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The problem of technology abuse in teaching and learning in the 4.0 education era

Nguyen Chau Long

Van Hien University, Ho Chi Minh City, Vietnam

* Corresponding Author: **Nguyen Chau Long**

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Abstract

This article studies the issue of using technology in education 4.0, an era where technology plays an important role in modernizing education. Although technology brings many benefits, overuse can lead to negative consequences. Major manifestations of technology use include over processing electronic devices, reliance on technology instead of developing thinking skills, reduced direct interaction between educators and students, as well as file loss concentration and decreased ability to concentrate. The causes of this situation stem from pressure to innovate, lack of appropriate guidance, misconceptions about the role of technology and lack of strategic logical outcomes. The consequences of using technology include extreme impacts on the quality of education, physical and mental health activities of both teachers and students, deterioration of social and communication skills, as well as uneven development of learning skills. To solve this problem, let's come up with solutions such as developing policies and guidelines for appropriate use, training teachers on how to properly build effective technology, and developing appropriate media teaching methods. modern and reasonable, along with increased education on responsible use of technology. The conclusion emphasizes the importance of a balanced use of technology in education and suggests future instructional research to address this issue more effectively, aiming to optimize the benefits of technology in education does not cause significant negative impacts.

Keywords: Education 4.0, use of technology, activities of technology in education, combined teaching methods, responsible use of technology

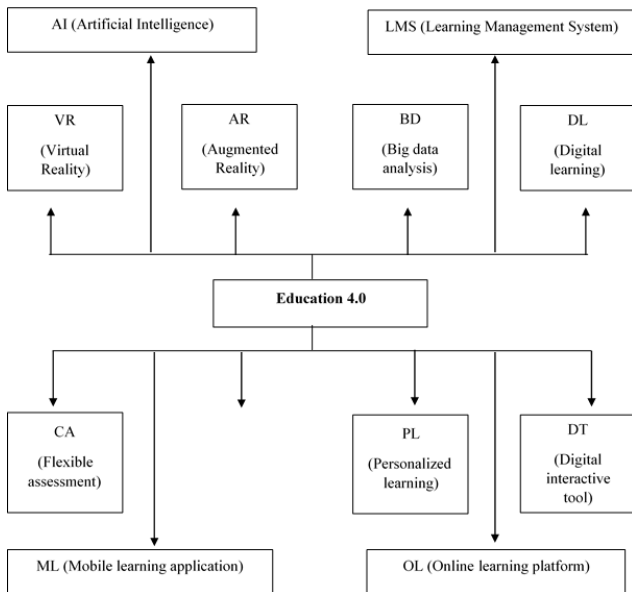
1. Introduction

In the context of the Industrial Revolution 4.0, the field of education experiences profound changes with the emergence of the concept of Education 4.0. This is an advanced education model, leveraging the power of digital technology, artificial intelligence and personalized learning methods to improve teaching and learning effectiveness. Technology has become an integral part of modern classrooms, providing many new opportunities for knowledge-based, interactive and creative work. However, along with the great benefits, the rapid integration and depth of technology into education also pose many significant challenges.

One of the most prominent issues is the trend of using technology in the teaching and learning process. Display this symbol in many manifestations, from overuse of electronic devices in the classroom to overreliance on technology tools and applications, instead of developing independent thinking skills and creativity. The consequences of using technology not only affect the quality of education but also act negatively on the physical and mental health of both students and students.

This study aims to study in depth the issue of using technology in education 4.0, analyzing its causes, manifestations and activities. At the same time, we also propose to produce weight gain solutions using technology in education, optimizing the benefits that technology brings while minimizing the extreme effects. Through this research work, we hope to contribute to building an effective, balanced and sustainable 4.0 education model, meeting the needs of society in the digital era while still ensuring development. comprehensive development of learners.

2. Overview of technology in education 4.0



* Source: Author's compilation

Fig 1: Comprehensive model of technology and applications in Education 4.0

Education 4.0 is an advanced education model, reflecting the trend of deeply integrating technology into the teaching and learning process, meeting the needs of society in the digital era. This model is characterized by the application of modern technologies such as artificial intelligence (AI), virtual reality (VR), augmented reality (AR) and big data analysis (Big Data) into the environment educational school.

Popular technologies in modern education include learning management systems (LMS), mobile learning apps, online learning platforms, and digital engagement tools.

The application of technology in teaching and learning brings many significant benefits such as increasing access to education, personalizing the learning experience, enhancing interaction and collaboration between learners as well as providing experiential learning experiences. interactive learning. Flexible and effective assessment method. However, along with those benefits, integrating technology into education also poses many challenges, especially the risk of technology abuse, which can negatively affect the overall learning and development process learner's presence.

Therefore, understanding the nature of education 4.0, related technologies and their impact is an important basis for building a modern, effective and balanced education system.

Table 1: Benefits and challenges of using technology in education 4.0

Benefits	Challenge
Increase access to education	Risk of technology abuse
Personalize the learning experience	Reduce direct interaction between teachers and students
Enhance interaction and cooperation between learners	Over-reliance on technology instead of developing independent thinking skills
Provide interactive learning experiences	Loss of concentration and reduced concentration of students
Flexible and effective assessment method	Negative effects on physical and mental health
Integrate modern technology (AI, VR, AR, Big Data) into the educational environment	Impaired social skills and face-to-face communication
Preparing students for the digital era	Difficulties in ensuring network security and protecting personal data
Create opportunities for lifelong learning	Need to invest heavily in infrastructure and teacher training

* Source: Author's compilation

3. Manifestations of technology abuse in education

Table 2: Statistics of negative impacts of technology in education in the period 2015-2020

Signs of technology abuse	2015 (%)	2016 (%)	2017 (%)	2018 (%)	2019 (%)	2020 (%)
Excessive use of electronic devices	20	25	28	30	33	35
Depend on technology instead of developing thinking skills	15	18	20	22	24	25
Reduce direct interaction between teachers and students	10	12	15	17	19	20
Loss of concentration and decreased ability to concentrate	12	14	16	18	19	20

* Source: Author's compilation

3.1. Excessive use of electronic devices

In modern educational environments, the overuse of electronic devices has become a worrying problem. Students and teachers often spend too much time on devices such as computers, smartphones, and tablets. This leads to dependence on technology, reduces face-to-face interaction time, and negatively affects physical and mental health. For example, many students use smartphones constantly during class, even during breaks, instead of engaging in social or physical activities.

3.2. Depend on technology instead of developing thinking skills

The trend of overreliance on technology is gradually

replacing the development of independent and creative thinking skills. Students tend to look for quick answers on the internet instead of trying to think and solve problems with their own abilities. This leads to a decline in the ability to analyze, synthesize and evaluate information. For example, in math exercises, many students simply enter the problem into online math solving applications without trying to understand the solution process.

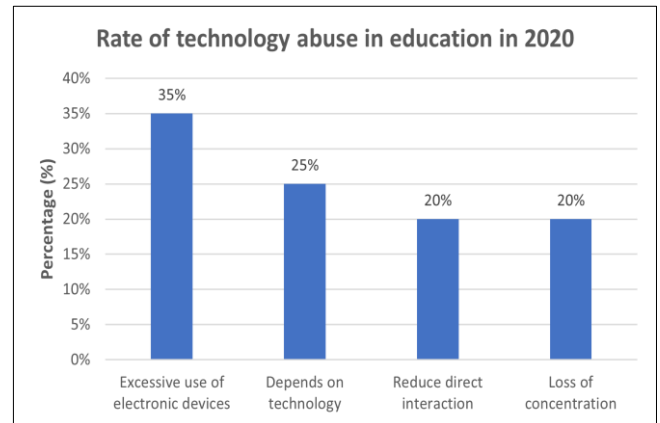
3.3. Reduce direct interaction between teachers and students

Overuse of technology in education also leads to a significant decline in direct interaction between teachers and students. The excessive use of online learning platforms and digital

communication tools has reduced opportunities for face-to-face discussions, asking questions and receiving instant feedback. This can negatively affect the process of building educational relationships and developing students' social communication skills.

3.4. Loss of concentration and decreased ability to concentrate

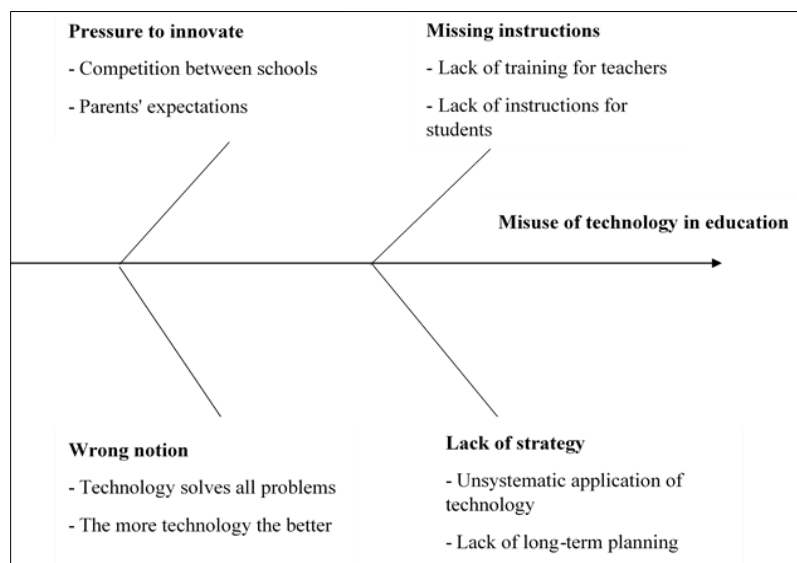
One of the serious consequences of overusing technology in education is distraction and reduced concentration of students. The constant presence of electronic devices with countless notifications, messages and entertainment content has created a distracting learning environment. Students frequently switch between multiple apps and websites, resulting in an inability to focus deeply on a specific task for long periods of time. This not only affects short-term learning effectiveness but can also have a long-term impact on students' ability to concentrate and process information.



* Source: Author's collection

Fig 2: Rate of technology abuse in education in 2020

4. Reasons for using technology



Source: Author's compilation

Fig 3: Causes of technology abuse in education

4.1. Pressure to innovate and modernize education

In the context of the 4.0 Industrial Revolution, educational institutions face the power to innovate and modernize. This often leads to hasty application of technology and rapid weight loss. Many schools and teachers feel the workforce must use the latest technology to avoid being left behind, even if they have not been fully trained or have a clear understanding of how to use it effectively. As a result, technology is sometimes adopted just because it is new and modern, not because it actually improves the teaching and learning process.

4.2. Lack of guidance and training on effective use of technology

Another important reason for underutilization of technology is the lack of light in the work of guiding and training how to use technology effectively in education. Many teachers and students are not fully equipped with the knowledge and skills to properly build technology into the teaching and learning process. They may know how to use technological tools, but lack understanding of how to apply them to improve educational effectiveness. This leads to untargeted and

ineffective use of technology.

4.3. Misconceptions about the role of technology in education

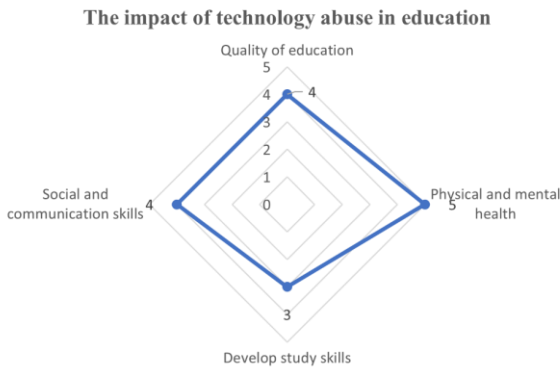
Many people have the misconception that technology can solve all problems in education. This leads to over-reliance on technology and an underestimation of teaching methods. Some teachers and educational administrators may believe that the more technology is used, the better the learning outcomes will be. This concept ignores the importance of face-to-face interaction, developing independent thinking skills, and non-technology-based teaching methods.

4.4. Lack of appropriate technology and reasonable strategy

Many educational institutions lack a comprehensive and appropriate technology strategy. Instead, they develop a long-term and systematic plan for the technology that will be used to support educational goals, many schools adopt technology in a convenient and disconnected way. This can lead to process or ineffective use of technology tools, without consideration of the overall operation to support student

learning and development.

5. The impact of applied technology in the teaching and learning process



* Source: Author's collection

Fig 4: Diagram of the impact of technology applications in the educational environment

5.1. Affects the quality of education

Technology applications can negatively affect the quality of education in many ways. First, it can lead to process dependence on technology, reducing students' ability to be independent and problem-solve. For example, students may be overly dependent on calculators to perform permitted basic calculations, leading to decline in calculation skills. Second, misuse of technology tools can distort learning goals, as students focus on using the technology instead of understanding the lesson content. Finally, the use of technology can reduce the time spent on other important learning activities such as group discussions, hands-on experiments, or reading, which are effective methods of communicating learning.

5.2. Impact on the physical and mental health of teachers and students

The use of technological processes in education can cause many health problems for both educators and students. In terms of materials, sitting for a long time in front of a screen can lead to problems such as neck pain, pain relief, eye strain and other musculoskeletal disorders. Mentally, technology use can cause stress, anxiety, and even depression, especially when students feel pressured to stay connected and informed. In addition, too much exposure to electronic devices can affect sleep quality, reducing the ability to concentrate and study effectively.

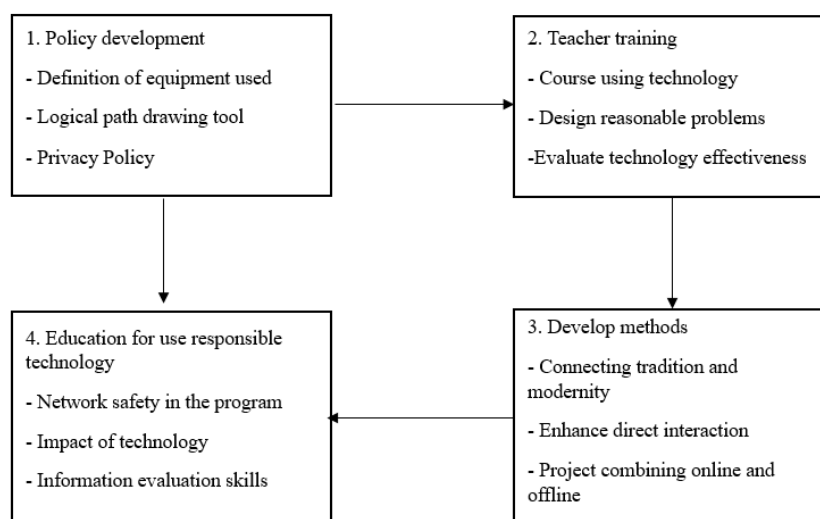
5.3. Impaired social and communication skills

Overuse of technology in education can lead to significant decline in students' social and communication skills. When students spend too much time interacting with electronic devices instead of people, they may have difficulty developing face-to-face communication skills, reading basic language, and building social relationships. This can negatively affect your ability to work in groups, perform and interact in a professional environment later. Furthermore, reliance on screen communication can reduce the ability to empathize and deeply understand others, which are important life skills.

5.4. Uneven development of learning skills

Overuse of technology can lead to uneven development of learning skills. While some skills such as finding information quickly and multitasking can be improved, other important skills such as critical thinking, deep concentration and creativity can be impaired. For example, students may become good at finding information on the internet but have difficulty analyzing and evaluating the reliability of that information. In addition, relying too heavily on technology can reduce students' ability to remember and process information, as they become accustomed to accessing information immediately without having to memorize it.

6. Solutions to balance the use of technology in education



* Source: Author's compilation

Fig 5: Balancing process for using technology in education

6.1. Develop policies and guidelines for appropriate use of technology

To ensure balanced and effective use of technology in

education, specific policies and guidelines need to be developed. Schools and educational authorities should develop:

- Clear regulations on when and how to use technology devices in the classroom.
- Instructions on integrating technology into different subjects appropriately.
- Policy on network safety and protection of students' personal data.
- Process of evaluating and selecting technology tools appropriate to educational goals.

These policies need to be developed with the participation of teachers, parents and educational experts to ensure practicality and effectiveness.

6.2. Train teachers on how to effectively integrate technology

Teachers play an important role in ensuring the effective use of technology in education. Therefore, it is necessary to focus on teacher training:

- Organize regular training courses on how to use and integrate new technology into teaching.
- Provide guidance on how to design lessons that combine traditional methods and technology.
- Develop skills to evaluate the effectiveness of technology in supporting learning.
- Create opportunities for teachers to share experiences and learn from each other about how to use technology effectively.

6.3. Develop teaching methods that combine traditional and modern

To balance the benefits of technology and the value of traditional teaching methods, it is necessary to develop combined teaching methods:

- Design lessons that integrate both face-to-face and online activities.
- Use technology to enhance, not replace, traditional teaching methods.
- Encourage face-to-face interaction and discussion while using technology tools.
- Develop learning projects that combine online research and face-to-face practice.

6.4. Increase education on responsible technology use

To prevent misuse of technology, there is a need to increase education on responsible technology use for both students and teachers:

- Include content about cyber safety and responsible use of technology in the curriculum.
- Organize seminars and extracurricular activities on the impact of technology on health and learning.
- Develop critical thinking skills to evaluate information online.
- Encourage students to self-manage their time using technology and develop healthy technology usage habits.

Through implementing these solutions, we can work towards a balanced educational environment where technology is used effectively to improve the quality of teaching and learning, while minimizing its impacts. negative effects of technology abuse.

Table 3: SWOT Analysis: Using technology in education

<p>Strength</p> <ul style="list-style-type: none"> • Increase access to education • Personal learning experience • Enhance interaction and logic between learners • Provide interactive learning experiences • Methods of evaluating activities and effectiveness 	<p>Weaknesses</p> <ul style="list-style-type: none"> • Use of art facilities • Reduce direct interaction between teachers and students • Depends on technology • Loss of concentration and reduced concentration of students • Negative impact on physical and mental health
<p>Opportunities</p> <ul style="list-style-type: none"> • Integrating modern technology (AI, VR, AR, Big Data) • Prepare students for the digital age • Create lifelong learning opportunities • Develop reasonable teaching methods • Improve teachers' skills in using technology 	<p>Threats</p> <ul style="list-style-type: none"> • Difficulties in network security • Protect students' personal data • Impaired social and communication skills • Uneven development of learning skills • Need to invest heavily in infrastructure and teacher training

* Source: Author's compilation

7. Conclude

Research on the issue of technology abuse in teaching and learning in the 4.0 education era has shown significant challenges that the modern education system is facing. By analyzing the manifestations, causes and effects of technology abuse, we see the need for a balanced and responsible approach to integrating technology into education.

Although technology brings many undeniable benefits such as increased access to information and personalized learning, excessive and inappropriate use can lead to serious consequences for students. the quality of education, the mental and physical health of learners, as well as the development of social skills and independent thinking.

Proposed solutions, including sound policy development, teacher training, developing blended teaching methods and strengthening education on responsible use of technology, play an important role in create a balanced and effective learning environment. It is important to realize that technology is just a supporting tool, and the core value of education still lies in human interaction, developing critical thinking and creativity. Future research should focus on evaluating the effectiveness of proposed solutions, developing sustainable technology integration models, and gaining a deeper understanding of the long-term impacts of technology use in education for the cognitive and social development of learners. Only through careful consideration and selective application can we take full advantage of technology's potential to improve the quality of education, while minimizing the potential risks of abuse use technology.

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