Effectiveness of WhatsApp as an academic tutoring tool in the academic performance of university students

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Abstract: The use of WhatsApp has emerged as a crucial tool in the academic field, especially among university students, where its influence on academic performance is a topic of growing interest. This article aims to demonstrate how WhatsApp influences academic performance through academic tutoring in university students. The study sample consisted of 167 university students from three professional programs. Three research instruments were applied: an initial questionnaire, a satisfaction survey, and a grade record. The results reveal that the effective use of WhatsApp in academic tutoring offers advantages such as effective communication between peers and tutor, versatility in sharing files, and carrying out various group activities such as messaging, video calls, and conference calls. However, disadvantages were also evident, such as the distraction the app can cause when students do not manage their time properly or engage in non-academic activities. In conclusion, it is established that the use of WhatsApp in academic tutoring positively influences the academic performance of university students, demonstrating that its integration into educational processes can enhance communication and academic support, which has significant implications for educational practice and the development of more effective teaching strategies.

Keywords: *Academic performance, Academic tutoring, University, WhatsApp.*

1. Introduction

The use of digital tools in education has transformed the way students interact with their tutors and peers, facilitating access to information and communication. Social media has revolutionized communication in recent times and has also been integrated into educational processes, influencing the academic performance of students at all educational levels (Amador-Ortiz, 2021; Dans et al., 2022; Sánchez et al., 2023). One such tool is WhatsApp, considered one of the most widely used messaging applications (Cervantes-Rosas & Alvites-Huamaní, 2021). The use of WhatsApp has spread globally due to its versatility, allowing group or individual chats, file exchanges of various types, video calls, conference calls, and other functionalities (Suárez, 2018).

WhatsApp has emerged as a valuable resource in the academic context, particularly in tutoring university students. According to Martínez et al. (2022), the implementation of ICT in the classroom significantly improves students' academic performance, suggesting that tools like WhatsApp can facilitate collaborative learning and interaction between students and tutors. On the other hand, Rodríguez-Martínez et al. (2016) explain that WhatsApp is the most widely used social platform by university students and indicate that the use of the Internet and instant messaging is a social necessity, acknowledging that it has both positive and negative effects on academic performance.

Other studies, such as those by Tarrillo et al. (2023), highlight that socioeconomic and academic factors influence academic performance, suggesting that the context in which WhatsApp is used may also be a determinant of its effectiveness. Additionally, Gutiérrez-Ruiz et al. (2020) emphasize the

importance of executive functions in academic performance, implying that the use of WhatsApp could be related to cognitive skills that affect learning.

Several recent studies have explored the relationship between the use of WhatsApp and academic performance. For example, the work of Escobedo & Pumayauri (2019) shows a significant association between the use of social networks, including WhatsApp, and academic performance in university students, suggesting that these platforms can facilitate communication and information exchange. In another study, Martínez et al. (2022) concluded that students who use technological tools, such as WhatsApp, in the classroom perform better academically compared to those who do not use them.

Additionally, the study by Colunga-Rodríguez et al. (2021) found that anxiety can influence academic performance, suggesting that the use of WhatsApp could be a way to reduce anxiety by facilitating communication and support among students. On the other hand, the analysis by Fernández-Castro et al. (2023) on student-teacher interaction in online environments highlights that the quality of communication can affect academic performance, reinforcing the relevance of WhatsApp as a tutoring tool. Similarly, the study by Bestué & Escolano-Pérez (2021) emphasizes the importance of resilience and executive functions in academic performance, which could be related to how students use WhatsApp to manage their studies.

Despite advances in research on the use of WhatsApp in education, gaps in the literature persist. For instance, many studies have focused on the general relationship between the use of social networks and academic performance without delving into the specific use of WhatsApp as a tutoring tool and its influence on academic performance. Moreover, most studies have not considered in detail the factors that influence the perceived effectiveness of WhatsApp use, such as frequency of use and the type of interactions.

Furthermore, although some studies have addressed the relationship between the use of ICT and academic performance, few have explored how these tools can be specifically used in the context of academic tutoring. This suggests the need for further investigation into how WhatsApp usage may influence academic performance, considering contextual and personal factors that affect its effectiveness. Lastly, the lack of studies analyzing the influence of perceived effectiveness on academic performance through the use of WhatsApp represents an area requiring attention.

Based on the above, the objective of this article is to analyze the influence of WhatsApp usage on university students' academic performance, considering factors such as frequency of use, type of interactions, and perceived effectiveness in the context of academic tutoring.

2. Methodology
This study was conducted using an experimental methodological design with a single group, which allowed us to demonstrate how WhatsApp influences academic performance through academic tutoring in university students. The study sample consisted of 167 university students from the Faculty of Education Sciences. Inclusion criteria required that participants be enrolled in undergraduate programs and use WhatsApp as an academic communication tool. No participants were excluded based on gender, age, or prior academic performance, which allowed for a representative sample of the student population.

The research was carried out during the first academic semester of 2024. The experiment involved providing continuous academic tutoring through WhatsApp, where the instructor of each course continuously monitored the groups, sharing files, sending reminders about individual and group assignments, answering students' questions regarding tasks or doubts that arose, and providing feedback through text messages or voice notes.

Data collection was conducted through the use of three instruments:

1. Entry Questionnaire: This was used to collect basic demographic information and data regarding the use of WhatsApp, including frequency of use and the type of interactions.

2. WhatsApp Usage Satisfaction Questionnaire: This evaluated the perceived effectiveness of WhatsApp use in the context of academic tutoring. Open-ended questions were included to explore the advantages and disadvantages of the platform and its impact on academic performance.

3. Official Course Grade Records: Participants' academic grades were obtained to analyze their academic performance in relation to their use of WhatsApp.

The questionnaires were administered online, ensuring the confidentiality of the responses and encouraging honesty in the participants' answers. A brief explanation of the study's purpose was provided, and informed consent was obtained from all participants prior to their participation. The collected data were analyzed using descriptive and inferential statistical techniques, and the chi-square test was employed to determine the relationship between WhatsApp usage frequency and academic performance.

3. Results and Discussion

3.1. Results of the Sample Characteristics

Regarding the age of the respondents, it can be observed that the minimum age is 17 years, the maximum age is 37 years, and the mode corresponds to 18 years. As for the gender of the students, 21%, represented by 35 students, are male, while 132 students, accounting for 79%, are female. Concerning the academic program, 28.7% are enrolled in the Early Childhood Education program, 37.7% in the Primary Education program, and 33.5% in the Secondary Education program. In terms of the academic cycle, 47.3% are in the first cycle, 21% in the third cycle, 19.2% in the fifth cycle, and 12.6% are in the eighth cycle (Table 1).

Table 1.
Sample characteristics.

Variable	Scale	Frequency	Percentage
Age	Minimum	17	–
	Maximum	37	–
	Mode	18	–
Sex	Male	35	21
	Female	132	79
Professional career	Initial education	48	28.7
	Primary education	63	37.7
	Secondary education	56	33.5
E study cycle	First cycle	79	47.3
	Third cycle	35	21
	Fifth cycle	32	19.2
	Eighth cycle	21	12.6

3.2. Results of Students' Initial Perception Regarding the Use of WhatsApp

The results of the students' initial perception reveal that 100% of them prefer WhatsApp as their messaging application, with Messenger as the second choice. Regarding the frequency of WhatsApp use, 54.5% of students reported using it for 4 to 6 hours, 25.1% use it for more than six hours, and 20.4% use it for two hours or less.

In terms of the type of interaction on WhatsApp, 98.8% stated that they use this application to exchange all kinds of information, including study-related topics, while 1.2% indicated that they do not use it for academic purposes. Furthermore, regarding the most frequent communication on WhatsApp, 99.4% reported using it to communicate with friends, and 0.6% with classmates.

3.3. Results of Students' Perception After Using WhatsApp as an Academic Tutoring Tool

Regarding students' perception of the ease of using WhatsApp for academic tutoring, 47.3% of students perceived it as easy, while 31.1% considered it very easy. Additionally, 19.2% had a neutral perception, 1.8% found it very difficult, and 0.6% considered it difficult (Table 2).

In terms of whether WhatsApp improved their academic performance through academic tutoring, 37.1% of students indicated that it significantly improved, and another 37.1% stated that it improved their performance notably. Additionally, 13.8% reported a noticeable improvement in their performance. On the other hand, 8.4% noted slight improvements, and 3.6% stated that there were no improvements (Table 2).

Regarding students' perception of the accessibility of WhatsApp for academic tutoring, 58.7% of students considered it very accessible, and 16.8% considered it extremely accessible. Additionally, 19.8% found it moderately accessible, 3.6% found it slightly accessible, and 1.2% found it not accessible at all (Table 2).

Another result related to the perceived quality of communication with tutors through WhatsApp shows that 53.9% gave it a high rating, and 14.4% rated it very high. Additionally, 25.7% had a neutral rating, 4.8% rated it low, and 1.2% rated it very low (Table 2).

Regarding whether WhatsApp helped improve academic results, 46.8% of students indicated that it helped significantly, and 11.4% said it helped to a great extent. Additionally, 34.7% considered that WhatsApp had a moderate impact, 7.2% perceived a slight improvement, and 0.6% did not perceive any improvement (Table 2).

As for the features of WhatsApp that students consider most useful for academic tutoring, 66.5% pointed to text messages, 10.8% mentioned chat groups, 10.2% agreed that voice messages were most useful, 6.6% highlighted video calls, and 6% mentioned the file-sharing option (Table 2).

Table 2.
Results of student perception after using WhatsApp as an academic tutoring tool.

Item	Scale	Frequency	Percentage
How would you rate the ease of use of WhatsApp for academic tutoring?	Very difficult	3	1.8
	Difficult	1	0.6
	Neutral	32	19.2
	Easy	79	47.3
	Very easy	52	31.1
	Total	167	100
To what extent do you feel that WhatsApp has improved your performance through tutoring?	It hasn't improved at all	6	3.6
	Has improved slightly	14	8.4
	has improved significantly	62	37.1
	Has improved significantly	62	37.1
	It has improved greatly	23	13.8
	Total	167	100
How accessible do you find the use of WhatsApp for academic tutoring?	Nothing accessible	2	1.2
	Little accessible	6	3.6
	Moderately accessible	33	19.8
	Very accessible	98	58.7
	Extremely accessible	28	16.8
	Total	167	100
¿Cómo valorarías la calidad de la comunicación con los tutores a través de WhatsApp?	Very low	2	1.2
	Low	8	4.8
	Neutral	43	25.7
	High	90	53.9
	Very high	24	14.4
	Total	167	100
Do you think that the use of WhatsApp has helped you improve your academic results?	At all	1	0.6
	Very little	12	7.2
	Moderately	58	34.7
	A lot	77	46.1
	Extremely	19	11.4
	Total	167	100
What WhatsApp features do you find most useful in academic tutoring?	Text messages	111	66.5
	voice messages	17	10.2
	Video calls	11	6.6

	chat groups	18	10.8
	Share files	10	6
	Total	167	100

3.4. Results on the Perception of the Advantages of Using WhatsApp

In response to the open question about the advantages of using WhatsApp in the development of courses and academic tutoring, the majority highlighted the application's capability to share information, the quick message delivery, and the rapid communication between classmates as well as with instructors. This interaction allows them to ask questions about assignments or clarify aspects that were not understood during class. Some student responses are transcribed below:

E12: "Well, the application has its advantages because it helps me stay informed about assignments. The groups help me stay up-to-date, and I can clear up doubts at any time with a simple message to a classmate or the instructor. I can also send real-time photos of suggested activities, assignments, slides, etc. Additionally, I can make video calls and calls, making it easier to communicate with my group quickly."

E11: "I can ask my classmates or teacher about topics, or if I missed an assignment in class, they can explain any subject I don't understand."

E22: "It helps me share information about the classes, ask questions, share thoughts, ideas, videos, documents on a topic, and it helps me stay in touch with my classmates and teacher to complete assigned activities. It helps resolve doubts on a subject."

E30: "Firstly, through the WhatsApp groups for the courses, the teachers send us materials, whether in Word, PDF, PPT, etc. These documents or files help us a lot as students to better understand and achieve a deeper comprehension. Secondly, using WhatsApp, we can communicate with classmates about the activities we have throughout the week, whether exams, presentations, debates, assignments, etc., all from our homes without needing to travel from one place to another to coordinate. Thirdly, personally, I am the delegate of a course, so I stay in touch with the teacher and classmates quickly and efficiently."

From the students' comments, it can be deduced that they mentioned the ability to resolve doubts immediately by communicating with classmates or instructors (E12, E11). This shows that WhatsApp functions as an accessible channel to clarify concepts and reinforce learning outside the classroom. Additionally, students emphasized that through WhatsApp groups, they receive study materials such as Word documents, PDFs, and presentations, which help them better understand course content (E30). Furthermore, the application allows students to coordinate effectively to carry out activities, projects, and prepare presentations without the need for physical meetings (E30). This demonstrates that WhatsApp supports academic organization and planning.

3.5. Results on the Perception of the Disadvantages of Using WhatsApp

Below are three responses to the question: *What disadvantages do you consider WhatsApp has for your learning and academic tutoring?*

E112: "But it also has its disadvantages because it's used to talk to many people, and this distracts me. I end up chatting with my classmates, which becomes a distraction. I also get messages from unknown people, and this scares me because I don't know how they got my number."

E81: "It would be that when I log in, I get distracted by someone else messaging me, and I can spend hours talking to that person and lose track of time."

E92: "It can become a distraction since there are options to share videos or statuses, and sometimes they are not related to the course. It can also be a threat because we risk receiving false information. Additionally, sometimes our messages aren't answered right away, nor are calls from classmates."

The analysis of student testimonies reveals several critical aspects regarding the disadvantages of using WhatsApp in the educational context. Students point out that WhatsApp can become a major distractor. For instance, student (E112) mentions that they end up chatting with classmates, resulting in significant time loss. This is supported by (E81), who describes how they can spend hours talking, losing track of time and drifting away from academic activities. Similarly, (E92) highlights that

WhatsApp allows exposure to videos and statuses unrelated to the course. This exposure to non-academic content contributes to distraction and diverts attention from educational goals.

Students also express concerns related to privacy and security. (E112) mentions receiving messages from unknown people and feeling fear due to not knowing how their number was obtained, leading to insecurity. (E92) adds that there is a risk of receiving false information, which can lead to misinformation or even pose a threat to the student. Moreover, (E92) also notes that sometimes messages are not answered immediately, which affects the flow of communication and can create uncertainty or frustration in the learning process.

3.6. Results of Student Academic Performance and Perception of WhatsApp Use

It is specified that at the National University of the Altiplano, the qualification is twenty-fourth, it also has a qualitative scale, as detailed 0 to 10 (poor), from 11 to 13 (regular), from 14 to 16 (good) and from 17 to 20 (excellent).

Table 3.
Contingency results of student academic performance and perception of WhatsApp use.

			Qualitative appreciation of academic performance			Total
			Regular (11 − 13)	Good (14 − 16)	Excellent (17 -20)	
WhatsApp use perception scale	Bad	Count	1	0	1	2
		% of total	0.6%	0.0%	0.6%	1.2%
	Neutral	Count	1	14	1	16
		% of total	0.6%	8.4%	0.6%	9.6%
	Good	Count	2	65	24	90
		% of total	1.2%	38.9%	14.4%	54.5%
	Very good	Count	0	18	40	58
		% of total	0.0%	10.8%	24.0%	34.7%
Total		Count	4	97	66	167
		% of total	2.4%	58.1%	39.5%	100.0%

The results of student academic performance show that four students, representing 2.4%, received grades in the "regular" range. Additionally, 97 students, representing 58.1%, obtained grades within the "good" range, and 66 students, representing 39.5%, achieved grades in the "excellent" range (Table 3).

Regarding the overall perception of WhatsApp use, 1.2% of students reported a poor perception, 9.6% had a neutral perception, while 54.5% expressed a good perception, and 34.7% reported a very good perception of WhatsApp use (Table 3).

To test the hypothesis, the Chi-square statistical test was applied, yielding a value of 56.202 with 6 degrees of freedom and a p-value of 0.00, which is lower than the significance level of 0.05 (Table 4). Based on these results, it is concluded that there is an influence of WhatsApp use on student academic performance.

Table 4.
Statistical test results.

Statistical test			
	Value	df	Asymptotic sig. (2-sided)
Pearson chi-square	56.202[a]	6	0.000
Likelihood ratio	45.355	6	0.000
Linear-by-linear association	32.292	1	0.000
No. of valid cases	167		

Note: a. 6 cells (50.0%) have expected a count less than 5. The minimum expected count is 0.05.

3.7. Discussion

The use of WhatsApp as a tool for academic tutoring has proven to be an effective strategy for improving students' academic performance. By establishing a constant and accessible communication channel, it facilitates interaction between teachers and students, enabling closer monitoring of academic activities (Gari & Sewani-Rusike, 2022). In this study, WhatsApp groups were continuously monitored, allowing for timely reminders of individual and group assignments, as well as the distribution of educational materials and resources. This direct and personalized communication fostered a collaborative learning environment, where students could immediately clarify their doubts and receive timely feedback on their progress, thus contributing to a more dynamic and effective learning process.

Additionally, the use of WhatsApp as a medium for academic tutoring enhances students' commitment and responsibility towards their tasks and activities (Jiménez et al., 2020). By providing real-time responses to inquiries and offering feedback through text and voice messages, a higher level of interaction and support was achieved—key aspects for reinforcing learning and understanding the content. This type of tutoring not only facilitates the resolution of doubts but also contributes to knowledge consolidation, as students feel supported and motivated to actively participate in their learning process (Suárez et al., 2021). Consequently, the implementation of WhatsApp in academic tutoring is a valuable resource for strengthening the pedagogical relationship and promoting the achievement of academic goals, which is reflected in a significant improvement in student performance.

On the other hand, the findings of this study regarding the use of WhatsApp in the educational context revealed both advantages and disadvantages, aligning with and contrasting previous research. One of the main advantages identified is WhatsApp's ability to facilitate quick and effective communication between students and teachers, as well as among students themselves. This aligns with several studies, such as Cervantes-Rosas & Alvites-Huamaní (2021), who emphasized that WhatsApp has become a valuable educational resource that enhances interaction and information exchange, promoting a more dynamic teaching-learning process.

The ease of use and immediacy of WhatsApp were also highlighted in the research by Fondevila-Gascón et al. (2019), who identified these features as key factors for the app's adoption in the academic field. Similarly, García & Ochoa (2023) and Ávila & Camacho (2023) found that WhatsApp enables students to resolve doubts and actively participate in the learning process, confirming that this tool contributes to a collaborative and dynamic learning environment.

Regarding the positive impact of WhatsApp on academic performance, the results are consistent with the findings of Bustos-González & Castro-Salazar (2021), who noted that the app breaks with traditional study methods and fosters a new pace of learning. Similarly, Montenegro (2020) found that WhatsApp promotes favorable attitudes toward mutual cooperation and collaborative learning, allowing for more flexible and informal communication that motivates active participation in educational processes. Additionally, Nivela et al. (2021) indicated that ICTs, such as WhatsApp, are essential for meaningful learning, and this study supports that claim, as it shows that WhatsApp helps students access resources and information in real time.

However, significant disadvantages were also identified, such as distraction and message overload, which can interfere with the learning process—issues that have been highlighted by other studies. Fondevila-Gascón et al. (2019) also warned about the dependence and stress that excessive use of instant messaging apps can cause, while Melgarejo & Melgarejo (2022) suggested that the lack of control over WhatsApp use could lead to distraction and negatively impact academic performance. Similarly, Limas & Vargas (2021) emphasized the need to promote responsible and safe use of social networks to minimize these risks.

In response to these disadvantages, Suárez et al. (2021) proposed establishing clear rules and commitments from students to ensure proper use of the tool. This strategy proved effective in their study and is a recommendation supported by this work as well, as it would help minimize distractions and ensure more productive use of WhatsApp in the educational setting.

Another important aspect is the need for teachers to be trained in the use of ICTs (Nivela et al., 2021). Teacher training is a key factor in maximizing the advantages of WhatsApp and ensuring its effective integration into the teaching-learning process. Therefore, this research confirms that

WhatsApp is an effective tool for academic support and university tutoring, as long as it is used in a controlled and strategic manner. Teacher training and the implementation of usage rules are fundamental elements to maximize WhatsApp's benefits and mitigate its disadvantages, as indicated by previous studies in the educational field.

Based on the results obtained and the limitations identified in the reviewed studies, further exploration of the relationship between WhatsApp use and academic performance in different cultural and socioeconomic contexts is suggested. Additionally, it would be beneficial to investigate the effectiveness of specific strategies for using WhatsApp in academic tutoring, as well as addressing the disadvantages and distractions that may arise from its use. Future studies could implement longitudinal designs to evaluate the impact of WhatsApp use over time and its relationship with academic performance across various disciplines.

4. Conclusions

The results of this research indicate that the use of WhatsApp in academic tutoring positively influences the academic performance of university students. Students' perception of the platform's advantages reveals improved communication between students and teachers, facilitating access to academic materials and promoting peer collaboration. Additionally, the ability to share various types of files and engage in group interaction through messages and video calls was highlighted.

However, several critical aspects were identified regarding its disadvantages. WhatsApp can become a distractor for some students who lack self-control regarding the time spent on the application, often diverting to non-academic topics. Another disadvantage relates to privacy, as users may be contacted by unknown individuals.

Overall, the study concludes that factors such as frequency of use, the nature of interactions, and the perceived effectiveness in the context of academic tutoring are key determinants of academic outcomes. Students who effectively use WhatsApp for academic purposes tend to report better academic performance. This suggests that, when used appropriately, WhatsApp can be a valuable resource for enhancing the educational experience and improving students' academic performance.

Lastly, it is recommended to further explore the effectiveness of WhatsApp in various educational contexts through longitudinal study designs.

References

[1]   Amador-Ortíz, C. M. (2021). Influencia de la adicción a las redes sociales en la reprobación escolar de estudiantes de nivel licenciatura. CienciaUAT, 16(1), 62–72. https://doi.org/10.29059/cienciauat.v16i1.1510

[2]   Bestué, M., & Escolano-Pérez, E. (2021). Implicación de la resiliencia y de las funciones ejecutivas en el rendimiento académico de educación obligatoria. Revista INFAD de Psicología. International Journal of Developmental and Educational Psychology., 2(2), 309–316. https://doi.org/10.17060/ijodaep.2021.n2.v2.2237

[3]   Bustos-González, H. I., & Castro-Salazar, A. Z. (2021). WhatsApp como mediador pedagógico del refuerzo escolar en estudiantes de bachillerato. EPISTEME KOINONIA, 4(8), 129. https://doi.org/10.35381/e.k.v4i8.1349

[4]   Cervantes-Rosas, C. M., & Alvites-Huamaní, C. G. (2021). WhatsApp como recurso educativo y tecnológico en la educación. HAMUT'AY, 8(2), 69. https://doi.org/10.21503/hamu.v8i2.2294

[5]   Colunga-Rodríguez, C., Ángel-González, M., Vázquez-Colunga, J. C., Vázquez-Juárez, C. L., & Colunga-Rodríguez, B. A. (2021). Relación entre ansiedad y rendimiento académico en alumnado de secundaria. Revista de Estudios e Investigación En Psicología y Educación, 8(2), 229–241. https://doi.org/10.17979/reipe.2021.8.2.8457

[6]   Dans, I., Muñoz-Carril, P. C., & González-Sanmamed, M. (2022). Usos y abusos de las redes sociales por estudiantado español de Educación Secundaria. Revista Electrónica Educare, 26(3), 1–16. https://doi.org/10.15359/ree.26-3.20

[7]   Escobedo, F., & Pumayauri, L. (2019). Redes sociales y el rendimiento académico en los estudiantes de la universidad de Huánuco. Revista Desafios, 1(1), 12–19. https://doi.org/10.37711/desafios.2019.1.1.52

[8] Fernández-Castro, A. M., Sánchez-Cabrero, R., & Eiadat, Y. H. (2023). Rendimiento académico, valoración del docente e interacción alumno-profesor en la docencia online frente a presencial. Revista Digital de Investigación En Docencia Universitaria, 17(2), e1583. https://doi.org/10.19083/ridu.2023.1583

[9] Fondevila-Gascón, J. F., Marqués-Pascual, J., Mir-Bernal, P., & Polo-López, M. (2019). Uses of WhatsApp in the Spanish university student. Pros and cons. Revista Latina de Comunicacion Social, 74, 308–324. https://doi.org/10.4185/RLCS-2019-1332

[10] García, S. P., & Ochoa, E. (2023). El uso del WhatsApp en la formación de profesores. Revista Docencia Universitaria, 24(1), 37–43. https://doi.org/10.18273/revdu.v24n1-2023003

[11] Gari, M., & Sewani-Rusike, C. (2022). Aprendizaje colaborativo en la plataforma WhatsApp y el teléfono celular en tiempos de pandemia. Educación Médica Superior, 36(1), 1–12. http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0864-21412022000100008

[12] Gutiérrez-Ruiz, K., Paternina, J., Zakzuk, S., Mendez, S., Castillo, A., Payares, L., & Peñate, A. (2020). Las funciones ejecutivas como predictoras del rendimiento académico de estudiantes universitarios. Psychology, Society & Education, 12(3), 161–174. https://doi.org/10.25115/psye.v12i3.2103

[13] Jiménez, M., Pérez, F., & Gómez, P. (2020). Análisis de los factores tecnológicos sobre el rendimiento académico en una universidad pública en la Ciudad de México. Formación Universitaria, 13(6), 255–266. https://doi.org/10.4067/S0718-50062020000600255

[14] Limas, S. J., & Vargas, G. (2021). Redes sociales como estrategia académica en la educación superior: ventajas y desventajas. Educación y Educadores, 23(4), 559–574. https://doi.org/10.5294/edu.2020.23.4.1

[15] Martínez, R. X., Rivera Naranjo, C. I., Sánchez Pacheco, M. E., & Zambrano Farías, F. J. (2022). Tecnologías de Información y Comunicación en el rendimiento académico estudiantil. Revista Venezolana de Gerencia, 27(Edición Especial 7), 313–327. https://doi.org/10.52080/rvgluz.27.7.21

[16] Melgarejo, D., & Melgarejo, I. (2022). El WhatsApp como herramienta educativa. Revisión sistemática. Ciencia Latina Revista Científica Multidisciplinar, 6(4), 339–360. https://doi.org/10.37811/cl_rcm.v6i4.2590

[17] Montenegro, D. J. (2020). Comunicación grupal en Whatsapp para el aprendizaje colaborativo en la coyuntura COVID-19. HAMUT'AY, 7(2), 34. https://doi.org/10.21503/hamu.v7i2.2131

[18] Nivela, M. A., Echeverría Desiderio, S. V., & Santos Méndez, M. M. (2021). Educación superior con nuevas tecnologías de información y comunicación en tiempo de pandemia. Horizontes. Revista de Investigación En Ciencias de La Educación, 5(19), 813–825. https://doi.org/10.33996/revistahorizontes.v5i19.239

[19] Rodríguez-Martínez, M. C., Valerio-ureña, G., Cárdenas-anaya, C. A., & Herrera-murillo, D. J. (2016). Percepción y realidad del uso de WhatsApp en estudiantes universitarios de ciencias de la salud. FEM, 19(3), 119–124. https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S2014-98322016000300004&lang=pt

[20] Sánchez, S. F., Sotelo Correa, M. G., & Vega Medina, Z. B. (2023). Valoración del uso de redes sociales y otros factores asociados al rendimiento académico de estudiantes del nivel medio de una institución educativa. Pediatría (Asunción), 50(2), 102–111. https://doi.org/10.31698/ped.50022023006

[21] Suárez, B. (2018). Whatsapp: su uso educativo, ventajas y desventajas WhatsApp: educational use, advantages and disadvantages. Revista de Investigación En Educación, 16(2), 121–135. https://revistas.uvigo.es/index.php/reined/article/view/2132

[22] Suárez, B., Castillo Reche, I. S., & López Medialdea, A. M. (2021). Tutoría académica universitaria apoyada mediante WhatsApp: conocer sus ventajas y salvar sus desventajas. Revista Electrónica Interuniversitaria de Formación Del Profesorado, 24(1), 189–203. https://doi.org/10.6018/reifop.394631

[23] Tarrillo, O., Mejía Huamán, J., Chilón Camacho, W. M., & Cabrera, O. H. (2023). Factores socioeconómicos y académicos asociados al bajo rendimiento académico en estudiantes de educación superior. Revista Científica Pakamuros, 11(4), 1–15. https://doi.org/10.37787/pakamuros-unj.unj02355