



The Use of Educational Technology and Its Impact on Students' Academic Achievement in Light of Learning Motivation

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Abstract:

This study examines the impact of educational technology on students' academic achievement in relation to learning motivation, emphasising the relationship between the use of modern technological tools and academic performance levels. The study addresses the concept of educational technology, its characteristics and its objectives, as well as clarifying the concept of academic achievement and its levels. It also discusses the factors that influence academic achievement, placing particular emphasis on learning motivation as a fundamental element in improving educational outcomes.

It also discusses the most significant obstacles that could hinder the effective use of technology in educational institutions, including insufficient resources, overcrowding, and inadequate training. The findings suggest that using educational technology can positively impact academic achievement and motivate students by diversifying teaching methods and making the learning process more interactive and engaging. It also helps to develop learners' thinking and exploration skills.

Keywords: Educational Technology, Academic Achievement, Learning Motivation, Educational Process.

Introduction

In recent years, the world has witnessed significant technological developments in various fields, including education. Educational technology has thus become a modern means through which educational institutions can improve the teaching and learning process. The use of digital media and modern technologies facilitates the delivery of information, develops students' skills and increases their engagement in the classroom.

Academic achievement is considered one of the most important indicators of the success of the educational process, as it is influenced by several factors, including the use of educational technology and students' motivation to learn. Engaging and interactive teaching tools contribute to increasing students' interest and motivation to learn, which positively affects their academic outcomes.

This study aims to examine the extent to which educational technology affects academic achievement in relation to learning motivation, while also highlighting the importance of technological tools in improving performance and fostering a desire to learn.

Problem statement

Based on the foregoing, the problem of this study is articulated in the following question:

To what extent does the use of educational technology affect students' academic achievement in relation to learning motivation?

Sub-questions



To facilitate answering this question, it can be broken down into the following sub-questions:

- What is the role of educational technology in improving students' academic achievement?
- Does learning motivation contribute to the effectiveness of using educational technology?
- What is the relationship between educational technology, learning motivation and academic achievement?
- What are the main difficulties that hinder the use of educational technology in educational institutions?

Research Hypotheses

The study is based on the following hypotheses, which are derived from the questions:

- Educational technology improves students' academic achievement.
- There is a positive relationship between the use of educational technology and learning motivation.
- The greater a student's learning motivation, the more effective educational technology is.
- Using modern technological tools has a positive effect on students' academic performance.

The Importance of this Study Stems from Several Aspects, Most Notably:

- Highlighting the importance of educational technology in developing the educational process.
- Identifying the role of learning motivation in improving students' academic achievement.
- Contributing to the clarification of the relationship between educational technology and academic achievement.
- Providing information to help educational institutions develop modern teaching methods.
- Encouraging teachers to use educational technology in the classroom.
- Enriching academic studies and research related to educational technology and learning motivation.

First Axis: The Conceptual Framework of Educational Technology

Technological progress has significantly developed the educational field, directly affecting teaching and learning methods. Educational technology has therefore become an essential element of contemporary educational processes.

It has improved the presentation of information and facilitated students' acquisition of knowledge and skills, establishing itself as one of the most important tools adopted by educational institutions. This axis addresses the concept of educational technology, its characteristics, objectives, importance and types.

1. The Concept of Educational Technology

Multiple definitions of educational technology are available, as follows:

First definition: Educational technology is the process of using modern technologies in education to improve teaching and learning by delivering information in an effective and engaging way using technological tools and programmes. (Abd al-Karim Al-khenague, Jwan, 2008, p. 34)

Second definition: Educational technology is a structured approach that applies scientific knowledge and modern technologies to plan, implement and evaluate the educational process in order to achieve educational objectives using the most effective methods possible. (Khabit, 2010, p. 1).



Educational technology is also an integrated system comprising various tools, technologies and modern approaches used in the educational process. Its aim is to improve and develop education by facilitating the transfer of information, developing students' skills, increasing interaction within the classroom and achieving educational objectives efficiently and effectively.

2. Characteristics of Educational Technology

Educational technology is characterised by several features, most notably: (Boudefla, 2010–2011, p. 11).

Interactivity: It enables students to participate in and interact with educational content directly.

- Engagement and stimulation: It makes the learning process more appealing and enjoyable for students.
- Flexibility: It can be used at any time and in any place, and across different educational stages.
- Speed of information transfer: It helps to deliver information quickly and accurately.
- Consideration of individual differences: It allows each student to learn according to their abilities and at their own pace.
- Diversity of media: It uses a variety of media, such as text, images, video and audio, to present information.
- Ongoing development: It continually evolves due to continuous technological progress.

3. Objectives of Educational Technology

Educational technology aims to achieve a set of objectives, the most important of which are: (Buni Dumi et al., p. 100).

- improving the quality of teaching and learning.
- Facilitating students' understanding and comprehension of information.
- Developing students' thinking and creativity skills.
- Increasing learning motivation and participation in the classroom.
- Saving time and effort for both teachers and learners.
- Diversifying teaching methods and approaches.
- Linking theoretical aspects with practical application.

Developing students' research and discovery skills.

4. The Importance of Educational Technology

The importance of educational technology lies in the following:

- Contributing to the development and improvement of education.
- Facilitating communication between teachers and learners.
- Enhancing interaction within the educational environment.
- Simplifying complex concepts.
- Providing a modern, engaging learning environment.

Supporting independent (self-directed) learning among students.

- Improving academic achievement and raising performance levels.

Types of Educational Technology

Educational technology can be divided into several categories, the most important of which are:

A. Audio (aural) means, such as audio recordings and educational radio.

B. Visual aids, such as images, maps and smartboards.



C. Audio-visual means, such as educational videos and presentations.

D. Digital technology, such as computers, the internet, and electronic learning platforms.

E. Smart educational applications, such as smartphone apps and e-learning programmes.

It is clear from this that educational technology has become one of the essential pillars of the educational process because it provides modern tools and methods that improve learning and increase its effectiveness. It also helps to develop students' skills and motivate them to learn, while facilitating teachers' work and helping them to achieve educational objectives with greater efficiency and flexibility.

Second Axis: The Role of Educational Technology in Improving Academic Achievement

Academic achievement is considered one of the most important concepts in education because it reflects how well students acquire the knowledge and skills presented to them during the learning process. It is also an important indicator of the success of the educational system and the effectiveness of the teaching methods used within educational institutions.

1. The Concept of Academic Achievement

Academic achievement is one of the core concepts in education. It refers to the level of performance achieved by a student as a result of learning, acquiring knowledge and skills, and gaining experience through the educational process. It also reflects a student's success in understanding lessons and school curricula, as demonstrated by test results, examinations, and various educational activities.

First definition: Academic achievement is the amount of knowledge, skills and experiences acquired by a student during their education, as evidenced by their test and examination results and performance in school activities. (Fadel Al-Samarrai and Qandilji, 2002, p. 28).

Second definition: Academic achievement is defined as the level of success or performance achieved by a student in different school subjects as a result of learning, training and practice within an educational institution. (Qandilji, Al-Ali & Al-amer, 2006, p. 1).

In general, academic achievement is defined as the level of educational performance attained by the learner through acquiring knowledge, skills and experience via the educational process. It is measured by the extent to which students understand and master the school curricula and their ability to apply them. This is demonstrated through tests, activities, and various forms of assessment.

2. The Importance of Academic Achievement

The importance of academic achievement is reflected in the following:

- Measuring the student's scientific and cognitive level;
- Identifying the extent to which the educational process is effective.
- Recognising students' different abilities and skills.
- Motivating students to excel academically.
- Contributing to the development of educational programmes and curricula.

Supporting the achievement of the educational institution's objectives.

3. Factors Affecting Academic Achievement

Academic achievement is influenced by several factors, the most important of which are:

A. Personal factors

These include:

- Intelligence and mental abilities;



- Learning motivation and desire to study.
- The student's psychological and health condition.
- Self-confidence and concentration.

B. Family factors

These include:

- The family's educational and cultural level.
- Family interest and support.
- Social and economic circumstances.

C. School factors

These include:

- The competence and teaching methods of the teacher.
- A suitable school environment.
- The educational and technological tools used.
- Organisation of educational programmes.

4. Levels of Academic Achievement

Academic achievement is divided into several levels that vary according to students' abilities, effort, psychological and social circumstances, as well as teaching methods and the educational environment.

These levels can be clarified as follows:

High academic achievement: This refers to the level at which the student achieves excellent academic results and demonstrates a high level of understanding and comprehension. Such a student demonstrates continuous excellence across different school subjects.

A student with high academic achievement is typically characterised by:

- Obtaining high marks in tests and examinations.
- The ability to quickly understand and grasp lessons.
- Effective participation in class.
- Independence in studying and reviewing.
- Time management and perseverance skills.

This level is often attributed to a combination of factors, including strong motivation to learn, good family support, effective study methods and a suitable educational environment. Students in this category are usually characterised by self-confidence and an ongoing ambition to succeed.

Average Academic Achievement

This is the level at which a student achieves acceptable results that are neither significantly outstanding nor notably weak; therefore, their academic performance remains within the average range.

A student at this level is characterised by:

- Average results in most subjects.
- A partial or good understanding of lessons, which is sometimes accompanied by difficulties.
- Limited participation in the classroom.
- A need for continuous review and ongoing support.

This level is often due to fluctuations in learning motivation, poor time management or a reliance on the teacher without making sufficient effort towards self-review. This level can be improved through continuous motivation and the development of study methods.



- Low academic achievement: the student experiences clear weaknesses in academic achievement. Their results are weaker than those of their peers and they have difficulty understanding and comprehending concepts.

This is evident through:

- A persistent decline in academic grades.
- Difficulty understanding lessons and grasping concepts.
- Poor participation in class.
- Low interest in studying or a loss of motivation.

There are several reasons for this level, including weak learning motivation, psychological or family problems, a lack of follow-up, weaknesses in teaching methods or insufficient educational resources. Special support from teachers and parents is required at this level to improve academic performance.

5. The Role of Educational Technology in Improving Academic Achievement

Educational technology plays a key role in enhancing academic performance by: (Hasan Abd al-Hamid chahin, 2011, p. 1).

- facilitating students' understanding of information and simplifying lessons;
- increasing students' interaction within the classroom.
- diversifying teaching methods and making them more engaging;
- Developing students' thinking and research skills.

Enhancing learning motivation and improving academic performance.

6. Obstacles to Academic Achievement

There are several obstacles that directly or indirectly affect students' academic achievement levels, and these factors vary from one student to another depending on the psychological, social, and educational conditions surrounding them. Among the most prominent of these obstacles are: (Al-Taher, 2008, pp. 10–11)

Learning motivation is considered one of the most important factors in helping a student to strive and persevere with their studies. When motivation decreases, students become less interested in learning, leading to poor concentration and a lack of willingness to participate in class or complete assignments. This may be due to a lack of encouragement, reliance on traditional and uninspiring teaching methods, or feelings of failure and low self-confidence.

The unavailability of modern educational resources such as computers, projectors, the internet and interactive media negatively affects the learning process. In such cases, lessons become traditional, relying mainly on lecturing and memorisation. Furthermore, a lack of educational technology reduces student interaction and weakens their ability to understand and comprehend, particularly given the technological advances witnessed worldwide.

Overcrowding is one of the main problems experienced by educational institutions. The large number of students in the classroom makes communication between teachers and students difficult and reduces their ability to address differences among students. It also affects students' concentration and reduces opportunities for participation and interaction during lessons, which has a negative impact on academic achievement.

The family plays a fundamental role in students' academic success. Therefore, family issues such as disruption, poor support or challenging social circumstances can have a significant impact on a



student's psychological state and ability to concentrate. Furthermore, psychological issues such as anxiety, fear, low self-confidence and stress can lead to a decline in academic performance and hinder understanding.

Poor time management can have a significant impact on academic achievement. Students may find it difficult to balance studying with rest and other activities. In addition, failing to allocate sufficient time for daily revision can lead to a build-up of lessons, a weak understanding of the subject, and ultimately lower academic results. Therefore, effective time management and regular revision are among the most important factors for success and academic excellence.

Some traditional teaching approaches may also impact academic achievement, particularly when they rely solely on memorisation and lecturing, rather than involving students in the educational process. A lack of diversity in teaching methods reduces students' interest, leading to boredom and a weaker understanding of the subject.

Regular absence from school means missing lessons and not understanding the teacher's explanations, which makes it difficult for the student to follow the curriculum and keep up with their classmates. This is reflected negatively in their academic results.

Despite technology's importance in education, excessive and unguided use of smartphones, social media platforms and electronic games can waste time and reduce focus on studying, affecting academic achievement. (Moulay Boudakhili, 2000, p. 1).

In conclusion, academic achievement is considered a key indicator of the success of the educational process, influenced by personal, family and school factors. Moreover, the use of educational technology can significantly improve academic achievement by providing a more interactive and motivating learning environment for students. This helps students to achieve better results and develop their educational abilities.

Third Axis: Learning Motivation and Its Relationship to the Use of Educational Technology

Learning motivation is one of the most important factors affecting the success of the educational process. It drives learners to participate and acquire knowledge and skills. In light of the technological developments in education, educational technology has become an effective means of motivating learners and increasing their desire to learn by providing a modern, interactive learning environment. This axis will discuss the role of educational technology in developing learners' skills, along with its relationship to learning motivation. The axis will also address the most important solutions and proposals for implementing educational technology in schools and the impact it has on academic achievement.

1. The Role of Educational Technology in Developing Learners' Skills

Educational technology plays a significant role in developing learners' skills and improving their abilities by helping them acquire new knowledge through modern, effective methods. The most prominent of these roles are outlined below (Abdaoui, 2015–2016, p. 78):

a) Developing Thinking Skills: Modern technological tools help to develop learners' thinking skills, particularly their creative and analytical abilities, through interactive activities and educational programmes that rely on problem solving, enquiry and inference.



b) Developing Research and Exploration Skills: Educational technology provides rapid internet access and educational platform resources, supporting learners in conducting research and exploration independently.

c) Developing Communication Skills: Educational applications and modern communication tools help to improve communication between learners and teachers. They also encourage teamwork and the sharing of ideas and experiences.

d) Developing Technical Skills: The use of computers, smartphones and educational software enables learners to acquire technical and digital skills that have become essential in everyday life and the professional world.

e) Developing Problem-Solving Skills: Educational technology encourages learners to tackle problems and find solutions through educational games and practical activities.

f) Fostering Autonomy in Learning: Educational technology encourages learners to take ownership of their learning through self-directed learning and electronic platforms for reviewing lessons and completing activities.

2. The Relationship Between Educational Technology and Learning Motivation

There is a strong relationship between the use of educational technology and learning motivation. Modern technological tools increase learners' interest in studying and encourage participation in the classroom (Belguedoum, 2012–13, p. 132).

a) Increasing Engagement and Enjoyment in Learning: Educational technology makes lessons more appealing by using images, videos and interactive presentations, reducing boredom and increasing learners' desire to learn.

b) Enhancing Participation and Interaction: Technological tools provide an interactive learning environment that encourages learners to ask questions and participate in activities, thereby raising their level of motivation.

c) Accommodating Individual Differences: Educational technology enables learners to study at their own pace and according to their own abilities, thereby helping to increase self-confidence and motivation.

d) Strengthening The Sense of Achievement: When learners are able to use technological tools successfully and complete educational tasks, they feel a sense of achievement, which motivates them to continue learning.

e) Diversifying Learning Methods: The variety of digital educational media helps to break away from traditional teaching routines, thereby increasing learners' interest in the subject matter.

3. Solutions And Proposals to Activate Educational Technology in Schools

To reap the full benefits of educational technology in educational institutions, a set of solutions and proposals can be adopted. The most important of these are:

a) Providing Technological Equipment: the necessity of supplying computers, interactive whiteboards, projectors and internet networks in schools.

b) Training Teachers: Organising training courses for teachers to develop their skills in using modern technological tools in the classroom.

c) Integrating Technology into the Curriculum: working to introduce educational technology into programmes and curricula in an organised manner.



d) Encouraging Self-Directed Learning among learners by motivating them to use educational platforms and online research to develop their cognitive abilities.

e) Providing Educational Digital Content: Preparing interactive digital lessons and resources that match learners' levels and educational needs.

f) Raising Awareness of the Importance of Educational Technology: spreading a culture of using educational technology among learners, teachers and parents.

g) Ongoing Monitoring and Evaluation: assessing the effectiveness of educational technology in schools and working to improve it continuously.

4. The Impact of Educational Technology on Academic Achievement

The use of educational technology has led to many positive outcomes in terms of academic achievement. The most prominent of these are (Al-Habouchi, 2011, p. 6):

- Technological tools simplify information and present it clearly, making lessons easier to understand and absorb.

- Educational technology has contributed to improved learner outcomes and increased rates of success and academic excellence.

Learners have become more motivated to learn due to modern methods that rely on interaction and engagement.

Educational technology has helped learners to develop their thinking skills, creativity and problem-solving abilities.

Technological tools have enhanced communication between teachers and learners, as well as among learners themselves.

Learners can now access information quickly and easily via the internet and educational platforms.

Educational technology has made learners more autonomous by helping them to rely on themselves in the learning process.

This axis clearly shows that educational technology plays an important role in enhancing learning motivation and developing learners' skills. It also improves academic achievement and makes the educational process more effective and interactive.

Despite some challenges that may arise when using educational technology in schools, providing appropriate tools and training for teachers and learners would help to advance education and achieve better outcomes.

Conclusion:

This study addressed the use of educational technology and its impact on learners' academic achievement in relation to learning motivation. It is clear that educational technology has become one of the most important modern tools for developing the educational process and improving its outcomes. These tools have facilitated the delivery of information, making learning more engaging and interactive and raising learners' interest and motivation to participate and learn. Furthermore, learning motivation is fundamental to the success of the educational process; the more motivated a learner is, the greater their desire to learn and achieve better academic results.



The study also revealed a strong relationship between the use of educational technology and academic achievement. Technology contributes to the development of learners' cognitive, knowledge-based and technical skills, as well as improving their understanding and comprehension.

Although educational technology has many advantages, there are some challenges that may hinder its use. These include a lack of modern tools, limited training and insufficient resources within some educational institutions. Therefore, improving the technological infrastructure in schools and providing an appropriate learning environment that ensures the effective use of technology to enhance academic achievement and achieve the intended educational goals has become necessary.

Testing Hypotheses:

First Hypothesis: Educational Technology Contributes to Improving Learners' Academic Achievement.

True: This was confirmed by the study, which showed that using technological tools helps to simplify lessons, improve comprehension and enhance academic results.

Second Hypothesis: There is a Positive Relationship Between the Use of Educational Technology and Learning Motivation.

True (confirmed): modern technological tools make learning more engaging and interactive, thereby increasing learners' motivation to learn.

Third Hypothesis: As Learners' Motivation to Learn Increases, So Does the Effectiveness of Using Educational Technology.

True (confirmed): A motivated learner engages more with educational tools and benefits more from them.

Fourth Hypothesis: The Use of Modern Technological Tools Has a Positive Effect on Learners' Academic Performance.

True (confirmed): The results showed that educational technology contributes to improving academic performance and raising learners' achievement levels.

Results of the Study:

Educational technology contributes to improving learners' academic achievement.

- Modern technological tools can increase learners' motivation to learn.

There is a positive relationship between the use of educational technology and increased classroom interaction.

- Educational technology helps to develop thinking, research and exploration skills.

- Using digital media helps learners to understand and comprehend information more easily.

Learning motivation directly affects academic achievement.

- Some educational institutions lack modern technological tools.

Good use of educational technology improves the quality of the educational process.

Recommendations and Proposals:

- Provide modern technological tools within educational institutions.

- Organise training workshops for teachers on how to use educational technology.

Encourage learners to use technological tools positively and constructively for learning.

- Integrating educational technology into curricula and study programmes.

Improving digital infrastructure in schools and providing reliable internet access.



Working to enhance learners' motivation to learn by adopting modern, interactive teaching methods.
- Raising parents' awareness of the importance of educational technology in improving their children's academic performance.

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