STUDY ON THE DEVELOPMENT OF MOTIVATIONS WITH THE USE OF ICT IN A LEARNING ENVIRONMENT OF TEACHERS´TRAINERS

ΜΕΛΕΤΗ ΤΩΝ ΚΙΝΗΤΡΩΝ ΜΕ ΤΗ ΧΡΗΣΗ ΤΩΝ ΤΠΕ ΣΕ ΜΑΘΗΣΙΑΚΟ ΠΕΡΙΒΑΛΛΟΝ ΕΚΠΑΙΔΕΥΣΗΣ ΕΚΠΑΙΔΕΥΤΩΝ

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Abstract

The development of technology in recent years has affected all aspects of human life, including education. This is due to the fact that only through technology is it possible to meet the needs of the modern age. Although new technologies seem promising, learning is a multidimensional concept that to be properly approached, students' motivations must be studied. The purpose of this study is to explore the development of motivation using new technologies. The results show that the use of technology in the educational process creates additional motivation.

Key words: *education, learning, ICT, technology, motivation*

Abstrakt

Η ανάπτυξη της τεχνολογίας τα τελευταία χρόνια έχει επηρεάσει όλες τις πτυχές της ανθρώπινης ζωής, συμπεριλαμβανομένου και του τομέα της εκπαίδευσης. Αυτό οφείλεται στο γεγονός ότι μόνο μέσω της τεχνολογίας είναι δυνατό να καλυφθούν οι ανάγκες που προστάζει η σύγχρονη εποχή. Παρότι οι νέες τεχνολογίες φαίνονται πολλά υποσχόμενες, η μάθηση αποτελεί μία πολυδιάστατη έννοια που για να προσεγγιστεί ορθά θα πρέπει να μελετηθούν τα κίνητρα των μαθητών. Ο σκοπός της παρούσας μελέτης είναι να διερευνήσει την ανάπτυξη κινήτρων με τη χρήση των νέων τεχνολογιών. Από τα αποτελέσματα φαίνεται ότι η χρήση της τεχνολογίας στην εκπαιδευτική διαδικασία δημιουργεί πρόσθετα κίνητρα.

Λέξεις κλειδιά: *εκπαίδευση, μάθηση, ΤΠΕ, τεχνολογία, κίνητρα*

1 INTRODUCTION

1.1 INFORMATION AND COMMUNICATION TECHNOLOGIES

The changes resulting from the use of information and communication technologies (ICT) in almost all aspects of people's daily lives, bring about significant changes in schools. ICT modifies the process of accessing, retrieving, and processing information and communicating involved in the educational process (Prensky 2004, Livingstone & Bober, 2005; Griva, Thanopoulos & Armakolas, 2019a). The teacher ceases to be the transmitter of new knowledge and the only organizer of the educational process and he becomes an animator of students in the new cognitive paths. It functions as a bridge to build new knowledge by utilizing both skills and pedagogical tools (Papadiamantopoulou, Papadiamantopoulou, Armakolas, Gomatos, 2016; Griva, Thanopoulos & Armakolas, 2019a). At this stage, the teacher plans the process of teaching together with his students, avoids controlling the whole process, shares his knowledge, and in many cases becomes a co-researcher and a member of the individual groups. The process of designing and building educational software forces

users to reflect and understand more deeply the issue they are negotiating (Solomonidou, 2002; Sepsakos, 2013). However, the feelings of anxiety, worry, fear, and devaluation of students who have difficulty using ICT seems to act as inhibitors, compared to very familiar students (Sepsakos, 2013). Also, the lack of substantial assistance and training of teachers in ICT leads to the non-adoption of new methods and teaching practices (Lafatzi, 2005). One of the fundamental principles of these programs is the utilization of ICT and the connection with all cognitive objects (Drenoyianni, 2015).

1.2 FACTORS AFFECTING LEARNING

Learning is a complex and multidimensional process that is influenced by numerous factors. These factors are divided into three categories, cognitive, social, and emotional learning, while concepts are interdependent (Stamatopoulou, Baliamis & Papadopoulou, 2017). Cognitive factors are those that concern thinking and problem-solving ability, social factors are motivations and goals created by the environment while emotional ones are the motivations, attitudes, and emotional state of a student.

In the study of cognitive learning, the emotional factor has traditionally been excluded. However, in recent years the importance of emotion in the learning process has been recognized and for this reason, it has now begun to be integrated into the process. According to the constructivist movement (Matthews, 2002), people are the creators of knowledge and construct their works based on the way they understand the world through the experiences they have gathered. Learning arises through the student's works, while he is guided by social factors that depend directly on his motivations and desires.

Learning also has a social dimension in which an individual's activities in society interact both with each other and with their environment. Especially nowadays the internet can function as a means of transmitting and storing messages between students, thus contributing to the learning process (West, 2018).

1.3 THE ROLE OF MOTIVATION IN THE LEARNING PROCESS

Motivation has been defined as the desire or disposition to engage in a task (Schunk, Meece & Pintrich, 2014) and is often referred to as a state of "post-movement" of the individual, a movement that drives his behavior. Unmotivated students do not feel any push or inspiration to learn new behavior and will not engage in any learning activity if this term is missing. Educational researchers have recognized the role of motivation in learning and have studied motivation from different perspectives. The first motivational theories reflected the traditional behavioral approach that based rewards and punishments on motivation, and later movements and needs. However, in recent years researchers have followed a socio-cognitive approach, which focuses on the factors that create motivation (West, 2018). According to West (2018), students' motivations change and differentiate as a variable that varies to the teaching, goals, and activities that take place in a classroom.

Incentive Categories

Motivations are divided into the following categories (West, 2018):

• Motivation as a change of behavior

Motivation is often identified with the student's external behaviors, a phenomenon also known as behaviorism. In its most comprehensive form, behaviorism focuses almost

entirely on what can be seen directly about a person's behavior while having only a few observations about indirect behavior. Sometimes teaching conditions limit teachers' opportunities to distinguish between internal motivation and external behavior. At the same time, the multiple requirements of teaching can limit the time available for defining behavior.

• Motivation as a goal

Motivation varies depending on the type of goals students set for themselves and how these goals align with their academic achievement. However, some goals encourage academic achievement more than others, although there are who do not tend to indirectly influence learning (West, 2018).

• Motivation as interests

Students who are trying to learning by interest tend to pay more attention to this process than those who learn by effort (Hidi, 2006). The challenge for teachers is to harness and encourage students' interest as much as possible.

• Motivation as self-efficiency

Students' motivations are also influenced by specific beliefs about their abilities. In the theory of self-efficiency, beliefs become a primary need for motivation while the individual can perform a specific task or achieve a specific goal (Diamantopoulou & Kalogeropoulou, 2020). However, these beliefs are identified mainly with personal perceptions and not with documented skills and abilities (West, 2018).

• Motivation as self-determination

Common sense suggests that human motivation comes from some inner need. But need as a concept is a relatively permanent state or feeling that requires relief or satisfaction and tends to affect the action of the individual in the long run. However, needs must differ from beliefs, which are relatively specific and cognitive, and directly and specifically affect tasks and behaviors (West, 2018).

1.4 LEARNING MOTIVATIONS

One of the separations of motivations concerns is internal and external (Bakirtzis, 2015).

The internal motivations of the students

Internal motivations include those that come from the student himself and are:

- Interest: the appearance of a stable personal mood towards a specialized topic or field.

- Adequacy: the need of students for a sense of their ability to succeed in various projects and control over their environment.

- Effort: the inner need of the individual to make an effort and to achieve a specific goal.

- Project value: the ability to perceive the value of the project in which they will be involved.

- Curiosity: the trait that motivates students to act. It is an inner impulse that creates motivation.

- Intensity: the feeling of pressure and anxiety, which reduces students' willingness to engage in a project.

- Research topic: the interest, the adequacy, the effort, the value of the project, the intensity (positive motivating factors), and the curiosity (negative factor) that one has about the specific research topic.

Students' external motivations

External motivations are environmental factors and lead students to learn. The extent to which students will be influenced by external motivations depends on their temperament and needs, which are shaped by the environment in which they live. In the case of the school environment, the external incentives are reward - grades, punishment, reinforcement, approval, and reward

2   METHODOLOGY

This research aims to provide teachers with the necessary information, knowledge, and skills related to the development of motivation in learning environments, which will lead to the gradual integration into a dynamically changing educational learning process. The research questions are:
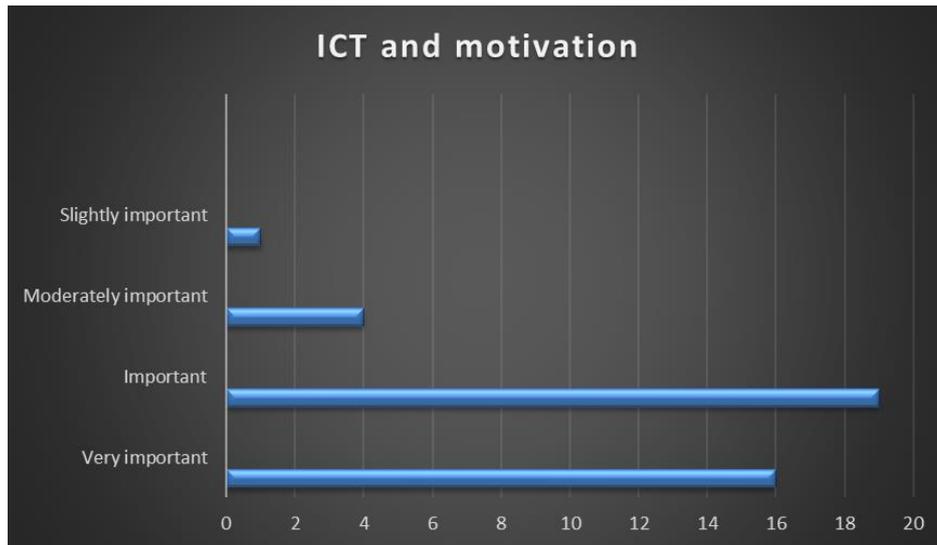
- Does the student's familiarity with the use of the internet and multimedia have a positive effect on the learning process and motivation?

- Do collaborative learning environments help students get involved in the learning process?

- Can the infrequent updating of multimedia applications negatively affect the student's interest?

- Are technological learning environments related to the student's interests and motivation?

The questionnaires used in the present research study were distributed directly to the 40 respondents (students and graduates of ASPAITE) in electronic form through social networking. The study was based on the completion of a questionnaire, which assesses teachers' familiarity with technology and evaluates its usefulness in transmitting knowledge. The method used was quantitative to enhance the research result and to document the impact of technology on the educational environment. The questionnaire was designed based on previous research and in which the validity and reliability in its use become clear (Fernández, 2011; Hüsing, Korte & Dashja, 2015) and consists of 19 closed-ended questions, with the answers given on a five-point Likert scale.

3   ANALYSIS

This section presents the results of the survey, as they emerge from the questionnaires that were distributed.

In answer to the question, whether the transfer of information through new technologies can act as a stimulus to motivate the student, the majority of students, 19 people in the total sample, answered "very important" while only 16 answered "important" (Graph 1). However, only 4 people answered "moderately important" and only 1 answered that the new knowledge has only a small effect on the learning interest. It is worth noting that no respondent chose "not important".

Graph 1. ICT, enhancing learning interest and motivation

In answer to the question, whether the student's familiarity with the use of internet and multimedia has a positive effect on the learning process and motivation, the majority of respondents, 19 in our sample, answered " important" while only 12 people answered "very important" (Graph 2). Also, only 7 people answered that the internet and multimedia have a very big effect on learning, while only 2 answered that it has only a small effect. It is worth noting that no respondent chose "not important".
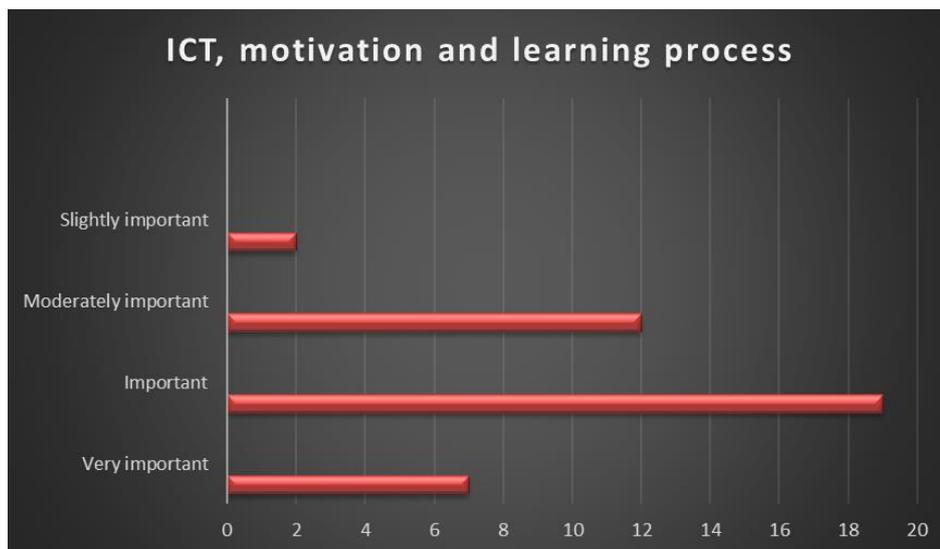

Graph 2. ICT, learning process and motivation

In answer to the question, whether collaborative learning environments help students get involved in the learning process, the majority of respondents,18 people in our population answered "important" while only 15 people answered "very important" while only 7 answered "moderately important" while no one answered "slightly important" or "not important" (Graph 3).
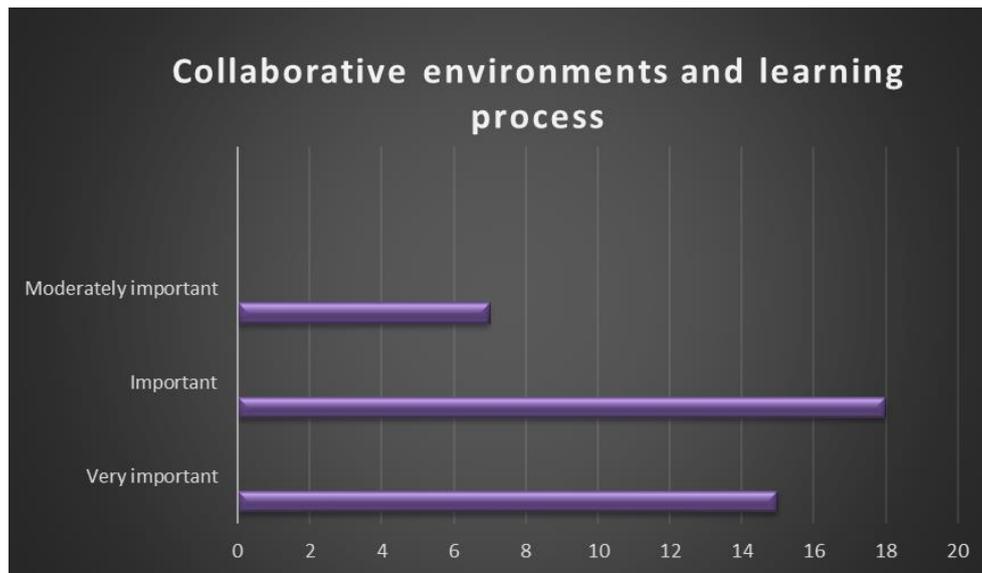
Graph 3. Collaborative programs and learning process

In response to the question, whether the infrequent renewal of applications based on multimedia can negatively affect the interest of the student, the majority of respondents, 20 in our population answered " important" while only 12 people answered "very important" (Graph 4). However, only 5 people answered that the rare renewal affects the student's interest very much and only 3 answered "slightly important". It is worth noting that no respondent chose "not important".
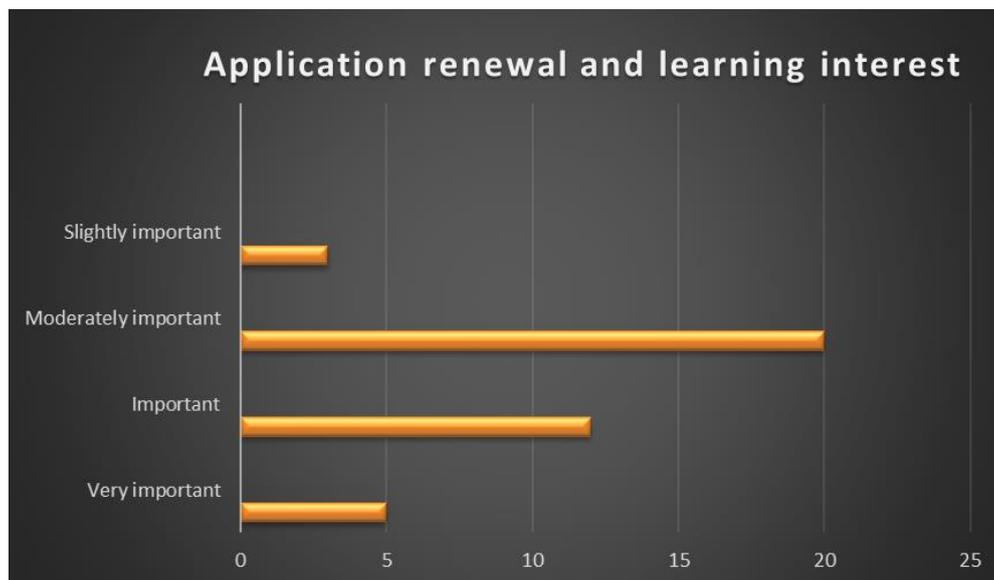
Graph 4. Non-renewal of multimedia applications and learning interest

In answer to the question, to what extent the new knowledge can act as a support to the student's interest and contribute to the creation of motivation, the majority of the respondents answered "important", with a percentage of 47.5% (Table 1). Only 40% answered "very important", while one in ten answered "moderately important". However, it is worth noting that only 2.5% of respondents chose "slightly important".while no one chose "not important".

Answers	Frequency	Percent (%)
Very important	16	40
Important	19	47.5
Moderately important	4	10
Slightly important	1	2.5
Not important	0	0
Total	**40**	**100**

Table 1. Frequency and percentage of participants' answers to the question "To what extent does the new knowledge enhance the student's interest and create motivation?"

In answer to the question, whether the technological learning environments are related to the personal interests of the student and to the creation of motivations, the majority of the respondents answered "moderately important" with a percentage of 37.5% (Table 2). Also, 25% of the participants chose "very important" and "important" again with a percentage of 25%. Only 12.5% chose "slightly important" as the answer to the question, while no one chose "not important".

Answers	Frequency	Percent (%)
Very important	10	25
Important	10	25
Moderately important	15	37.5
Slightly important	5	12.5
Not important	0	0
Total	**40**	**100**

Table 2. Frequency and percentage of participants' answers to the question "Are technological learning environments related to the student's personal interests and motivation?"

4 CONCLUSIONS

Clearly, the rapid growth of ICT has had a decisive impact on the education sector. In other words, ICT has managed to create appropriate learning environments both simple and innovative, in such a way as to expand the educational process and at the same time to promote the pedagogical purpose of learning (Myserli, 2015).

The use of technology and more specifically ICT in the learning process can be an important motivator for students, thus enhancing the effectiveness of learning. New Technologies that contribute to active learning, enable students, on the one hand, to better understand the learning process and on the other hand to create incentives for "quantitative" and better quality learning. ICT arouses the interest of the student, while at the same time creating more attractive and effective ways of teaching as they enable him to break away from the traditional way of education and learning (Myserli, 2015) and contribute to creating personal interest and motivation (Bratitsis, 2013). Besides, through ICT, the role of the teacher is strengthened, since, through group collaborative activities of students, it holds an active role in both the process of education and learning itself (Bratitsis, 2013).

At the same time, it proves that the dispersion of the use of computer systems throughout the curriculum of students and not only in specific subjects contributes substantially to the improvement of the educational process (Bratitsis, 2013). In other

words, ICT is an essential tool in the learning process, since computer technology is based on the interaction between people involved in this process (Griva, Thanopoulos & Armakolas, 2019b). In this context, students - learners are not passive recipients of information, but operate autonomously and responsibly, playing an active role in the learning process while proving that their familiarity with ICT plays a key role in creating motivation. In addition, collaborative environments help them engage in the learning process and refine techniques to achieve common goals. As a result, the lesson becomes more fun and the students actively participate in the learning process, acquiring more intellectual and cognitive skills (Bratitsis, 2013). At the same time, it is observed that the new knowledge that is "acquired" through ICT contributes decisively to the enhancement of the student's interest while at the same time it creates more motivation for the student and he makes a greater effort for success (Bratitsis, 2013).

However, the unfamiliarity of students with the use of computers in general as well as the infrequent renewal of multimedia applications can be discouraging in the learning process. The same conclusion was reached by the study of Kriemadis, Thomopoulou & Sioutou (2017), who observed that despite the benefits of technology in education for those who naturally control it, for others it can be discouraging and counterweight to motivation.

For this reason, it is considered necessary to teach computer science as an autonomous subject, which in fact should take as a course and the required weight that is appropriate to it and not be considered by both students and some teachers, a course of "lower importance". So it seems that since the modern definition of knowledge includes the word technology, both teachers and students should be able to use it appropriately and effectively. Also, since the applications of informatics are innumerable and concern a huge range of skills necessary for the current student, they should be taught at an early stage to develop accordingly and to contribute decisively to the learning process.

However, it is worth noting that the possible distrust of students towards the use of technologies in education (Machairidou & Antoniou, 2018) is due in large part to the concern about the lack of teacher training that may be related to the rather large average age of teachers but also with their unfamiliarity with the use of technological means. A solution to this problem is the existence of appropriate training of teachers, with special seminars so that they can support the process of education with these new data (Machairidou & Antoniou, 2018). At the same time, while Informatics is in the study guide of the students, it should be emphasized for the way of teaching the course to be effective, on the one hand, it should be carefully studied in which educational level it will be taught and on the other hand what methodology will be used for the teaching of this course. Furthermore, it is considered necessary to address the problem of technological infrastructure in Greek schools.

In conclusion, the use of technology in the educational process includes significant benefits, which will mobilize students towards knowledge and create additional motivation. On the other hand, the exclusive use of technology can be dangerous. However, the correct and irrational use of ICT will bring significant benefits to both the student and the teacher but also to the entire educational community.

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