Esemtia, Comprehensive Platform To Meet Needs In A Teaching Context

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Abstract. The Esemtia digital platform is designed for communication between the organization, teachers, students and families to facilitate their roles in the teaching and learning process. It is used in educational institutions in several countries, but few studies have disseminated the results of its application. A study was conducted at the Colegio Técnico Salesiano Don Bosco, Quito, where it is applied with the hypothesis of good results. The research is descriptive, participatory, transversal, non-experimental, quantitative and qualitative. From the universe of the personnel who study and work at the school and parents, a random sample of volunteers was selected, organized in four groups: 524 students, 601 parents, 81 teachers and 8 administrative staff. Surveys were administered to find out their satisfaction with the use of this platform. The analysis and synthesis of the results showed high satisfaction rates and identified limitations.

Keywords: online education, educational innovation, educational digital programs, parent-school relationship.

1. INTRODUCTION

With the development of information and communication technologies (ICT) in education, platforms have emerged in recent decades that favor exchange and adapt to the needs of the subjects (Crisol, et al., 2020). This is the case of learning management systems or LMS (Gil and Sepúlveda, 2019) whose use in the educational context is increasingly widespread (Alvarezezet al.,2019) because they are considered tools with great didactic potential due to their frequency of use and their technical and didactic domains (Del Prete and Cabero, 2019). They are packages of software modules with independent functions that facilitate the teaching process in virtual environments (MorMoreno et al., 2016). These modules can be used as a whole or partially depending on the user's learning objectives (Maldonado et al., 2020). Therefore, they allow their flexibility and adaptation to the particularities of the educational center where they are implemented (Díaz, 2009). The modules respond to management needs at three levels: administrative, academic and communicational (Díaz, 2009).

LMSs present variety in terms of their characteristics, access and educational possibilities and are divided into three software groups: free, commercial and cloud (Pinilla and Vargas, 2017). Two of the most widely used platforms are Moodle and Edmodo, due to their free access and ease of use even for those who do not have great skills with digital tools (Gil and Sepúlveda, 2019). Moodle has more than 79 million users worldwide (Rizo, 2018). Many researches expose its acceptance and limitations in the teaching environment (Marínet al., 2016; Reyes, 2018; Jiménez, 2018; and Młynarska et al., 2016).

Esemtia is a type of LMS created under Grupo edebé that is used for all levels of education in several Spanish-speaking countries, such as Spain, Mexico, Brazil, Ecuador and Argentina (Grupo edebé, 2021). However, few works have disseminated this tool, especially in terms of research that comprehensively tests its results. This platform emerged in Spain in 2008, but has antecedents since 2001 (Grupo edebé, 2021). It was the first digital system developed in that country, which allowed communication between the family and the school, which was an important event in the national educational context and became a benchmark in the market (Grupo edebé, 2021). In 2009, the first beta version of Esemtia was implemented and a year later the definitive version of the application was successfully implemented, which is subject to continuous improvements. It has three products aimed at different levels of education: "esemtia school" for secondary schools, "esemtia enfant" for elementary school and "esemtia fp" aimed at vocational training centers (Grupo edebé, 2021). It recently incorporated the possibility of integration with the Moodle platform, which gives it multiple advantages.

Since 2013, some of the Salesian schools in Ecuador decided to implement this platform. Such is the case of the Don Bosco Salesian Technical School in Quito, which provides technical and humanistic education corresponding to the technical baccalaureate in electronics and where it has been used since then, with the hypothesis that it is well accepted and works properly. The experience accumulated with its application makes it possible to obtain an assessment of the level of satisfaction on the part of the user groups. This can make it possible to draw perspectives of use and to know its limitations in order to work to reduce or eliminate them. The positive results obtained in the study could motivate the application of the platform in other centers that do not yet do so. From all of the above, it is necessary to carry out an investigation with the objective of determining the level of satisfaction that the use of the Esemtia platform produces for the development of the functions performed by teachers, students, administrative personnel and parents in the teaching-learning process at the Colegio Técnico Salesiano Don Bosco.

2. METHODOLOGY

Between April 2 and April 22, 2018, the research was developed and was descriptive, cross-sectional, participatory, non-experimental, quantitative and qualitative. The universe was composed of the 1470 students, 1400 parents, 82 teachers and 8 administrative workers associated with the school. A random sample was selected, including all volunteers willing to participate in the study, by means of informed consent. They were organized into four groups according to their role in the teaching-learning process: 524 students, 35.64%, 601 parents, 42.92%, 81 teachers, 98.78%, and 8 administrative workers for 100%. Surveys were applied with the objective of knowing the degree of satisfaction that each group obtains with the use of this platform.

A different survey was used for each group through the Survey Monkey website. The variables selected for the surveys were aimed at characterizing the groups by gender and age and determining their use of the platform. Statistical processing of the variables and data was carried out using the IBM SPSS Statistics 24 system. With the values of each response, averages were calculated and expressed as percentages for each group. The analysis and synthesis of the results showed high satisfaction indexes for all groups, and limitations were detected.

3. RESULTS

With regard to gender, Table 1 shows that most of the respondents belong to the male gender in the groups of students, teachers and administrative staff, although the opposite is true for the group of parents.

Table 1

Gender and age of survey participants.

Study groups	Genre				Total	Age ranges (years)			
	F	%	M	%	(1214)	12-18	20-30	31-40	More than 41
Students	163	31,1	361	68,9	524	524	-	-	-
Teachers	29	35,8	52	64,2	81	-	26	29	26

| Parents	417	69,4	184	30,6	601	-	279	190	132
Administrative	3	37,5	5	62,5	8	-	3	3	2
Legend: F: Female / M: Male					%	43,2	25,4	18,3	13,1

Source: Own elaboration.

With regard to age groups, it can be seen that most of the respondents are young and are in the 12 to 18 age group, made up of students, and in the 20 to 30 age group, which includes some teachers, most of the parents and part of the administrative workers.

Figure 1 shows that more than 93.44% of the respondents in each group use the platform frequently, i.e., daily or several times a week. All teachers and administrative staff use it regularly for their work. Considering all groups, 97.63 % on average use the platform frequently. A minimal percentage of each group uses it very little or never.

Figure 1

Frequency of use of the Esemtia platform by the different groups.
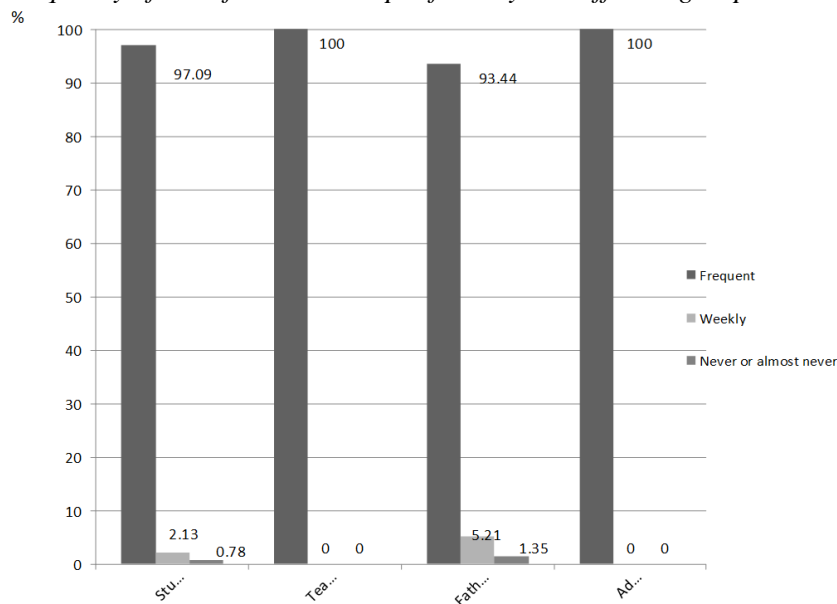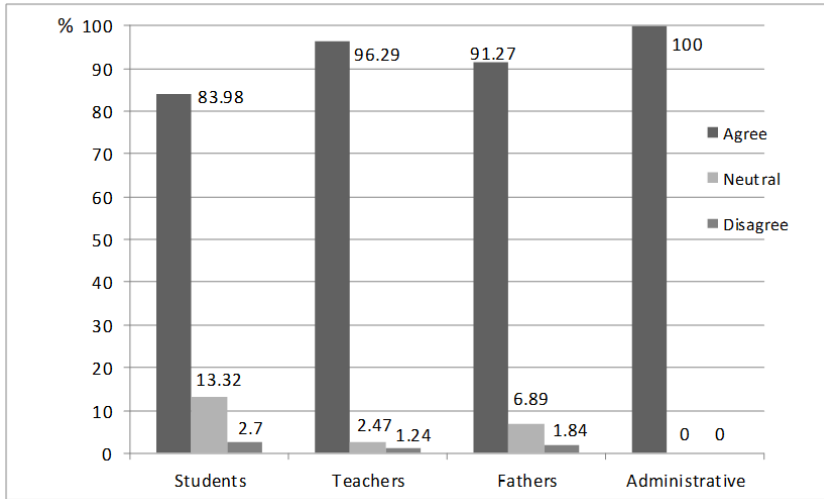

Source: Own elaboration.

According to the data shown in Figure 2, more than 83.98% of the participants in each group consider the platform easy to use. If the data for all four groups are taken into account, this represents 92.88% on average of the total.

Figure 2

Respondents' evaluation of the ease of use and management of the platform for the performance of their functions within the teaching process at the institution.
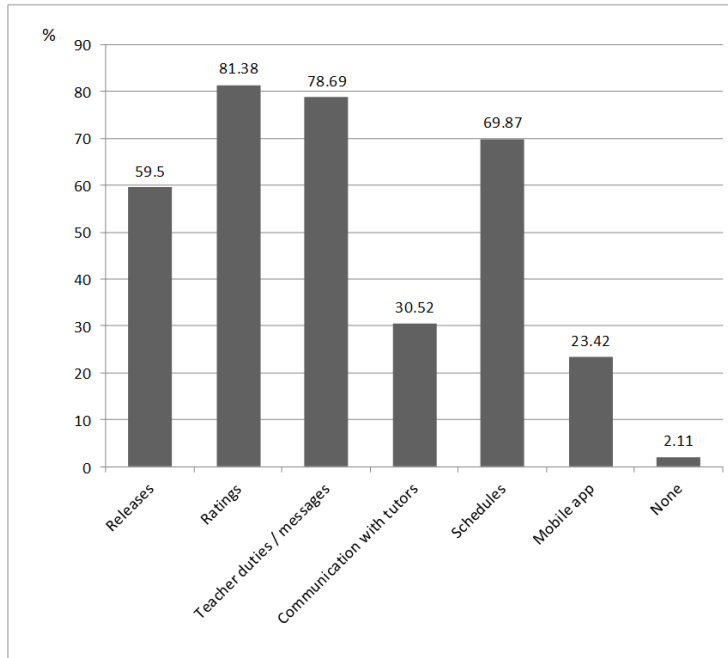
Source: Own elaboration.

Figure 3 shows the uses students make of the platform according to their teaching needs. They use it most to know their grades, receive the indicated assignments and know the class and exam schedules. These are 81.38%, 78.69% and 69.87% of the students, respectively. The use of the mobile application offered by the platform is only made by 23.42 % of the students. Only 2.11 % consider that the platform does not bring them any benefits.

Figure 3

*Students' use of the platform for their teaching activities.*

Source: Own elaboration.

Similarly, Figure 4 shows how parents use the platform to stay informed about their children's activities. Knowing the students' grades and homework, as well as communications from the institution, are the main activities, with 83.19 %; 80.87 % and 75.04 %, respectively. The mobile application is used by only 26.62%, while 1.5% of parents consider that the platform is of no benefit to them.

Figure 4

Parents' use of the platform to keep informed of their children's teaching activities.
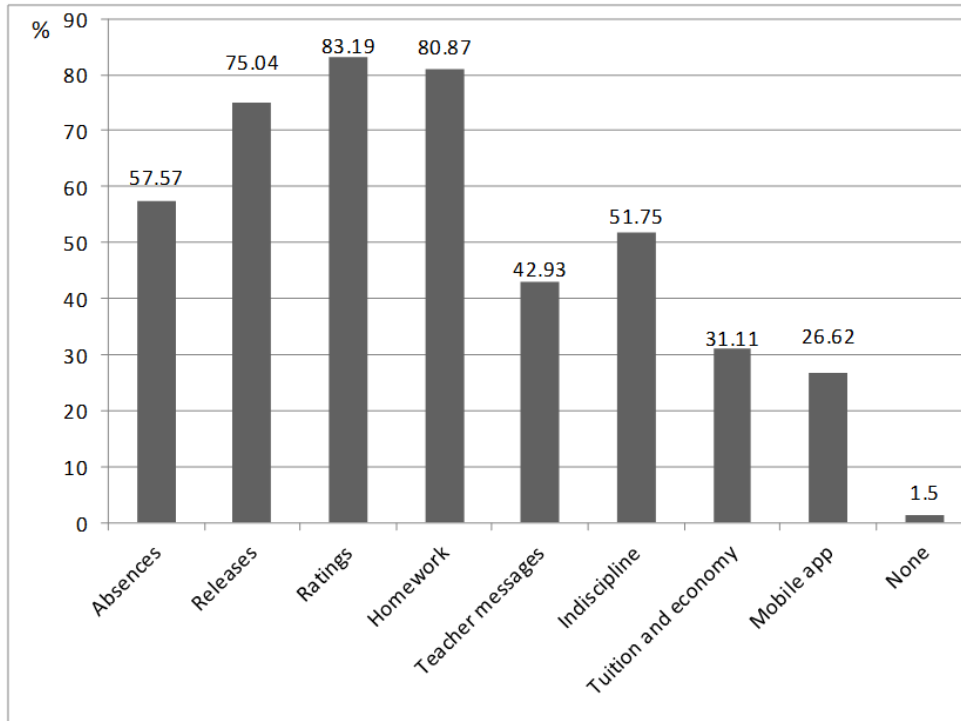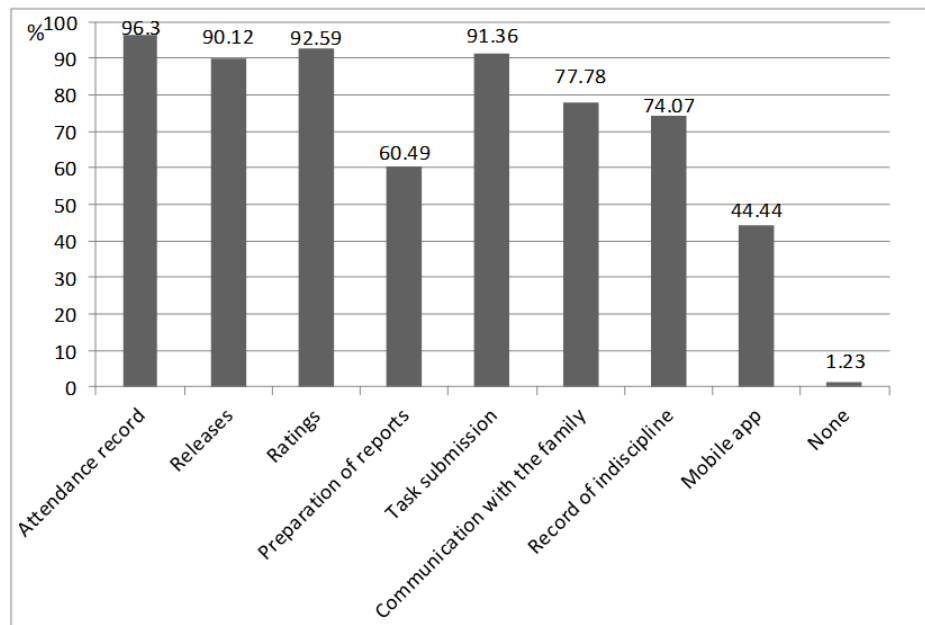
Source: Own elaboration.

Regarding the use made by the teaching staff, Figure 5 shows that more than 74% use it for various activities, such as recording attendance, grades, sending homework to students, receiving communications from the institution, interacting with the students' families and keeping records of indiscipline. 44.44% of teachers use the mobile application and 1.23% of them do not use the platform.

Figure 5

*Teachers' use of the platform for their teaching activities.*

Source: Own elaboration.

Figure 6 shows that all administrative workers use the platform to issue communications. The 87.05% use it in their relationship with teachers and families and for the elaboration of reports. The mobile application is used by 62.5%. 12.5 % use the platform for enrollment processes and economic tasks.

Figure 6

Use made by administrative workers of the platform to carry out their institutional activities.
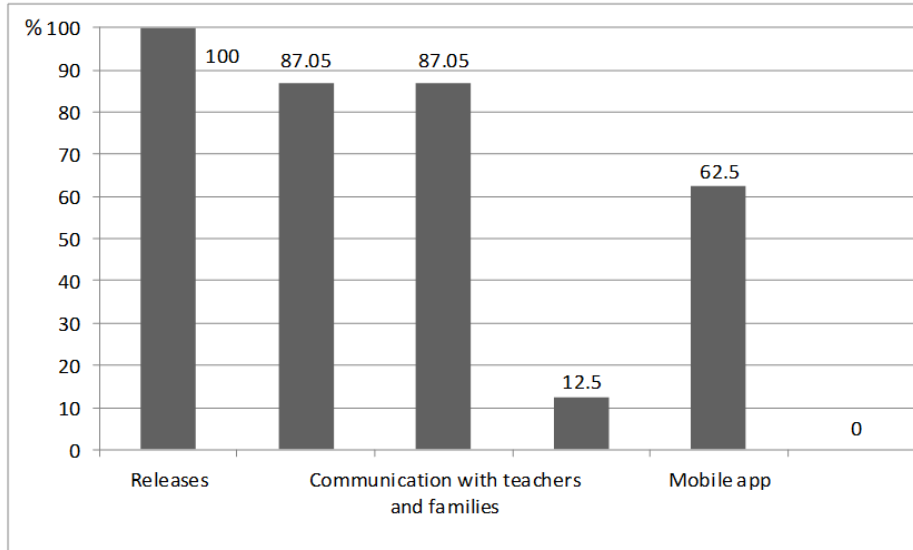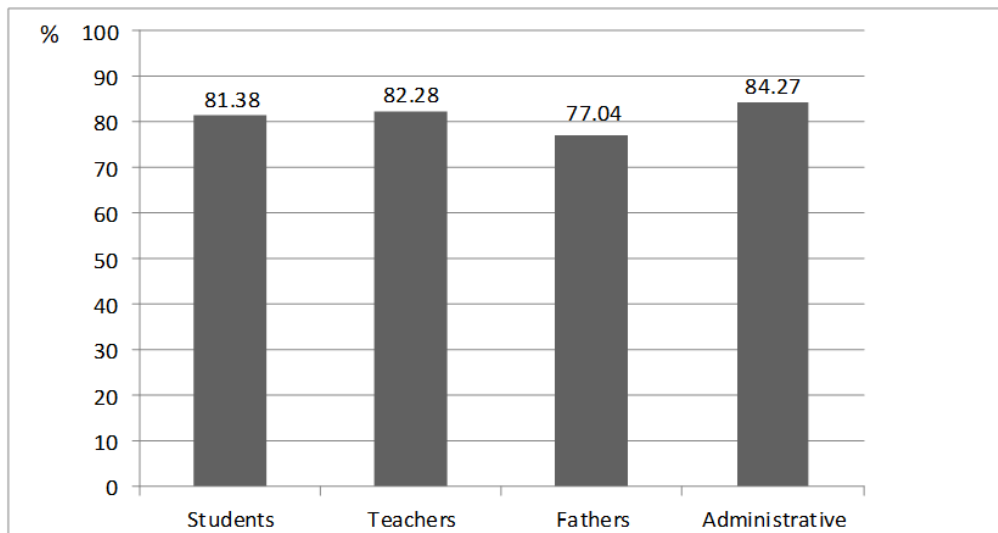

Source: Own elaboration.

Figure 7 shows the degree of satisfaction in each group with the use of the Esemtia platform as a tool to help them fulfill their functions and objectives in the teaching process, reaching an average of 81.24% in all groups. Slightly higher values of satisfaction were reflected by teachers and administrative staff.

Figure 7

Level of satisfaction of the groups with the performance of the Esemtia platform in the teaching context, expressed as the average of the respondents' ratings.

Source: Own elaboration.

Regarding the proposed platform improvements, Table 2 shows that the majority of respondents in each group believe that no modifications are required. However, a small percentage understands that some changes could increase its benefits. 18.51% of the teachers expressed the need for faster operation and 12.50% of the administrative staff indicated that they should have access to consult students' grades. On

the other hand, 21.94% of the students and 26.12% of the parents stated that they need communication channels with teachers, since they can only receive messages from them. The platform only allows the relationship between students and their tutors.

Table 2
Opinions of the groups of respondents regarding the improvements that need to be made in the operation of the Esemtia platform.

Groups	No improvement required (%)	Requires improvements (%)	
		Improvements with predominance of responses	Other
Students	74,23	21,94 (Communication with teachers)	3,83
Teachers	74,07	18,51 (Speed of operation)	7,42
Parents	73,04	26,12 (Communication with teachers)	0,84
Administrative	87,50	12,50 (View student grades)	0

Source: Own elaboration.

4. DISCUSSION

Despite the fact that the Esemtia platform has been applied in several countries for more than twelve years, only one study was found about the results of its implementation. Several investigations have been conducted to determine the degree of acceptance in the educational context of other similar digital platforms, allowing comparisons to be made. No studies were found that integrate the four groups of subjects contained in this work.

The results of the surveys indicate that Esemtia is a platform that meets the needs of all the subjects of the teaching-learning process inside and outside the school institutions. This result was corroborated by another similar study, with positive results in the assessments made by teachers, students and managers of the educational institution (Amónet al.,2020). It exposes the results from the mean obtained in the variables studied, which do not coincide in most cases with those analyzed in this work, since it was oriented to evaluate technological aspects based on the criteria of students and teachers. This makes it difficult to make precise comparisons. However, according to the results of both investigations, Esemtia reaches satisfaction levels similar to those of Moodle, the platform with which it is integrated. The latter shows slightly higher percentages according to the criteria of its users (Reyes, 2018; Delgado et al., 2018). Edmodo, on the other hand, presented lower satisfaction results (Reyes, 2018). All this points to consider Esemtia's levels as adequate for a platform of its type.

Similarly, users stated that the Esemtia platform is easy to use. The high frequency of use shown in the results of this study also confirms the relative ease of use by users, as well as its indispensable use for most of them. However, similar research suggests that the use of Esemtia by a larger number of users is affected by the lack of skills and rates the variable with a mean of 3 (Amón et al., 2020). However, this same study refers that the platform was the main means to continue the distance learning process since the beginning of the Covid 19 pandemic, increasing eight times the number of registered accesses with respect to the normal period (Amón et al., 2020). Some researches also reach very favorable results regarding the ease of accessing and using Moodle and Edmodo platforms (Díaz-Pinzón, 2017; Jiménez, 2018; and Reyes, 2018).

One of the most important benefits of Esemtia is the family-school relationship, in that it eliminates the barriers that distance and time impose on traditional relationships (Cortina et al., 2019), which is essential to support learning (Ceballos and Saiz, 2019). It also favors information transparency, which is necessary in educational institutions (Serrano, 2016). The use of ICTs favors a better interrelationship between the

family and the school (Cortina et al., 2019; Ramírez, 2020). Digital platforms such as Moodle, Edmodo and Esemtia are equipped with modules designed to facilitate this type of relationship, essential in the teaching-learning process at most educational levels (Craig, 2018; Grupo edebé, 2021; and Alonso et al., 2015).

Other tools such as Twitter, blogs and websites are well valued by families as a means to be informed about their children's school life, in the absence of more comprehensive platforms (Marcià, 2016; Vázquez and López, 2016). There are studies that indicate that families recognize in the use of ICTs a potential to establish better relationships with the school (Castro-Rodríguez et al., 2019). This is ratified in the results of the surveys by indicating the high value that parents place on the information they obtain through the platform. But that communication is designed in Esemtia in a unidirectional way, i.e., from teachers to parents, so it is necessary to provide exchange channels, which is a claim of the families.

The research conducted by Amón et al. on the results of the application of the Esemtia platform only collected opinions from students and teachers, so the parents' point of view was not taken into account. However, it is clear in that study that it is the families who receive information from the school and not the other way around (Amón et al., 2020). This variable obtained a mean higher than 4, which is a good result. But despite this it is an important limitation of this platform, since there is an international consensus that effective communication in the educational teaching process must be bidirectional and multidirectional, since the teacher's feedback is fundamental (Quintana, 2016; Castro et al., 2018; García, 2017; Parraleses et al., 2018). In this communication, the role of mediated interpersonal relationships is determinant (Sanchez and Rosales, 2016). Such deficiency could be solved by integration with the Moodle platform, which overcomes it in this aspect.

Other research points out that the potential for exchange between subjects through Moodle is underused in most teaching practices that are limited to the unidirectional transmission of information, from teachers to students (Cabero, Arancibia and Del Prete, 2019). No studies were found about the evaluation of other digital platforms in terms of interaction with families, so it is not possible to make comparisons.

To complete its services in the context of teacher management, Esemtia has a block for administrative management. This aspect has also not been analyzed in the literature on the subject, which focuses on the advantages offered by educational platforms for teachers and students as the main subjects. However, the surveys conducted in this study showed that the group of administrative personnel gave special importance to the benefits that this platform represents for the efficient development of their work. This group presented the highest percentages of positivity in their evaluations in all the variables studied, although they considered that the platform should include access to students' grades. Some researches propose that the application of ICT in educational centers should be done in a comprehensive manner, so that it includes not only the field of academic management, but also that of administrative management as its indispensable support and express the need to increase studies that disseminate experiences in this regard (Cárdenaset al., 2017; Sánchez-Pacheco, 2016), and Esemtia is a good example of this.

5. CONCLUSIONS

The Esemtia educational platform has high levels of satisfaction among teachers, students, administrative staff and parents, making it an integral tool for the development of the functions and the achievement of the objectives of each group within the teaching and learning process at Colegio Técnico Salesiano Don Bosco.

However, it is necessary to increase its performance in terms of speed, to facilitate the consultation of grades by administrative staff and, above all, to open bidirectional interaction channels between parents and students with teachers so that this platform can be placed at the height of the educational requirements of the current and future digital teaching context. It is necessary to continue working on this line of research and evaluate the effectiveness of educational platforms in this aspect.

REFERENCES

1. Alonso, S., Morte, E. y Almansa, S. (2015). Redes sociales aplicadas a la educación: EDMODO. *Revista de Educación Mediática y TIC*, *4*(2), 88-111. Available at:

https://www.uco.es/ucopress/ojs/index.php/edmetic/article/view/3964

2. Alvarez, E., Ahumada, M. y Melo, P. (2019). El verdadero impacto de los LMS en el aprendizaje de los alumnos contra el uso de los Métodos tradicionales. *Revista Electrónica de Investigación e Innovación Educativa*, *4*(2), 8-15. Available at: http://cresur.edu.mx/OJS/index.php/CRESUR_REIIE/article/view/376

3. Amón, C., García, D. y Erazo, C. (2020). Perspectiva docente y de estudiantes sobre el uso de la plataforma virtual Esemtia. *Revista Interdisciplinaria de Humanidades, Educación, Ciencia y Tecnología*, *VI*(3), 286-308. doi.org/10.35381/cm.v6i3.402

4. Cabero, J., Arancibia, M. y Del Prete, A. (2019). Dominio técnico y didáctico del LMS Moodle en Educación Superior. Más allá de su uso funcional. *Journal of New Approaches in Educational Research*, *8*(1), 27-35. doi.org/10.7821/naer.2019.1.327

5. Cárdenas, C., Farías, G. y Méndez, G. (2017). ¿Existe relación entre la gestión administrativa y la innovación educativa? Un Estudio de Caso en Educación Superior. *Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación*, *15*(1), 19-35. doi.org/10.15366/reice2017.15.1.002

6. Castro-Rodríguez, M., Marín, D. y Sáiz, H. (2019). Competencia digital e inclusión educativa. Visiones de profesorado, alumnado y familias. *Revista de Educación a Distancia*, *61*(6), 1-37. doi.org/10.6018/red/61/06

7. Castro, G., Parra, J. y Calzadilla, G. (2018). La comunicación como competencia de dirección en educación. Una mirada desde el proceso de enseñanza aprendizaje de las TIC. *RITI Journal*, *6*(11), 48-54. Available at: https://www.riti.es/ojs2018/inicio/index.php/riti/article/view/86/0

8. Ceballos, N. y Saiz, A. (2019). La acción tutorial como escenario de la colaboración familia-escuela [Tutorial action as a scenario for family-school collaboration]. *REOP*, *30*(2), 28-45. Recuperado de: https://repositorio.unican.es/xmlui/handle/10902/18390

9. Cortina, A., Paredes, J. y Sánchez, P. (2019). Los espacios intermedios de la relación entre familia y escuela en contextos de inmersión tecnológica en Educación Primaria. *Revista Latinoamericana de Tecnología Educativa*, *18*(1), 41-54. doi.org/10.17398/1695-288x.18.1.41

10. Craig, D. (2018). *La plataforma educativa on-line Edmodo en la formación profesional docente* [Tesis de pregrado, Universidad Tecnológica Nacional de Corrientes, Argentina]. Available at: https://ria.utn.edu.ar/handle/20.500.12272/3155

11. Crisol, E., Herrera, L. y Montes, R. (2020). Educación virtual para todos: una revisión sistemática. *Education in the Knowledge Society*, *21*, 1-13. doi.org/10.14201/esk.20327

12. Del Prete, A. y Cabero, J. (2019). Las plataformas de formación virtual: algunas variables que determinan su utilización. *Apertura*, *11*(2), 138-153. doi.org/10.32870/Ap.v11n2.1521

13. Delgado, M., García, F. y Gómez, I. (2018). Moodle y Facebook como herramientas virtuales didácticas de mediación de aprendizajes: opinión de profesores y alumnos universitarios. *Revista Complutense de Educación*, *29*(3), 807-827. doi.org/10.5209/RCED.53968

14. Díaz-Pinzón, E. (2017). Edmodo como herramienta virtual de aprendizaje. *INNOVA Research Journal*, *2*(10), 9-16. Available at: https://dialnet.unirioja.es/servlet/articulo?codigo=6183849

15. Díaz, S. (2009). Plataformas educativas, un entorno para profesores y alumnos. *Temas para la educación, Revista digital para profesionales de la enseñanza*, *2*, 1-7. Available at: https://feandalucia.ccoo.es/andalucia/docu/p5sd4921.pdf

16. García, L. (2017). Educación a distancia y virtual: calidad, disrupción, aprendizajes adaptativo y móvil. *Revista Iberoamericana de Educación a Distancia*, *20*(2), 9-25. doi.org/10.5944/ried.20.2.18737

17. Gil, V. y Sepúlveda, J. (10-13 de septiembre de 2019). *Rol de las plataformas educativas virtuales en la enseñanza de las ingenierías* [Ponencia]. 2do Congreso Latinoamericano de Ingeniería: Retos en la formación de ingenieros en la era digital, ACOFI, Cartagena de Indias, Colombia. Available at: https://acofipapers.org/index.php/eiei/article/view/29

18. Grupo edebé. (2021, 8, febrero). *Esemtia* [web log post]. Available at: https://esemtia.com/blog/

19. Jiménez, M. (2018). Experiencia universitaria del uso de Edmodo en el aula. Caso Universidad de Guayaquil, Ecuador. *Cuadernos de desarrollo aplicados a las TIC*, *7*(2), 36-67.

doi.org/10.17993/3ctic.2018.60.36-67/

20. Maldonado, J., Carrión, G. y Abril, J. (2020). B-Learning y Moodle como estrategia en la educación universitaria. *Conrado. Revista pedagógica de la Universidad de Cienfuegos*, *16*(76), 215-220. Available at: http://scielo.sld.cu/scielo.php?pid=S1990-86442020000500215&script=sci_arttext&tlng=en

21. Marcià, M. (2016). La comunicación familia-escuela: el uso de las TIC en los centros de primaria. *Revista electrónica interuniversitaria de formación del profesorado*, *19*(1), 73-83. doi.org/10.6018/reifop.19.1.245841

22. Marín, V., Vega, E. y Sampedro, B. (2016). Visiones de las plataformas de teleformación en la Enseñanza Superior. *Campus virtuales*, *5*(2), 100-110. Recuperado de: http://uajournals.com/ojs/index.php/campusvirtuales/article/view/136

23. Młynarska, E., Greene, D. y Cunningham, P. (2016). Indicators of good student performance in Moodle activity data. *Computers ans Society*, 4-7. Available at: https://arxiv.org/abs/1601.02975

24. Moreno, H., Pintor, M. y Gómez, M. (2016). Uso de plataformas de libre distribución (LMS) para educación básica. *Revista Iberoamericana de Educación en Tecnología y Tecnología en Educación*, *17*, 95-103. Available at: http://teyet-revista.info.unlp.edu.ar/TEyET/article/view/360

25. Parrales, M., Sornoza, D., Cano, R. y Moreira, M. (2018). Una mirada acerca de la comunicación en la Educación Superior. *Polo del Conocimiento*, *3*(6), 277-289. doi.org/10.23857/pc.v3i6.525

26. Pinilla, J. y Vargas, M. (2017). *Gestión de espacios educativos virtuales*. Universidad Cuahutémoc. Recuperado de: https://d1wqtxts1xzle7.cloudfront.net/54510644/

27. Quintana, J. (2016). Encuentro de educación y comunicación ante los nuevos medios. *Communication Papers*, *5*(9), 95-108. doi.org/http://orcid.org/0000-0003-0326-2535

28. Ramírez, G. (2020). Estrategias para una matemática más cercana en tiempos de distanciamiento. *Cuadernos de Investigación y Formación en Educación Matemática*, *15*(19), 88-99. Recuperado de: https://revistas.ucr.ac.cr/index.php/cifem/article/view/45222

29. Reyes, W. (2018). *Evaluación comparativa de la satisfacción del usuario de las plataformas Moodle y Edmodo*. [Tesis de Maestría, Universidad César Vallejo]. Available at: https://repositorio.ucv.edu.pe/handle/20.500.12692/12855

30. Rizo, M. (2018). Aprendizaje con MOODLE. *Revista Multi-Ensayos*, *4*(8), 18-25. doi.org/https://multiensayos.unan.edu.ni

31. Rodríguez, A. y Sosa, E. (2018). Interactividad e interacción social: procesos esenciales en educación a distancia. *Revista virtual Universidad Católica del Norte*, *55*, 110-127. Recuperado de: https://revistavirtual.ucn.edu.co/index.php/RevistaUCN/article/view/999

32. Sánchez-Pacheco, C. (2016). *Importancia del software educativo en la gestión académica - administrativa de la unidad educativa Alfonso Veloz Malta*. [Tesis de Maestría, Universidad de Guayaquil]. Recuperado de: http://repositorio.ug.edu.ec/handle/redug/32088

33. Sánchez, R. y Rosales, C. (2016). Relaciones interpersonales en la tutoría en educación a distancia. *Tesis Psicológica*, *11*(2), 24-35. doi.org/http://www.redalyc.org/articulo.oa?id=139053829002

34. Serrano, J. (2016). Elementos y herramientas para mejorar la transparencia informativa en instituciones educativas. En M. Sánchez de Diego (Ed.), *31visiones actuales de la transparencia* (pp. 61-74). DMK. https://eprints.ucm.es/id/eprint/44774/1/

35. Vázquez, S. y López, S. (2016). Escuela, TIC e innovación educativa. *Digital Education Review*, *30*, 248-261. doi.org/http://greav.ub.edu/der/