Google Workspace as a b-learning platform. Analysis of the perceptions of the Degrees in Communication

Google Workspace como plataforma b-learning. Análisis de las percepciones de los estudiantes universitarios de Comunicación

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Keywords
Virtual campus; Google Workspace; university students; online education; b-learning

ABSTRACT

This article has investigated the perceptions about the educational use of the Google Workspace (formerly Google Suite) of a group of 131 students who are studying Communication Sciences and Digital Communication degrees at a University Center in the province of Seville, Spain. The main objective of the research was to collect and analyse the educational experience and the competences developed by these students with this software suite in university education. To do so, a descriptive research was designed based on a quantitative and qualitative analysis using an online questionnaire. The results showed that these university students value favourably the interface and services provided by this platform, especially Meet, Documents, Gmail, Classroom and Presentations. However, they perceive that other applications, such as Keep, Jamboard or Tasks, are not very useful. In short, blended learning models proposed by Google Workplace have proven useful in the university field, and that students have adapted adequately to the new learning environment.

Palabras clave
Campus virtual; Google Workspace; estudiantes universitarios; educación en línea; aprendizaje mixto

RESUMEN

Este artículo ha indagado en las percepciones sobre el uso educativo de la plataforma Google Workspace (anteriormente Google Suite) de un grupo de 131 estudiantes que cursan los grados en Comunicación y Comunicación digital en un centro universitario de la provincia de Sevilla, España. El principal objetivo de la investigación fue recoger y analizar la experiencia docente y las competencias desarrolladas con esta suite tecnológica en la enseñanza superior. Para esto, se diseñó una investigación descriptiva basada en un análisis cuantitativo y cualitativo mediante un cuestionario en línea. Los resultados reflejaron que estos universitarios valoran de forma favorable la interfaz y los servicios que presta esta plataforma, en particular Meet, Documentos, Gmail, Classroom y Presentaciones; sin embargo, perciben que otras aplicaciones no son demasiado útiles, como Keep, Jamboard o Tasks. Se confirma que el modelo de aprendizaje mixto que propone Google Workspace resulta efectivo en el contexto universitario y que los alumnos se han adaptado al nuevo entorno de enseñanza.

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INTRODUCTION

The health crisis caused by SARS-CoV-2 has had a profound and serious impact worldwide, with unprecedented consequences on health, the economy and education. In this regard, the UN Refugee Agency (UNHCR, 2020) considers the coronavirus to be a serious threat to the education of people, especially the most disadvantaged. This universal right represents the most important asset of modern societies and constitutes an important source of progress, innovation and economic and cultural development (Castells, 2001).

During the 2019-2020 academic year, the United Nations Educational, Scientific and Cultural Organization (Unesco, 2020a) has denounced that more than 850 million children and young people remained away from schools and higher education institutions. In Spanish universities, face-to-face academic, sports and cultural activities were abruptly suspended in the face of the pandemic's advance, and were replaced by the use of different virtual platforms. This decision "caught unawares a good number of teachers who did not have the experience or technical skills useful in the management of digital platforms and technological resources" (Ruiz, 2020, p. 109).

Previously, different recent studies (Fernández & Fernández, 2016; Uluyol & Sahin, 2016; del Moral & Villalustre, 2012; Gértrudix, 2009) and some public institutions (such as the Council of the European Union, 2018) expressed concern about the digital deficiencies of conventional teaching systems, as well as the need for all members of educational communities to make appropriate use of information and communication technologies (ICT).

The emergency situation unleashed by the pandemic revealed various structural problems related to education, such as the technological and methodological limitations of part of the teaching staff and students. In this regard, Spanish universities have long offered different courses and voluntary training activities related to the optimal functioning of virtual campuses and other key tools integrated into university digital ecosystems to support teaching, which have not received sufficient attention from a large part of the teaching staff (García-Peñalvo and Corell, 2020).

With the aim of mitigating these problems, the United Nations Children's Fund (Unicef, 2020) has pointed out that it is essential to promote the use and dissemination of digital platforms that guarantee a fair evaluation system, the quality of teaching, ease of access and the protection of personal data of teachers and students. For this purpose, Unesco (2020b) developed a list of different applications, platforms and educational resources that are accessible and free, in order to help parents and students to facilitate learning and the dissemination of knowledge; these

include systems for managing digital learning such as Moodle, Edmodo or Google Classroom.

This article reflects a study of perceptions about the educational uses of the Google Workspace platform (formerly Google Suite) carried out with a group of students studying university degrees related to communication and digital environments in a higher education center located in the province of Seville, Spain. This virtual campus, based on blended learning, proposes a system that combines face-to-face teaching with online teaching. With the intention of studying its suitability, the following objectives are proposed: 1) to describe the operation and tools that are part of this virtual environment; 2) to expose, based on teaching experience, the real uses of these applications in university tasks; and 3) to collect and analyze the assessments and educational experience of students with the Google Workspace platform in higher education.

Currently, university students are faced with a changing and fast-paced labor market, marked by different social, economic, technological and health complexities that cause a crisis in education. The existing inequalities among university teachers on the correct implementation of digital tools generate a gap in learning, which could hinder their incorporation into the labor market. Therefore, it is necessary to promote the publication of scientific texts that reinforce the usefulness of virtual platforms as a complement to teaching improvement and digital transformation.

Likewise, educational systems are immersed in a transformation process that is characterized, apart from the pandemic, by the new demands of the labor market, social changes and the technological revolution (Reyes and Humberto, 2020); a period where informatics and telematics provoke important transformations in science, culture and education (Beltrán-Flandoli and Micaletto-Belda, 2019). In this scenario, a series of fundamental questions arise for the future of education, which this article tries to answer: are digital platforms in university education effective, do students have the basic knowledge to develop in digital environments, and do students consider that the digital tools linked to these platforms are useful for their future?

Google Workspace as a b-learning platform

The evolution and adaptation of educational suites to the new models of study and work in the cloud, as well as the value of the companies that develop them, make Teams (Microsoft) and Workspace (Google) two reference tools in a global market focused on the connected user. Educational platforms (LMS) acquire a favorable impact among students through the use of resources and tools designed to promote the teaching-learning process, facilitate effective and efficient communication, in

addition to the management and dissemination of knowledge (Mariño, Alfonzo and Godoy, 2020; Ardila-Rodríguez, 2011).

Díaz (2009) defines educational platforms as learning environments formed by tools optimized for teaching purposes. These spaces allow the creation and management of classes with a modular structure, which facilitates their adaptation to each educational center. In addition, these technological systems provide users with a collaborative work space based on the exchange of content and information, by means of communication tools such as chats, e-mail accounts or videoconferences. This learning model favors the active participation of the student body and improves the levels of attendance and interest in the subjects (Micaletto-Belda, Leal, & Albort, 2018).

Ardila-Rodriguez (2011) explains that virtual environments or environments, in an educational context

> are outlined as those spaces generated to create and recreate training, teaching and learning processes; spaces that exhibit as a particular characteristic the appropriation of information and communication technologies to classroom components; that is, virtual environments have as an essential purpose to contribute to the provision of teaching service, in terms of facilitating didactic and pedagogical communication in the planning, effective, efficient and timely communication of the teacher with students (pp. 191-192).

The educational focus of the Google Workspace platform stems from the evolution of Google Apps into Google Suite, which became Google Workspace in October 2020. According to the company, its suite currently has more than 2.6 billion monthly users (Nieva, 2020). This tool is widely used in schools, institutes and vocational training centers (Amat, 2020); moreover, it has recently gained special prominence in university spaces (Google, 2021a).

Used as an online educational platform, it is developed as an interactive tool between teachers and students, in order to complement the face-to-face basis, or as an alternative to this training in cases where circumstances make it necessary to impose distance education. This constantly updated virtual environment (Google, 2021b) makes it possible to promote the use of different collaborative tools, such as Gmail, Calendar, Meet, Spreadsheets, Documents, Presentations, Tasks, Keep, among other key applications for university education, through the use of an email account that acts as a key to access this digital ecosystem.

In any case, Google Workspace is in line with the concept of collaborative environment referred to the pooling of knowledge, materials, ideas and services to share them, in an interested or disinterested way, in order to access them and use them together. It is a tool based on participation and interaction among users, which facilitates accessibility, connectivity and teamwork, especially online and remotely (García, 2020). This dynamic

applied to the teaching-learning process represents one of the great challenges of university classroom management, and involves the practice of competencies "increasingly established in the professional context" (Hernández, 2012, p. 173).

DESIGN AND USABILITY

Nielsen (2012) defines usability as "the quality attribute that evaluates the ease of use of a website's interfaces". This, added to the simplicity with which Internet users use these applications on the Internet (Lloret, 2012), their handling and didactic use in real situations, makes it possible to confirm their ease of use, ease of learning, efficiency, the possibility of solving the mistakes made, as well as the final satisfaction of users. Based on the Nielsen heuristics, the Google Workspace platform also responds to these other usability principles: control and freedom for the user, who can create folders, edit documents, share stored content or grant permissions to other members of the community; consistency and standards, which give it an intuitive interface and a minimalist aesthetic design.

In terms of user profiles, Google Workspace distinguishes its administration console (Admin), document management (Drive) or b-learning classes (Classroom), among others. In Google Drive, a person, by assigning permissions, can go from not seeing the file to being the owner of it, all in five levels. If we look at Google Classroom (Pérez and Alonso, 2018), there are four permissions: owner of a class (and teacher of it), teacher, student and tutor. It is worth highlighting the figure of the tutor, who monitors a specific student in one or more of the subjects taken, and receives a weekly report of the activity carried out by the student in his or her e-mail automatically.

The storage capacity offered by the system varies from 15gb in free personal accounts to unlimited space in professional accounts (Education or Business). It is necessary to implement quality, dynamic and properly organized virtual learning environments that serve to motivate participants and offer a favorable and flexible user experience (Humanante-Ramos, Fernández-Acevedo, & Jiménez, 2019). In Google Workspace, each educational center is the one that designs the consensual guidelines that will be replicated homogeneously in the different courses, which results in its better usability.

Collaborative tools

Virtual courses, in the field of higher education, represent a way of working and acquiring knowledge and professional skills through the use of different digital tools (Cabero and Marín, 2011). In relation to the applications offered by Google Workspace, these have been used during various courses at the Higher Education Center, the place where this research has been carried out. After studying other LMS systems, such as

Moodle, Canvas or Blackboard, Google was chosen as a global platform with international support, high expansion throughout the American continent, adaptation to the Spanish RGPD and proven brand solvency.

Díaz (2009) pointed out that these platforms should have minimum applications, which were grouped into the following typology: tools based on content management, communication and collaboration, monitoring and evaluation, administration and assignment of permissions, and other complementary tools. Thus, the Google Workspace Campus, implemented in this center, fulfills all these tasks, which increases its efficiency by unifying them on a single package in the cloud. In this case, the platform is not only used as a repository of academic materials, but also has other more complex uses that concern the teaching of classes and communications between the different educational agents, as detailed below in the description of the tools of this technological suite, as well as a list of specific uses in university classrooms.

a) Administration panel. This is the starting application, through which the domain, administrative units and users are configured. It allows users to be segmented into different groups created for one or more purposes, as well as adding permissions on viewing and editing the linked material.

b) Contacts and Groups. These two applications are used to manage users, segment them and speed up the sending of e-mails. The data stored in the profile is complete: name, surname, photograph, company, position, e-mails, telephone numbers and notes.

c) Gmail. This is an e-mail manager for communication between members of the academic community. The option of labeling e-mails by type or users, the creation of rules, the scheduling of mailings and its synergy with Task, Keep, Calendar, Chat and Meet, expand the possibilities of traditional e-mail.

d) Calendar. This is a virtual agenda and calendar that allows you to organize and receive notifications of scheduled events (a Classroom, a Form, a Meet, etc.), and even invite and share them with your Gmail contacts.

e) Drive. This is an information storage service that allows online viewing and editing of documents. It is part of the collaborative environment model known as collective writing, where two or more people can write simultaneously without sharing the same physical space.

f) Documents. It is a processor for the collaborative creation and editing of text documents: teaching units, worksheets, notices, exercise statements, practice development, grading tables, final

year papers (TFG), among others, which can be stored in the cloud, organized in folders, shared with other users, corrected, commented, downloaded and printed.

g) Spreadsheets. With this tool, teachers can control attendance in those activities that require the presence of students, while students can access their grades in an updated way. It also allows to generate tables and figures to incorporate them into research documents, as well as to work collaboratively in the realization of calculation exercises.

h) Presentations. Allows the creation and design of multimedia and interactive presentations that can be shared, with or without editing permission, for different purposes: to teach a class, to present a practical, to serve as support in the defense of a paper, and so on.

i) Forms. This survey design and administration application can be used to carry out self-assessment or controlled evaluation tests, as well as questionnaires used in research work.

j) Meet. This is a videoconferencing service with applications in university education. Among others, these include: teaching a class, screen/window/tab sharing and synchronous software management, tutorials, public presentations of activities, defenses of undergraduate, master's and doctoral theses. This tool also has chat, grid display options, the possibility of requesting a turn and recording. It is complemented with different Chrome extensions.

k) Chat. This is an instant messaging tool. It allows the creation of groups or chat rooms by subjects, supervised students, teams, faculty, research groups, as well as sharing Google Drive content. Among its applications are the resolution of doubts, leave a reminder or notice, give an opinion in a forum in relation to a topic raised by the teacher, among others.

l) Classroom. B-learning platform for class management and interaction among the educational community. It has a board, materials, rubrics, grades, user profiles, among other tools.

m) Jamboard. This is a virtual whiteboard designed for collaboration and distance work. It has up to 20 work frames, allows handwriting and the collective insertion of images, shapes, sticky notes, among other elements. Its use is amplified when used on touch devices.

Grande-de-Prado, García-Peñalvo and Abella-García (2021) state that these educational tools do not represent a guarantee by themselves. As a whole, these resources can provide important benefits for students, as long

as there is planning and organization of the elements, as well as a standardization of their use that allows them to take full advantage of their potential.

METHODOLOGY

From a deductive perspective (Eco, 2014), this article reflects a descriptive and documentary research, based on a quantitative and qualitative study, which has allowed to achieve the objectives embodied in the research: to know the operation and tools of Google Workspace, as well as to analyze the perceptions of a group of students about this platform.

In addition, based on the teaching experience acquired, it has also been described and exemplified how the tools that make up this technological suite are applied in specific tasks within the university environment. All this with the aim that this diagnosis is a reference so that both students and teachers can improve their skills in the proper use of digital teaching ecosystems.

The sample is composed of 131 students, aged between 18 and 25 years, who are studying for degrees in Communication and Digital Communication at a university center in Seville, Spain, and who have previous skills in the mastery of technological applications. This is a targeted and non-probabilistic sample in which users have participated virtually and voluntarily. The purpose of this is to learn about the perceptions of these specific groups of students, so that the results can be used productively in the work with them in the classroom and in the materials prepared for the respective subjects. This study, although not extrapolable to the rest of the university community, can be considered as a reference and orientation for those teachers who will work in the future with the Google Workspace platform in mixed educational contexts.

The fieldwork was conducted during the months of January and February 2021. The survey, designed and distributed in the Google Forms application, consists of 15 questions, both open and closed. In the latter case, the responses are of the value scale type, from 1 to 4 (where 1 = do not agree at all, 2 = slightly agree, 3 = quite agree, 4 = strongly agree), or dichotomous: yes, or no. The results obtained were exported to Google Spreadsheets, using a spreadsheet that made it possible to analyze the information obtained by calculating percentages and preparing graphs of the results.

ANALYSIS AND RESULTS

This section presents the results of the descriptive analysis carried out through the application of a questionnaire. It should be recalled that our intention was to evaluate, through the perception of university students, the validity of the Google Workspace platform as a teaching management tool, in addition to learning about the technological, social and professional skills acquired by these young people through its use.

The results conclude that with respect to the design and usability of this technological suite (see Chart 1) the evaluations are optimal. Thus, based on the sum of the positive responses -somewhat agree (3) and strongly agree (4)- expressed in percentages, the students have favorably rated the following aspects: intuitive use (94.7%), ease of navigation (94.7%), speed in learning the tool (94.6%) and design aesthetics (90.8%).

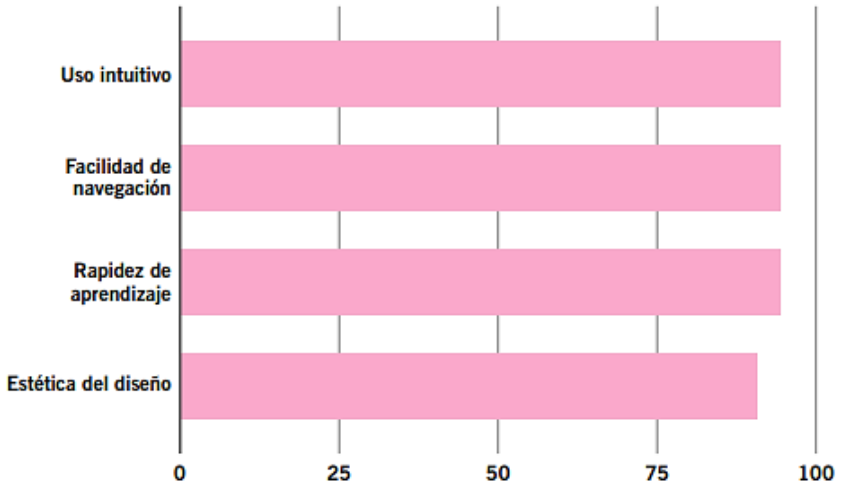

Chart 1. Percentage of responses on the evaluation of the design and usability of Google Workspace.

Regarding the synergy of tools, almost 75% of the sample uses several simultaneously. In this regard, students have indicated that they combine these applications as follows: "I use Docs from Google Drive to create, store and then upload these documents to Classroom", "Normally, during online classes I have open, in different tabs, Meet and Classroom to consult worksheets and didactic units, and Gmail to keep abreast of important notifications of the subjects and of the center itself", "I am in a Meet to follow the class, and the teacher shares via chat the URL of a quiz that is done with Google Forms", "I organize the week's classes with Calendar and I get notices and notifications of assignments through Gmail", "I take notes in Docs during a session with Meet", "From Classroom I access the class Meet, and also documents that are then stored in Drive", "From Meet we share screen and we can be watching a presentation prepared with Google

Drive", "Calendar, Gmail and Classroom are useful to receive alerts and messages, and communicate with teachers and classmates" and, finally, "Meet and Drive -for Docs and Presentations- are useful to do team work in a collaborative way".

Next, students were asked to rate, based on their experience, the usefulness of a list of Google Workspace applications (see Chart 2). The best rated, with a higher percentage of "quite agree" and "strongly agree" responses, were in this order: Drive, referring to the storage of materials in the cloud (98.5%); Meet (98.4%); Gmail (94.6%); Documents (94.6%); Classroom (91.6%) and Presentations (78.6%). On the other hand, the tools considered least useful by these students, according to the sum of the "do not agree" or "slightly agree" responses, are the following: the digital whiteboard Jamboard (79.9%), Keep sticky notes (71%), the spreadsheet (59.5%), the task organizer Task (58%), Calendar (48.1%) and Chat (45.8%).

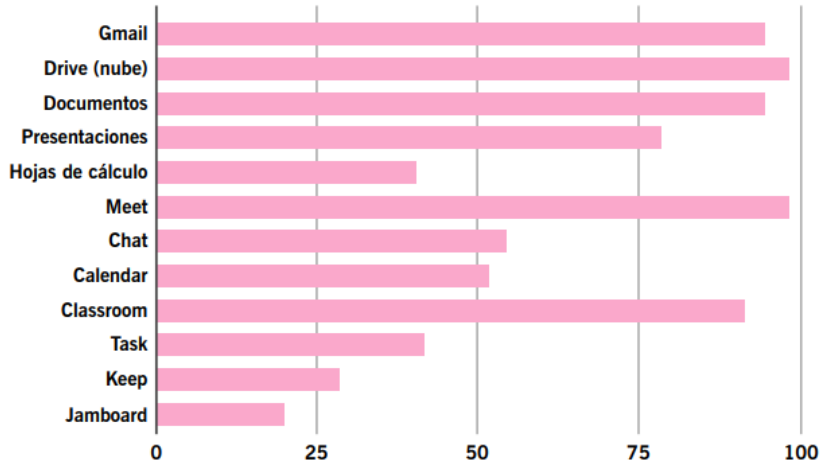

Chart 2. Percentage of positive responses on the usefulness of Google Workspace tools.

They were also asked about other Google tools that they use on a regular basis, both in their academic and personal lives. The responses indicate that they are the following: Google Maps, Google Forms, Google Ads for subjects related to SEM (search engine marketing), specific to the degrees in Advertising and Digital Communication, Blogger, Google News, Google Translator, Google Photos, the search engine and YouTube.

In addition, we were interested in finding out how these students value the knowledge and skills acquired through the regular use of the different functionalities offered by Google Workspace. The results conclude that the level of learning has been high in all the tasks posed, which supports the effectiveness and benefits of this digital platform in university teaching

management; 77.1% of the respondents perceive that having skills with this type of collaborative platforms will help them to find employment, since almost all of these students (95.4%) consider that Google Workspace is applicable to a professional environment.

Regarding the skills developed (see Chart 3), on a double professional and technological level, students have favorably valued the storage of information in the cloud and remote work; in both cases, 96.2% of the responses correspond to the highest scores on the scale (three and four points). The skills related to collaborative writing also obtained a high score (92.4%), as well as communication with teachers (90.1%) and interactivity with classmates (88.5%); however, almost half of the students (46.5%) consider that their ability to classify and order digital documents should be improved.

Chart 3. Percentage of positive responses on the evaluation of the skills developed with the use of Google Workspace.

A large majority (90%) think that Google Workspace facilitates the management of their subjects. When asked in which subjects and in what way, the students provided interesting contributions, a selection of which is transcribed below:

- "In all of them, to know the due dates for assignments and organize my schedule."
- "For the fact that I have the delivery of assignments, notes and grades in Classroom."
- "An advantage is that I can work from my cell phone."

- "It serves for all subjects, it facilitates order and efficiency."
- Regarding the interface: "It is easy and fast".
- "The classification in folders makes it easy to find saved documents".
- "I get better organized since using this platform".
- "The organization would improve with simpler file nomenclature, e.g., subject 1 and the name of the drive."
- "Sometimes I find it complicated, but you are notified of assignments and grades, and it is also very useful to access corrections and control of submitted assignments."
- "The best thing is that it helps you organize your time and work through Calendar and Gmail notifications."
- "To do team work in all subjects."

Therefore, 86.3% of these university students consider that Google Workspace complements their university education. In addition, for 56.5% of them, the use of Google Workspace has improved their interest in tasks, subjects or subjects related to communication and digital communication. In the open question of the questionnaire, students answered that their interests are the following: communication technology, content creation on the web, marketing, social networks, theory and structure of digital communication, SEM with Google Ads and SEO with Google Analytics, storing and editing documents in the cloud, "telecommuting (which is the most possible work option in the future)" and collaborative work.

In order for the students to critically evaluate the Google Workspace platform, they were asked to detect deficiencies and propose improvements based on their experience. A total of 95 valid responses were obtained, which were classified into five thematic categories (see Chart 4): "nothing to improve", with 22 responses, representing 23.2% of the total; "security", with two responses (2.1%); "operation", with 48 responses (50.5%); "structure and design", which obtained thirteen responses (13.7%); and "use at a particular level by the teaching community", with ten responses (10.5%).

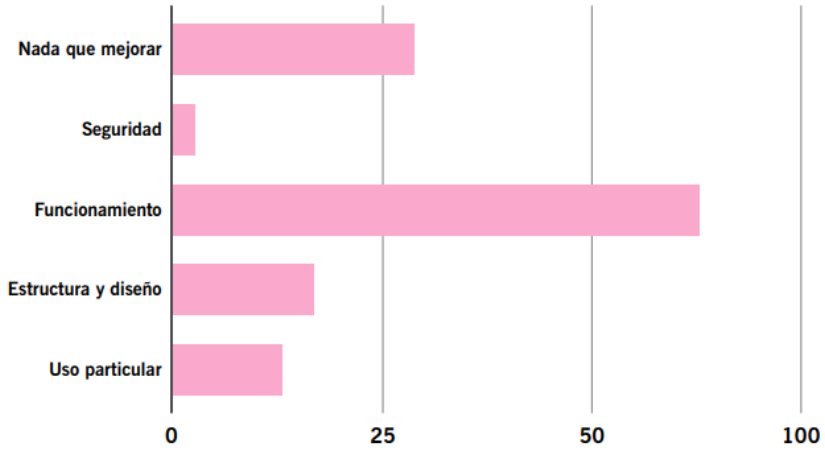

Chart 4. Suggestions for improvement that the students indicate about the platform, categorized in five parameters.

Regarding the dimension "nothing to improve", the students indicate that the platform seems to them to be very complete and that it works well; in the category of security, the students refer to greater privacy and encryption of personal content. Regarding operation, the suggestions for improvement are numerous and varied, and refer, among other things, to "the possibility of accessing some tools without an Internet connection", "the possibility of uploading files directly from Classroom without going through Drive", "an online image and video editor", "a more complete word processor and presentation program", better quality in video calls, and "Google Meet sometimes does not work", because "Google Meet sometimes does not work well if there are too many participants", "no expiration of Meet links", "better adaptability to mobile devices", "a shallower web", so that fewer steps have to be taken to perform a task, "change the ownership permissions of a document, as there cannot be two owners at the same time", and more options to customize the workspaces of the platform (e.g., add backgrounds or use colors in Classroom).

In relation to "design", they propose adding an interface with dark mode, making changes so that "it doesn't look so business-like" and improving the signage. In this last case, one student indicated that "the latest update, with the addition of colors, makes it difficult to distinguish the icons of the different applications". Finally, in the "personal use" category, students indicated that Calendar should be used more, that teachers could use a simple and descriptive file nomenclature, or "if I ever get confused with the platform, I recognize that it is because I lack personal order".

Finally, we asked what other services or tools they would add to the Google Workspace platform. Of the 103 responses obtained, those citing applications that already exist, such as Task or Chat, were eliminated, as well as others that refer to improvements and therefore correspond to the

previous question. After this filter, 81 responses were counted, which in turn were categorized into five thematic blocks (see Chart 5): "nothing to contribute", with 38 responses, representing 47% of the total; "image and sound", with thirteen responses (16%); "tutorials", with three responses (3.7%); "social media", with four responses (4.9%); and "other tools", which accumulated 23 responses (28.4%).

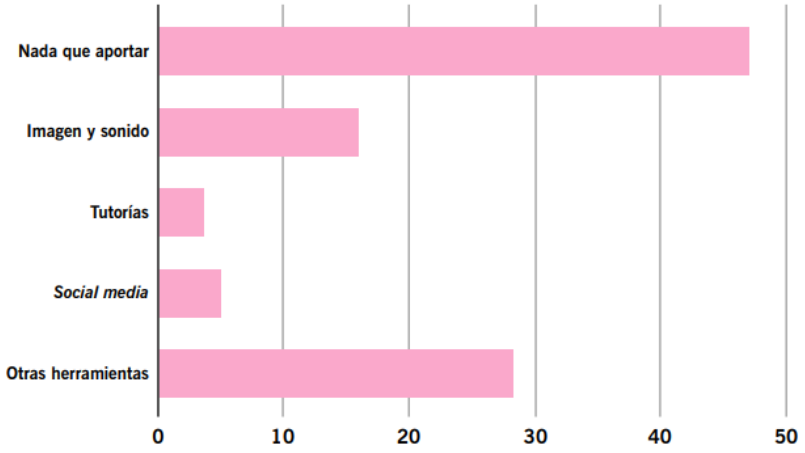

Chart 5. Proposal of other tools to complement Google Workspace.

Regarding the category "image and sound", the students consider that Google Workspace should have a photo and video editor, and suggest a podcast service and a voice channel as an alternative to Meet, but only audio, to communicate with teachers and classmates. A minority proposed a space exclusively for managing tutorials, as well as applications related to social media: a social network, forums, instant messaging and mobile applications. In the "other tools" category, some of the ideas put forward by students are: graphic design and website development programs, since "Google Site and Blogger are quite neglected"; a calculator, a digital board, tutorials on how to use them or a specific application for group work.

CONCLUSIONS

The particularities of the global village and the fragility of established systems, as demonstrated by the covid-19 pandemic, are factors that demonstrate the convenience of virtual platforms in education. This is because they enable a freer and more democratic education, which is not subject to spatial or temporal limitations, in addition to making students literate in the face of an increasingly digitized labor market.

According to the object of study of this work, the educational uses of the Google Workspace platform, based on the experience in the university degrees of Communication and Digital Communication, it is clear that this

technological suite is a teaching framework, of remote or mixed use, that allows remote work and study in decentralized collaborative environments based on Web 2.0 (Barak, 2017), which are safe and effective.

Evidence of the above are the didactic tasks that are feasible with the use of this website. We refer, among others, to the writing of didactic units or worksheets, the design of presentations that serve as support in a class or in the defense of assignments, the creation, administration and grading of evaluation tests, multilateral communication (a notice, resolution of doubts, bulletin board, among others) via chat, videoconference and e-mail, scheduling and notification of assignments and invitation to events through the calendar and electronic agenda, as well as the storage and classification of digital documents in the cloud, with the possibility of collective sharing and editing.

However, describing and praising the benefits of these tools for training purposes is not enough to establish a diagnosis. Authors such as Selwyn (2016) talk about their digital disadvantages, such as distraction, interruption, difficulty and detriment. They can even derive in bad study habits, since not having a teacher or the right environment can hinder attention and commitment on the part of the student (Vásquez, 2020). So in this scenario it is also relevant to make self-criticism through the opinions of users, in this case of university students about the services and functionality of Google Workspace, and about their learning with the use of this virtual campus.

In this regard, the analysis of the results obtained shows, firstly, the high degree of involvement of the students, as well as the quality and depth of their contributions, which has allowed an evaluation of different aspects of the platform: usability, design, usefulness of the tools, skills acquired through their use and proposals for improvement. In general, these university students rate the interface and the services provided by this program favorably, especially Meet, Documents, Gmail, Classroom and Presentations. Most of them combine and use several tools simultaneously, but they perceive that other applications, such as Keep, Jamboard, Task or Chat, are not very useful. This last aspect corresponds with the results of the study presented by Castillo, Zorrilla and Acosta (2019), which show the scarce communication between teachers and students through the chat application.

A large majority recognizes that the use of Google Workspace facilitates the management of their subjects because, among other arguments, it improves the organization and efficiency of work, both individually and in groups, in a simple and fast way, in addition to the fact that it is possible to work from the cell phone and tasks are notified. These reasons coincide with the contributions of Kurucay and Inan (2017), who highlight the role of these platforms as integral managers of the basic elements of the course: content, activities and assessment.

Regarding the skills developed, the students are of the opinion that the use of the platform has enhanced their competencies in relation to storing and accessing information in the cloud, collective writing, remote work, interactivity and online communication with members of the teaching community; they also point out that these skills can serve them to find a job. These issues related to collaboration among students and optimal communication with teachers and among peers are also outlined in their findings by Cacheiro-González, Medina-Rivilla, Domínguez-Garrido, and Medina-Domínguez (2019).

Another of the study's interests was to find out, from the students' perception, the weak points detected in the platform and the proposals. Some of the improvements suggested by these university students were to add other tools to Google Workspace, such as an image or video editor, a mobile application, more options for customizing workspaces or incorporating a night version. To a lesser extent, they also provided suggestions or challenges related to academic work with this support, such as the creation of a space dedicated exclusively to the management of tutorials. In all cases, as Dayag (2018) points out, this is useful information to increase the effectiveness of teaching processes that are developed totally or partially through the Internet.

Based on these data, the teaching implications of this study pose the following educational objectives: to influence, through classroom practice and exemplification, the usefulness of less popular applications, to bet on standards of conduct when handling the platform, to work with students on those skills that need more attention, such as ordering and classifying information on the Internet, and to continue the work with Google Workspace, by attending to system updates.

The work has contributed to answering the questions raised. Basically, it is confirmed that the blended learning model proposed by Google Workspace has been effective in the university context, and students have adapted adequately to the new teaching environment; however, this is a line of research that remains open. For this reason, it is proposed to continue with the research on the perceptions of university students regarding b-learning systems in order to learn about the changes that may occur in future generations, as well as to study the opinions of the teaching staff of this center, since this is a population directly involved in the process.

In relation to the approach, it would be necessary to reflect in order not to focus only on the technological facet and to have an impact, through empirical research, on the interaction between students, teachers, contents and tools to improve the design and results when working with this type of media, as recommended by Cacheiro-González *et al.* (2019) and Xiao (2017).

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