

Uso de dispositivos móviles con fines académicos ¿Ventaja o desventaja?

Use of mobile devices for academic purposes: Advantage or disadvantage?

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RESUMEN: El uso de dispositivos móviles en el ámbito educativo se ha convertido en una realidad cada vez más extendida, la cual ha sido validada desde muchas miradas. En este artículo, se realizó una revisión de la literatura para analizar el impacto del uso de dispositivos móviles con fines académicos, con el desarrollo de una investigación cuantitativa y aplicado un cuestionario de preguntas con respuesta de alternativas, se procesaron los resultados y se analizaron para obtener como resultado que los dispositivos móviles pueden ser una herramienta útil para el aprendizaje, pero es importante utilizarlos de manera responsable para evitar las distracciones.

Palabras clave: Dispositivos móviles; Tecnología; Estudiantes

ABSTRACT: The use of mobile devices in the educational field has become an increasingly widespread reality, which has been validated from many perspectives. In this article, a review of the literature was carried out to analyze the impact of the use of mobile devices for academic purposes, with the development of a quantitative investigation and applied a questionnaire of questions with answers to alternatives, the results were processed and analyzed to the result is that mobile devices can be a useful tool for learning, but it is important to use them responsibly to avoid distractions.

Keywords: Mobile devices, Technology, Students

Introduction

In today's digital age, mobile devices have become useful tools in both society and universities. These devices, ranging from smartphones and tablets to laptops, have revolutionized the way we communicate, work and, most importantly, learn. Education has not been left out of this technological revolution, and more and more teachers and students are turning to mobile devices as fundamental tools in the teaching-learning process.

The use of mobile devices in education has been the subject of study by numerous researchers, such as: Arias and Yañez (2018); González and Rodríguez (2019; Latorre and Fernández (2020); Martinez and Gómez (2021) and Rodríguez and Pérez (2022), such research has delivered mixed results given that some studies have found that the use of mobile devices can improve student learning, while other studies have found no significant differences. While, some have referred that the key factors that determine the success of using mobile devices in education include:

- Teacher training: Teachers must be trained to use mobile devices effectively in the classroom.
- Family support: Families must support the use of mobile devices in their children's education.
- Availability of educational resources: Mobile devices should have access to quality educational content.

The research seeks to answer the question: What are the advantages and disadvantages of the use of mobile devices for academic purposes in the Chilean university educational context? We also pretend to achieve the objective of analyzing the advantages and disadvantages of the use of mobile devices for academic purposes in the Chilean university educational context.

In this article, we will explore in depth the use of mobile devices in academia, analyzing both the advantages and disadvantages of this growing trend. Through a quantitative study and an exhaustive review of the existing literature, we will seek to shed light on how mobile devices are impacting higher education and how educators can take full advantage of these technological tools to enrich the learning experience of their students.

For the development of the research, a questionnaire was used to collect data from a sample of university teachers. The questionnaire will include alternative answers with a Likert scale with 3 response options (agree, moderately agree and disagree), and the questions are related to the topic of the study on the use of mobile devices for academic purposes in the Chilean university

educational context. After the application of the instrument, the data are displayed in Excel for descriptive and documentary analysis and to provide conclusions of the research.

Development

The integration of technology in education is a constant topic of interest in the academic literature. Technology, particularly mobile devices, has become a powerful tool to facilitate access to information, foster collaboration among students, and provide more personalized learning experiences. In the area of education, González and Rodríguez (2019), highlight that the use of mobile devices can be an advantage in the following aspects:

- **Personalization of learning:** mobile devices allow students to access personalized content tailored to their individual needs. This can help students learn at their own pace and according to their interests.
- **Active student participation:** Mobile devices can encourage active student participation in the learning process. This can help students become more responsible for their own learning and develop critical thinking skills.
- **Collaboration and teamwork:** Mobile devices can facilitate collaboration and teamwork among students. This can help students develop social and communication skills.
- **Innovation and creativity:** Mobile devices can foster innovation and creativity in learning. This can help students think differently and develop new ideas.

In society, the use of mobile devices can be an advantage in the following aspects:

- **Access to information:** Mobile devices allow people to access information from all over the world via the Internet. This can help people stay informed about the latest news and trends.
- **Communication:** Mobile devices allow people to stay in touch with friends and family, as well as people around the world. This can help people feel more connected to the world around them.
- **Education:** Mobile devices can be used to access educational resources, such as books, videos and online courses. This can help people learn new skills and knowledge.

However, for Martínez and Gómez (2021), there are also some disadvantages associated with the use of mobile devices in education and society, such as:

- **Distractions:** Mobile devices can be a source of distractions for students and for people in general. This can make it difficult to concentrate and pay attention.
- **Addiction:** Excessive use of mobile devices can lead to addiction. This can have negative consequences for physical and mental health.
- **Health problems:** Prolonged use of mobile devices can cause health problems, such as headaches, vision problems or back problems.

Continuing with the documentary review, there are other authors who refer to the use of mobile devices for academic purposes and emphasize that it is a topic that has been widely researched as a result of the pandemic we are suffering and that has been validated with the success it has had in maintaining communications regardless of geographical distance and although it still has deficiencies in terms of the implementation of evaluations for the delivery of information and effective feedback, it has been a great tool.

It is for the above that Lopez & Sanchez (2019) also refer to the advantages of using mobile devices for academic purposes, among which are the following:

- **Access to a large amount of educational resources:** Mobile devices can provide access to a wealth of educational resources, such as e-books, articles, videos, and educational applications. This allows students to learn about a wide range of subjects and personalize their learning according to their needs and preferences.
- **Personalization of learning:** Mobile devices can personalize learning according to learners' needs and preferences. This can be achieved through content selection, reminder settings and gamification.
- **Promotion of collaboration among learners:** Mobile devices can facilitate communication and collaboration among learners. Students can use mobile devices to work on group projects, share ideas, and solve problems.
- **Improving communication between students and teachers:** Mobile devices can facilitate real-time communication between students and teachers. Students can use mobile devices to ask questions, get feedback, and participate in online discussions.

Some of these coincide with González and Rodríguez (2019) and others provide bibliographic contributions to the present research. Next, López & Sánchez (2019), show the disadvantages of

the use of mobile devices for academic purposes, some of which coincide with those presented by Martínez and Gómez (2021). According to the above idea, it can be said that some disadvantages are the following:

- **Cost:** The cost of mobile devices and connectivity services can be a barrier to access to education.
- **Unequal access:** Access to mobile devices and connectivity services can be unequal, which can create a barrier to access to education. In some cases, students may not have access to mobile devices or high-speed connectivity services. This can limit their ability to participate in educational activities that require the use of mobile devices.
- **Security:** Mobile devices can be vulnerable to cyber-attacks, which can compromise the security of personal and academic data. Students can fall victim to phishing, malware or ransom ware if they do not take appropriate precautions.
- **Health problems:** Excessive use of mobile devices can cause health problems, such as eyestrain, headaches and posture problems. Students who spend too much time using mobile devices may be at risk of developing these problems.

It is important to keep these disadvantages in mind when considering the use of mobile devices for academic purposes. Teachers should take steps to mitigate these risks and ensure that mobile devices are used safely and effectively in the classroom.

Having reviewed the literature Martínez and Gómez (2021) assert that maximizing the benefits and minimizing the drawbacks of using mobile devices for academic purposes requires careful planning and strategic implementation that involves teacher training on how to effectively use mobile devices in the classroom. This will enable them to take full advantage of the available tools and design enriching learning experiences.

In addition, the creation of Quality Educational content is required, through the selection and use of applications, resources and high quality educational content that are aligned with the learning objectives, seeking that the class material is relevant and enriching for students while still covering the contents of the subjects, this will allow collaborative learning by promoting teamwork, discussing ideas and solving problems together.

Another element that allows the use of mobile devices in the classroom is the use of applications and platforms that facilitate instant feedback and formative assessment, this helps students to understand their progress and teachers to adjust their teaching in a timely manner and deliver personalized teaching taking advantage of the adaptive capabilities of mobile technologies to meet their individual needs and learning styles of each student.

Likewise, to minimize the disadvantages, teachers should use dynamic tools that allow fluidity in the delivery of content to avoid infoxication and have at hand the content that is really needed in the classroom, promoting digital awareness while maintaining privacy and ethical use of the tools. After reviewing the literature it can be said that mobile devices are impacting higher education by delivering a wide range of online educational resources. This includes e-books, academic journals, educational videos and reference materials, which enriches the research and study process, enabling active and personalized learning experiences, i.e., students can learn at their own pace, choosing resources and activities that suit their individual needs.

Messaging, videoconferencing and academic social networking applications encourage interaction and the exchange of ideas, the use of online quizzes enable learning anywhere, anytime. Students can access study materials while traveling or waiting in one place, maximizing their study time. Mention can also be made of the flipped classroom technique, which benefits greatly from mobile devices because educators can assign online readings and resources as pre-class homework and then use the classroom time for discussions and hands-on activities.

Additionally, there are many specialized educational apps that can help students develop specific skills and it is the job of teachers to recommend or incorporate these apps into their curricula to be used ethically and judiciously, as mobile devices are transforming higher education by offering new opportunities for learning, access to resources and collaboration.

Teachers can leverage these tools by creating more interactive, personalized and accessible learning experiences, enriching their students' educational experience and better preparing them for the ever-changing digital world, breaking the traditional classroom paradigm of only delivering content and entering a new era of teaching that is all about delivering tools for autonomous and efficient learning.

Therefore, the use of mobile devices in education and society can be an advantage or a disadvantage, depending on how they are used. It is important to be aware of the potential advantages and disadvantages in order to make informed decisions about the use of this technology.

Authors such as Latorre and Fernandez (2020), state that some relevant theories of the use of mobile devices for academic purposes are presented below:

- **Mobile Learning Theory:** this theory suggests that mobile devices are ideal tools for learning because they allow students to access knowledge anywhere and anytime. Teachers can leverage this theory to design more flexible, learner-centered learning experiences.
- **Constructivist Learning Theory:** This theory emphasizes the importance of students' active construction of knowledge. Mobile devices can foster active learning by allowing students to explore, create and collaborate in digital environments.

As such, trends in the use of mobile devices in higher education, such as the trend towards asynchronous learning, where students can access content and engage in learning activities at their own pace via mobile devices, have gained traction in higher education. This provides flexibility to students and allows for greater personalization of learning.

Also notable is the case of Augmented Reality (AR) and Virtual Reality (VR), where the use of mobile devices for AR and VR experiences in the classroom is on the rise. These technologies can provide immersive and visually enriching experiences to teach complex concepts. Likewise, real-time collaboration applications, such as Google Workspace and Microsoft Teams, which are being widely adopted in educational environments and facilitate communication and collaboration between students and teachers in virtual classrooms and lectures in today's context.

Alongside the above are the ideas of Arias and Yañez (2018), with relevant research in relation to the subject highlighting:

- **Effects on Academic Performance:** where it has been explored how the use of mobile devices affects academic performance. Some studies suggest improvements in performance, while others warn about possible distractions.
- **Motivation and Engagement:** research has investigated how the use of mobile devices can increase student motivation and engagement. Gamification and interactive apps are examples of approaches that can improve engagement.

- **Time Management and Productivity:** Researchers have examined how students can use time management and productivity apps on mobile devices to improve their organization and efficiency in studying.

Important contributions are those of Rodriguez and Perez (2022), who note that there are challenges and ethical considerations such as that teachers should be aware of data privacy concerns when using mobile devices. It is important to protect students' personal information and comply with privacy regulations and that they should decrease the digital divide as not all students have equal access to quality mobile devices and connectivity, which can create inequalities in learning. According to the aforementioned authors, it is the teachers who must find a balance between the use of mobile devices and other forms of traditional teaching, taking into account that not all educational activities are adapted to mobile learning.

For the development of the quantitative research, a questionnaire of alternative questions (Agree, moderately agree and disagree) was designed, validated with the judgment of 5 experts and applied to 50 university teachers seeking their opinions in relation to the proposed topic, according to the experiences in each of the contexts where they work, and the answers are shown in Table 1, below, showing some important aspects that are mentioned in the following paragraphs.

Pregunta	De acuerdo	Medianamente de acuerdo	En desacuerdo
Los dispositivos móviles pueden facilitar el aprendizaje.	40	10	0
Los dispositivos móviles pueden distraer la atención de los estudiantes durante las clases.	10	20	20
Los dispositivos móviles pueden promover la colaboración entre los estudiantes.	30	20	0
Los dispositivos móviles pueden mejorar la comunicación entre los estudiantes y los docentes.	20	30	0
Los dispositivos móviles pueden ayudar a los estudiantes a desarrollar habilidades de pensamiento crítico.	30	20	0

Table 1: Questions and Answers of the applied Instrument
Own elaboration's source

In Table 1, the results of the questionnaire show which members of the sample consider that mobile devices can be an advantage for learning. Most teachers agree that mobile devices can facilitate learning, promote collaboration among students and improve communication between students and teachers. However, there is also a percentage of the sample that considers that mobile devices can be a disadvantage, as they can distract students' attention during classes.

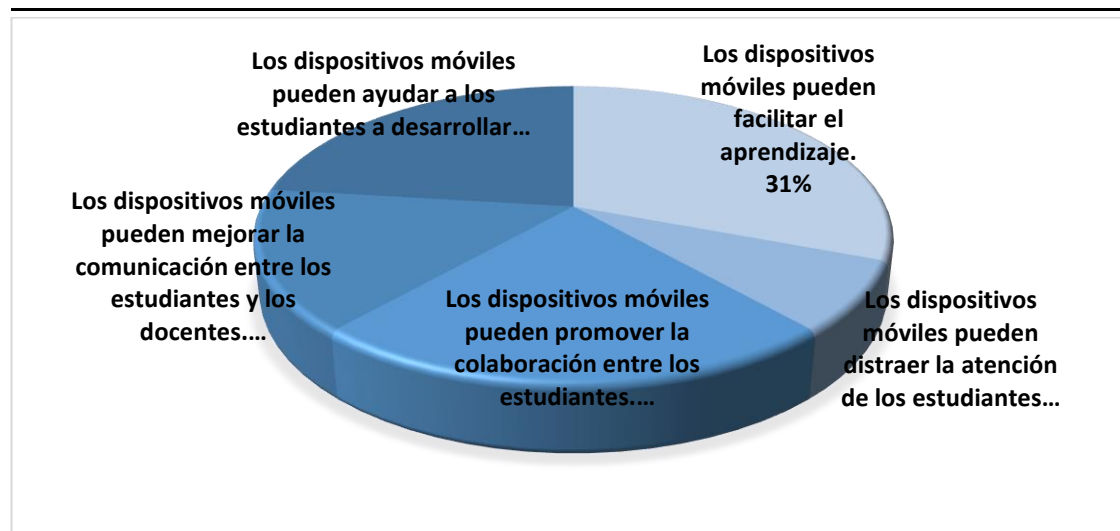


Figure 1: Responses of the applied instrument

Own elaboration's source

With the analysis of Figure 1, it can be said that most of the individuals in the sample agree that mobile devices can facilitate learning; this is because mobile devices can provide access to a large number of educational resources, such as e-books, articles, videos, and educational applications. In addition, mobile devices can personalize learning according to students' needs and preferences.

The teachers surveyed also agree that mobile devices can promote collaboration among students because mobile devices can facilitate online communication and collaboration. Students can use mobile devices to work on group projects, share ideas, and solve day-to-day problems or case studies in a subject.

Individuals in the sample agree that mobile devices can improve communication between students and teachers because mobile devices can facilitate real-time communication. Students can use mobile devices to ask questions, get feedback, and participate in online discussions through forums, webinars, and other resources.

However, there is also a percentage of teachers who consider that mobile devices can be a disadvantage, as they can distract students' attention during classes, this is because mobile devices can be very attractive and easy to use, which can make students lose concentration on the task at hand and enter social networks or get distracted by some news or novelty of the moment.

Conclusions

Mobile devices can be a useful tool for learning, but it is important to use them responsibly to avoid distractions. Teachers should be aware of the advantages and disadvantages of mobile devices to use them effectively in the classroom.

The comments of the authors mentioned in the literature support the findings of this study. For example, Sánchez and López (2022) state that mobile devices can be a useful tool for learning, but it is important to use them responsibly to avoid distractions. Garcia & Garcia (2021), also point out that mobile device can be an ally in education, but it is important to use them appropriately.

Similarly, Hernández & Gómez, (2020), deliver some tips for using mobile devices effectively in the classroom such is the case of establishing clear rules on the use of mobile devices in the classroom, encouraging the use of mobile devices for academic activities and providing training to students on the responsible use of mobile devices.

In addition, Rodriguez & Garcia (2018), make it clear that to take advantage of the benefits of mobile devices for academic purposes and mitigate the disadvantages, it is recommended that teachers be a role model, i.e., teachers should use mobile devices responsibly in the classroom, this will help students learn to use mobile devices responsibly. Some concrete examples of how teachers can use mobile devices in the classroom:

- To provide access to educational resources. Teachers can use mobile devices to provide students with access to e-books, articles, videos, and educational apps. This can help students learn about a wide range of topics and personalize their learning to their needs and preferences.
- To foster collaboration among students. Teachers can use mobile devices to facilitate communication and collaboration among students. Students can use mobile devices to work on group projects, share ideas and solve problems.
- To improve communication between students and teachers. Teachers can use mobile devices to facilitate real-time communication between students and teachers. Students can use mobile devices to ask questions, get feedback, and participate in online discussions.

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