ONLINE TEACHER-STUDENTS INTERACTIONS USING WHATSAPP IN A LAW COURSE

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ABSTRACT

Aim/Purpose	The purpose of this study was to analyze the online teacher- students' interactions using WhatsApp, an instant messaging tool, and to identify the students' view towards the use of that tool in a law course from a higher education institution in Colombia.
Background	WhatsApp is a trending tool that is ultimately being used in academic contexts. However, little research is known on the types of interactions that occur when teachers are involved in student conversation groups.
Methodology	This is a mixed- method study. Participants completed an opinion survey in order to establish students' satisfaction towards the use of WhatsApp to complement face-to- face classes, a focus group to explore in depth the students´ opinions and acceptance of the WhatsApp tool for academic purposes and a chat conversation register to analyze the different types of interactions. The sample included 166 Law students.
Contribution	Our contribution is to enrich the current literature on the interactions between teachers and students in a virtual environment where teachers can monitor the different academic tasks, coordinate in real time and analyze the students' interactions that impact on the students' ´learning process.
Findings	The findings found in this research reveal that the different interactions between students and teachers in order to facilitate learning should be valued not

only the relationships of knowledge construction, but also the social and inter-dependence presences due to the fact that in traditional learning processes they are not usually taken into account.

Recommendations for Practitioners	The results of our research give evidence of how students in each subgroup (Plaintiffs, Defendant or Judges) diversify the use of the WhatsApp tool. Whether it is to organize, coordinate meetings, plan work, make quick inquiries, clear doubts, share messages and especially be able to communicate in real time and directly with the teacher, thus facilitating the learning process in the classroom.
Recommendation for Researchers	This study identified that law university students appear to have a special preference for the WhatsApp tool, thanks to the immediacy of being able to coordinate tasks and communicate with the teacher, in comparison to using other technological means such as email. We recommend continuing to explore the use of WhatsApp in other different disciplines in order to compare the teacher-student interactions.
Impact on Society	The analysis of academic interactions through WhatsApp may lead to further exploration of innovative forms of communication of teachers with their millennial students and new teacher roles to design constructive learning environments.
Future Research	Future studies are suggested with regard to this topic and it would be interesting to carry out research work that deeply analyzes the role the instructor plays when participating in a WhatsApp chat group with academic purposes and how it may condition the way students interact.
Keywords	mobile learning, WhatsApp, higher education, interaction, law

INTRODUCTION

With the evolution of technology, new opportunities have arisen for students to interact with class-mates, teachers and content (Rau, Gao, & Wu, 2008; Vaughan & Lawrence, 2013). Mobile learning provides students with unlimited opportunities to achieve their learning goals through learning situations in real time and authentic interaction that makes learning meaningful, effective and different from those decontextualized traditional classrooms (Kim, Lee, & Kim, 2014; Kukulska-Hulme & Pettit, 2009; Martin & Ertzberger, 2013). Mobile devices can support the strengthening of different skills inside a classroom, as well as, increasing positive attitudes with regard to the learning process. Researchers have discussed that along with their regular uses, such as sending text messages, surfing the net and using diverse applications, students and teachers have more opportunities to foster learning and make studying more meaningful (AlTameemy, 2017; Bansal & Joshi, 2014; Brett, 2011; Kim, Lee, & Kim, 2014; Vaughan & Lawrence, 2013). Most university students have found these devices are the perfect allies to carry out academic activities due to the new affordances (ubiquity, convenience and connectivity) provided by the mobility (Al-Mukhaini, Al-Qayoudhi, & Al-Badi, 2014; Olufadi, 2015; Terras & Ramsay, 2012; Traxler, 2010).

Role playing or simulated learning (King, 1974) is a traditional and widely recognized technique used in political science (Dorn, 1989; Hensley, 1993). For years, law students from a private higher education institution in Colombia have developed traditional role-play workshops involving defendants, plaintiffs and judges in a Procedural law class. This subject constitutes a fundamental and practical pillar in their legal training, and by such connotation, a special follow-up to the learning process is required. Initially, the workshop was carried out in groups in class with the direct control of the teacher. However, in the last four years, the failure rate for that activity was deemed too high, and the

learning results did not show a significant positive indicator. Due to this, the role play approach was not abandoned but modified, taking into account the educational affordances of learning with mobile devices in higher educational institutions (Aguilar-Roca, Williams, & O´Dowd, 2012; Al-Emran, Elsherif, & Shaalan, 2016; Brahimi & Sarirete, 2015; Crompton & Burke, 2018; Liaw, Hatala, & Huang, 2010; Reychav, Dunaway, & Kobayashi, 2015).

Within this context, WhatsApp Messenger is a smartphone application that permits communication through sending instant messages, videos, photos and podcasts and location (Aal, Parmar, Patel, & Sen, 2014; Barhoumi, 2015). The learning process takes place through tools such as WhatsApp due to the continuous exchange of meaning and varied types of interactions among participants (Alvarez & Olivera-Smith, 2013; Hamat, Embi, & Hassan, 2012; Suanpang, 2012). The online chat platform might help students feel confident and at ease with their peers (Öngün & Demirag, 2015). WhatsApp represents more reliability to users and senders depending on the level of privacy of their conversations which is much better than other social media platforms such as Facebook or Twitter (Lambropoulus & Culwin, 2010; Lenhart & Madden, 2007; Reid & Reid, 2005).

In this study, the use of the technological tool WhatsApp was systematically and methodologically incorporated in order to facilitate an exchange of information -in real and immediate time- with the student's group learning tasks. Through this tool, a Simulated Audience Test workshop was held, created to apply roles assigned among the students (plaintiffs, defendants and judges), the knowledge and criteria developed during classes. The purpose of this study is to analyze the online interactions using WhatsApp during the learning process in a Procedural law course and to explore the law students´ perception towards the use of WhatsApp as a medium of technological learning.

LITERATURE REVIEW

MOBILE TECHNOLOGY

Today's teachers and students are changing ways of learning, interacting, communicating and working collectively (Lai, 2015; Resta & Laferrière, 2007; Wood & Homan, 2003). It is an irrefutable fact that the use of computers and technological digital devices with microprocessors are the new educational tools that are changing the dynamics of classroom lectures, strengthening virtuality and access to digital information through the Internet (Subhash & Cudney, 2018). Technology-enhanced approaches, due to their characteristics of access, connectivity, interaction between students and instructional resources or between students and teachers, and self-learning through specific applications (web and mobile), have transformed the traditional pedagogical practices (Kurt, 2014).

Both faculty and students can benefit from their mobile devices for academic activities (Spiegel & Rodriguez, 2016). The use of information and communication technologies (ICTs) such as Internet capable smartphones, laptops, tablets and netbooks, and non-smart mobile phones, help education since it provides a variety of potential interconnected interactions within academic environments (Barry, Murphy, & Drew, 2015). Authors point out that students have shown that they find it easy to adapt and participate in class sessions when using technologies such as tablets or smartphones, with which they actively interact depending on needs (Sevillano-García & Vázquez-Cano, 2015). Outside the classroom, whether at home or in other contexts, the use of technological learning tools has allowed students to continue the process of understanding and comprehension of information, while being in constant communication with peers and instructors (Dobransky & Frymier, 2004; Kennewell, 2001).

ONLINE INTERACTIONS

Instant messages foster a sense of online community due to the feelings of the members who want to be connected interacting with others (Kadirire, 2007) and understand what the others do which is one of the abilities human beings have (Stevanovic & Peräkylä, 2014). This kind of interaction pro-

motes learning formal content in an informal way with the possibility of having access to the information at no specific study- time and meaning negotiation of all the participants (Baharani & Sim, 2012; Díaz, Moro, & Carrión, 2015).

The responsibility for interaction is one of the most important features when having a group of people who participate in interactive communication (Saba, 2003). In the case of distance learners, online interaction has become vital since they find support in their online classmates to clarify the information given and at the same time collaborate in activities. These collaborative activities enhance not only learning, but also a space to develop social relationships (Sadykova, 2014). Online learning permits learners to build experience and knowledge through asking questions, analyzing content, sharing opinions, showing agreement and disagreement towards another point of view (Amry, 2014; Chan, 2005; Moore & Marra, 2005).

Being connected with others at any time through mobiles has possibly made learning become a way of life. This kind of interaction promotes learning formal content in an informal way with the possibility of having access to the information at no specific time, but on the move (Díaz, Moro, & Carrión, 2015). Online interaction has opened up a great deal of opportunities for researchers to explore what is really happening in the real environment that the students are interacting in. Moreover, it allows the researchers to keep a track over time of the information they have shared, to save the history of threads and to compare them to analyze if there has been any signal of evolution or not (Luebeck & Bice, 2005).

Recent studies from a University in Saudi Arabia demonstrate that chatting, online discussion, file sharing and knowledge sharing have a positive relationship with student learning (Eid & Al-Jabri, 2016). Other results reveal that WhatsApp chat is the most preferred message application to work collaboratively and offers some accessibility features that enables participation even of people with disabilities (Bansal & Joshi, 2014; Calvo, Arbiol, & Iglesias, 2014).

Furthermore, Garrison, Anderson and Archer (2000) defined three categories to analyze the online interactions such as cognitive, teaching and social presence. The former is defined as the process in which students are able to build meaning based on the exchange of information and it is a vital feature when developing critical thinking. Thus, words that indicate connecting or applying new ideas, exploring new information, integration or resolution are synonymous of cognitive presence. In addition, social presence is identified by the degree in which a person presents himself/ herself as "real" in an online environment (Richardson & Swan, 2003), hence, open communication, showing emotions or encouraging collaboration indicate social presence. Finally, instructional management, building understanding, focusing discussion and direct instructions are indicators of the teaching presence. This is defined as the way in which the instructor supports the cognitive and social presence in order to achieve the educational outcomes in the community of inquiry. The instructor is seen as directly responsible for the course design (Garrison, Anderson, & Archer, 2000). These categories are complemented by indicators called interaction patterns that help to evaluate and promote cooperative learning through virtual discussions (Casanova, Valdivia, & Alemany, 2009). These categories are organized in Table 1.

Table 1. Interaction categories and their own patterns

INTERACTION CATEGORIES		INTERACTION PATTERNS
		Individual responsibility
		Common responsibility
	Positive interdependence	Proposal for organization
		Asking for organization

INTERACTION CATEGORIES		INTERACTION PATTERNS
		Make clarifications/ Complement organization
Cognitive presence		Explains/ Gives arguments
		Ask for content
		Justifies
	Building knowledge	Express opinions
		Agree/ Disagree
		Make clarification
		Reflect
		Approve
		Cheer
Social presence	Social relationship	Thank
		Apologize
		Social dialogue
		Open communication
		Direct instructions
	Instructional management	Focusing discussion
Teaching presence		Building understanding
	Social relationship	Cheer

On the other hand, the teacher and students´ roles played in the virtual community are of great significance since the responsibility of creating knowledge and new ideas depend on both of them. Hence, the online discussion requires equilibrium in the level of participation among members, the instructor needs to be aware that through appropriate scaffolding strategies, they have the ability to enhance engagement between students, and this may derive in different types from online interactions that reflect their learning process (Balaji & Chakrabarti, 2010; Jumaat & Tasir, 2013). The level of interaction between students and teachers in online environments promotes a sense of social connectivity among them (Balaji & Chakrabarti, 2010).

RESEARCH QUESTIONS

This study is led by two research questions:

(1) What interactions take place during the learning process in a law course?
(2) What is the law students´ perception towards the use of WhatsApp as a supporting learning tool?

METHODS

Mixed methods were used to enhance the possibility of understanding the phenomena, especially to get a better grasp of the complex fields in which the study took place, the diversity of responses and data coming from human sources, including interactions and reflections (Dellinger & Leech, 2007). The mixed method comes handy to corroborate the data collected along with interpretations of the data (Creswell & Clark, 2017). In the following sections, we describe the sample and the process of designing the instruments.

SAMPLE

The implementation of WhatsApp was carried out with six groups totaling 166 students in their 7th semester of the Law program in a private university located in the north of Colombia, over a period of three years, from 2015 until 2018; 72 women and 94 men between the ages of 19 and 22. The amount of students varied depending on the students enrolled in the subject. The participants signed an informed consent form to participate in the study. A table with the distribution of students in each period is shown in Table 2.

Table 2. Distribution of participants registered per year

Group 1	Group 2	Group 3	Group 4
2015 (one group)	2016 (one group)	2017 (two groups)	2018 (one group)
23	36	83	24

INSTRUMENTS

Three instruments were used in this study: a survey, a focus group and an analysis of the register of the WhatsApp conversations. The survey was developed by the researchers and it was distributed online using Google forms. The survey questions were informed by a literature review (Binti Mistar & Embi, 2016; Eid & Al-Jabri, 2016; Lauricella & Kay, 2013; Wong, Wang, Ng, & Kwan, 2015) on the use of mobile learning for academic purposes and pre-survey questions. Some of them were addressed to find out the preferences students had regarding the tools used when developing academic tasks. In these questions, some of the most popular tools were Google Drive and emails, but the usage of WhatsApp resulted as the highest trend.

In addition, the researchers inquired with other law professors who also used the tool for their classes. In order to check the comprehension of the content of the questions, the survey was piloted with a small sample of students. Some items were found not to be clear and some word changes were made into the final version.

The survey was developed by the study researchers. It is an instrument with 8 items, with Likert scale options to respond, which range between 1 and 5 (1= Totally agree; 2= Agreement; 3= Neither agree nor disagree; 4= Disagree; and 5= Totally disagree). The items make it possible to evaluate the satisfaction of using WhatsApp as a support tool for law classes.

DATA COLLECTION PROCEDURE

To carry out the WhatsApp implementation, the law students were divided into three (3) subgroups to assign an equal number of roles to simulate a judicial process with emphasis on handling the evidence through a case study previously prepared by the teacher. Thus, the roles assigned were: i) a subgroup of Plaintiffs (responsible for preparing and filing a civil complaint) ii) a subgroup as the Defendants (responsible for responding to the complaint) and iii) a subgroup as the Judges (respon-

sible for legally leading the case). They were then asked to form groups in WhatsApp and each group included the teacher. Each stage of the process was monitored by the teacher from where they were able to observe the lexical choices used by the students, the frequency of contacts between students, the type of shared information and the scheduling for face-to-face meetings. Figure 1 represents how the WhatsApp groups were organized.

Data was gathered through an opinion survey, a focus group and the WhatsApp conversations after eight weeks of working with the simulation of the judicial case. At the end of each law course, some volunteer students (n=30) participated in focus groups to gather their views about the use of WhatsApp. This data was recorded, transcribed, coded and analyzed. Finally, all the WhatsApp conversations of each year were copied for the analysis.
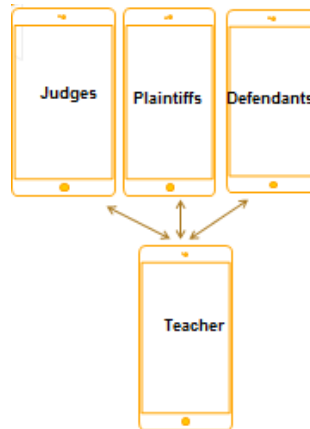
Figure 1. Organization of the WhatsApp group for the Law case

STATISTICAL ANALYSIS

The participants of the survey were selected on a cluster random basis. For the representativeness of the sample, we considered the 8:1 criterion of having at least eight participants per item in order to make the validity of scales through factor analysis. In this case, a number not less than 80 participants, as recommended by RayKov and Marcoulides, 2006; Kline, 2015, and as is applied by Bentler and Chou, 1987; Costello and Osborne, 2005; Huynh and Saunders, 1980; Yurdugül, 2008.

The survey designed by the researchers was distributed online. The items were focused on technological preferences to work in groups, the benefits of using WhatsApp in terms of communication with faculty and the option of having WhatsApp as mediation to complement face-to-face law classes. The statistical software R (version 3.5.1) was used to analyze the data from the survey. First, descriptive statistics were calculated, namely standard deviation and percentages. Similarly, the corresponding graphs were presented to analyze the distributional behavior of the data collected. Then, the correlation matrix of the items of the instrument was constructed to analyze the level of association among them. As we have an instrument with ordinal Likert scales, the analyses developed were carried out with polychoric correlation matrixes. Subsequently, an exploratory factorial analysis was applied in order to find the factors in which the items were grouped. To do that, we first tested the underlying basic assumptions (Bartlett's sphericity and KMO test). It is important to mention that Varimax rotation was used to find the factorial structure. Finally, the Cronbach alpha and omega MacDonals were used for the internal consistency of the survey items

RESULTS

The findings are organized into two sections; qualitative and quantitative results. The conversation analysis of each group per year and the focus group correspond to the qualitative results and the analysis of the survey corresponds to the quantitative approach.

QUALITATIVE FINDINGS

The conversation analysis

Throughout the review of the 2015 chats, these chats were linear at the beginning of the activity; in other words, the participation of the students lacked depth, as can be seen in the Excerpt 1 (Table 3).

Table 3. Excerpt 1: Initial Workshop Conversation

1	T	The lawsuit must be answered by Wednesday. We'll see the file in class. Take into account the topic about merit and evidence. Greetings.		Direct instructions
2	St1	Who is our representative?	Positive interdependence	Organization question
3	St2	We can ask him to upload it to the forum and have it all.	Positive interdependence	Organization proposal
4	St1	I have it, but they are 40. They gave me	Positive interdependence	Individual
				Response-ability
5	St2	We´ll see you tomorrow	Positive interdependence	Organization proposal

Excerpt 1 shows an initial instruction given by the teacher, a pattern similar to traditional face-to-face classes and short spontaneous replies given by the students without any kind of arguments.

However, in the following years, 2016, 2017 and 2018, the students' interventions contained reflections that were the product of a real learning process. Excerpt 2 (Table 4) shows how students interacted based on the ideas of their peers, building a learning community that is based on building knowledge from the ideas of others (Tan & Tan, 2006).

Table 4. Excerpt 2: A 2016 WhatsApp Conversation

| Turns		Interaction categories	Interaction patterns
1	In 2 minutes we´ll arrive	Interdependence positive	Individual response-ability
2	Folks, for the pleadings we have thought to bring up the inaccuracies of the legal representative at the moment of answering the questions in relation to the facts and the pertinence of the evaluation of the testimonial evidence that we ask of our engineer (Farfan). I ask the favor to you strongly as we already spoke it that if you have something to suggest they communicate it by here or by the means that they prefer because this is what I have in my mind.	Cognitive Presence/building meanings	student explains the task

Turns		Interaction categories	Interaction patterns
3	Thanks	Social Presence	student thanks
4	In addition, the operation of the cameras was perfect for 8 days. This proves there was no damage to the machine.	Cognitive Presence/building meanings	student explains the task
5	It's just that I'm not totally convinced of the argument	Cognitive Presence/building meanings	student disagrees

By making a global analysis of the number of interactions per year, the intervention count shows that year after year there has been a significant increase in interactions. In the case of students, it can be observed from Figure 2 that in 2015, 73% of interventions were evident among them, compared to 27% on the teacher´s column, who at that time were observed guiding the activity. It is clear that those who assume the most important role through this strategy are the students who enrich the chat with their participation. The following year, 2016, the teacher presence dropped to 19% while the students´ participation increased to 81%, reflecting a greater commitment and intervention on the part of the latter, which coincides with the study by Joo, Lim, and Kim (2011).

In 2017, the Figure 2 also shows that the teacher presence again rises and appears at 33% while the students´ participation drops to 67%. Although there is a slight change, it is notable that those who continue to assume the greatest participation in the activity are the students who responded positively to the suggested strategy.

On the other hand, in 2018 we can observe that in one semester they attained almost the same percentage of interactions that occurred in all of 2017. In 2018 (first term), the interactions among students were observed at 65%, this is only 2% less than in 2017. This could possibly be an indicator that in the second semester the percentage of student participation could increase.
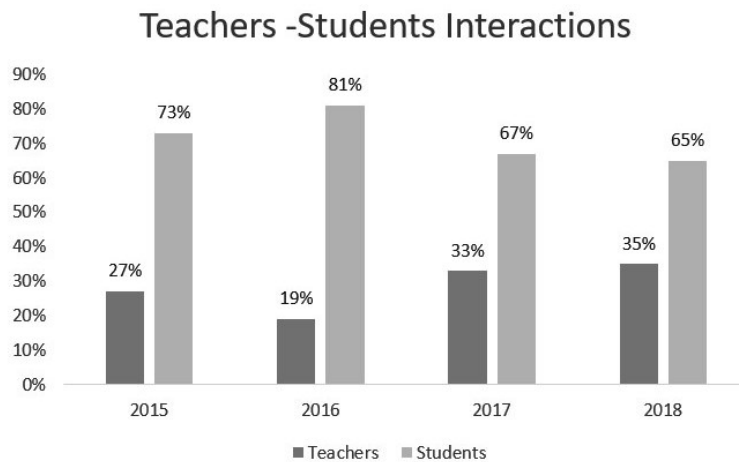
Figure 2. Distribution of teacher-students interactions per year

Following the yearly interactions analysis shown in Figure 2, how the social and cognitive presences were distributed in each year was analyzed next.

In 2015, the positive interdependence is represented by a high 40% per cent. This indicator refers to all occurrences when students demonstrate, through questions and/or comments, how committed or concerned they may be with the activity they are carrying out (Casanova et al., 2009). This accounts for individual responsibility for academic commitment and also motivation collected through several types of comments and /or questions that encourage the organization of work itself. A surprising

aspect of cognitive presence and its indicators is that the construction of knowledge itself is only evidenced by 8% in that chat, which could be interpreted as meaning that at that moment students did not consider WhatsApp as the appropriate means to generate conversations that point directly towards the construction of meaning around learning. However, the indicator described above, positive interdependence, shows that there is commitment from students, but that they prefer to organize themselves around face-to-face activities to build knowledge.

On the other hand, the social presence aspect plays the most prominent role in this analysis because with 32%, when added to one of its indicators, open communication which is at 20%, it shows that 52% of this chat was for socialization among its members. In other words, the participants express thanks, motivate their companions, apologize and generate open spaces for dialogue and free communication that is not necessarily linked to the activity as such.

The analysis of the chat in 2016 shows some interesting changes in the trend that shaped the conversations to become closer to the model of what was expected. The expectations were based on the roles students assumed in the WhatsApp interaction: plaintiff, judges and defendants. While in 2015, the prevalent social presence was the *social*, in 2016 the cognitive presence gained greater strength through its indicators. In other words, the indicator corresponding to the positive interdependence that alludes to the students' organization and their responsibility towards the activity to be developed continues to have had an important place. On this occasion this indicator was present in 47% of the conversations accompanied by the construction of knowledge that in 2016 reached 38%. When adding these two indicators, positive interdependence and knowledge construction, it is observed that cognitive presence was the most important trend in the conversations of the year in question, obtaining 85% visibility. Meanwhile the social presence in 2016 was lower at 15%, it could be concluded that in that year, the students assumed with greater commitment the use of the tool and it was used more for the purpose that was intended by the teacher.

Figure 3 shows the results regarding the analysis of cognitive components (positive interdependence, knowledge construction, open communication) and social presences per year.

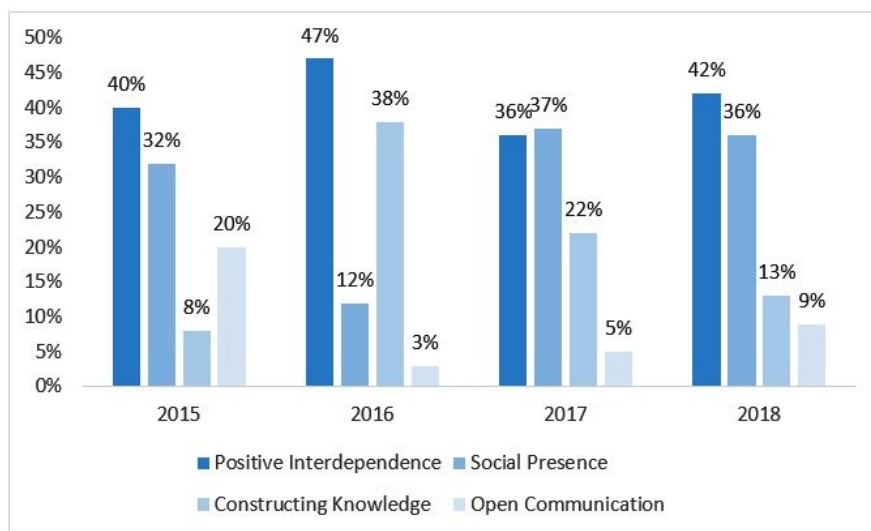**Figure 3. Analysis of Cognitive (its components) and Social Presences per year**

Focus group

The data gathered in the focus group was collected into five dimensions: ease of communication and establishment of agreements, usefulness of the WhatsApp tool, and communication with disciplinary content, ubiquity and limitations. Table 5 shows the recurrent aspects extracted from the focus groups:

In general, it is important to highlight the total approval of the technological tool from an academic point of view. Evidence of this can be seen in the evaluation that students made of it through the instruments applied:

Excellent, it is a medium that keeps you informed immediately (St1, WhatsApp focus group, 2016)

I think that the WhatsApp had a double function, first because the teacher clarified the doubts that we presented to him, but it was also a way of monitoring the activity, of verifying that we were fulfilling the tasks that he gave us or that we were preparing for the next activity (St9, WhatsApp focus group, 2017)

From the testimonies presented above, the level of acceptance of the use of the tool during the classes is notorious. This constituted an invaluable support that allowed them to be informed at any time in relation to the course that followed the activity that they were developing.

In fact, it is also observed how the use of the WhatsApp in their mobile device provided them peace of mind because participants were in frequent communication with the other classmates.

I have been able to communicate directly, quickly and from anywhere with teachers and colleagues and these in turn have been able to communicate information related to the subjects or on any subject of interest (St5, WhatsApp focus group, 2017)

Table 5. Recurrent aspects from the focus group data

1. Ease of communication and establishment of agreements	2. Usefulness of the WhatsApp tool	3. Communication with disciplinary content	4. Ubiquity	5. Limitations
Through this tool students had the possibility to communicate instantly with their peers and thus be able to quickly agree on any type of meeting that would allow them to adjust details. Especially when they do not coincide with the schedule.	The usefulness of WhatsApp was evidenced by the possibility of receiving frequent and sometimes immediate feedback from the teacher. The participants felt that through this, they were followed up closely.	The tool made it possible to present information from the point of view of each one and at the same time that their doubts were clarified by the teacher. The tool allowed a significant learning because it helped to complement, clarify and argue ideas.	The tool allowed communication from anywhere and in real time.	The teacher presence demanded greater care in relation to the register of the written language.\n\nIn addition, the tool forced students to be rigorous in terms of complying with the time allotted for the activity.

Furthermore, the understanding of the concepts and case studies developed in a more dynamic and active way during the chats this allowed a significant and valuable appropriation for the students who expressed it during the focus group:

WhatsApp is an auxiliary learning tool with the advance of technology that opens up the spectrum of possibilities to become a means of study (St3, WhatsApp focus group, 2018).

QUANTITATIVE FINDINGS

Descriptive analysis of the survey

Table 6 shows statistical information (percentages, mean and standard deviation of responses) obtained through program R 3.5.1 (https://cran.r-project.org). The first column of the table (Item) corresponds to the code used within the program.

Table 6. Table of Frequencies

Item	Description	Percentage					Mean	Standard deviation
		1	2	3	4	5		
P2	To work academically in a group, my technological preference is Google Drive.	50.72	27.54	20.29	1.45	0.00	1.72	0.84
P3	To work academically in a group, my technological preference is WhatsApp.	30.43	43.48	17.39	7.25	1.45	2.06	0.95
P4	To work academically in a group, my technological preference is by email.	13.04	43.48	31.88	10.14	1.45	2.43	0.90
I5	I prefer to interact individually with my classmates through WhatsApp for my learning process.	30.43	31.88	21.74	11.59	4.35	2.28	1.15
I6	I think the use of WhatsApp benefits academic communication between peers and faculty.	59.42	34.78	4.35	0.00	1.45	1.49	0.72
W7	For my learning process I prefer to make my academic inquiries with professors through WhatsApp.	10.14	27.54	37.68	18.84	5.80	2.83	1.04
W8	I prefer that the law classes are complemented with the WhatsApp tool	21.74	27.54	27.54	11.59	11.59	2.64	1.27

The item I6 presents the highest percentage in response 1 since of the 69 students 59.42% agreed totally. Similar to this item is P2 with 50.72%. The lowest percentage were, in order P4 (13.04%) and W7 (10.14%). The highest response percentage for option 2 (Agree) appears in items P3 and P4, both with a percentage of 43.48%. The highest response rate between options 3, 4 and 5 was 37:48% and corresponds to item W7. We can infer from these results that the use of emails (P4) is, little by little, being used less by students to ask academic questions. Students use mail less frequently as a form of communication, perhaps because it is sometimes not easily accessible (James, 2016). While the item about the benefits of WhatsApp (I6) presents the highest correlation. This may infer that this tool is transforming traditional methodologies into innovative and dialogical methodologies where the teacher shortens the distance between they themselves and the learner.

All of these results can be seen graphically in Figure 4. It is observed that, in general, the cumulative percentage of the first two response options (Totally agree and Agree) is high (greater than 50%) for items I6 (94%), P2 (78%), P3 (74%), I5 (62%) and P4 (57%). The lowest was W7 (38%).
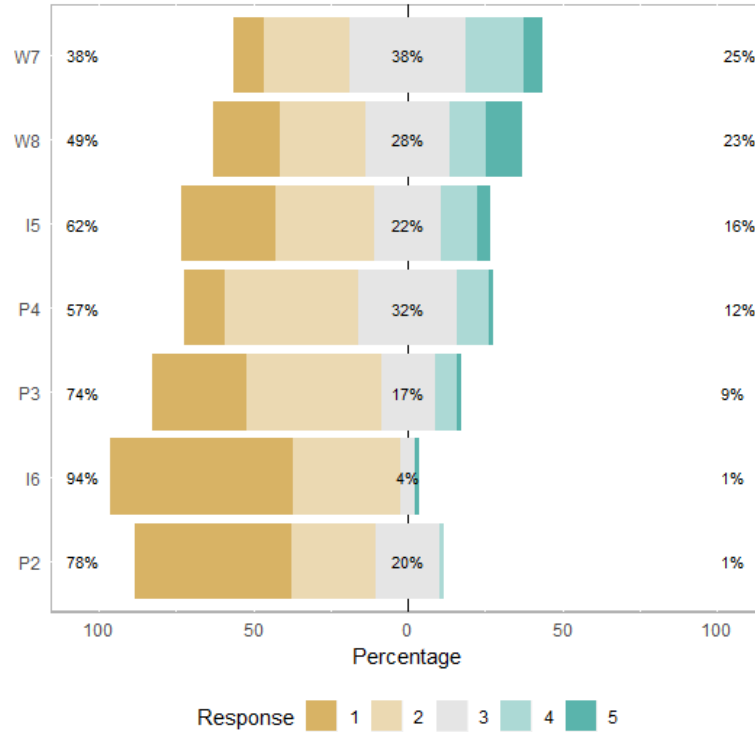
Figure 4. Distribution of the survey answers

Correlations of the survey items

Table 7 shows the correlations between the instrument items. It can be seen that the correlations of P2 with the other variables are very low (less than 0.30). The same behavior is observed with P4 with the other variables. In particular, a high correlation is observed between W7 and W8 (equal to 0.55).

Table 7. Correlations matrix

	P2	P3	P4	I5	I6	W7	W8
P2	1						
P3	0.08	1					
P4	0.12	0.14	1				
I5	0.06	0.36	0.24	1			
I6	0.03	0.24	0.21	0.47	1		
W7	0.25	0.38	0.27	0.35	0.45	1	
W8	0.24	0.36	0.20	0.54	0.41	0.55	1

Factorial analysis

As we have an instrument with ordinal Likert scales, the analyses developed were carried out with polychoric correlation matrixes. Since the two basic assumptions (Bartlett's sphericity test with Chi-square = 107.18, df = 21, p-value < 0.00001 and KMO = 0.763) are fulfilled, we can conclude that there is a sufficient level of multicollinearity between the items and the analysis can be carried out. We found that the 7 items of the instrument can be grouped into the 2 factors (by Varimax rotation) shown in Table 8.

The names of the factors are: WhatsApp affordances and WhatsApp, a collaborative tool for learning. The first name was chosen due to the high popularity of WhatsApp, which is a new educational tool that provides the opportunity of sending and receiving instant messages and feedback (Akpan & Ezinne, 2017). Another reason that has made popular the use of WhatsApp is that is that it represents a private kind of interaction much better than other social media platforms such as Facebook or Twitter (Madden, Lenhart, Cortesi, & Gasser, 2010). "Texters", as they have been defined by Reid and Reid (2005), consider that this tool is better than a phone call or face-to face interaction since nobody interrupts them when texting, it has no cost, it is quick and easy to use, they can get to the point and afford a slower, more open ended form of communication (Rettie, 2009).

Table 8: Factorial analysis

Factors	Variables	Factor 1	Factor 2	Communalities
Factor 1 (WhatsApp Affordances)	P3	0,34	0,32	0,218
	I5	1,00	0,07	0,996
	I6	0,45	0,34	0,324
Factor 2 (WhatsApp, a collaborative tool for learning)	P2	0,03	0,30	0,089
	P4	0,21	0,25	0,109
	W7	0,29	0,83	0,773
	W8	0,50	0,51	0,518
Percentage of Variance explained		24%	19%	Total= 43%

With regard to the second name, WhatsApp, a collaborative tool for learning, it was given based on the different researches about the combination between collaborative learning and technology. Ngaleka and Uys (2013) stated that through this app students increase collaborative work outside the classroom without the influence of the instructor. Similarly, active and collaborative practices are new branches of learning sciences which purpose is to give further explanation about how people work together with the help of technological devices (Pinheiro & Simoes, 2012). In addition, the technology gives students, of any ages, the opportunity to engage in collaborative interaction (Romero & Barberá, 2012). In online discussions, collaborative practices play an important role since the participants try, by working together, different strategies to build knowledge as a group.

In Table 8, the factor 1, WhatsApp Affordances, explains 24% of the variance and items 3, 5 and 6 of the instrument are part of it. The factor 2 contains items 2, 4, 7 and 8 of the scale and explains 19% of the variance. In total, the percentage of variance explained by the two factors is 44%. Because the contribution of P4 in factor 2 is very low, it has been decided to eliminate it. The factor analysis was run again, verifying the fulfillment of the assumptions (Bartlett's sphericity test with Chi-square = 81.74, df = 15, p-value < 0.00001 and KMO = 0.748). The remaining 6 items of the instrument were grouped into the two factors as shown in Table 9.

Now, we see that factor 1 explains 28% of the variance and is made up of items 3, 5 and 6. The factor 2 contains items 2, 7 and 8 of the scale and explains 21% of the variance. In total, the percentage of variance explained by the two factors is 49%.

Table 9. Correlations matrix

Factors	Variables	Factor 1	Factor 2	Communalities
WhatsApp Affordances	P3	0,34	0,32	0,218
	I5	1,00	0,07	0,996
	I6	0,45	0,34	0,324
WhatsApp, a collaborative tool for learning	P2	0,03	0,30	0,089
	W7	0,29	0,83	0,773
	W8	0,50	0,51	0,518
Percentage of Variance explained		28%	21%	Total= 49%

Validity of the survey

The internal consistency of the survey was analyzed using Cronbach's Alpha (α) and McDonald's Omega (ω). The results are summarized in Table 10.

Table 10. Validity of the scale using Cronbach's Alpha (α) and McDonald's Omega

Factors	Item	Mean	Standard deviation	α	ω	α global	ω global
WhatsApp Affordances	P3	2,06	0,95	0.62	0.66	0.74	0.80
	I5	2,28	1,15				
	I6	1,49	0,72				
WhatsApp, a collaborative tool for learning	P2	1,72	0,84	0.61	0.65		
	W7	2,83	1,04				
	W8	2,64	1,27				

It was found that globally Cronbach's Alpha (α) has a value of 0.74 and an Omega (ω) of 0.80, which are relatively high values. On one hand, for the scale of factor 1, α= 0.62 and ω= 0.66. On the other hand, for factor 2, the internal consistency index is α= 0.61 and ω= 0.65, respectively. All these values are not very high, but they are within the range allowed by the scientific community (to be greater than 0.6).

DISCUSSION

The results presented in this study revealed the Law students had high levels of satisfaction with the use of the WhatsApp chat group. The use of WhatsApp tool from the beginning of the implementation strengthened the teacher-students´ interaction. Although the teacher was present in the conversations, the students demonstrated an empowerment of the roles previously established in the workshop without preventions and in an open and direct communication.

In other words, the way the teacher makes their intervention in the WhatsApp group encourages or discourages students´ interaction (Zilka, Cohen, & Rahimi, 2018). Experts such as Hernando, Arévalo, and Catasús (2017) point out that WhatsApp is a tool that helps to monitor situations of collaborative learning. Also, this finding is in sync with the ideas stated by Kim, Lee, and Kim (2014), and Asterhan and Rosenberg (2015) in their studies about the effects mobile instant messaging have in collaborative learning, in this work, in that it is considered that working collaboratively better outcomes are achieved. The evidence of this has been that the failure rate mentioned at the beginning

of the paper, decreased significantly. Furthermore, the law students involved in this role-playing workshop showed a better academic performance.

In addition, the WhatsApp chat group worked as a reminder for contextual issues or just to establish contact with their peers. This finding is consistent with the results presented by Kukulska-Hulmes and Petit (2009) in their research about the emerging practices given to mobile devices for learning, leisure and work. The approach and interaction of the teacher with the students favor a suitable climate for learning. The use of this tool, even without the warmth that can be implied face-to-face, seems to encourage conditions for extra-classroom communication between teachers and students that, in turn enhances the learning environment of the classroom.

There is no doubt that in different activities that a student develops during the class period, the motivational factor favored by a constant communication with the teacher increases his/her learning. It was evident that the students not only achieved their academic objectives with the subject but also managed to channel the use of the WhatsApp tool in a respectful way by organizing their learning oriented activities. The feeling shared is congruent with Barry, Murphy and Drew (2014) who in their study about the uses university students, found out that the students' perspective regarding the use of this kind of technology is coherent with the sense that through mobiles, students optimize their learning process as well as increase their engagement with it, which obviously derives better outcomes.

Finally, the results of this study were consistent with those ideas stated by researchers such as Bouhnik and Deshen (2014) with regard to the advantages this app represents to students or Nkgaleka and Uys (2013) about how this kind of activities increase learning through collaborative work. Moreover, these results matched with the ones presented by Bansal and Joshi (2014) regarding how interesting and useful it was for students to have the opportunity to learn through WhatsApp.

CONCLUSION

The implementation of mobile devices in the classroom seems to be an interesting feature of the way the educational system is evolving. What is more, considering applications can help not only teachers, but also students to facilitate the teaching and learning process even outside the classroom. It turns out to be an innovative trend that derives in better outcomes for both parties. According to our findings, this study was very meaningful for the law students as there was a total approval of the WhatsApp tool from the beginning of the implementation that strengthened the interaction between the students; in addition, the innovation facilitated the closing of distance between the teacher and the students. Although the teacher was present in the conversations, the students demonstrated an empowerment of the roles previously established in the workshop without restrictions and with open and direct communication. Finally, one of the most relevant aspects was the students´ understanding of the legal concepts and the way that case studies developed in a more dynamic and active way during the chats which allowed a meaningful and valuable appropriation for the law students. In addition, the students were further empowered by the situations that were analyzed in the online discussions. Especially in the depth of the reflections the students provided from the positive impact the tool had on their learning process.

The incorporation of mobile devices breaks the myth of the inconvenience of electronic devices in the student's learning process and makes it an ally.

IMPLICATIONS OF THE STUDY

The implementation of mobile devices in the classroom seems to be an interesting feature to respond to the way the educational system is evolving. Nevertheless, considering applications can help, not only teachers, but also students, to facilitate the teaching and learning process even outside the classroom. It turns out to be an innovative trend that derives in better outcomes for both. The implementation of a WhatsApp chat group with academic purposes is a helpful tool that represents an

important step to combine technology with innovative methodology; addressed to enrich the learning process of students. However, it is also important to consider that the implementation of a similar strategy requires keeping clear the goals the teacher wants to achieve as well as the plan to carry it out.

FUTURE STUDIES

Future studies are suggested with regard to this topic and it would be interesting to carry out a research work which analyzes deeply the role the instructor plays when participating in a WhatsApp chat group with academic purposes and how it may condition the way students interact.

LIMITATIONS OF THE STUDY

The study analyzed the interactions among students through a WhatsApp chat group in a law course. For further studies, more questions in the survey are recommended to have a wider scope. We recommend continuing to explore the appropriateness of this tool combined with other disciplines.

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