

SOCIOLOGICAL ASPECTS OF DIGITAL LEARNING

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Abstract

The purpose of this study is to explore how digital learning can influence the social behaviour of students and teachers and revolutionise education. The basic idea was to assess whether digital learning as a new form of a social approach to learning increases students' access to education and knowledge by thinking and developing the skills they set for success in their present and future. The analysis is made to research the content of the literary review of papers on methodologies and tools for digital learning. The purpose of the content analysis was to extract and analyse materials on the social aspects of digital learning in a theoretical sense, how digital learning was conducted in five schools in the United States and how digital learning is implemented in the Republic of North Macedonia. The study showed that simply giving students access to the devices did not necessarily lead to better results. Careful integration and active adoption of a digital way of thinking about digital learning are needed to enhance students' overall experience. The study also found that digital learning should enhance the learning experience, not add to the burden or complexity. In conclusion, the study recommends digital learning to be used as a social learning process that becomes more time-efficient. Teachers can better personalise learning according to the needs of individual students, and effective learning can take place when working remotely.

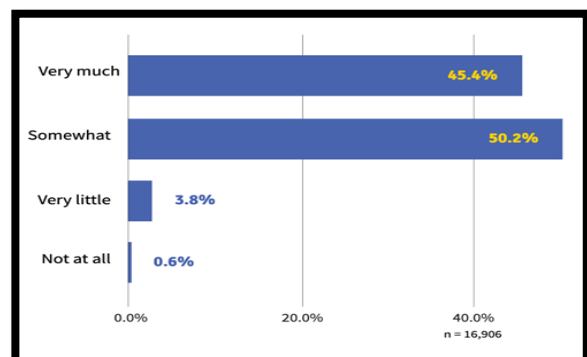
Keywords: Education; Students; Devices; Tools; Thinking; Experience.

INTRODUCTION

Digital learning is a teaching practice that helps students by using a wide range of technology-enhanced educational strategies. It includes blended learning, personalised learning, and other systems that rely on digital tools. Digital learning is a nuanced and strategic challenge that tackles countless tangible and abstract variables - devices, software, classroom practices, professional development and collaboration among many stakeholders. Digital learning (1) can improve learning experiences, (2) save teachers time, (3) enable teachers to better adapt learning to students' needs, (4) help monitor the progress of students, (5) ensure transparency in the learning process for all stakeholders, etc. Digital learning has a positive effect on students' growth and achievement. Of the 16,906 educators surveyed, 45.4% said that digital learning has a significant impact on student

achievement, 50.2% said it has some effect, and 3.8% said it has minimal effect. Only 0.6% said that it does not affect student achievement. (Davis, 2020)

Graph 1: Impact of digital learning on student achievement



Source: Davis, L. 2020. Digital Learning: What to Know in 2020 | Schoology, <https://www.schoology.com > blog > digital-learning>

Digital learning is "learning facilitated by technology that gives students an element of control over time, place, path and pace." (GOSA Team. 2022)

Time: Learning is no longer limited to the school day or year. The Internet and the spread of Internet access devices have allowed students to learn at any time.

Place: Learning is no longer limited to the classroom walls. The Internet and the spread of Internet access devices have allowed students to study anywhere.

Pathway: Learning is no longer limited to the pedagogy used by the teacher. Interactive and adaptive software allows students to learn in their own style, making learning personal and engaging. New learning technologies provide real-time data that gives teachers the information they need to tailor instruction to meet each student's unique needs.

Pace: Learning is no longer limited to the pace of an entire classroom with students. Interactive and adaptive software allows students to learn at their own pace yet, achieve the same level of learning.

Digital Learning Requires a Combination of Technology, Digital Content and Teaching:

□ **Technology:** Technology is a mechanism that delivers content. It facilitates the way students receive content. Technology is a tool, not an instruction.

□ **Digital Content:** Digital content is high-quality academic material delivered through technology.

□ **Tip:** Educators are essential to digital learning. Technology can change the role of the teacher, but it will never eliminate the need for a teacher. With digital learning, teachers will be able to provide personalised guidance and assistance to ensure students learn and stay on track.

To conduct the research, data from digital learning were used from five schools in the USA and the Republic of North Macedonia, which later showed how digital learning is

implemented. The research reviews two aspects:

RQ1: Recognize and evaluate the social impact of digital learning on students and teachers.

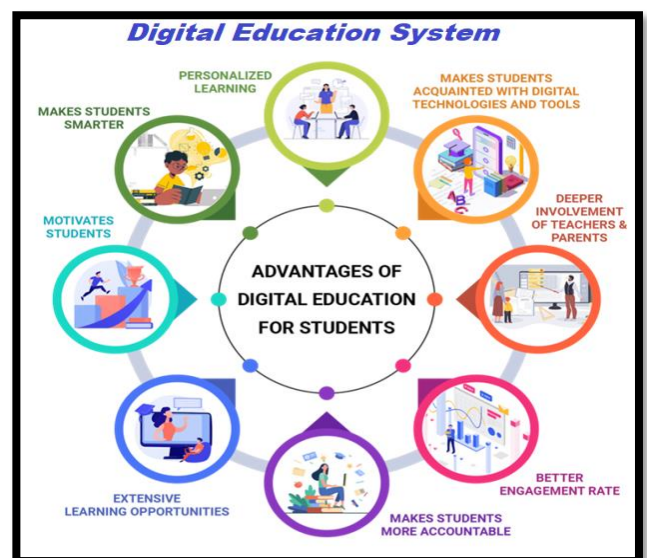
RQ2: Assess the impact of digital learning on learning outcomes for students and teachers in some schools in the United States and The Republic of North Macedonia.

LITERATURE REVIEW

1. Digital Learning System

Digital learning is a learning method based on new digital tools to enable students to learn differently, whether face-to-face, distance learning (asynchronous or synchronous) or combined learning. Digital learning uses digital technologies and tools in an innovative way of teaching and learning. Digital technologies allow teachers to design engaging ways of different learning and enable students to learn from anywhere in the world or the comfort of their own homes. While the conventional education system focuses on grades and exam results, the digital education system focuses on effectively transferring knowledge and skills. (SkoolBeep. 2022)

Figure 1: Digital Learning for Students



Source: SkoolBeep. 2022. How Digital Learning is Changing the Face of Education, [https:// www. skoolbeep.com](https://www.skoolbeep.com)

Personalised Learning - Digital learning helps students learn at their own pace. Furthermore, digital learning allows teachers to tailor the curriculum to suit students' learning abilities.

Makes Students Smarter - Tools developed using the latest technologies enable students to develop practical self-directed learning skills and improve productivity and efficiency.

Motivates Students - Students who use digital learning become more engaged and develop their knowledge base and allow students to better connect with learning material.

Offers a Wide Range of Learning Opportunities - One of the most significant benefits of digital learning for students is the wide range of learning opportunities. Students learn several new things through digital tools.

Makes Students More Accountable - Student assessment is more transparent in the digital education system because reports are generated automatically, and real-time feedback is provided. It empowers students to self-evaluate their performance and identify ways to improve it.

Provides a Better Engagement Rate - The digital learning system offers a wide range of learning opportunities through unlimited availability of content, interactive sessions, virtual reality, etc.

Provides Deeper Involvement of Teachers and Parents - Digital technologies and learning tools such as social learning platforms make it easier for teachers to create and manage separate groups for students and parents.

Makes Students Familiar with Digital Technologies and Tools - Exposure to various digital technologies and devices during class prepares students for higher education and the acquisition of various skills.

2. Types of Digital Learning

Digital learning is revolutionary and constantly evolving in line with new advances in technology, especially with the advent of modern Internet users and artificial intelligence (AI) experiences. Today's technology allows us

to personalise the learning experience to suit our individual learning needs and timing. Digital learning is a broad term used to describe the use of technology applied in the learning process. Digital learning can be: (Leaderonomics, 2019)

- Adaptive,
- Mixed,
- Personalised,
- Virtually.

Adaptive Learning - Adaptive learning is a learning technology that uses the latest advances in artificial intelligence to measure and analyse a student's understanding of the subject. The adaptive learning system uses student feedback to assess student strengths and weaknesses to adjust content delivery.

Blended Learning - Blended learning combines the best of digital learning with traditional classroom learning. Both teachers and students meet in the classroom and online through interactive chat and virtual classrooms. It allows students to accelerate their individual learning process.

Personalised Learning - Personalized learning is a learning process designed to help the individual who would benefit from the individual learning path.

Virtual Learning or Virtual Reality Learning - Virtual learning is a learning experience where students communicate within the learning environment. Virtual reality learning provides a rich learning experience through the use of a desktop computer, virtual learning glasses or a head display (HMD).

3. Types of Digital Learning Resources

Digital assets are divided into two main types: (Dukare, 2020)

- Online digital sources, which may include:
 - Electronic magazines.
 - E-books,

- Online database.
- Other electronic resources may include:
- CD-ROM

E-journal – It is a journal available in an electronic format that replicates the printed version of the newspaper, which occasionally includes additional information, such as interactive graphics or external links. Every newspaper available on the Internet can be called an e-diary. There may or may not be a printed equivalent.

E-book – It is a book that requires an electronic reading device. Thousands of free e-books can be downloaded from the Internet. The E-book is a generic term for electronic products and multimedia publications, available directly from the Internet or in physical format on an optical disc.

Online Database – There are different types of online databases: (1) complete indexing and abstraction databases, (2) text databases, reference databases and (3) statistical databases.

- o Indexing and abstract databases provide bibliographic information for the journal, including a summary of articles.
- o Many dictionaries, almanacks, and encyclopedias are available on the Internet in electronic format called reference databases.
- o Statistical databases contain useful numerical data for the table.

CD-ROM - a pre-printed optical compact disc containing data. The name is an acronym for "compact disc read-only memory".

The following has been hypothesised in the research:

H1: Does digital learning affect the behaviour of students and teachers?

H2: Can digital learning be a significant factor in explaining students' learning and achievement?

H4: What relationships are established between students and teachers?

METHODOLOGY

The characteristic of any research is to ensure that findings of the problems are reached on time. The research requires relevant knowledge and competing self-ideas about perceived information gathered from the everyday challenges facing the man. In the range of experimental studies and clinical trials, distance learning is a diagnostic tool for the student, providing relevant information based on his abilities. The student can be of great interest if their basic needs are put in place to ensure maximum performance in their tasks. Therefore, research designs are scientifically oriented and require critical thinking and conclusions from the learning process. (Henry, 2021)

The research of this paper uses different methodologies to review the literature on digital learning to identify and analyse the various methods that emphasise the learning process. Digital learning increasingly affects classroom teaching, but much of it leads to new models or designs for teaching and learning. The paper presents the theory, concepts, and other information to identify the necessary conditions for success. The systematic review of the literature allows identifying methodologies and newer tools used to promote digital learning and teaching to achieve that goal.

The first goal of this research was to create a theoretical framework that will help prepare and understand digital learning methodologies and tools. To achieve this goal, we prepared research on digital learning methodologies in literature. To validate the effectiveness of digital learning, it was necessary first to identify the different ways in which it can take place. First, digital learning involves a wide range of methodologies and can take place almost anywhere and anytime. Second, it can take many forms. It generates new knowledge, and there is a clear commitment to activities such as planning and problem-solving.

The methodological approach of the research was qualitative, and the primary technique for data collection was the analysis of the content of the literary review of papers on methodologies and tools for digital learning. The purpose of the content analysis was to extract and analyse materials in a theoretical sense, how digital learning was implemented in five schools in the USA and in The Republic of North Macedonia.

RESULTS AND DISCUSSION

1. Features of Digital Learning

Digital learning is facilitated, enabled or mediated by using electronic technology for an explicit purpose - learning. Examples of digital learning include using websites, e-books, online communities or an online learning platform. Digital learning involves the use of products that do not require the user's computer to be connected to a network: (Hayden, 2021)

□ Digital learning covers a wide range of standard course-based e-learning packages and products and various complementary or alternative techniques, such as sharing knowledge or links to resources through social/interactive media sites and watching/participating in online lectures and webinars, podcasts or blogs.

□ Recent trends include the development of gaming technology to support learning, artificial intelligence, virtual reality, and cloud computing, which can deliver learning according to users' needs over the Internet rather than through home computer systems.

□ Advances in technology have produced different types of digital learning. There are three broad categories of digital learning practice, although definitions vary, and there are overlaps between categories.:

□ Formal digital learning is where technology delivers formal course-based content to the end-user without significant interaction (or support from) learning professionals, colleagues or managers. It covers

various topics, from accounting and IT to management and communication techniques.

□ Informal digital learning - where technology provides opportunities to support non-formal learning in school. Informal digital learning is related to knowledge management. The rise of informal networking through online tools enables sharing of knowledge within the school and outside it.

□ Mixed or supported learning - where formal and non-formal learning can be combined with other types of learning. For example, most learning content can be delivered through face-to-face lectures or training and/or textual material. Still, dialogue with other students, joint activities, and search/access to accompanying material are conducted online.

According to the personalised learning system, teachers design learning to meet the needs of each student. Each student works to achieve the same goals but with different learning and support strategies. Personalised learning systems share some similarities, including student-centred learning, focusing on more than just test scores, allowing students to progress when they are ready and offering education anytime, anywhere. Here's how five schools and districts personalise learning for their students: (Ascione, 2017)

1. Lindsay Unified Public Schools: personalises learning by giving students a performance-based model that enables students to thrive after demonstrating knowledge. School days are divided between self-directed learning and teacher-led teaching. Classroom teachers are called "learning facilitators, " and students can choose from various learning tasks and experiences even during teacher-led instruction.

2. North Queens Community High School: A school that relies on knowledge-based assessment focuses on organising its teaching around what each student needs to be successful. Focusing helps students succeed and gives them responsibility for their education.

3. Taylor County School District: Teachers and students work together to create individualised learning plans based on students' needs, interests, and goals. The approach includes project-based learning, self-based learning, online learning and peer learning.

4. JFK Eagle Academy: The school has developed a program focused on seminars and leadership development, as teachers and school leaders believe that students benefit from research, critical thinking, and problem-solving. Students work at their own pace toward college and career readiness.

5. LINC High School: The school believes that every student can be a leader, and the student agency and leadership education are an important part of the school's philosophy. Classes are not organised into traditional subjects but are grouped into 30-day "learning modules" that integrate different subjects and allow students to explore local, national and international issues through research and critical thinking.

2. Digital Learning in the Republic of North Macedonia

In The Republic of North Macedonia, as well as in many countries, the fight against COVID-19 has closed schools, and learning takes place digitally or online by creating an online learning platform where primary school students can continue their education through video lessons, various materials. and games. Additionally, an educational program called a TV classroom is broadcasted on national television. Primary and secondary schools have also started online teaching through various digital platforms: (UNICEF, 2020)

□ Distance learning is just a formality for many students, not a substitute for regular teaching. Certain teachers only share the materials with the students without teaching them. Online tests are performed on a "do it" basis, and students do not acquire fundamental, long-term knowledge. In addition, certain students do not even have the opportunity to leave home during the period when movement is allowed due to the duration of the online classes. Some students do not even have the

appropriate equipment to monitor online classes, i.e. they do not have electronic devices such as computers, telephones and cameras. Also, some professors do not take into account that during the online testing, the student may lose the internet connection. Students also face problems with managing their own time due to online teaching.

□ Online teaching is a new, unknown, different learning method for students, teachers and parents. Parents of students often have to spend most of their time helping their children navigate the platforms, working on homework and explaining teaching materials. Parents who do not have knowledge of information technology face bigger problems and need to seek help from relatives, friends, colleagues, etc.

□ In distance learning, the greatest burden is placed on teachers. They find themselves in a situation where they are unprepared and without proper support. The criteria and guidelines imposed by the competent institutions are not sufficient to deal effectively with the situation. Existing assessment criteria, which include tests and questioning, are not appropriate for digital instruction. No teacher can confirm with certainty whether the assigned homework of the students is written independently, and assigning specific homework for each student is simply an overload and a difficulty.

The current situation of digital learning in The Republic of North Macedonia shows that there is no unified state approach to tackling the global challenge. Organizationally, many things depend on a pre-established infrastructure for conducting e-learning, i.e. IT structure, skills and digitalisation of the educational process. A survey was conducted in July 2020 on 700 people from the entire population of the country, of which 300 were parents of children in the educational process. The survey obtained the following views and opinions: (Distance learning, 2020)

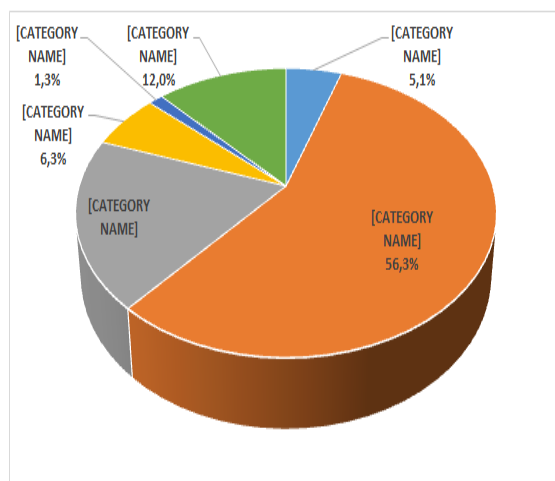
(1) Time Spent in Distance Learning

According to the majority of parents, pupils/students spent 1 to 3 hours a day

fulfilling their educational obligations (51.3%). A smaller number of pupils/students (according to 29.7% of the respondents) dedicated from 3 to 5 hours a day to learning. The number of students who spent more than 5 hours in school is small (6.3%), and according to the statements of the respondents, part of the students (2%) devoted even more than 8 hours a day to learning.

More than half of the respondents (55.3%) said that their children's school actually organized two-way distance learning for only 1 or 3 hours a day. In a smaller number of schools (19%), the teaching lasted from 3 to 5 hours a day, and in only (6.3%) of the schools there was no distance learning:

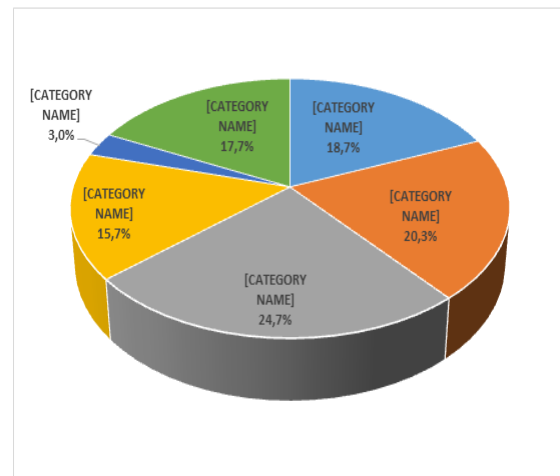
Graph 1: How many hours a day did the school organise online teaching (two-way with a discussion between teacher and students)?



Source: Author's processing

Two-way distance learning was not organised in all subjects. According to the respondents, there were only one or at most three subjects (20.3%); in a quarter of the cases, the teaching took place in 3 or 5 subjects (24.7%), and in (15.7%), distance learning took place in 5 or 7 subjects. However, in 3% of cases, two-way distance learning was not organised at all.

Graph 2: How many different subjects were included in online (two-way) teaching?



Source: Author's processing

(2) Technical Preconditions for Monitoring Distance Learning

According to the answers, the students had appropriate technical means for conducting distance learning, i.e. in the teaching process, they used a computer (43.2%), tablet (39.7%), additional devices, etc., and only a small percentage of children (0.9%) did not use anything, i.e. did not attend distance learning at all.

For the most part, students had sufficiently available unlimited internet (89%). A small part of the students did not have adequate conditions for distance learning; either they had poor internet (7%) or did not have it at all (3%), i.e. their internet was limited.

According to the views and opinions of the respondents, the students have appropriate technical knowledge for uninterrupted distance learning (93.7%)

(3) Assistance in Learning

Half of the parents-respondents helped their children in learning. Of those who helped them, 65.2% spent one to three hours a day learning with children. This percentage is lower among the parents of students in secondary schools than the parents who have students in primary schools. There is a difference of 7.7% in relation to the gender of the respondents, i.e. 46.8% of the male parents answered that they

helped their children, compared to 54.5% of the female respondents.

(4) Satisfaction and Challenges in Distance Learning

Despite the short time, only 29% of parents are partially dissatisfied or completely dissatisfied with the teaching process. The other parents-respondents are either fully or partially satisfied with the process of distance learning, in total 68,4%.

(5) Opinions and Suggestions for Improving Distance Learning

Systemic solutions by the competent education institutions for a well-designed platform with a specific curriculum and a fair and effective way of assessment.

Providing funds for equipment and skills that will enable students to learn online.

Students and young people should be consulted. Future decisions should take into account the feelings of the students, their views, their conditions and their needs. Students should have access to the material without feeling discriminated against or helpless and unheard in their questions opinions or requests.

As the situation develops, a proposed solution is definitely needed, which will include representatives from several areas. They will evaluate and share their experiences. The problems faced by students and parents need to be taken into account.

CONCLUSION

This study explores the social aspects of digital learning and identifies the characteristics, context, tools, and relationships established between students and teachers in the learning process.

The research in this study realised the first research goal of perceiving and assessing the social impact of digital learning on students and teachers and the quality of teaching and concluded that digital learning creates good

relations between teachers and students and contributes to the quality of education. Still, it should not burden the students further.

The second research goal of this study, which deals with assessing the impact of digital learning on the learning outcomes of students and teachers in some of the schools in the United States and The Republic of North Macedonia, showed that digital learning is a good concept in the relationship-building process. among teachers and students, raises the level of knowledge, facilitates learning and leads to better student outcomes because it involves teachers, students, and new ways and forms of learning.

The research of this study confirmed the first hypothesis that digital learning affects the behaviour of students and teachers and creates positive conditions for successful learning.

This study confirms the second hypothesis that digital learning can be an essential factor in explaining students' learning and achievement.

The research confirms the third hypothesis that the school climate builds teacher-student relations, teacher support for students, motivating students for success, and student compliance.

As a recommendation for broader acceptance and improvement of digital learning, it is emphasised that students learn best when they are in an environment where they feel supported and accepted. In this, it is justified:

Schools focus on promoting digital learning,

Students to develop positive relationships and show positive behaviour.

Improving student-teacher relations,

To increase the use of digital learning by teachers,

Use an increased mix of learning methods to prepare students to think critically and solve complex problems, work together, communicate effectively and have greater autonomy and independence in the learning process,

□ Use technology to enhance student learning with a mix of tools and practices, including, inter alia, online and formative assessment; increasing the focus and quality of teaching resources and time; online content and courses; and technology applications in the subject's curriculum.

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