td>
<td>4%</td>
</tr>
<tr>
<td>Do teachers have knowledge in using basic computer programs such as word, excel, power point?</td>
<td>5%</td>
</tr>
<tr>
<td>Does the school have TIK teachers and do they have the right expertise?</td>
<td>5%</td>
</tr>
<tr>
<td>Does TIK impact the teaching process that is focused on the student?</td>
<td>5%</td>
</tr>
<tr>
<td>Teachers apply teaching methods through TIK during the teaching process (Technological innovation)</td>
<td>9%</td>
</tr>
<tr>
<td>Students work remotely from home and class the assignments through the computer with teacher instructions</td>
<td>20%</td>
</tr>
<tr>
<td>Were teachers trained and certified on the use of TIK before the pandemic? Degree of use</td>
<td>0%</td>
</tr>
<tr>
<td>Are teachers interested in bringing technology innovations into the teaching process?</td>
<td>4%</td>
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<tr>
<td>Do teachers use multimedia in teaching?</td>
<td>10%</td>
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<tr>
<td>Do teachers instruct students to research online for learning needs?</td>
<td>20%</td>
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<tr>
<td>How much knowledge do students have on using a computer?</td>
<td>20%</td>
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<tr>
<td>Were the supporting portals used during the pandemic?</td>
<td>15%</td>
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<tr>
<td>How much does the computer affect the education of students?</td>
<td>20%</td>
</tr>
<tr>
<td>How well is TIK integrated into the teaching process?</td>
<td>5%</td>
</tr>
<tr>
<td>How much importance has been paid to the TIK subject in Education?</td>
<td>3%</td>
</tr>
</tbody>
</table>

Table 1. The role of information technology in the teaching process

Schools in Tirana; urban and non-urban areas
Students involved in the research: 1899, of these 1035 were girls;

From these schools, in the city of Tirana, there are 877 students in total, 281 students are from the ninth grade, 355 are from seventh grade and 241 are fifth grade students.
The students involved in the research, from the schools at the villages: 1022 students in total, of which 336 students are from the ninth grade, 328 students are from the seventh grade and 358 students from the fifth grade. Involvement of teachers: teachers that are specialized in different subject profiles and teachers in lower secondary education (5th grade) to understand how much technology is being included in the teaching and learning process in different subjects; a total of 92 teachers, where 45 of them are assigned class teachers.

We find that schools in Pre-university education in Albania are supplied with computers, but when we make the question; are the computer rooms functional, 80% of them respond that the condition is poor (please see chart below).

In addition to this fact, teachers say that: We do not have conditions in school, we do not have didactic tools, classrooms are overcrowded and heating is missing. As for technology we are not very interested, whether our school has a computer or not, considering that they are not functional.
The above chart shows that 4% of them responded “Very Good”, 6% respond “Good”, 50% respond “sufficient” and 40% respond “Weak”. The Internet is available only in the computer class, or in the director office. The power is weak and cannot be used to send an email or explore for learning. Do teachers have knowledge in basic computer programs, in the use of computers such as word, excel, power point?

Figure 4. Teachers’ capability in using computer programs

4% of them respond to have very good knowledge, 30% good, 45% sufficient and 20% weak.

According to these data, it can be confirmed that the situation of teachers for knowledge and the use of computer, is at a sufficient appropriate level, because the use of IT in teaching, is more about the teachers focus in using it for educational purposes, rather than the practical use of computers along with its tools and programs, for scientific preparation.

Over 80% of teachers use computer for basic works (reading, writing, and sketching). The program with the largest percentage used by teachers is: Word and Excel 80% (program for spreadsheets and calculations) and Power Point in 20% level.

Does school have IT teachers and do they have the right expertise? The chart below addresses that.

Figure 5. Teachers’ IT expertise

5% of them answer that they have very good knowledge, 20% good, 45% sufficient and 30% poorly.

This is due to the fact that elementary, middle and high schools in most cases cover the subject of informatics with math and science teachers.

Does IT affect student-centered teaching?
Figure 6. Technology impact in the teaching process

5% of them answered sufficient, 40% good, 5% very good and 5% poorly.

Do students do homework and classroom work through computer based on teacher’s instructions?

Figure 7. Use of technology by teachers in teaching process

20% of them answered that students are successful, 50% of teachers say that they guide the students to different addresses to make researches about learning topics. Students use internet according to the instructions teachers give for homework and how to work at home, 20% of teachers-orient students enough and 10% of them poorly (do not orient for additional information).

Referring to the Elementary, Middle and High School Education Law in the Republic of Albania, Article 59 of Law no. 69/2012, as amended, instruction no. 4 dated 26.02.2021, for the criteria and procedures of teacher qualification, article 4 point 5, we drafted the question: Are teachers trained and certified for the use of IT in teaching before the pandemic period?

Figure 8. Teachers IT training and certification before pandemic
They say that before the pandemic they had not thought that technology would be so necessary and had never called it a necessary part to be qualified.

20% of them answer that they received partial training within other modules, 80% of them did not receive it even during other modules. Teachers say that the situation created by the pandemic found them unprepared and put them in front of a big challenge.

Are teachers interested in bringing technology innovations into the teaching process? Teachers’ opinions about the methods of teaching process through IT are different.

4% of them use these innovations very well. They encourage students to research information about a topic, use video demonstrations, poems, stories and short literary or non-literary writings. 6% of teachers stand at a good level, 40% of teachers state that they guide students, orient them to different websites to research for teaching topics that will be discussed and supplemented by other students. 50% of them poorly use these innovations; instead, they continue with traditional methodologies and use the textbook as the only source of information.

Do teachers use multimedia in teaching?

10% of them answer a lot, 70% answer well; that the presentation of certain topics with photos, maps, sketches, tables, learning through the use of tape recorders, etc., are tools that are often used. Teachers stimulate students to be attentive to visual elements and media resources and to distinguish information to be learned and impressions to be created from images and sounds.

Students divided into small groups can read, analyze and discuss magazines, newspapers, articles. About 16% of them express themselves sufficiently and 4% of them argue for a little use of multimedia in the learning process.

As for the question: Do teachers instruct students to make online research for learning needs?
20% of them answer a lot, they use internet for scientific research on various websites, to get updated with the latest information from the world, for exploration, for tests, for problems and other information related to the given subject. Teachers are self-aware that online research works done by students makes them establish the digital competence. Information found on the internet, makes the lesson even more attractive. Exploration, navigation also brings good management and involvement of all students during the lesson, even of those students who are not active in the learning process. 40% of teachers provide them with additional material from internet; it turns out that they use internet to look up information about teaching topics, which cannot be found in books. In this case they answered that it depends on the subject of teaching and that certain websites are researched for this purpose. 30% answered sufficient, 10% of them state that they have not offered students internet exploration materials.

As for the question: How much computer knowledge do students have and how much does computer affect students’ education?
60% of them answer that they have a lot of knowledge about its use, 30% well, 10% enough. As both graphs above shows, 10% do not know how to use it.

The programs that students use the most, whether for learning purposes or for conversations or games, are Google, Facebook, YouTube, Messenger, Wikipedia etc. From the Microsoft Office programs, they mostly use Microsoft Word, as well as other application programs for games such as Photoshop, Moviemaker etc.

Teachers think that in order to achieve an integrated and coherent system of knowledge and skills, since they need to face the challenges of the digital age and the free market economy, the realization of digital competence is definitively necessary.

How well IT is integrated into the teaching process?

![Figure 14. Technology integration in the teaching process](image)

5% of them answer that they integrate IT very well in teaching. 30% of teachers integrate technology well, 40% of them sufficiently and 25% poorly.

How much importance has been paid to the subject of IT in Education? 3% of them answer very well, 10% well, 30% sufficiently and 57% poorly.

![Figure 15. Importance of technology subject in education](image)

To the question of whether supporting portals were used during the pandemic;

15% of them stand for maximum, 25% of the teachers answer well, 30% of them enough and 30% poorly. The teachers stated that the computer-assisted learning, developed at home, was a challenge that found them unprepared both professionally and psychologically. It also, required total commitment from students’ parents to observe their children closely, for what and for how much time they are using the computer. Teachers expressed the fear that unless students were under parental control during the learning process, they would turn off the cameras and give the impression that they were in the class, but at the same time were involved in games or social networks. Teachers argued about the lack of student's interest for cooperation, since most of the time they tend to use internet for games and chats.
Another issue was the internet supply, which in most cases caused the process to fail. As it can be estimated that technology was the only key to realize the learning process in these two difficult years of pandemics and the role of teachers in this case was guidance, they asked students to use internet for pedagogical needs. Precisely, by shifting the teaching process from the conditions of auditorium to home environment, the process required the teacher to work with dedication and professionalism and this emphasized the need for qualification as a need for a continuing approach to their vocational training.

Conclusions

Curriculum improvement, based on the implementation of new learning technologies in the process of teaching and learning, affects improvement and increases the responsibility of teachers, who, through technology, go beyond traditional ways, so as to create the possibility of practicality in student-centered teaching. Training and qualifications for teachers, is a great need in our educational institutions. Focusing on teaching strategies using technology as a didactic innovation, should be the next challenge for our teachers. Turning lesson into art through a good teaching process by the teacher will eventually be a benefit for students, in order to gain:

- knowledge, skills, values and attitudes for each competence and activity;
- key subject competencies;
- language and creative skills;
- the possibility to explore teaching under European standards;
- increased motivation, the spirit of initiative in teaching with a global approach;
- digital skills and use of technology in the learning process.

Literally, university auditors have the task of training the teachers who are able to implement a new curriculum, based on competencies, to implement didactic innovations in teaching, where the student is at its center and teaching takes on an inclusive perspective.

Scientific Ethics Declaration

The author declares that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the author.

References

Recommended Resources


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To cite this article: