Review

The Educational Use of WhatsApp

Belén Suárez-Lantarón [1,*], Yolanda Deocano-Ruíz [1], Nuria García-Perales [1] and Irina Sherezade Castillo-Reche [2]

[1] Departemento Ciencias de la Educación, Facultad de Educación, Universidad de Extremadura, 06006 Badajoz, Spain
[2] Departamento de Didáctica y Organización Escolar, Facultad de Educación, Universidad de Murcia, 30100 Murcia, Spain
* Correspondence: bslantaron@unex.es

Abstract: The mobile phone has become the preferred means of communication, especially among young people, and there are many teachers who are committed to introducing it as a resource in their classrooms. Therefore, the objective of this work was to describe the educational uses of WhatsApp. The methodology was a systematic review of published work on the subject, based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and similar phases in the process. The sample was made up of 192 papers, which shows the large amount of research that has gone into the subject. WhatsApp's educational use comes from the creation of groups—students alone or including the teacher. It is applied in both formal and informal education in all educational stages and in numerous subjects. It is also related to improvements in active learning, decision-making, and motivation, in addition to skills related to efficiency, planning, and time organization. Although the application was not designed for the educational environment, its advantages have shown it to be an adequate educational and support resource in teaching and learning at all educational stages.

Keywords: WhatsApp; education; educational technology; digital competence; educational resources; digital society

1. Introduction

In recent decades, the internet has been introduced into all areas of life: leisure, work, health, and education. In fact, the situation caused by COVID-19 and mobility restrictions led to a notable increase in all these areas of internet consumption through mobile phones, connection to social networks, video games, and instant messages [1].

Among these devices, there has been notable growth in the use of mobile phones, or smartphones [2], which has become the preferred means of communication, work, and leisure [3]. Ditrendia's annual report revealed that there are already 5.22 billion unique users worldwide. In other words, more than half of the world's population uses mobile phones. The report also highlights that web traffic on browsers via mobile phones accounts for 92.6% of internet users, and it is growing faster than for tablets or computers [3].

The same report indicated that, of the time spent on a smartphone (an average of 4 h and 10 min a day, 20% more than in 2019), most of it is dedicated to communication and instant messaging (90.7%) and social networks (88.4%). These uses are described graphically in Figure 1.

Young people have also shown such a preference, regularly accessing the internet via their smartphones [4]. It is also noticed that this is the group that spends the most time on smartphones [3], and among the activities and applications most used are instant messaging (89.5 compared to 85.1% in 2019) [1]. Some studies, such as [2], already warn that smartphones are being used from an increasingly younger age, even below 12 years of age, the minimum recommended age for owning this device.
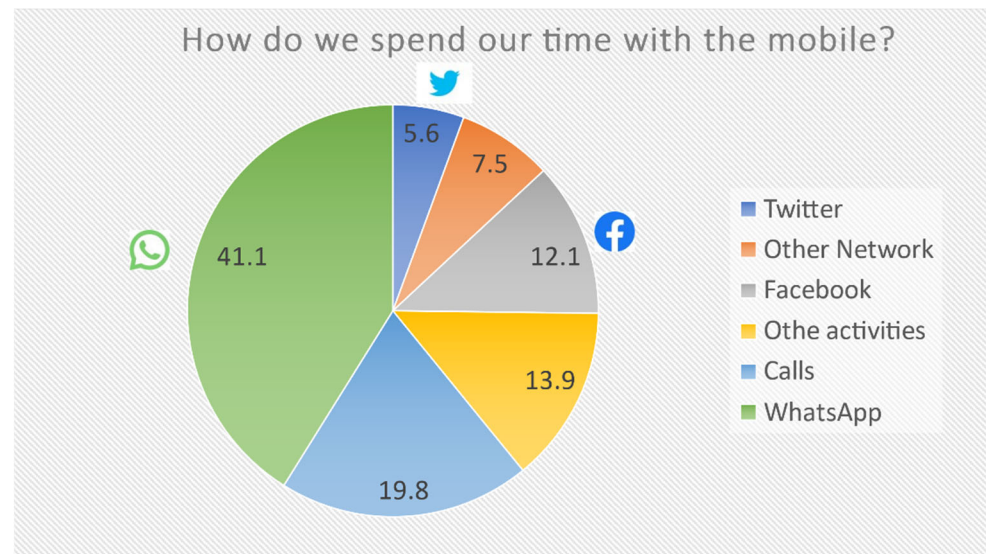
Figure 1. Mobile phone use. Source: Adapted of Ditrendia (2021) Copyright Creative Commons type "Share Alike 4.0-CCBY-SA4.0".

It is necessary to indicate that mobile phone use has become normalized and that it has reached a high level of implementation in the educational sphere [5]. In fact, Generation Z already incorporates screens into their teaching–learning process, and it is very common for university students to have a smartphone in the classroom.

Given the popularity of smartphones among young people, teachers are committed to introducing them into their classroom [5]. In addition, probably because they are mostly used for instant messaging and social networks, mobile phones have also increased their influence in the classroom [2,6].

Recognizing this trend, this paper focuses on the WhatsApp (WA) application and its use as an educational tool, since it is considered the world's leading instant messaging application [7–9], although it is facing competition from Signal and Telegram [3].

WhatsApp was created for BlackBerry and iPhone in 2009, and for Android in 2010. It became massively popular in 2012 because of smartphones, and in 2014 it was acquired by Facebook, which started its meteoric expansion.

WhatsApp is said to have revolutionized social information exchange on all continents [10]. It has even given rise to new expressions, such as "Whatsapping" in English or "Wasapear" in Spanish. Currently, the application is the most widely used for communication in real time or asynchronously. It is easy to use, has a limited data-consumption cost, and can be used to send audio and videos and share web addresses. It is updated and adds new functions in short periods of time to adapt to the needs of the users.

In 2014, the paper *WhatsApp Goes to School* dealt with its educational application [11] and concluded that it was the most complete app with features that can be used and adapted for use in the classroom. Since them, the app has been the subject of study in education, sociology, and psychology, with numerous studies focusing on its educational use [6,12–16]. However, most of these were concerned with a specific practice or implementation, with a few theoretical studies analyzing its general use and its advantages and disadvantages.

The aim of this study was to describe the state of the art of WhatsApp and its educational uses. In this sense, we considered it important to carry out a review to allow us to understand the state of the question, providing a new approach to its educational usefulness.

We intended to complete previous studies, carrying out a review from a global perspective using international and easily accessible search engines not restricted to text with an index, such as JCR or SJR, expanding access to a greater number of practices. We include a description of some examples of these uses, which provides a more global and complete vision of the app's educational uses. The starting questions of this research were as follows:

- How has the app been used in the classroom?
- In which subjects or areas has it been used and what was the procedure followed?
- What are the results observed in the improvement of the teaching–learning process?
- What has been the satisfaction of users?
- What advantages and disadvantages have been observed?

2. Materials and Methods

The method chosen was a systematic review of publications on the subject to become informed, develop the practice, and invite discussion of academic work [17]. In addition, it showed the state of the matter and the results obtained [18,19], making it easier for other researchers to consult the bibliographical sources, enabling them to understand and perhaps continue the work [20].

The literature review proposed is descriptive and integrative. By raising questions, data were collected in the form of previous articles, analyzed, and then conclusions were drawn [17]. The procedure took previous studies as a reference [19,21–24]. In addition, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses_(PRISMA) statement was considered [25] and some of its phases were adopted, which are briefly presented below (Figure 2):

- Problem formulation. Establishment of the research questions for which answers are sought and indicated in the objective section.
- Identification of information sources. Choice of Google Scholar as database (Google Académico in Spanish) because it gives easy access to work developed with different impact indices around the world. This gave the research an international character, which allowed greater information to be obtained without being limited to works published with impact indices, such as Wos-JCR or Scopus-SJR.
- Elaboration of the search string. Structuring the string using the following terms of interest, both in English and Spanish and in the same order: WhatsApp (and) Education; WhatsApp (y) educación; WhatsApp (and) educational use; WhatsApp (y) uso educativo.
- Selection of the search fields using the option. No citations and no patents.
- Inclusion criteria were established based on the following: (i) scientific rigor—-the text had to be in a publication that had passed peer or tribunal review; (ii) language—-text had to be compiled in English, Portuguese, or Spanish; (iii) time—-the texts should have been published between 2014 (the year WhatsApp Goes to School was published and the year expansion of the application began) and 2021; and (iv) themes, included in the title or the abstract terms, allowing for some flexibility.
- Establishment of exclusion criteria. After an initial reading of the abstract, the text was subsequently reviewed, and work that did not report results of or did not focus on the educational use of the app in education or with other aspects (e.g., use in leisure time) or from other fields (e.g., sociology or psychology) was excluded.

The final section included a total of 192 documents: written in English (44.3%), Spanish (44.3%) or Portuguese (11.4%), distributed among articles ($n = 130$), conferences ($n = 31$), books or book chapters ($n = 16$) and thesis or end-of-studies projects ($n = 15$). These texts can be consulted in the Supplementary Materials (Doi: https://doi.org/10.6084/m9.figshare.19998074.v2 (accessed on 23 May 2022)

One of the texts was considered and treated qualitatively. It developed a traditional narrative and descriptive analysis using a file with different categories as a record of the information: bibliographic reference, country, educational level, use of the application, subject/area, procedure, performance, satisfaction, advantages, and disadvantages.
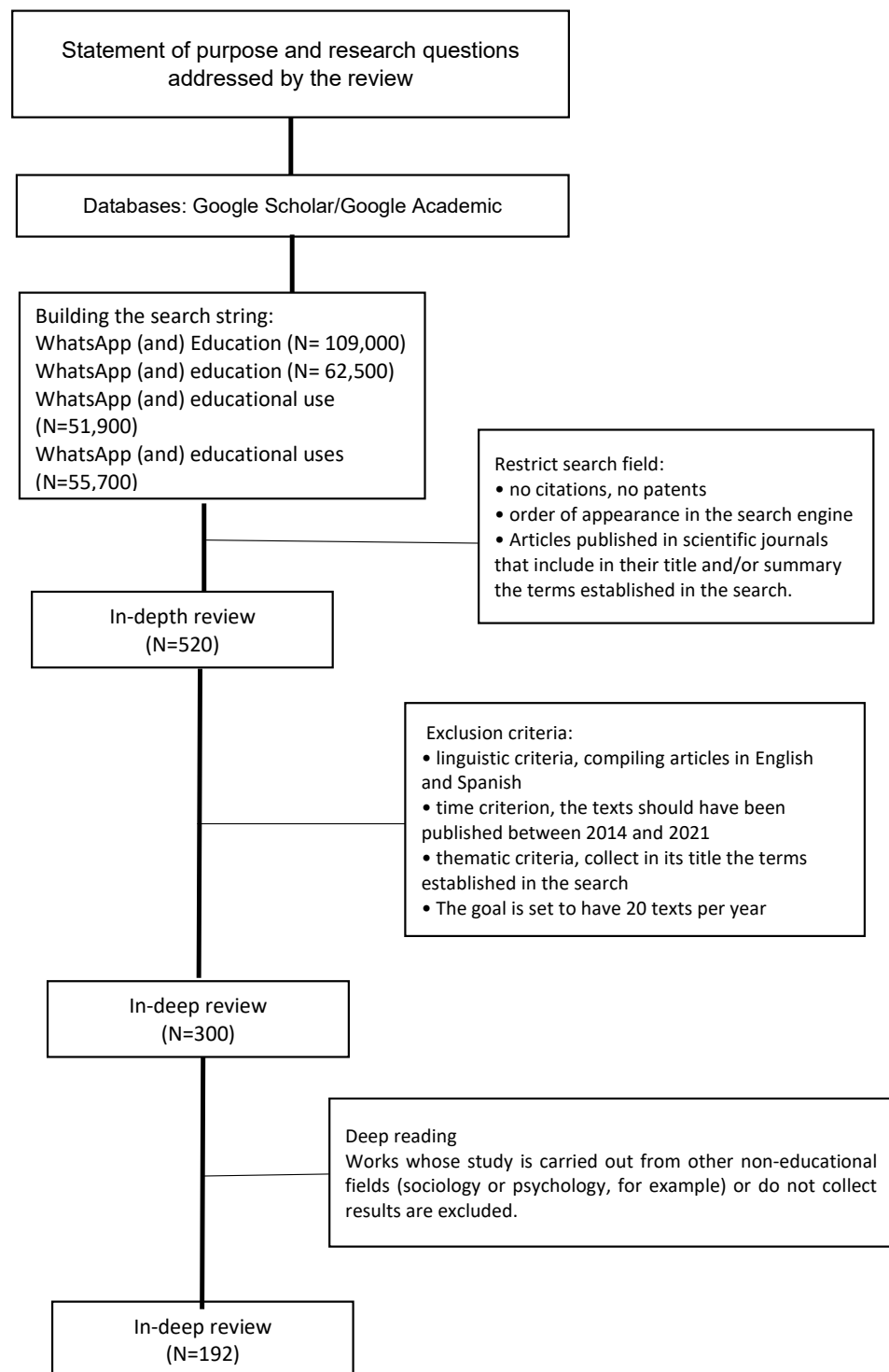
Figure 2. Text search and selection flow diagram. Doi: https://doi.org/10.6084/m9.figshare.2029129 5.v1 (accessed on 23 May 2022).

3. Results

Although the WhatsApp application has been around for more than a decade, it has not lost its potential as an educational resource introduced in classrooms. Highlights from the analysis include the following:

- The large number of documents that study the subject.
- Its use in both formal and informal education.
- Its use at all education stages, but mostly (87%) in higher education.

- Its widespread use in the Americas, Europe, Asia, and Africa, and even in training situations as peculiar as areas affected by armed conflict, such as Syria [26].
- It use not only on smartphones but also on computers (WhatsApp Web) [27].

More specifically, the results in relation to the research questions concerned the app's use in the classroom, subjects, or areas in which it has been used, the procedure followed, and improvements in the results of the teaching–learning process and user satisfaction.

3.1. How Has the Application Been Used in the Classroom?

In all the texts analyzed, the use of WhatsApp as an educational resource involved the creation of a group, either including the teacher (15%) or just students (85%).

3.1.1. Student–Teacher Groups

Of the texts that focused on student-only groups, a high percentage (82%) were specifically created at the instigation of the teacher for the specific development of a topic or subject. Of these, 17% were related to teaching innovation projects. The use was usually related to tutoring and task resolution, both for learning and reinforcement queries or for group work or collaboration. Their use was adapted to the contents of the specific subjects or areas of learning. Some examples are in Table 1.

Table 1. Examples of the use of WhatsApp through groups with the teacher.

Reference Citation Author(s) and Year	Description of the Study
Baishya & Maheshwari (2019) [28]	An investigation into what leads students to create a WA group and what kind of interaction takes place in it as a collaborative learning tool or as a chat. Their results indicated that it was mostly used for general conversation and sharing class alerts and homework questions and answers with classmates.
Sayan (2016) [29]	This study focused on the influence of the app on the academic performance of 92 university students at the Faculty of Education in Istanbul. The students were divided into three groups (two controls and one group that used WA). The study explained that the group using WA was more successful on the final exam.

3.1.2. Student-Only Groups

Research also showed that 18% of the groups were created on the students' own initiative. These groups are often referred to as "class groups" or "subject groups." The outcomes indicated that the students mainly used them to share information related to their studies: important dates, exams, materials. Some examples are in Table 2.

Table 2. Examples of the use of WhatsApp through student groups.

Reference Citation Author(s) and Year	Description of the Study
Baishya & Maheshwari (2019) [28]	They explored the use of WA, in particular WA student groups, during a course in which the usefulness and participation of WA groups was observed by comparing groups in which the teacher was present and groups in which only the students were present.
Fuentes et al. (2017) [30]	They analyzed through discussion groups the communicative dynamics between university students in WA groups created by them in the classroom context. The authors pointed out that the potential of this medium lies mainly in the immediacy it offers, making it an attractive resource for simultaneous communication.
Patil (2015) [31]	That study focused on the use of WA among postgraduates at Karnataka State Women's University. Students frequently accessed the app for educational purposes, concluding that there was a good possibility for the university to integrate mobile technology into the learning process. They even suggested that the library could take necessary steps to form a user group on WA to provide a platform for them to share digital information and be a tool to provide alert services.
Pessoa et al. (2016) [32]	They studied the use of the app among dental students in São Paulo (Brazil) through an electronic questionnaire. They concluded that WA can be of great help as a study tool and as an aid in decision-making.

However, there are some exceptions to these teacher–student or student–student WhatsApp group models, e.g., the revision of the relationship via WA between parents and teachers [33], the study into the use of WA as a tool for teaching collaboration among physical education teachers [34], and the study that proposed the creation of a group as a collaboration tool among researchers in the team [35].

3.2. In Which Subjects or Areas Has It Been Used and What Were the Procedures Followed?

As indicated above, the results showed that the application has been used in all educational stages, although the university stage had the highest representation (87%). Moreover, it has been used in degrees in different disciplines, such as education [36], nursing [37], physiotherapy [38], engineering [39], medicine [40], sociology [35], and veterinary medicine [41].

WhatsApp has also been incorporated as an educational resource in a wide range of subjects: biology [42], library science [43], cardiopathy [44], physical education [45], philosophy [46], physics [47], reading [48], odontology [32], spelling [49], chemistry [50], mathematics [47,51], music [52,53], psychiatry [54], technology [55], vocabulary [56], and even religious values [57]. Some examples are presented in Table 3.

Table 3. Examples of the use of WhatsApp by subject or area.

Subject or Area	Author(s) and Year	Description of the Study
Chemistry	Nuray (2019) [58]	Interaction among eight chemistry teachers and their high school students using WhatsApp groups. The app increased motivation and a feeling of belonging, received rapid feedback, and was a reminder of important dates or actions.
Philosophy	Araujo & Bottentuit (2015) [46]	WA was applied to the teaching–learning of philosophy in an intermediate vocational training cycle, using it as a virtual space for conversation and stimulating student participation through discussion groups. The teacher posed a philosophical problem through videos, audio, or images related to the topic or classroom content.
Physics	Costa et al. (2017) [59]	WA was introduced to teach electricity and magnetism by creating a group in which, after a presentation of classroom content, the students presented doubts and questions.
Mathematics	Jere et al. (2019) [60]	This work was conducted to determine if WhatsApp could be effective in teaching and learning mathematics. To collect the data, a mixed approach employing both qualitative and quantitative methods was used. A WhatsApp group of 10 students and one mathematics teacher were engaged in this study. The participants explored the effectiveness of using WhatsApp for Grade 12 mathematics students at Phakamani High School in the Eastern Cape Province of South Africa. The results showed that WhatsApp motivated students and teachers to share information, and that students were free to ask and discuss critical topics and issues within the mathematics group. From the participants' comments, it was evident that WhatsApp could be a means to improve interest and performance in mathematics.
	Darias (2015) [61]	The app was used to introduce algebraic language to students in the first year of secondary school. WA symbols were used to solve equations in which these icons hid numbers.
Biology	Campos et al. (2015) [62]	WA was used in a school in Rio de Janeiro, Brazil, to teach biology by forming groups through which the teacher sent exercises for the students to consult.
Literature	Perez Hernández (2021) [63]	The application is used through group chat in which students participate by developing texts and commenting on different literary works.

From these results, it is striking that WhatsApp was mostly used to teach other languages (20%), of which 60% was English, although there were also studies that used the app to teach minority languages, such as Galician [64], Quechua [65], or Mayan [66]. Some of these studies worked on specific aspects of communication skills [67], oral skills [68], and learning phrasal verbs [69] or vocabulary [56,70]. Some examples that illustrated the use of the app in teaching of different second languages are shown in Table 4.

Table 4. Examples of the use of WA in teaching second languages.

Author(s) and Year	Description of the Study
Asmawati et al. (2016) [71]	The use of WA in English-language teaching involving students from the University of Malaysia. It promoted the creation of WA groups in which the teacher uploaded text messages, images, or videos to encourage student participation or comments. In this case, the use of voice messages was not allowed.
De Sousa da Silva (2015) [72]	This research used WA to teach Portuguese as a foreign language by proposing activities. The results indicated an improvement in learning.
Hong & Ling (2014) [73]	An interactive model of Chinese-language learning used WA to promote the understanding of Chinese characters.
Ramos (2018) [74]	The app was used as support for teaching French as a second language to a group of Ecuadorian students from the Technical University of Cotopaxi (UTC) in Ecuador. Through an analysis of a pedagogical sequence that proposed face-to-face courses and remote tasks with the app, it showed its advantages and limitations for the acquisition of communication skills.
Simarro (2016) [75]	The app was integrated into the teaching of Spanish as a second language. It reduced student anxiety before oral interaction activities, achieved higher-quality interactions, and improved self-esteem and motivation.

In addition to the uses linked to specific subjects, the app was also used as a support tool for tutoring subjects and coursework for final projects. This usefulness of the application increased during the special educational circumstances of the pandemic.

In all these works, WA groups were created to promote communication between the teacher and students to strengthen learning. The resolution of questions or doubts improved student motivation. Some examples are given in Table 5.

Table 5. Examples of the use of WhatsApp to support tutoring or academic guidance.

Author(s) and Year	Description of the Study
Alencar et al. (2015) [76]	The app was used through a group to exchange information on a subject, clarify doubts, tasks or proposed work, and serve as a discussion forum.
Suárez-Lantarón et al. (2021) [77]	WA was introduced as a resource for resolving doubts related to subject areas similar to academic tutorials, but carried out through the app.
Valerio (2020) [43]	The author proposed the use of WA as a mediation and support tool, in particular for teaching library science. The students used it to clarify doubts or complete tasks or similar actions.
Misaghi et al. (2021) [78]	WA was proposed as a tool for communication, integration, and motivation in distance learning.

Other uses in education, not previously mentioned, were to promote sexual health among young people [79], encourage reading among primary school students with high rates of school absenteeism [48], help visually impaired students with curricular adaptations [80], teach students with dyslexia [52], serve as an assessment tool [53,56] and for peer assessment [81], or to promote collaborative work among students [82,83] and among teachers [34].

3.3. What Were the Results Observed in the Improvement of the Teaching-Learning Process?

All the texts referred to improved academic performance in their results. Some studies found that the use of this tool was closely related to student achievement [84] and that the interactions developed through the WhatsApp group improved student performance [85,86].

In addition, 100% of the students agreed that the group discussions contributed to their learning [87]. This author pointed out that the use of WhatsApp as a pedagogical resource facilitated teaching–learning in chemistry. Other authors [68], agreed regarding oral competence in English or [46] philosophy. Furthermore, [88] reported significant improvement in efficiency, time planning and organization, active learning, decision-making, and motivation. Some examples are in Table 6.

Table 6. Examples of results observed in the teaching–learning process.

Author(s) and Year	Description of the Study
Ortega (2021) [15]	WA allowed all students to follow the subject and access the contents. The activities proposed through the application contributed to the understanding of the topics, as well as group work or the exchange of opinions, which promoted active learning.
Jere et al. (2019) [60]	Results showed that WhatsApp motivates, encourages, and allows learners and teachers to share information on the subject. Learners were free to ask and discuss critical topics and issues on the mathematics group. From the comments given by the participants, it was evident that WhatsApp could be one of the means to improve mathematics interest and performance among learners engaged.
Can &Aktas (2019) [89]	The results of this study revealed that using WhatsApp outside the course led to a significant differentiation in the self-efficacy beliefs of the students for both reading and listening. The data obtained from qualitative processes also confirmed this. In addition, it shows that the practice has a statistically meaningful effect on students' attitudes toward the course. The data obtained from the qualitative processes proved that the implementation was influential in such emotions as happiness, joy, excitement, and pride and that the students considerably supported the use of this implementation.
Akulwar (2019) [38]	This study describes that the use of WhatsApp promoted learning independently at any time and anywhere (no geographical boundaries); the students were more open to asking questions as it provides privacy and confidentiality; one student's doubt resolution benefited the entire group; it was especially helpful during exam preparation for immediate feedback and quick problem solving, discussion of important topics, etc. Also, it was an effective method for doubt resolution, explanation with voice notes, video calls are possible.

Most studies recognize that the WhatsApp group is of potential for ubiquitous learning, and the students have a good attitude to this app as a teaching and learning platform. However, there are also studies that also indicate that students are not ready yet to learn actively, collaboratively, and independently through the WhatsApp group [90].

3.4. What Has Been the Satisfaction of Users?

The results showed a high level of satisfaction among students and teachers who have used the application. Some examples are in Table 7.

Table 7. Examples of user satisfaction.

Author(s) and Year	Description of the Study
Morsidi et al. (2021) [91]	The authors said that lecturers and students are encouraged to use the app because it can help fortify communication skills among students who later become competent graduates.
Akulwar (2019) [38]	In this study of 250 students, a facilitator created a separate group for students for each class. At the end of the program, the authors described the "successes": creation of a pleasant learning space, faster interaction with the teacher, and easy access to work materials, among other issues.
Can and Aktas (2019) [89]	The results of this study revealed that using WhatsApp outside the course had a statistically meaningful effect on students' attitudes toward the course. The implementation was influential in such emotions as happiness, joy, excitement, and pride.
Alencar et al. (2015) [76]	Note that the students who used the WhatsApp group valued the experience positively because it provided them with information almost in real time. They could ask questions at any time without personal contact, which encouraged even the shyest or most withdrawn students to participate.

3.5. What Advantages and Disadvantages Were Observed?

The following advantages and disadvantages emerged, which are listed in Table 8.

Table 8. Advantages and disadvantages.

Advantages	Disadvantages
- Ease of use and access. - Synchronous and asynchronous communication. - Very versatile functionalities, such as group chat and the ability to attach files, images, audio, or videos. - Sharing and accessing useful materials for the development of subjects. - Increased motivation. - Promoting student–student and teacher–student participation. - New possibilities for learning. - Task development under teacher supervision. - Feedback on assignments and easy access to the teacher to resolve doubts. - Generates a sense of belonging within the group.	- Requires a network connection, which is not always easy or free of charge. - Using the app may distract students from other tasks and study time. - Promotes addictive behavior. - Harmful effect on spelling and grammar. - Increased time dedication on the part of the teaching staff as they receive a large number of messages for review. - Possibility of inappropriate use of time and language. - High volume of messages (and in some cases dispersion of topics) can result in wasted time. - Generation of fatigue among students because of information and communication overload and invasion of privacy. - Teachers who often use their own device and personal number may receive messages at inappropriate times.

4. Discussion and Conclusions

As Lauricella and Kay cited in [92] pointed out, it is not only important to focus on how and why young people use mobile technology or certain applications, it is also relevant to understand how these tools can be incorporated into the teaching–learning process.

For this reason, the educational uses of the WhatsApp app are presented throughout this paper, although there are many other uses: a space to develop debates or where teachers can carry out evaluations, a platform to send the solution to a task, or to complement documentation through text, files, images, or audiovisuals [93,94].

The results showed that the application was primarily used for the following purposes:

- supporting students in the teaching–learning process and improving results;
- increasing participation and motivation for the subjects;
- promoting group, cooperative, or collaborative work;
- serving as a reminder of important aspects of a subject (tasks, dates, exams).

From the analyzed texts, this app brings numerous benefits to students: it opens the possibility of knowledge construction [95], helps develop competence [88,96] develops oral and written communication skills [67,68], helps find solutions to the difficulties that arise during a lesson [43,97], facilitates problem solving [46], improves student motivation, autonomy, self-efficacy, and confidence [89,98–100], generates cohesion and a sense of belonging within the class group [64,78,84], promotes collaboration and cooperative learning [83,101,102], enables knowledge sharing and access to resources [51,103,104], improves teacher accessibility [13,28,105,106], promotes learning beyond the classroom [78,84], and motivates students, something on which all studies agree, although it is recognized that students also use the app for extracurricular purposes (e.g., congratulations and entertainment [28]).

The studies acknowledged better learning results by students who used the app, but a direct relationship between the use of this app and improved performance may not be asserted. Remember, that studying more or less does not depend on the applications, but on the person and the circumstances [107]. The success of its use will depend on the group, its intentions, activities, and type of task or work, but the app can be a reinforcement of learning in the classroom [92,108].

Furthermore, the use of WhatsApp as an educational resource means that teachers need to be up to date and familiar with the app's functions and how it allows them to

connect from anywhere, share information, and work collaboratively not only with their students but also with families or colleagues [109–111].

This study collected both advantages and disadvantages or difficulties in the educational use of WhatsApp [13,18,112–114]. It should be added that in many educational centers, smartphone use is limited. To overcome some of these disadvantages—-and to ensure that this resource is put to good use—-we agree with [9,115] that a commitment must be made by all members of the group to assume a series of responsibilities toward their peers as well as a series of operating rules from the start: timetable for participation, use of appropriate language, or relevance of shared material. Along these lines, [116] pointed out that drawing up a contract with the participating students and establishing rules for use, have been helpful in overcoming some of the disadvantages mentioned above.

Although WhatsApp was not designed for the educational environment, using its advantages and avoiding its disadvantages has shown it to be a suitable educational and support resource in the teaching–learning process at all educational stages.

References

1. Ruiz-Palmero, J.; Colomo-Magaña, E.; Sánchez-Rivas, E.; Linde-Valenzuela, T. Estudio del uso y consumo de dispositivos móviles en universitarios. *Digit. Educ. Rev.* **2021**, *39*, 89–104. [CrossRef]
2. de Miguel, C.R.; Pérez, D.D.; Sánchez, G.R. Percepción del uso del teléfono móvil en alumnos desde Educación Primaria hasta Grado Universitario. *Digit. Educ. Rev.* **2021**, *39*, 23–41. [CrossRef]
3. Ditrendia Informe Mobile España y Mundo. 2021. Available online: https://ditrendia.es/informe-mobile-2021-espana-y-mundo/ (accessed on 16 June 2022).
4. Jiménez, R.G.; Bravo, C.B.; Ilardia, I.M.P. Uso de las redes sociales entre los jóvenes y ciudadanía digital: Análisis tras la COVID-19. *REIDICS Rev. De Investig. En Didáctica De Las Cienc. Soc.* **2020**, 64–81. [CrossRef]
5. Gómez, A.D.; Maina, M.F.; Crespo, O.G. Uso del smartphone en jóvenes universitarios: Una oportunidad para el aprendizaje. *Pixel-Bit Rev. De Medios Y Educ.* **2021**, 211–227. [CrossRef]
6. Cetinkaya, L. The Impact of Whatsapp Use on Success in Education Process. *Int. Rev. Res. Open Distrib. Learn.* **2017**, *18*, 1–17. [CrossRef]
7. Merelo, J.J.; Tricas, F. La irresistible ascención del WhatsApp. *Revision* **2012**, *6*, 1–4.
8. Sanz, J.J. WhatsApp: Potencialidad Educativa Versus Dependencia y Adicción. Available online: http://dimglobal.net/revistaDIM30/docs/OC30whatsapp.pdf (accessed on 14 June 2022).
9. Suárez-Lantarón, B. WhatsApp: Su uso educativo, ventajas y desventajas. *Rev. De Investig. En Educ.* **2018**, *16*, 121–131.
10. Cremades, R.; Maqueda, E.; Onieva, J.L. Posibilidades didácticas de la escritura digital ubicua en la aplicación WhatsApp Messenger. *Letral* **2016**, *16*, 106–120. [CrossRef]
11. Bouhnik, D.; Deshen, M. WhatsApp Goes to School: Mobile Instant Messaging between Teachers and Students. *J. Inf. Technol. Educ.* **2014**, *13*, 217–231. Available online: http://www.jite.org/documents/Vol13/JITEv13ResearchP217-231Bouhnik0601.pdf (accessed on 16 June 2022). [CrossRef]
12. Cascales-Martínez, A.; Vicente, M.Á.G.; Simón, A.P. WhatsApp como herramienta educativa en Educación Primaria: Alumnado, docentes y familias. *Pixel-Bit Rev. De Medios Y Educ.* **2020**, 71–89. [CrossRef]

13. Rosas, C.M.C.; Alvites-Huamaní, C.G. WhatsApp como recurso educativo y tecnológico en la educación. *Hamut'ay* **2021**, *8*, 69–78. [CrossRef]
14. Dekhne, P. Advantages and disadvantages of WhatsApp. *Int. Res. J. India* **2016**, *1*, 1–3.
15. Ortega, M. Las posibilidades didácticas del WhatsApp en la formación docente no universitaria. *Rev. Estud. Psicológicos* **2021**, *1*, 20–32. [CrossRef]
16. So, S. Mobile instant messaging support for teaching and learning in higher education. *Internet High. Educ.* **2016**, *31*, 32–42. [CrossRef]
17. Solis, S.J.A.G. Utilidad y tipos de revisión bibliográfica. *ENE Rev. De Enfermería* **2015**, *9*, 1–10.
18. Bottentuit, J.B.; Patriota, O.C.; Pereira, C. WhatsApp e suas Aplicações na Eduçao: Uma revisaö sistemática da Literatura. *Rev. Educ.* **2016**, *10*, 67–87.
19. Sánchez-Meca, J. Cómo realizar una revisión sistemática y un meta-análisis. *Aula Abierta* **2010**, *38*, 53–64.
20. Gómez, E.; Navas, D.F.; Aponte, G.; Betancourt, L.A. Metodología para la revisión bibliográfica y la gestión de información de temas científicos, a través de su estructuración y sistematización. *DYNA* **2014**, *81*, 158–163.
21. Sacco, A.D. Movilidad de profesores principiantes: Una revisión sistemática de la literatura. *Rev. Complut. De Educ.* **2021**, *32*, 395–404. [CrossRef]
22. Pesántez, M.d.E. Revisión y análisis sobre el potencial pedagógico de las TIC en las aulas hospitalarias: Hacia la e-inclusión del alumnado hospitalizado. *Edutec. Rev. Electrónica De Tecnol. Educ.* **2021**, *77*, 35–51. [CrossRef]
23. Martínez-Heredia, N.; Corral-Robles, S.; González-Gijón, G.; Sánchez-Martín, M. Exploring Inequality Through Service Learning in Higher Education: A Bibliometric Review Study. *Front. Psychol.* **2022**, *13*, 826341. [CrossRef]
24. Ayuso, J.A.Z. Las clases basadas en actividad física: Una revisión sistemática de las creencias del profesorado y el alumnado. *Rev. Complut. De Educ.* **2020**, *31*, 449–462. [CrossRef]
25. Page, M.J.; Mckenzie, J.E.; Bossuyt, P.M.; Boutron, I.; Hoffmann, T.C.; Mulrow, C.D.; Shamseer, L.; Tetzlaff, J.M.; Akl, E.A.; Brennan, S.E.; et al. Declaración PRISMA 2020: Una guía actualizada para la publicación de revisiones sistemáticas. *Rev. Española De Cardiol.* **2021**, *74*, 790–799. [CrossRef]
26. Alfarah, M.; Bosco, A. Los usos de Facebook y WhatsApp en la reconstrucción de la educación en zonas afectadas por conflictos armados: El caso de Siria. *Rev. Iberoam. Sobre Calid. Efic. Y Cambio En Educ.* **2018**, *16*, 45–60. Available online: https://www.redalyc.org/jatsRepo/551/55160082003/55160082003.pdf (accessed on 2 December 2021). [CrossRef]
27. Pérez-Cruz, D.; Sánchez-López, F.; Cocón-Juárez, J.F.; Zavaleta-Carrillo, P. La Influencia del WhatsApp en la Educación Superior de la UNACAR. *Rev. Tecnológica-Educ. Docentes 2.0* **2020**, *9*, 39–48. [CrossRef]
28. Baishya, D.; Maheshwari, S. WhatsApp Groups in Academic Context: Exploring the Academic Uses of WhatsApp Groups among the Students. *Contemp. Educ. Technol.* **2019**, *11*, 31–46. [CrossRef]
29. Sayan, H. Affecting higher students learning activity by using WhatsApp. *J. Res. Refflection Educ. Sci.* **2016**, *4*, 88–93.
30. Fuentes, V.; García, M.; Aranda, M. Grupos de clase: Grupos de WhatsApp. Análisis de las dinámicas comunicativas entre estudiantes universitarios. *Prisma Social* **2017**, *18*, 145–174.
31. Patil, S. Usage of WhatsApp Messenger amongst post-graduate students in a university environment: A study of Karnataka State Women's University, Vajayapura. *Int. J. Multidiscip. Res. Dev.* **2015**, *2*, 591–594.
32. Pessoa, A.R.; Taboada, A.P.; Jansiski, L. Uso de la aplicación Whatsapp por estudiantes de odontología de Sao Paulo, Brasil. *Rev. Cuba. De Inf. En Cienc. De La Salud* **2016**, *27*, 503–514.
33. Ruiz Ballesteros, D.; Seva Larrosa, P.; Seva Larrosa, S. Relación vía Whatsapp entre padres y maestros/as. Perspectiva del futuro docente. In *Tecnología, Innovación e Investigación en los Procesos de Enseñanza-Aprendizaje*; Vila, R.R., Ed.; Octaedro: Quito, Ecuador, 2016; pp. 1233–1240.
34. Monguillot, M.; González, C.; Guitert, M. El WhatsApp como herramienta para la colaboración docente. *Rev. Digit. De Educ. Física* **2017**, *8*, 56–62.
35. Scribano, A. Miradas cotidianas. El uso del WhatsApp como experiencia de investigación social. *Rev. Latinoam. De Metodol. De La Investig. Soc.* **2017**, *13*, 8–22.
36. Hinojo-Lucena, F.J.; Garcia, G.G.; Lopez-Beimonte, J.; Guerreo, A.J.M. Uso de WhatsApp y Google drive en el desarrollo de prácticas externas de futuros profesores. In *Investigación e Innovación Educativa. Tendencias y Retos*; Aznar, C., Cáceres, M.P., Romero, J.M., Marín, J.A., Eds.; Dykinson: Madrid, Spain, 2020; pp. 11–23. Available online: https://www.dykinson.com/libros/innovacion-docente-e-investigacion-en-ciencias-sociales-economicas-y-juridicas/9788413245614/ (accessed on 14 June 2022).
37. Pimmer, C.; Abiodun, R.; Daniels, F.; Chipps, J. 'I felt a sense of belonging somewhere'. Supporting graduates' job transitions with WhatsApp groups. *Nurse Educ. Today* **2019**, *81*, 57–63. [CrossRef]
38. Akulwar, I.S. What's up! WhatsApp: An Additional Teaching-Learning Tool in Physiotherapy Education. *Commun. Soc. Media* **2019**, *2*, 136. [CrossRef]
39. Nirgude, M.; Naik, A. WhatsApp Application: An Effective Tool for Outof- Class Activity. *J. Eng. Educ. Transform.* **2017**, *30*, 1–5.
40. Coleman, E.; O'Connor, E. The role of WhatsApp®in medical education; a scoping review and instructional design model. *BMC Med. Educ.* **2019**, *19*, 279. [CrossRef]
41. Malhotra, D.K.; Bansal, S. Magnetism of WhatsApp among veterinary students. *Electron. Libr.* **2017**, *35*, 1259–1267. [CrossRef]
42. Abualrob, M.; Nazzal, S. Using WhatsApp in Teaching Chemistry and Biology to Tenth Graders. *Contemp. Educ. Technol.* **2019**, *11*, 55–76. [CrossRef]

43. Valerio, D.R. Más allá de la mensajería instantánea: WhatsApp como una herramienta de mediación y apoyo en la enseñanza de la Bibliotecología. *Inf. Cult. Y Soc.* **2020**, *42*, 107–126. [CrossRef]

44. Butrón, J.O. *Utilización de WhatsApp en el Proceso de Enseñanza-Aprendizaje de la Materia cardiopatía*; Universidad San Simón: Cochabamba, Bolivia, 2018; Available online: http://ddigital.umss.edu.bo:8080/jspui/handle/123456789/12074 (accessed on 14 June 2022).

45. Chaverra Fernández, B.E.; Gaviria Cortés, D.F.; González Palacio, E.V. El estudio de caso como alternativa metodológica en la investigación en educación física, deporte y actividad física. Conceptualización y aplicación (Case study as a methodological alternative in research in physical education, sport, and physical activi. *Retos* **2019**, *35*, 422–427. [CrossRef]

46. Araujo, P.C.; Bottentuit, J.B. O aplicativo de comunicaçao WhatsApp como estrategia no ensino de Filosofía. *Rev. Temática* **2015**, *11*, 11–23.

47. Bustos, A.; Flores, B.; Flores, F. Las redes sociales, su influencia e incidencia en el rendimiento académico de los estudiantes de una entidad educativa ecuatoriana en las asignaturas de fisica y matemáticas. *Lat. -Am. J. Phys. Educ.* **2016**, *10*, 1407.

48. Viard, N.J.; Grand, C.R. Programa de intervención para favorecer la motivación hacia la lectura en el alumnado de Educación Primaria con un alto índice de absentismo escolar. In *De la Educación Especial a la Educación Inclusiva: Retos y Tendencias en la Sociedad Digital*; Toro-Alonso, V., Castellar-López, G., Jiménez Astudillo, M., Eds.; Universidad de Valencia: Valencia, Spain, 2015; pp. 205–213. ISBN 978-84-96702-61-5.

49. Brusil, R.C. *El WhatsApp y su Impacto en el Proceso Comunicacional y Educativo en Los Estudiantes del Curso de Ortografía y Puntuación en la Academia Pamer del Distrito de San Miguel*; Universidad Alas Peruanas: Lima, Peru, 2017.

50. Blonder, R.; Waldman, R. The Role of a WhatsApp Group of a Professional Learning Community of Chemistry Teachers in the Development of Their Knowledge. *IGI Glob.* **2019**, 117–140. [CrossRef]

51. Naidoo, J.; Kopung, K.J. Exploring the use of WhatsApp in Mathematics learning: A case study. *J. Comun.* **2016**, *7*, 266–273. [CrossRef]

52. della Ventura, M. Creating Inspiring Learning Environments by Means of Digital Technologies: A Case Study of the Effectiveness of WhatsApp in Music Education. In *E-Learning, E-Education, and Online Training. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*; Vincenti, G., Bucciero, A., Helfert, M., Glowatz, M., Eds.; Springe: Cham, Swizterland, 2017; pp. 36–45. [CrossRef]

53. Tuñez, M. El WhatsApp como aplicación para el seguimiento del proceso de aprendizaje y la evaluación en la materia Lectura Pianística. 2017. Available online: http://sedici.unlp.edu.ar/handle/10915/64425 (accessed on 14 June 2022).

54. Mondín, E.; Matusevich, D. Aplicación de una red social a la práctica y el aprendizaje de la psiquiatría. *VERTEX Rev. Argent. De Psiquiatr.* **2014**, *25*, 144–148.

55. Shambare, R. The Adoption of WhatsApp: Breaking the Vicious Cycle of Technological Poverty in South Africa. *J. Econ. Behav. Stud.* **2014**, *6*, 542–550. [CrossRef]

56. Basal, A.; Yilmaz, S.; Tanniverdi, A.; Sari, L. Effectiveness of mobile applications in vocabulary teaching. *Contemp Educ Technol* **2016**, *7*, 47–59. [CrossRef]

57. Zafi, A.A.; Maroh, M.T.; Siswanto, S.; Fathurrochman, I. Islamic Religious Education Teacher of Learning Strategy in Implementing Religious Values Through Whatsapp. *Nazhruna: J. Pendidik. Islam* **2021**, *4*, 700–711. [CrossRef]

58. Nuray, Z. Communication channel between teachers and students in Chemistry education: WhatsApp. *US-China Educ. Rev. A* **2019**, *9*, 18–30. [CrossRef]

59. Costa, M.N.; Silva, L.A.; Lima, L.L. Uso do WhatsApp non ensino de Física: Um relato de experiencia do uso desse aplicativo no terceiro grau. In *Interpolos do MNPEF no Ceará: Criando Estrategias para o Ensino de Física*; UECE: Quisadá, Brasil, 2017; pp. 111–124.

60. Jere, N.R.; Jona, W.; Lukose, J.M. Effectiveness of Using WhatsApp for Grade 12 Learners in Teaching Mathematics in South Africa. In Proceedings of the 2019 IST-Africa Week Conference (IST-Africa), Nairobi, Kenya, 8–10 May 2019. [CrossRef]

61. Darias, S. Código WhatsApp. *Números Rev. De Didáctica De Las Matemáticas* **2015**, *88*, 105–113.

62. Campos, L.; Cescom, J.; Martins, M. WhatsApp a educaçaö: Uma ferramenta que pode contribuir para o ensino de biología. In Proceedings of the VII Regional Encounter of Biology Education, Rio de Janeiro, Brazil, 20–21 April 2015.

63. Pérez Hernández, R. La mensajería instantánea en la enseñanza de la literatura en el aula de Secundaria: WhatsApp Messenger. *Leng. y Textos* **2021**, *53*, 103–117. [CrossRef]

64. Castro, E.M. O whatsapp como ferramenta educativa de participación e de aprendizaxe da lingua galega e a súa didáctica. In *Contextos Universitarios Tranformadores: Retos e Ideas Innovadoras. II Xornadas de Innovación Docente*; Universidade da Coruña. Servizo de Publicación: La Coruña, Spain, 2018; pp. 63–80. [CrossRef]

65. Mamani, V.H. *Fortalecimiento del Aprendizaje de la Lengua Quechua Mediante las Redes Sociales: Facebook Y Whatsapp*; Universidad Mayor de San Simón: Cochabamba, Bolivia, 2017.

66. Chan, G.A.; Hernández, G. El uso del WhatsApp para la enseñanza de la lengua maya a los docentes del sistema medio superior. In *Memoria del Congreso de Docencia, Investigación e Innovación Educativa*; Zapata, A., Canto, P.J., Cisnero, E.J., Eds.; Universidad Autónoma de Yucatán: Mérida, México, 2021.

67. Escobar-Mamani, F.; Gómez-Arteta, I. WhatsApp for the development of oral and written communication skills in Peruvian adolescents. *Comunicar* **2020**, *28*, 111–120. [CrossRef]

68. Andújar-Vaca, A.; Cruz-Martínez, M.-S. Mobile instant messaging: Whatsapp and its potential to develop oral skills. *Comunicar* **2017**, *25*, 43–52. [CrossRef]

69. Calderó, R. El Uso del Teléfono Móvil y de la Aplicación WhatsApp para el Aprendizaje de Verbos Frasales Ingleses en Alumnos de Nivel Intermedio. Master's Thesis, Univesidad de La Rioja, La Rioja, Spain, 2014.

70. Alsaleem, B.I.A. The Effect of «WhatsApp» Electronic Dialogue Journaling on Improving Writing Vocabulary Word Choice and Voice of EFL undergraduate Saudi Students. 2014. Available online: https://www.researchgate.net/publication/349830602_The_Effect_of_WhatsApp_Electronic_Dialogue_Journaling_on_Improving_Writing_Vocabulary_Word_Choice_and_Voice_of_EFL_Undergraduate_Saudi_Students (accessed on 14 June 2022).

71. Asmawati, S.; Raihan, W.; Mohd, S. WhatsApp as an intstruccional tool beyond a classroom in a Malasyan college. In Proceedings of the III International Congress on Technological Engineering (ICET, 2016), Islamabad, Pakistan, 18–19 October 2016.

72. De Sousa Da Silva, I. Os principais recursos tecnológicos usados no ensino aprendizado de portugués como lingua estrangeira, uma proposta avaliativa de apoio ao ensino de lingua estrangeira. *Rev. Int. De Apoyo A La Inclusión Logop. Soc. y Muticulturalidad* **2015**, *1*, 34–44.

73. Hong, C.; Ling, T. Interactive Character Learning Model (ICLM)-Chinese Character Learning using WhatsApp for Malay L3 learne. *US-China Educ. Rev. A* **2014**, *4*, 772–786.

74. Ramos, A.M. Uso de una aplicación social como complemento a la enseñanza del francés como lengua extranjera. *Congreso de Ciencia y Tecnología* **2018**, *13*, 164–167. [CrossRef]

75. Simarro, M. Integración del WhatsApp en la Enseñanza del Español Como Segunda Lengua. Propuesta de B-Learning. Conference Presented at the III Jornadas Iberoamericanas de Innovación Educativa, Celebradas en Las Palmas de Gran Canaria (Spain). 2016. Available online: https://acortar.link/Lo2TV5 (accessed on 15 June 2022).

76. Alencar, G.; Dos Santos, M.; De Freitas, A.K.; Carvalho, S.; De Barros, H.A. WhatsApp como ferramenta de apoio ao ensino. In Proceedings of the IV Congreso Brasileño de Informática en la educación (CBIE, 2015), Niagara Falls, ON, Canada, 22–25 November 2015. [CrossRef]

77. Suárez-Lantarón, B.; Castillo-Reche, I.S.; López-Medialdea, A.M. Tutoría académica universitaria apoyada mediante WhatsApp: Conocer sus ventajas y salvar sus desventajas. *Rev. Electrónica Interuniv. De Form. Del Profr.* **2021**, *24*. [CrossRef]

78. Misaghi, M.; Tonioti, E.; Batiz, C.E.; Santos, A.J.d. WhatsApp as a Tool for Integration and Motivation in Distance Education. *Soc. Netw.* **2021**, *10*, 29–43. [CrossRef]

79. Santos, M.P. Aplicativo Whatsapp como tecnologia de promoção da saúde sexual de adolescentes escolares. Universidade da Integração Internacional da Lusofonia Afro-brasileira. Available online: https://repositorio.unilab.edu.br/jspui/bitstream/123456789/630/1/Disserta%c3%a7%c3%a3o%20-%20Marks%20Passos%20Santos.pdf (accessed on 15 June 2022).

80. Vera, J.P.; Villafuente, J.; Delgado, V. Uso del WhatsApp en adaptaciones curriculares para estudiantes con discapacidad visual de Ecuador. In Proceedings of the XXVI Jornadas Universitarias de Tecnología Educativa, San Sebastián, Spain, 27–29 June 2018.

81. Güller, Ç. Use of WhatsApp in Higher Education: What's Up With Assessing Peers Anonymously? *J. Educ. Comput. Res.* **2017**, *55*, 272–289. [CrossRef]

82. Blench, A. The impact of WhatsApp mobile social learning on the achievement and attitudes of female students compared with face-to-face learning in the classroom. *Eur. Sci. J.* **2014**, *10*, 116–138.

83. Benítez, E.; Marquina, R. El uso de whatsapp para el acompañamiento y fomento del trabajo colaborativo en cursos virtuales de educación continua. *Rev. Eduweb* **2018**, *12*, 21–32.

84. Nitza, D.; Roman, Y. WhatsApp Messaging: Achievements and Success in Academia. *Int. J. High. Educ.* **2016**, *5*, 255–261. [CrossRef]

85. Reyes, B.C.; Ortega-Sánchez, N.G.; Hurtado, M.J.P. Trabajo colaborativo mediante la aplicación de whatsapp para el aprendizaje. *Boletín Científico INVESTIGIUM De La Esc. Super. De Tizayuca* **2020**, *5*, 15–21. [CrossRef]

86. Pinto, A.C.P.; Gondim, R.d.; Brito, M.d.; Filho, E.M.d.; Vasconcelos, F.H.L.; Gondim, A.B.C. O aplicativo WhatsApp em contextos educativos de letramento digital: Uma revisão sistemática da literatura. *Res. Soc. Dev.* **2022**, *11*, e59211528752. [CrossRef]

87. Almeida, G.J. *Emprego Do Aplicativo WhatsApp no Ensino de Química*; Universidad de Brasilia: Brasilia, Brazil, 2015; Available online: https://bdm.unb.br/bitstream/10483/11240/1/2015_GilvanJorgeDeAlmeida.pdf (accessed on 15 June 2022).

88. Jorge, D.P.; Barroso, J.G.; León, F.C.; Iménez, M.C.R.J.; Domínguez, Y.M.; Herrera, A.I.G. Herramienta sincrónica de comunicación para la mejora del asesoramiento, seguimiento y tutorización del alumnado universitario: La experiencia del uso del WhatsApp. In *De la Innovación Imaginada a Los Procesos de Cambio*; Navarro, A.V., Stendardi, D., Eds.; Universidad de La Laguna: La Laguna, Spain, 2018; pp. 369–378.

89. Can, Y.; Aktaş, B.Ç. The Effect of Whatsapp Usage on the Attitudes of Students Toward English Self-Efficacy and English Courses in Foreign Language Education Outside the School. *Lnternational Electron. J. Elem. Educ.* **2019**, *11*, 247–256. [CrossRef]

90. Rahmadi, I.F. WhatsApp Group for Teaching and Learning in Indonesian Higher Education: What's Up? *Int. J. Interact. Mob. Technol.* **2020**, *14*, 150–161. [CrossRef]

91. Morsidi, S.; Abu Samah, N.; Abdul Rahman, K.A.; Mohamad Ashari, Z.; Jumaat, N.F.; Abdullah, A.H. WhatsApp and Its Potential to Develop Communication Skills among University Students. *Int. J. Interact. Mob. Technol.* **2021**, *15*, 57–71. [CrossRef]

92. Agüero, G. Usage of WhatsApp for Educational Purposes. 2014. Available online: https://www.academia.edu/20225872/Usage_of_Whats_App_for_Educatiomal_Purposes (accessed on 15 June 2022).

93. Maghfira, S.A. The Use of WhatsApp in online learning English (teachers' percepction). *Scketch J. J. Engl. Teach. Lit. Linguist.* **2021**, *1*, 48–60.

94.   Jasrial, D. Utilizing WhatsApp application for teaching English language: Why and How? *Int. Semin. Annu. Meet. BKS-PTN Wil. Barat* **2018**, *1*, 151–157.

95.   Alves, A.L.; Porto, C.D.M.; Oliveira, K.E.d. Educação online mediada pelo WhatsApp: Mapeando rastros e controvérsias de alunos à luz da teoria ator-rede. *Rev. Diálogo Educ.* **2018**, *18*, 164–185. [CrossRef]

96.   Conde, M.A. *Learning and Collaboration Technologies. Ubiquitous and Virtual Environments for Learning and Collaboration*; Springer International Publishing: Orlando, FL, USA, 2019. [CrossRef]

97.   Graván, P.R. Sistemas de comunicación alternativos en tutoría virtual: Los grupos de WhatsApp en la docencia universitaria. In *La Alfabetización Multimodal: Nuevas Formas de Leer y de Escribir en el Entorno Digital*; Síntesis., A., Gómez, C., Eds.; Editorial Síntesis: Madrid, Spain, 2016; pp. 121–137.

98.   Kacetl, J.; Klímová, B. Use of Smartphone Applications in English Language Learning—A Challenge for Foreign Language Education. *Educ. Sci.* **2019**, *9*, 179. [CrossRef]

99.   Samekash, M.L.W. Uso de whatsapp para mejorar el aprendizaje autónomo en los jóvenes universitarios. *EDUCARE ET COMUNICARE Rev. De Investig. De La Fac. De Humanid.* **2020**, *8*, 78–87. [CrossRef]

100.   Susilo, A.; Sofiarini, A. Use of WhatsApp Group as Learning Media in Higher Education During the COVID-19 Pandemic. *Edunesia J. Ilm. Pendidik.* **2021**, *2*, 400–410. [CrossRef]

101.   Aljaad, N.H.M. WhatsApp for educational purposes for female students at College of Education-King Sand University. *Education* **2017**, *137*, 344–366.

102.   Bansal, T.; Joshi, D. A study of students' experiences of mobile learning. *Glob. J. Hum.-Soc. Sci. H Interdiscip.* **2014**, *14*, 1–9.

103.   Chin, L. Adoption of WhatsApp Instant Messaging Among Students in Ipoh Higher Education Institutions. Wawasan Open University of Malaysia. 2016. Available online: http://woulibrary.wou.edu.my/theses-project/MED2016_CYLEE.pdf (accessed on 15 June 2022).

104.   Mistar, I.B.; Embi, M.A. Students' perception on the use of WhatsApp as learning tod in ESL Classroom. *J. Educ. Soc. Sci.* **2016**, *4*, 96–104. Available online: http://jesoc.com/wp-content/uploads/2016/08/Edu-76.pdf (accessed on 9 August 2022).

105.   Vilela, M.J.V. Utilización de WhatsApp Para el Trabajo Grupal Por el Alumnado de los Títulos de Grado en Educación de la Universidad de Córdoba. Ph.D. Thesis, Universidad de Córdoba, Córdoba, Spain, 2019.

106.   Rosenberg, H.; Asterhan, C.S.C. 'WhatsApp, Teacher?'-Student Perspectives on Teacher-Student WhatsApp Interactions in Secondary Schools. *J. Inf. Technol. Educ. Res.* **2018**, *17*, 205–226. [CrossRef]

107.   Hidalgo, G.M. *Uso del Teléfono Móvil: Posibi-Lidades Didácticas y Riesgos en los Jóvenes*; Universidad de Almeria: Almería, Spain, 2013.

108.   Karikasi, M. Influence of WhatsApp on study habits of University Students in Ghana. *Int. J. Res. Econ. Soc. Sci.* **2016**, *6*, 280–292.

109.   Crisol-Moya, E.; Herrera-Nieves, L.; Montes-Soldado, R. Educación virtual para todos: Una revisión sistemática. *Educ. Knowl. Soc.* **2020**, *21*, 1–13. [CrossRef]

110.   Corona, C.F. Facebook y otros recursos de la web 2.0 en la enseñanza aprendizaje de la electrocardiografía. *Rev. Cuba. De Educ. Médica Super.* **2020**, *34*, 1–17.

111.   Buzón, V.M.; Pérez, R.G.; Catalán, Á.R. Explorando factores predictores de la competencia digital en las redes sociales virtuales. *Pixel-Bit Rev. De Medios Y Educ.* **2019**, *56*, 51–69. [CrossRef]

112.   Núñez, D.L.; Santiago, M.P.; Marín, H.V.; Rivadeneira, D.E.R. Riesgos en el uso de WhatsApp: Sobrecarga y desgaste profesional en docentes universitarios. *Rev. Univ. Y Soc.* **2021**, *13*, 219–226. Available online: https://rus.ucf.edu.cu/index.php/rus/article/view/1916/1908 (accessed on 30 April 2022).

113.   Al Abdullateef, H.; Pasley, R.; Chesney, T. Exploring the Effect of Using WhatsApp for Education During COVID-19 on University Students. 2021. Available online: https://aisel.aisnet.org/ukais2021/11 (accessed on 15 June 2022).

114.   Yilmazsoy, B.; Kahraman, M.; Köse, U. Negative Aspects of Using Social Networks in Education: A Brief Review on WhatsApp Example. *J. Educ. Technol. Online Learn.* **2020**, *3*, 69–90. [CrossRef]

115.   Vilela, M.J.V.; Urbano, E.R. Limitaciones de WhatsApp para la realización de actividades colaborativas en la universidad. *RIED. Rev. Iberoam. De Educ. A Distancia* **2019**, *22*, 57. [CrossRef]

116.   Suárez-Lantarón, B.S.; García-Perales, N. Covid-19: La brecha (digital) educativa a través de la prensa. *Rev. Interuniv. De Investig. En Tecnol. Educ.* **2021**, 53–68. [CrossRef]