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The impact of digital tools on the development of students' time management skills

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O papel da comunicação intercultural no estudo de línguas estrangeiras em instituições de ensino superior

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Papel de la comunicación intercultural en el estudio de lenguas extranjeras en centros de enseñanza superior

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Abstract: *The relevance of the study is determined by the need to develop students' time management skills through the use of digital tools. The aim of the study is to analyse the impact of digital tools on the development of effective students' time management skills. The research employed such methods as the author's questionnaire Student Time Efficiency, Self-Recording of the Working Day, as well as software tools-based approach. The study found that the implementation of systematic time management significantly improved students' organizational skills and efficiency. It was established that the use of digital tools contributed to the optimization of planning and task performance, enhanced motivation, and reduced stress. In particular, 85% of participants noted an improvement in the ability to distribute time between study and personal affairs. Calendar planning and time tracking tools were the most effective. The results indicate a significant impact of time management techniques on the students' academic performance and overall well-being. The academic novelty is the integrated approach to studying the impact of digital tools on student life. Research prospects include studying the long-term impact of time management technologies on students' professional activities.*

Keywords: *Digital tools. Mobile applications. Online services. Student self-organization. Time management.*

Resumo: A relevância do estudo é determinada pela necessidade de desenvolver habilidades de gerenciamento de tempo dos alunos por meio do uso de ferramentas digitais. O objetivo do estudo é analisar o impacto das ferramentas digitais no desenvolvimento de habilidades eficazes de gerenciamento de tempo dos alunos. A pesquisa empregou métodos como o questionário do autor Student Time Efficiency, Self-Recording of the Working Day, bem como uma abordagem baseada em ferramentas de software. O estudo descobriu que a implementação de gerenciamento de tempo sistemático melhorou significativamente as habilidades organizacionais e a eficiência dos alunos. Foi estabelecido que o uso de ferramentas digitais contribuiu para a otimização do planejamento e desempenho de tarefas, aumentou a motivação e reduziu o estresse. Em

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particular, 85% dos participantes notaram uma melhora na capacidade de distribuir o tempo entre estudo e assuntos pessoais. O planejamento de calendário e as ferramentas de controle de tempo foram os mais eficazes. Os resultados indicam um impacto significativo das técnicas de gerenciamento de tempo no desempenho acadêmico e no bem-estar geral dos alunos. A novidade acadêmica é a abordagem integrada para estudar o impacto das ferramentas digitais na vida estudantil. As perspectivas de pesquisa incluem estudar o impacto de longo prazo das tecnologias de gerenciamento de tempo nas atividades profissionais dos alunos.

Palavras-chave: Aplicativos móveis. Auto-organização estudantil. Gestão de tempo. Ferramentas digitais. Serviços online.

Resumen: *La relevancia del estudio está determinada por la necesidad de desarrollar habilidades de gestión del tiempo de los estudiantes mediante el uso de herramientas digitales. El objetivo del estudio es analizar el impacto de las herramientas digitales en el desarrollo de habilidades efectivas de gestión del tiempo de los estudiantes. La investigación empleó métodos como el cuestionario del autor Student Time Efficiency, Self-Recording of the Working Day, así como un enfoque basado en herramientas de software. El estudio encontró que la implementación de la gestión sistemática del tiempo mejoró significativamente las habilidades organizativas y la eficiencia de los estudiantes. Se estableció que el uso de herramientas digitales contribuyó a la optimización de la planificación y el desempeño de las tareas, mejoró la motivación y redujo el estrés. En particular, el 85% de los participantes notó una mejora en la capacidad de distribuir el tiempo entre el estudio y los asuntos personales. La planificación del calendario y las herramientas de seguimiento del tiempo fueron las más efectivas. Los resultados indican un impacto significativo de las técnicas de gestión del tiempo en el rendimiento académico y el bienestar general de los estudiantes. La novedad académica es el enfoque integrado para estudiar el impacto de las herramientas digitales en la vida estudiantil. Las perspectivas de investigación incluyen el estudio del impacto a largo plazo de las tecnologías de gestión del tiempo en las actividades profesionales de los estudiantes.*

Palabras clave: *Aplicaciones móviles. Autoorganización del estudiante. Gestión del tiempo. Herramientas Digitales. Servicios online.*

1 INTRODUCTION

In the modern world, when information technologies have become an integral part of our daily lives, time management is becoming an important aspect for everyone. For students, effective use of time is one of the main factors in achieving success in education and professional development. In view of high demands on the effectiveness of the educational process, the complexity of combining academic duties, personal life, and extracurricular activities (Brodowicz, 2024). Time management technologies in this sense are becoming particularly relevant. Alyami et al. (2021) believe that to successfully achieve academic goals, students need to develop time management skills and appropriate behaviours. This helps to better organize the curriculum and has a positive impact on academic performance.

One of the main problems faced by students is time constraints (Xu et al., 2020). Many of them do not have effective methods of organizing their activities, which leads to delays in completing tasks, stress, and reduced productivity (Khan and Yildiz, 2020). The solution to this problem can be the introduction of digital time management tools that can facilitate the processes of planning personal and professional time.

Modern technologies for organizing educational activities combine methods and means of searching, processing, presenting, and transforming educational information, as well as the interactive influence of the teacher on the student using technical and information tools. The time management technology is one of the most relevant in the current pedagogical activity. Its main advantage is the development of self-organization skills and management of one's own life time, which makes it indispensable in organizing independent educational work of students.

Many researchers focus on the problems that students face in the process of self-organization, in particular, chronic time deficit, insufficient skills to rationally distribute work and free time, as well as the lack of skills to systematize independent educational activities. The success of a student both in his studies and in his future professional activities largely

depends on his ability to effectively organize his time.

It is worth noting that the introduction of time management technology into the educational process of higher education institutions contributes to the development of important time management skills in students, which is critical for their professional activities. Rational time planning allows both teachers and students to achieve high results, effectively implement their goals, and work on self-improvement and personal growth.

Mobile applications, online organizers, task planners, and reminder services are becoming popular among students because of their accessibility and ease of use (KIMMONS, 2022). They can significantly improve the efficiency of time planning, facilitate the organization of the workflow, and also help to avoid distractions, thereby increasing productivity (Chen et al., 2023).

The aim of this study is to examine the impact of digital tools on the development of students' time management skills. Particular attention is paid to the students' ability to organize the learning process and effectively allocate their time.

The aim of the research is to study the impact of digital tools on the development of students' time management skills.

Empirical objectives:

- assess the level of planning and organization of students' time;
- determine the effectiveness of using digital tools to improve the organization of the educational process;
- establish the impact of digital tools on the development of time management skills.

2 LITERATURE REVIEW

In recent years, the development of time management skills among students has increasingly depended on the use of digital tools. A significant number of studies focused on how these tools contribute to improving academic performance and self-regulation. The relevant articles published in scientometric journals in recent years that examine the impact of digitalization on the development of time management skills among students are reviewed below.

Considering the pedagogical possibilities of time management technology, Agranovich et al. (2019) identified key indicators of students' competence in the effective use of time budget (self-management), which significantly increases academic success, comfort of life, level of independent learning, and professional development. According to their views, the structure of organizing student self-management involves:

- Value-based attitude to time;
- Purposefulness of educational activities, motivation;
- Rational distribution of physical and mental workload;
- Control and evaluation of the results of educational activities;
- Correction of self-organization of life activities.

Topor and Budson (2020) and Alyami et al. (2021) note that the pedagogical technology – time management – is a current model of organizing student activity, which includes the design, organization, and implementation of the educational process and the student's independent cognitive activity. Jamil and Isiaq (2019) agree with this opinion and note that it is necessary to introduce changes related to the rational use of information technologies for effective self-organization of the educational process. According to the authors, the design of pedagogical technologies requires the selection of optimal systems for specific conditions. Karpova (2022) also emphasizes that the quality of learning largely depends on the use of a specific pedagogical technology and its relevance.

Chemsi et al. (2020) indicate that modern technologies for organizing educational activities consist of methods and means of searching, processing, presenting, changing and providing educational information, as well as the teacher's influence on the student using technical and informational means. Researchers of self-organization of educational activities, such as Chai et al. (2019), Santoro (2022), note

a constant shortage of time among students, insufficient mastery of the skills of correctly distributing work and free time, as well as the ability to construct independent educational activities. Empirical research by Konotop et al. (2023) also confirms the importance of integrating digital technologies into learning for developing self-organization skills, effective use of time and increasing student success.

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It is worth noting that the use of time management in distance education plays a special role. According to Koshelieva, Baida and Miatenko (2022), the effective organization of distance learning requires the use of a planning methodology that combines rigidity and flexibility enabling students to focus on the most important tasks. This opinion is supported by Holoborodko and Denysenko (2020), Krykun and Medianyk (2024), who emphasize that the use of time management methods in distance learning is important for optimizing students' time, which enables maintaining a balance between educational tasks and personal development. Lyalyuk E., Lyalyuk A. and Polishchuk (2020) and Ratushnyak, Lyluk and Podolyanchuk (2019) emphasize the need to integrate flexible approaches to planning that enable students to adapt their learning environment to individual needs and conditions, such as technical limitations or changes in the learning mode. Dyka et al. (2023), note that the digitalization of education has a significant impact on the development of key competencies, in particular, the ability to use the latest digital tools for the effective organization of the educational process.

The reviewed studies generally indicate the significant role of digital tools in developing students' time management skills. From mobile applications to online planning systems, these tools provide students with the resources they need to effectively organize their academic and personal tasks. As digitalization continues to shape educational practices, it is important that both educators and students understand the potential of these technologies in developing better time management and self-regulation skills. Future research should focus on how these tools can be more effectively integrated into curricula to maximize their impact on student learning outcomes.

As digitalization continues to shape educational practices, it is important that both educators and students understand the potential of these technologies in developing better time management and self-regulation skills. Further research should focus on how these tools can be more effectively integrated into curricula to maximize their impact on student learning outcomes.

3 MATERIALS AND METHODS

3.1 RESEARCH DESIGN

The study was conducted in three stages: summative, interventional, and control. At the summative stage, the students' time management skills were diagnosed out using the author's questionnaire Student Time Efficiency and the Self-Recording of the Working Day technique. This enabled determining the initial state of the respondents' time organization. At the intervention stage, a course Digital Time Management: Time Management Skills was developed and implemented. The course included theoretical and practical classes on the use of digital tools for planning and organizing time. During the control stage, students took both surveys again to compare the results. Table 1 presents the features of the implementation of the Digital Time Management Programme.

Table 1 – Stages of the implementation of the Digital Time Management: Time Management Skills Programme and their assessment

Implementation Stage	Description of actions	Results/Assessment Tools
1. Preliminary Analysis and Adaptation	Survey of students to determine their time management skills and level of digital literacy.	Questionnaires for collecting information, analysis of student requests.
2. Conducting Training Sessions	Digital literacy training: introduction to digital tools, explanation of the basics of time management (SMART goals, prioritization).	Interactive lectures, educational materials, group discussions.
	Modular practical classes	
	Module 1: Task planning in applications (Trello, Todoist, Google Calendar, MindMeister).	Number of individual plans created, success of their implementation.
	Module 2: Performance monitoring (RescueTime, Clockify).	Performance tracker data, analysis of time usage reports.
	Module 3: Project management (Asana, Notion).	Success of group project implementation.
	Individual consultations: helping students with difficulties in implementing digital tools.	Individual session reports, student feedback.
3. Evaluating Effectiveness	- Survey: assessing the level of student satisfaction after each module.	Questionnaires with feedback and suggestions for programme improvement.
	- Analysis of academic performance: comparing the success of the control and experimental groups before and after the programme.	Scorecards, progress graphs.
	- Quantitative analysis: collecting data on schedule execution and productivity.	Statistical analysis of task performance, comparison of results.
	- Qualitative research: semi-structured interviews to identify the challenges and benefits of the programme.	Interview protocols, summarized key points from student feedback.
4. Individual Recommendations	Development of personal strategies for using digital tools in learning.	Personalized time management plans for each participant.
5. Final Programme Assessment	Comparison of the results of the control and experimental groups, analysis of success and satisfaction.	Overall report on programme effectiveness: graphs, comparative data analysis, student feedback.

Source: Developed by the authors (2025).

3.2 RESEARCH METHODS

The author's questionnaire Student Time Efficiency – this tool was used to assess how students organize their time at the initial stage and after a certain period after the implementation of the programme. The questions of the questionnaire focused on how much time students allocate for academic, extracurricular and recreational activities, as well as the distribution of their time for social networks and entertainment.

The Self-Recording of the Working Day technique was used to assess the individual characteristics of students' time management in practice. Students were required to record their working day in detail, indicating the time spent on various activities, which allowed them to identify the main "sucks" of time and areas for improvement.

Software tools-based approach – the study employed a number of digital tools to examine their impact on time management effectiveness. These tools included mobile time-planning apps (e.g. Todoist, Trello), mind maps for organizing thoughts (MindMeister, etc.), as well as online organizers and reminder services that helped students to organize their academic and personal affairs.

3.3 SAMPLE

A total of 200 students were selected for the study. The study involved second-fourth year-students of the Higher Educational Institution King Danylo University. The participants were divided into a control (CG) and an experimental group (EG) of 100 people each. This number was chosen to ensure the representativeness of the results and the possibility of conducting a correct comparison between the groups. The total sample of 200 students was formed on the basis of applications collected through a questionnaire among students of King Danylo University. The students were selected according to the following criteria:

Studying at the 2nd-4th years.

Motivation to improve the organization of time.

Basic skills in working with digital tools.

These criteria allowed to ensure the students' readiness to participate in the experiment and compliance with the target requirements of the study.

The number of students by years of study and gender balance: 50 second-year students, 70 third-year students, 80 fourth-year students.

In terms of gender distribution, women prevailed (65%), men made up 35%. The CG (100 people) did not participate in the Digital Time Management course. It was involved to compare the level of self-organization skills and changes in productivity before and after the experiment. The EG (100 people) participated in the Digital Time Management course.

Participants were registered remotely using Google Forms, where students completed a questionnaire that included questions about their motivation to improve their time management skills and basic level of digital literacy. The survey was conducted in September 2023.

The CG and EG were formed in such a way that they did not differ in key demographic characteristics, such as age, gender, major, or level of education. This minimized the influence of extraneous factors on the research results.

The EG participated in the course Digital Time Management: Mastering Time Management, which was held three times a week remotely via Google Meet from September 2023 to May 2024. This decision was chosen due to current restrictions related to war conditions, as well as the convenience of the platform for interactive learning. The CG did not take this course, which made it possible to determine the effectiveness of the programme implementation by comparing the results of both groups after the experiment.

The classes were held in the form of webinars and practical trainings, where students had the opportunity to acquire theoretical knowledge and apply it in practice using digital tools for effective time management. Empirical data for analysis were collected from all 100 students who participated in the course. The results of their progress in mastering time

management skills were taken into account.

The number of respondents was selected based on the need for a sufficient statistical sample to analyse the results of the programme implementation, which enabled obtaining meaningful data for comparison before and after the implementation of technologies.

3.4 INSTRUMENTS

Time management programmes – in particular, the mobile applications Todoist and Trello, which allow students to create tasks, organize them by priority and due date, and monitor task performance.

Mind maps – the MindMeister programme was used to create visual diagrams for educational and work tasks, which helped students to plan their time in the context of large projects or coursework.

Self-management diary – each student kept a personal diary where they recorded their daily routine, assessing the time spent on studies, rest, social networks, etc.

Relaxation and art therapy programmes – relaxation techniques were used to improve self-management effectiveness, which included stress-reduction exercises that allowed students to restore energy and increase productivity.

Based on the data obtained, it was found that students who actively used digital time management methods demonstrated significant improvements in organizing their own time, reducing time spent on social media and increasing learning efficiency.

4 RESULTS

The pedagogical potential of time management technology was considered in the context of teaching students of the Department of Information Technologies, the Department of Architecture and Construction, the Department of Information Technologies, the Department of Psychology and Social Sciences, as well as the Department of Ukrainian Philology. This technology is an effective tool for the development of students' self-management, which contributes to increasing their level of success, comfort in life, the effectiveness of educational activities and professional development.

The structure of the organization of student self-management includes the aspects presented in Table 2.

Table 2 – Structure of the organization of student self-management

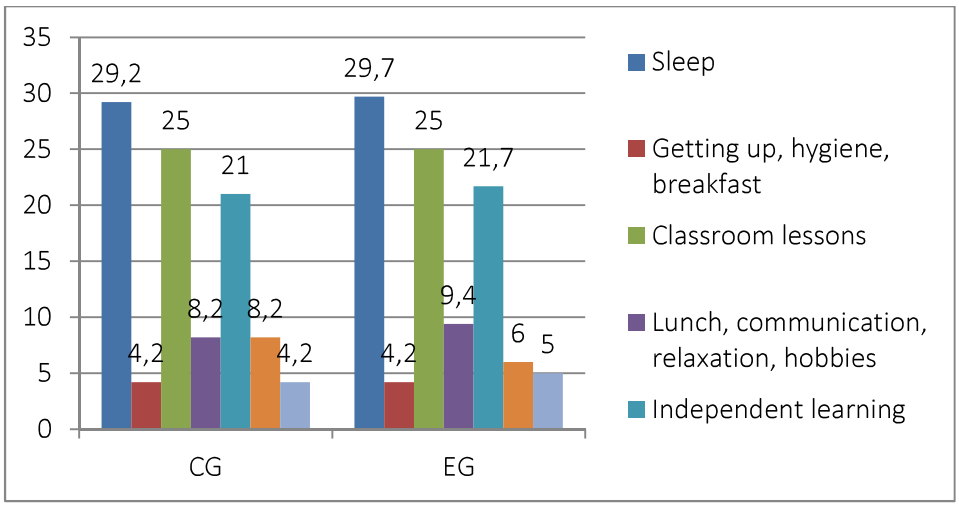
Aspect of self-management	Description
Valuable attitude to time	Awareness of the importance of rational use of time
Purposefulness of educational activity and motivation	Clear definition of goals and an internal desire to achieve them
Rational distribution of physical and mental workload	Effective planning of work and rest
Control and evaluation of educational activity results	Analysis of achievements and identification of gaps in the learning process
Correction of self-organization of life activities	Making changes to plans to increase productivity and effectiveness of educational activities

Source: Developed by the authors (2025).

Using the author's questionnaire Student Time Efficiency and the Self-Recording of the Working Day technique, the weekly time budget of students was determined. The study helped to identify key features of students' time organization and their ability to self-manage (Figure 1).

The results can be adapted to the specifics of the work of students of various specialties in the conditions of the modern educational process. This allows the use of time management technology to optimize the study load, develop self-control skills, and achieve professional goals (Appendix A).

Figure 1 – Distribution of students' daily time (%) by different types of activities in the CG and EG (summative stage)



Source: Developed by the authors (2025).

These diagnostic methods determined the approximate daily routine of full-time students, as well as the amount of time they devote to various types of educational and extracurricular activities.

Analysis of the results showed that most of the time students spend on activities such as sleep, classroom lessons and independent study. They allocate a smaller part of their time to eating, playing sports, hobbies and communication. Despite the similarity of the results in the CG and EG, there are certain differences. In particular, in the EG, about 90% of students live in university dormitories and eat organized meals in the student cafeteria. Thanks to this, they do not need to spend time traveling to the educational institution or cooking their own food, which allows them to allocate more time for rest, hobbies, and communication with friends or relatives (both in person and through social networks).

It is worth noting that students in both groups noted time suckers, the most common of which are social networks, computer games, and mobile applications. In addition, more than half of the respondents admitted that they do not have effective relaxation techniques to reduce physical and emotional stress.

So, a significant amount of time that students spend on independent preparation for classes, insufficient time for sleep and rest indicate the lack of clear planning of the daily routine, the influence of time suckers, as well as the inability to formulate goals and adhere to them.

In view of this, a programme was developed to introduce time management technology to form students' self-organization and self-management skills using digital tools, which includes:

- Implementation and testing of the extracurricular program Digital Time Management: Time Management Skills.

- Development of teaching aids, in particular the course Fundamentals of Time Management and a manual with the same name.

- Creation of an individual student time budget and keeping a self-management diary.

- Application of time management tools, such as mind maps, mobile applications, computer programmes, online organizers, task planners, and reminder services.

- Development of a relaxation system, which includes special exercises and art therapy tools.

The programme Digital Time Management: Mastery of Time Management is designed for students who seek to master modern digital tools for planning, analysing, and optimizing their time. The programme participants received practical knowledge and skills in using mobile applications, online organizers, mind maps and other innovative tools that will help them to build an effective daily routine, avoid time wasters and achieve their goals. Effective use of time not only increases academic success, but also creates conditions for a harmonious combination of personal development, recreation, and hobbies. Table 3 lists the main functions of each tool, its frequency of use, intended purpose, and average time spent working with the programmes.

Table 3 – Description of the tools used and their frequency of use

Tools	Function	Frequency of use	Purpose	Average time of use
Trello	Task planning, Kanban board	Daily	Organize tasks in the short and long term	20-30 min per day
Todoist	To-do list creation	3-4 times a week	Track personal tasks	10-15 min per day
Google Calendar	Event and meeting planning	Daily	Coordinate schedules	15 min per day
MindMeister	Idea visualization	1-2 times a week	Create mind maps for projects	30 min per week
RescueTime	Performance monitoring	Continuously (in background)	Analyse time allocation between work and non-work tasks	5 min per week for reports
Clockify	Time tracking	Daily	Track time spent on each task	10-15 min per day
Asana	Project management	Daily	Cooperation on group tasks	30 min per day
Notion	Note-taking, database management	Daily	A universal tool for organizing work materials	20 min per day

Source: Developed by the authors (2025).

The programme includes:

- learning the basics of time management, taking into account modern realities and challenges of student life;

- mastering popular digital tools for planning and controlling time;

- practical classes on analysing and correcting the time budget;

- forming healthy habits for managing time resources and avoiding stress;

- introducing elements of relaxation and art therapy to maintain physical and emotional balance.

The programme is structured in such a way that each participant can apply the knowledge gained in their daily life, finding optimal solutions for organizing time according to their needs. The interactive format of the classes, real-life examples, and modern approaches contributed to the rapid assimilation of the material and motivation for self-improvement.

Table 4 provides students' assessment of the effectiveness of implementing digital tools for developing time management skills. The data are based on a questionnaire survey of the EG students, who assessed the convenience, features, and effectiveness of the tools in the process of planning, monitoring, and managing tasks.

Table 4 – Students' assessment of the effectiveness of implementing digital tools in developing time management skills (%)

Digital tool	Very effective	Effective	Moderately effective	Lowly effective	Not effective
Trello	45%	35%	15%	3%	2%
Todoist	40%	37%	18%	4%	1%
Google Calendar	55%	30%	12%	2%	1%
MindMeister	35%	33%	20%	8%	4%
RescueTime	48%	32%	15%	4%	1%
Clockify	42%	34%	18%	5%	1%
Asana	50%	31%	13%	4%	2%
Notion	47%	33%	14%	4%	2%

Source: Developed by the authors (2025).

Analysis of the data in the table shows that Google Calendar, Asana and RescueTime received the highest efficiency ratings, demonstrating a leading role in the development of time management among students. MindMeister was found to be less effective because of its limited features compared to other tools. It should be noted that younger students (1st–2nd years) had more difficulties in using digital tools compared to older students (3rd–4th years). This is due to the lack of previous experience in using such tools or a lower ability to independently manage time. However, after conducting trainings and integrating digital tools into the learning process, younger students showed significant improvement in organizing their time and learning.

The table below (Table 5) shows students' evaluations of the effectiveness of different time management teaching methods, such as the use of digital tools, seminars, and printed materials. The data are analysed in percentages to assess the advantages of each approach and their impact on the development of time management skills (Appendix C).

Table 5 – Students' evaluation of the effectiveness of using different time management teaching methods

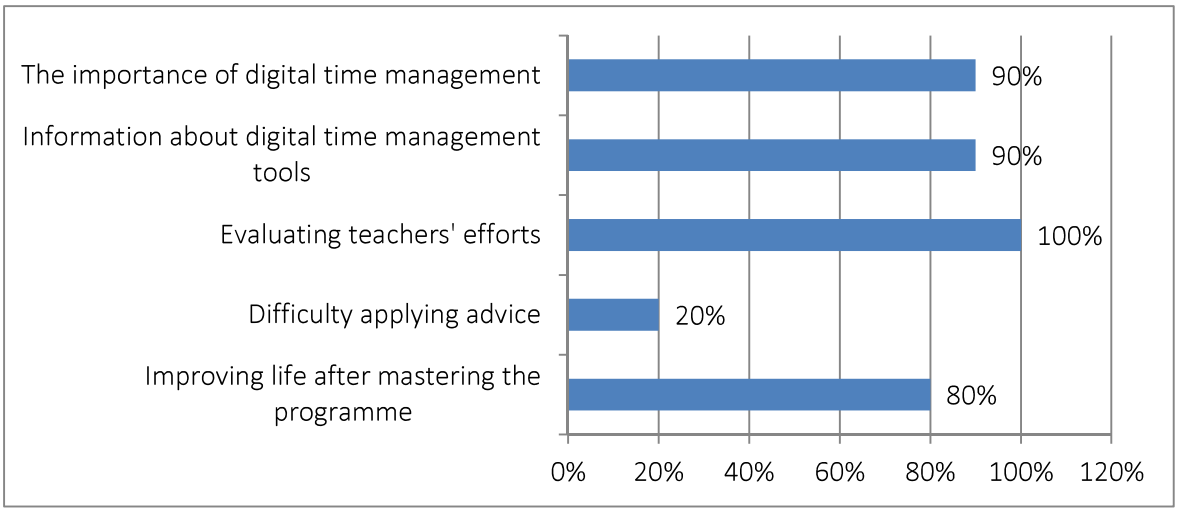
Teaching Method	Very effective (%)	Moderately effective (%)	Ineffective (%)	Undecided (%)
Digital Tools	60	30	5	5
Seminars	55	35	7	3
Printed Materials	20	25	45	10
Traditional Teaching Methods	40	30	20	10

Source: Developed by the authors (2025).

The table shows that digital tools and seminars received the highest ratings as "very effective" (60% and 55%, respectively), which confirms their important role in developing time management skills. At the same time, printed materials were rated as "ineffective" by 45% of students, indicating their lower practical benefit compared to other approaches. Traditional teaching methods occupy an intermediate position: 40% of respondents noted them as "very effective", but 20% recognized them as "ineffective". This emphasizes the importance of adapting traditional teaching to the current conditions.

The results of the student survey on the effectiveness of the Digital Time Management: Time Management Skills programme (Appendix D) are presented in Figure 2.

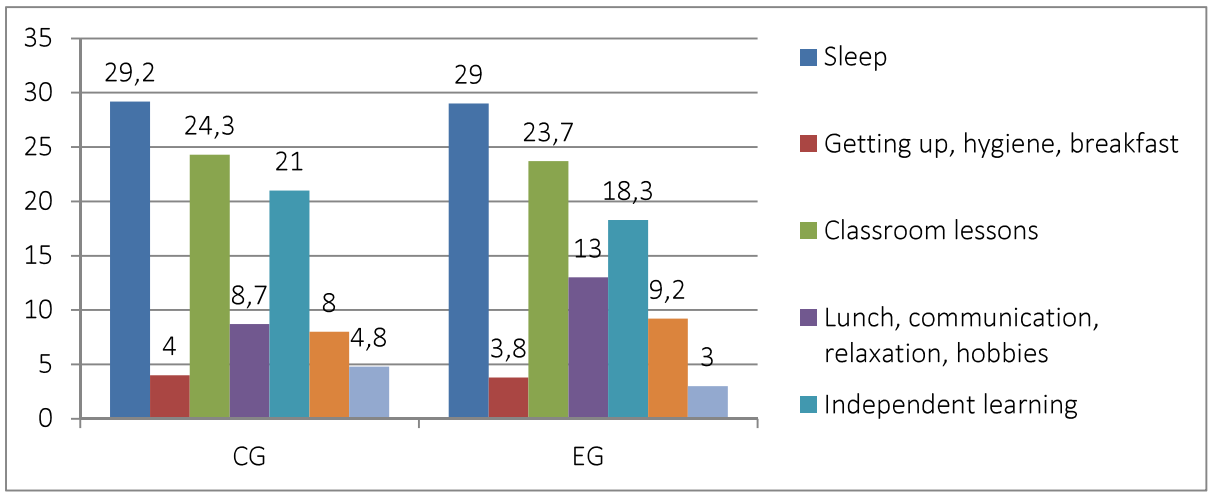
Figure 2 – Results of the EG students' survey regarding the effectiveness of the Digital Time Management: Time Management Skills Programme



Source: Developed by the authors (2025).

As we can see, the largest percentage of students noted the importance of digital time management in their lives (90%) and the improvement of life after mastering these skills (80%). A repeated diagnostics was conducted to verify the effectiveness of the program, the results of which are presented in the form of a diagram (Figure 3).

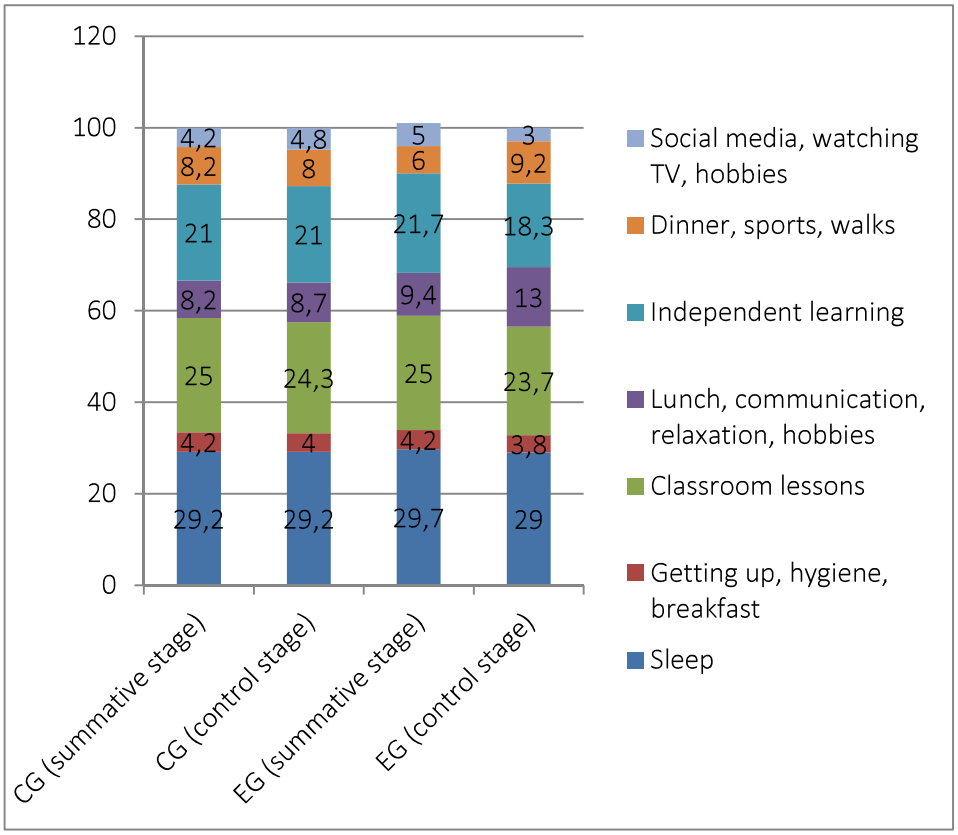
Figure 3 – Distribution of students' daily time (%) by different types of activities in the CG and EG (control stage)



Source: Developed by the authors (2025).

For greater clarity, we have developed a graph (Figure 4).

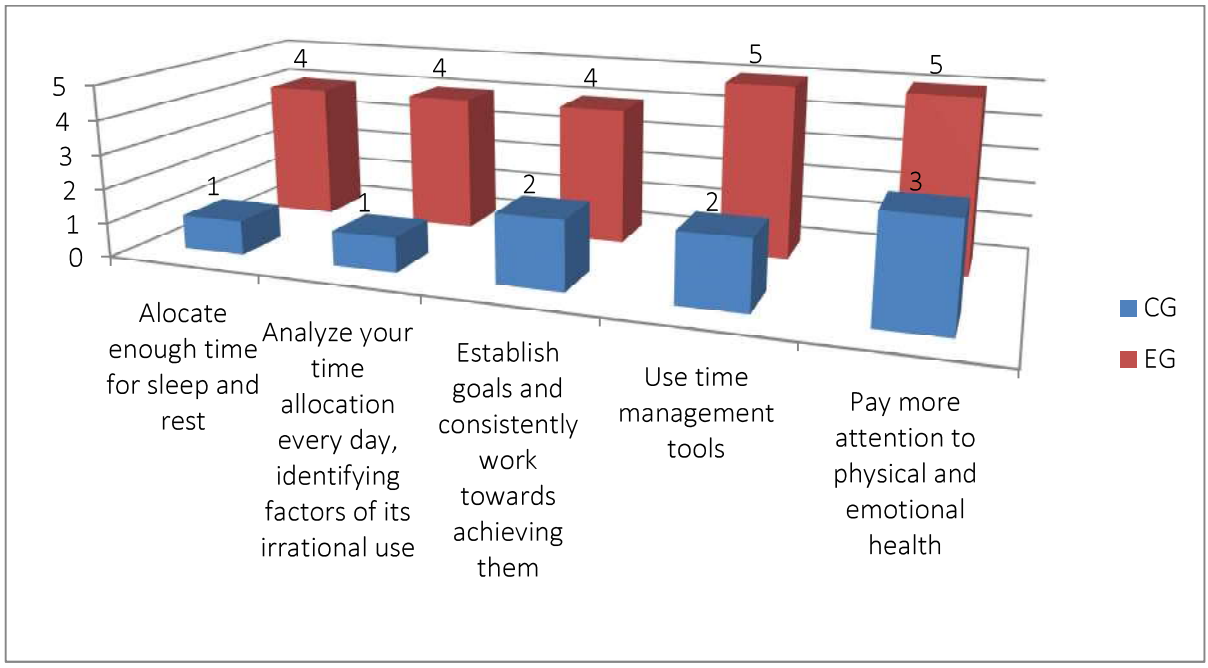
Figure 4 – Comparative characteristics of changes in the distribution of students' daily time (%) in the CG and EG at the summative and control stages of the experiment



Source: Developed by the authors (2025).

The analysis of the data of both groups showed that the CG showed no significant changes in the students' lifestyle. At the same time, positive changes are observed in the EG, despite the intensive academic load, a significant amount of time for independent work and time sucks (Figure 5).

Figure 5 – Assessment of students' lifestyle (%) in the CG and EG at the control stage of the experiment



Note: 1- the importance of time management is not realized; 2- there is some awareness, but it is not applied in practice; 3- it is realized, but it is not always applied; 4- it is actively practiced in most cases; 5- high awareness and constant application in everyday life.

Source: Developed by the authors (2025).

The data show that the EG students began to: allocate enough time to sleep and rest; analyse the distribution of their time daily, identifying factors of its irrational use; establish goals and consistently work on achieving them; use time management tools that help to analyse the daily time budget and adjust the daily routine (planners, mobile applications, etc.); pay more attention to physical and emotional health, develop useful habits, in particular, adhere to the work and rest regime, perform relaxation exercises. These changes indicate the formation of a planned daily routine and the students' ability to set life goals.

The time management technology in a higher education institution is implemented as an effective approach to organizing student life, which contributes to rational planning of the educational process, self-development, self-improvement, and professional development. As a pedagogical technology, time management is based on close teacher-student interaction. This is a current model of organizing student activities, which includes the design, planning and implementation of the educational process, as well as the development of independent learning skills. The results of the study show that the use of digital tools for time management can significantly improve student productivity. The integration of mobile applications and planners into the educational process allows for effective time allocation and stress reduction. This is especially useful for students who face a high academic load and need to better organize their day. The introduction of these tools can be part of time management courses, which will allow students to develop useful planning and self-control skills. Taking into account the students' individual needs when using such programmes will contribute to their more effective learning and improvement of their psychological state.

5 DISCUSSION

The analysis conducted in the research revealed a number of interesting aspects. In particular, the majority of students acknowledged that time management plays an important role in their lives, as indicated by 90% of students. A similar conclusion was reached by Lerchenfeldt et al. (2021), who noted that time management is important for efficiency and advised to use specific strategies to improve it. At the same time, only a small proportion of students stated that they previously knew how to properly organize their time. This is consistent with the findings of Wolters and Brady (2021), who emphasize the need to teach students time management skills.

It is interesting that most students expressed doubts about the effectiveness of printed materials in developing these skills (40%). Instead, they suggested focusing on workshops, which they believed would be more effective. Khiat (2022) also emphasizes that seminars on the use of digital time management tools play a key role in increasing students' awareness and helping them to apply realistic strategies.

Almost 90% of students highly rated the teachers' efforts, which indicates the importance of teaching methods. Despite the teachers' professionalism, their methods were perceived differently by the students. Lucas et al. (2021) note that combining traditional approaches with modern teaching strategies can significantly increase student satisfaction, which correlates with the results of our study.

During the interview, some students mentioned that they had tried to apply time management advice in the past without success. At the same time, they noted that systematic guidance and mutual learning during seminars made this process much easier. This approach is in line with the findings of Adams and Blair (2019).

Some students also noted that problems with punctuality had previously created difficulties in their lives. This is consistent with the findings of Abdulrahman (2022), who emphasizes that punctuality can have negative consequences. On the other hand, many students noted that their lives had significantly improved after mastering effective time management. Khan and Rasheed (2019) confirm that the ability to use time rationally can positively affect the quality of life, and time management training is an important tool for this.

The analysis of the research results identified significant differences between the CG and EG. The CG students who did not undergo time management training using digital tools showed only minor progress. This confirms the results of previous studies, in particular, the study of traditional approaches to learning, which often limit the opportunities for developing certain practical skills, such as time management. At the same time, the EG students who participated in special three-day time management seminars showed significantly better results, which indicates the effectiveness of integrating practical training into the educational process. This correlates with the findings of Chaudhari (2022), who notes that participation in time management seminars has a significant positive impact on students' academic performance.

A similar result is confirmed by other studies, such as the work of Kimmons (2022), which demonstrates that effective time management skills are directly related to increased academic performance and reduced stress levels among students. At the same time, our results are also consistent with the findings of Fidalgo et al. (2020) and Gizzi and Rädiker (2021), which emphasize the importance of adapting curricula to the real needs of students, in particular, in the context of developing soft skills that include time management, stress management, and organizational skills.

Overall, our study is also consistent with earlier studies that emphasize the importance of integrating practical training forms into the educational process. However, in comparison with other studies, it can be noted that our results have a clearer generalization towards the specific adaptation of trainings to real conditions of study in universities, which can be the basis for further research in this area.

6 CONCLUSIONS

The results of the study confirmed that the use of digital tools significantly affects the development of students' time management skills. The introduction of mobile applications, online organizers and mind maps enabled students to better organize their time, which had a positive effect on their academic performance and self-organization ability. Students became more disciplined, effectively planning their studies, leisure, and personal tasks.

The Digital Time Management: Time Management Skills extracurricular programme became an important element in developing students' planning and self-management skills. The programme enabled them to create an individual time budget, learn self-organization techniques, and implement time management strategies using digital tools. This approach enhanced students' motivation to use their time more effectively. The use of digital tools enabled students to clearly plan their academic and extracurricular activities, which helped to reduce stress and improve their overall health by increasing their time for rest. At the same time, digital tools allowed them to more effectively track task completion, which contributed to increased productivity and higher academic results.

It is recommended to continue to implement and develop programmes that use digital tools to improve time management, especially in distance learning environments. Such programmes should be adapted to the specific needs of students of different majors and educational institutions, and also include relaxation and art therapy methods to prevent burnout.

The academic novelty of the study is the integrated approach to the use of digital tools for the development of students' time management skills, as well as in the testing of author's methods that combine theoretical knowledge and practical recommendations. The practical significance of the study is the development of programmes and materials that can be used in the educational process to increase the effectiveness of learning and the organization of students' time.

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