



TEACHING AND LEARNING INNOVATION IMPACTS

WhatsApp use in the University: empirical analysis

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1. **ABSTRACT:** Instant messaging applications (WhatsApp or BlackBerry Messenger) have attained a wide and rapid spread in Broadband Society, and especially among the University students, among whom behaviors that could be considered to be indicative of addiction or stress have started to be noted. This study aims to identify whether there is indeed addiction to these applications and to find out whether they cause anxiety and stress to the University students. Their performance is affected.

RESUM: Les aplicacions de missatgeria instantània han aconseguit una àmplia i ràpida difusió en la Societat de la Banda Ampla, i especialment entre els estudiants universitaris, entre els quals els comportaments que podrien ser considerats com a indicatius de l'addicció o estrès han començat a ser observats. Aquest estudi reflecteix addicció a aquestes aplicacions i ansietat i estrès en els estudiants, el rendiment dels quals resta afectat quan a resultats.

2. **KEYWORDS:** communication, instant messaging, WhatsApp, addiction, University.

PARAULES CLAU: comunicació, missatgeria instantània, WhatsApp, addicció, Universitat.



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3. DEVELOPMENT:

1. Theoretical framework

Free instant messaging applications are a relatively new phenomenon. Nevertheless, they have attained a rapid and widespread acceptance in society. However, the studies conducted to this date on the instant messaging (IM from now on) phenomenon are but a few, and usually focus on the advantages such applications have in very specific areas or fields of knowledge.

For example, in a study conducted by Rambe and Bere (2013) in a South African university, the authors investigate the pedagogical value of WhatsApp and its potential to promote student participation in academic activities and transform lecturers' teaching practices.

In another study, Buschmann Iversen, Melby and Toussaint (2013) analyze how IM allows to organize work in a Danish hospital, where IM was used for short communications regarding the coordination and logistics of patient care. The flexibility of IM allows for makes it an effective support tool to traditional communication means.

Other studies have focused on analyzing how the use of IM affects effectiveness when trying to simultaneously perform other activities. Thus, a study, conducted on university students, by Fante, Jacobi and Sexton (2013) concludes that no matter the difficulty of the text, even though IM usage while reading does not seem to affect the reading comprehension of the reader, that usage does make the reader need more time to perform the reading. The authors think that the fact that such multitasking does not affect reading comprehension is due to youngsters being used to making use of this kind of technologies at the same time they perform other activities.

Another study, in which the effect of interruptions generated by IM in work environments is analyzed, Ou and Davison (2011) conclude that the disadvantages that these interruptions entail are less important than the advantages that IM brings with it. In any case, the interruptions caused by IM are fewer than interruptions caused by other sources of interruptions; and IM contributes to promote communication and connectivity between work mates, what in turn increases mutual trust. This also contributes to an increase in productivity.

Mansi and Levy (2013) reach a similar conclusion, although they do not seem very convinced of the fact that the improvement in the efficiency and effectiveness of communications will be relevant enough so as to compensate for the loss in productivity derived from the interruptions caused by IM usage.

Other studies, such as the one by Dolev-Cohen and Barak (2013), focus on the benefits that IM can bring for teenagers who are under some kind of emotional pressure. It is those



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users who are more introverted that gain the most benefits from IM. Those benefits derive from the invisibility and immediacy that IM services provide.

As far as the use of IM by students is concerned, Quan-Haase (2008) performs a bibliographic review in which it becomes evident the wide outreach that IM has among youngsters, who have integrated it into their lives as one more means of socialization.

A study in which addiction is addressed is that of Rosenbaum and Wong (2012). The said authors state that IM require users to spend too much time connected to the Internet, what may cause some damage to mental health by encouraging addiction to the Internet and the appearance of attention deficit hyperactivity disorder in adults.

Finally, Sultan (2013) shows the results of a study on consumer uses and attitudes with regard to WhatsApp and BBM. His study was conducted in Kuwait. The study by Sultan (2013) aims to explore the usage behavior of WhatsApp and BBM users and identify those factors that make users make such a frequent use of these applications. The author ends up recommending that some degree of self-control be applied to the usage made of these applications so that addictive behaviors caused by the frequent use of WhatsApp and BBM are reduced.

2. Methodology

The current study aims to analyze how young adults use new means of communication and, especially, instant messaging applications such as WhatsApp and BBM. The objective is to get to know whether youngsters misuse or overuse such applications, abuse that may cause stress or anxiety. In fact, that is the hypothesis that is tried to be proven or refuted with the present study: "Spanish youngsters show high degrees of addiction to free instant messaging applications, what makes them suffer from stress and anxiety".

The general objective is to determine the level of IM usage in the Spanish university population. A more specific objective would be to determine whether IM produces unwanted effects in behavior and anxiety levels of the Spanish young population.

In order to perform the present study a total number of 475 personal interviews were conducted at the University of Navarra (Pamplona, Spain). However, many interviews had to be discarded due to the interviewees not having responded to all questions or to important discrepancies having been found in answers to similar questions. This is why the final sample is formed by just 247 people (the "interviewees" or the "sample" from now on): 116 males and 131 females.

For the design of the questionnaire the Kimberly Young test for Internet addiction was adapted to IM usage. Likert scales (1 to 5) were applied to various usage measurements. The interviews were conducted between the 7th and the 22nd March 2013. All of them were conducted according to the same questionnaire.



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After the interviews were conducted all of them were analyzed with the objective of detecting errors and discrepancies so as to “clean” the sample, what led to eliminate almost half of the original interviews. Finally, all the data were analyzed and the corresponding conclusions were arrived at. The informed consent of all participants in the interviews was collected and all of them were informed of the use that would be given to the information provided, guaranteeing anonymity and the confidential treatment of all personal data. All the interviewees were between 18 and 24 years old (see Figure 1).

As far as the place of provenance is concerned, and in accordance with the objective of the study, all of them have Spain as their country of origin, with the distribution by regions that is shown in Figure 2 below. Almost all Spanish regions are represented to some extent, but given the geographic location of the University of Navarra, half of the sample comes from either Navarra or the Basque Country.

The studies being pursued by interviewees are shown below (Figure 3) as an additional feature that can help characterize the sample. Approximately half of the sample comes from the Schools of Law and Economic Sciences, since the study is coordinated from the Marketing Department of the latter, which shares some double majors with the former.

Finally, 100% of the sample, that is, 247 people, has a cell phone; and 245 of those people have access to the Internet from their cell phones. This means that only a percentage lower than 1.25% does not have access to the Internet from their phones. Moreover, only one of the interviewees did not have a smartphone; and there was also only one person that did not use free IM applications such as WhatsApp or BBM. Given these results, it is not surprising that 100% of the interviewees use the Internet often.

3. Results

The findings derived from the study are hereby divided into three different sections in order to facilitate their understanding.

3.1. Usage of the Internet

100% of the sample uses the Internet regularly. All of them access the Internet while at home, this being the place from which they access the Internet oftener. University is second in the ranking.

3.2. Usage of text messages

After having asked the interviewees about their habits regarding Internet usage, they were also asked whether they used SMS messages. Only 109 people, less than half of the sample (44%, actually), answered in the affirmative.

As for the reasons for using or not using SMS messaging (Figure 4), only two people gave more than one answer. Both of them had previously answered that they did not use SMS



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messages and chose answers second and fourth among the reasons for not using SMS messages.

As reflected in Figure 4 above, low cost (44% of total answers) and comfortableness (35% of total answers) of SMS messages are the main reasons why people who use this means of communication make use of SMS messages. As for those people not using SMS messaging, the main reason for it, chosen by 68% of them, was that they did not want to pay for the service. In any case, it can be concluded that the most relevant characteristic of SMS messages as far as their usage is concerned is, in one sense or the other, their price.

3.3. Usage of free instant messaging applications

Almost 100% of the sample (246 people out of 247) used IM applications such as WhatsApp or BBM (243 of them frequently). As for the reasons why they made use of such applications (Figure 5), their being free was the most mentioned reason (71.5% of the 246 people who had answered in the affirmative to the previous question). The reason why the total number of answers adds up to more than 246 is that there were some people who chose more than one answer.

As for the only person who denied using IM applications such as WhatsApp or BBM, the reason given for not using them was that he/she did not want to pay for them. Even though the usage of such applications is free, at least 98 interviewees, almost 40% of the users of such applications, had paid to obtain them.

A large majority of the interviewees (212 people: 86% of the sample) used just WhatsApp. Only two people used just BBM, and only one person used just one IM application other than WhatsApp or BBM (such as Line or iMessgr). Another 32 people used both WhatsApp and BBM. This means that almost 99% of the sample used WhatsApp, while only 14% used BBM. These results do not cast any doubt about which one is the most popular IM application among users.

One of the questions in the survey was whether they considered that communicating by means of this kind of applications was more comfortable than talking. Those who answered affirmatively were also asked the reason why (Figure 6). The majority of the interviewees (67%) disagreed with the statement, and only 29% of them answered affirmatively to the question. This result, in accordance with the ones previously reported, implies that, even if most of the interviewees think it is more comfortable to talk than to type, the gratuitousness of IM applications make them gain new users to the detriment of telephone calls and traditional SMS messaging.

Among the 29% of the people who said that using IM applications such as WhatsApp or BBM was more comfortable than talking, 41% of them explained that using such applications is quicker and more effective than talking. 27% of them cited the price argument again.



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Interviewees were asked whether they thought that these applications provide greater intimacy than spoken conversations and whether it was easier for them to express their emotions by means of such applications than in person or over the phone. These questions were included in the questionnaire in order to check whether the common belief that such applications make people become more daring when talking to other people is true (as it would make it easier for them to share their sentiments) or not. Results show that, contrary to the common belief, it is only a minority who considers that applications such as WhatsApp or BBM bring about greater intimacy than talking and make it easier express sentiments or emotions than talking either in person or over the telephone. The said minority goes from almost the 9% who think that such applications bring about a greater level of intimacy, to the more than 27% and almost 24% who prefer them to telephone conversations or to talking in person, respectively, as it is easier for them to express their emotions by means of WhatsApp or BBM messages. On the other hand, the majority who thinks otherwise goes from 86% in the first case to the almost 70% and 75%, respectively, in the second and third cases.

From this point on the study focuses on the frequency of use of IM applications and on the users' attitudes and behaviors that could signal addiction to those applications.

Thus, for example, interviewees were asked whether they used to check the WhatsApp icon, despite the telephone having neither sounded nor vibrated, just to verify that they had not received any messages ("Behavior A"). They were also asked whether they used to check that nothing happened to their phones when they had not received any WhatsApp or BBM messages for a certain period of time ("Behavior B"), that is, whether they thought that if they had not received any messages in a few hours it was because their telephones must have ceased to work or because they must have lost connection to the Internet. Both questions measure the level of anxiety caused by the absence of WhatsApp or BBM messages for a certain period of time. However, it is understood that these two behaviors do not entail the same gravity, as checking the icon of IM applications is considered to be less serious than checking that there is nothing wrong with the telephone.

The being less serious is also evidenced in the difference in the number of people that answer affirmatively to one question and the other. While 72.5% of the interviewees admit they check the WhatsApp or BBM icon without having got any signals of having received a new message, only 33.6% of the interviewees admit they check whether there is something wrong with their telephones if they have not received a message in a few hours.

The greater seriousness of Behavior B with respect to Behavior A is also evidenced by the fact that, in the case of those people who admit performing Behavior B, 85.5% also answer affirmatively to the question concerning Behavior A. This implies a high probability that any person showing Behavior B will also show Behavior A. Essentially, it means that, given Behavior B, the probability of also displaying Behavior A amounts to 85.5%.



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Moreover, 8.5% of the sample said they would start a WhatsApp or BBM conversation every time they had not received any messages in a few hours. Not surprisingly, 100% of this 8.5% had previously stated that they showed at least one, if not both, of the behaviors (A or B) described above. In fact, 38% of this 8.5% admitted performing both Behavior A and Behavior B; while 43% of them only displayed Behavior A and, the other 19%, only Behavior B.

An additional 30% of the sample said they would sometimes start a WhatsApp or BBM conversation themselves if they had not received any messages in a few hours. In this case, the percentage of that 30% of people that said they displayed both Behavior A and Behavior B amounted to 40%. It may look surprising that this percentage is higher in this case than in the one described in the previous paragraph, but it should be noted that since the number of people in the previous case was relatively small (21 people, as opposed to 78 in this case), the error margin was relatively high, and that is why the difference in these percentages is not considered to be relevant to this effect. On the other hand, in this case there is a 14% of the people who do not display neither Behavior A nor Behavior B.

Surprisingly, 63% of the interviewees declared that IM applications are annoying or disturbing when they are trying to concentrate in doing other activities, and another 29% of the interviewees declared that such applications are sometimes annoying. Those two percentages add up to 92%, what cannot but be preoccupying as far as the addiction and anxiety levels that such applications can cause are concerned. And this is so because logic would suggest that if they consider the applications to be annoying they would put them aside while doing other things, but it is not so. This shows certain dependency on needing to know at all moments whether they have received any new messages.

Furthermore, 25.5% of the interviewees recognized having felt stressed due to the need, more psychological than real, for answering WhatsApp or BBM messages immediately. Another 32% recognized having felt stressed because of that same reason sometimes.

When measuring the level of anxiety that not having access to such applications causes users, 23% of interviewees declared they felt annoyed when they suddenly discovered that they had no access to the Internet wherever they were (another 37%, sometimes). And this is why in business sectors such as the tourism sector Internet connectivity is a *sine qua non* condition as far as the client is concerned.

However, 39% of the sample thought they would have no problem if they were left without WhatsApp or BBM: they would not feel isolated if that happened. Another 36%, although they were not categorical over the issue, thought that maybe they would not feel isolated if they were denied access to IM applications.

The same question was asked in a different manner. To this second question 39% of the interviewees said they would not feel disconnected from their social environment, or at



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least not too much, if they were deprived from WhatsApp or BBM in their telephones. Another 36% said that maybe they would not feel isolated from their social environment if that circumstance took place. 5.7% of the interviewees declared they used to always lose hours of sleep due to late WhatsApp conversations. Another 20% said they used to do so frequently or very often; and, another 21.5%, sometimes. 43% of the interviewees said that sending messages was one of the last activities they performed before going to sleep. In addition, 49% of the sample said that checking whether they had received any new WhatsApp or BBM messages was the first thing they did when they woke up in the mornings. 31.6% of the sample did both things.

4. Conclusion

The objective of this study to check whether there exists some kind of addiction to IM applications among young adults and to determine whether such applications can cause anxiety or stress. It can be concluded from the results of the experiment conducted that some level of dependency with regard to cell phones in general and applications such as WhatsApp and BBM in particular does exist among young people. This is evidenced, for example, by the fact that approximately half of them need to take their phones with them even when they go to the toilet; or by the fact that one third of them starts a new WhatsApp or BBM conversation just because they have not received any messages in a few hours; or by the fact that two thirds of them feel their phones have vibrated without that actually having happened.

Furthermore, more than half of them confess having felt stressed because of the need, not real but psychological, to immediately respond to a WhatsApp or BBM message. And then there are those who feel worried when they do not get an immediate response to a message they have sent.

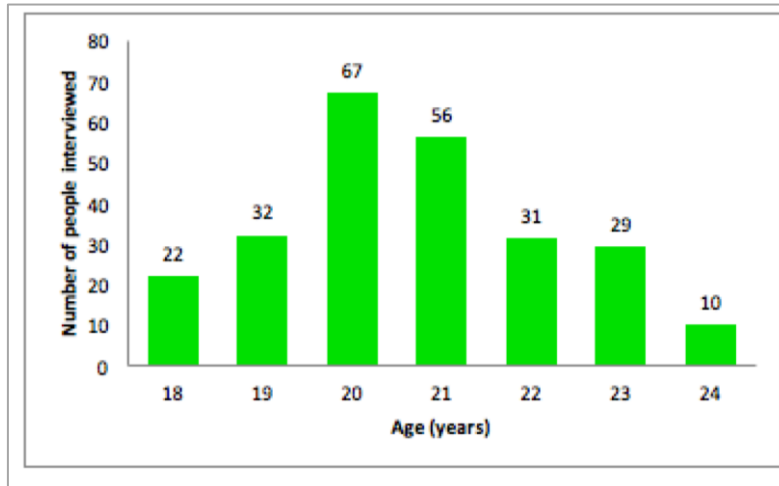
All of the above mentioned makes it evident that IM applications cause stress and anxiety among young adults. The said stress and anxiety are derived from a certain degree of addiction to IM applications.

The perception, general among young people, that people around them use IM applications excessively is considered to be another sign of addiction to such applications. Moreover, one fourth of young adults say they frequently get complaints from people around them because of the attention they pay to their phones. This implies some degree of deterioration of face to face relationships due to excessive use of WhatsApp and BBM. The usage of free IM application affects academic performance and causes stress and anxiety.

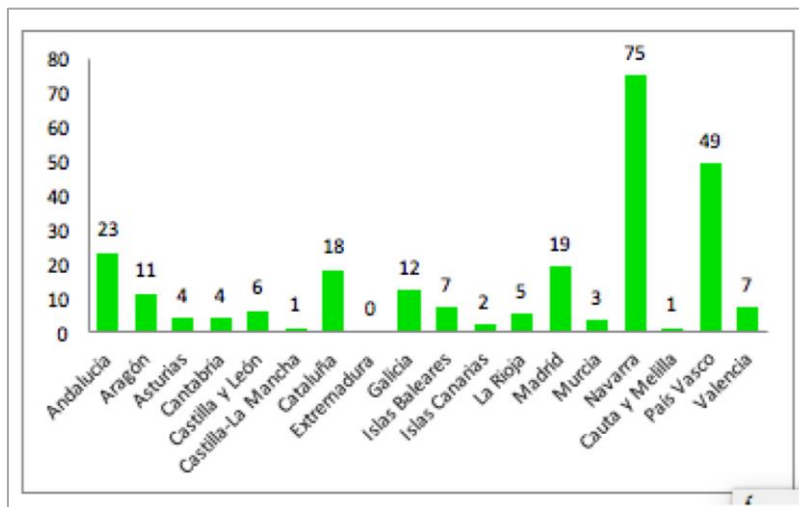


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3.1. GRAPHIC OR TABLE 1



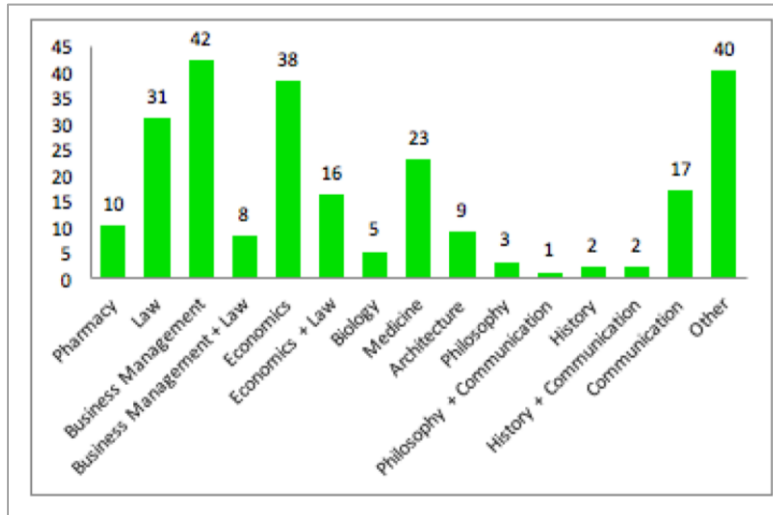
3.2. GRAPHIC OR TABLE 2



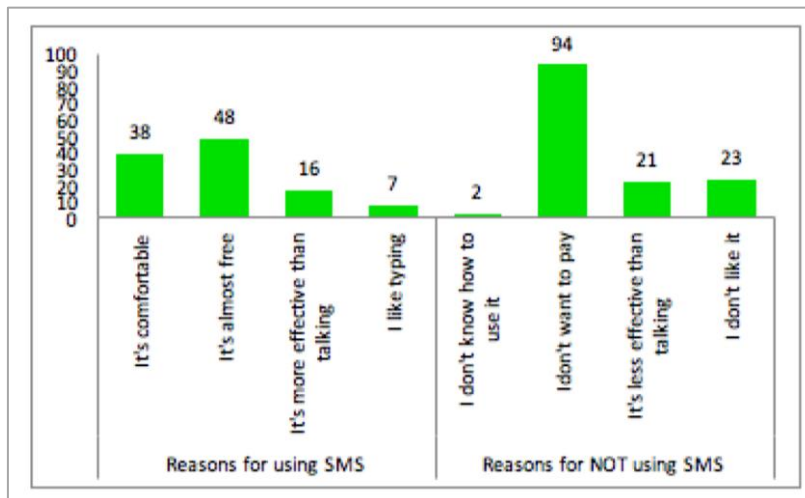


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3.3. GRAPHIC OR TABLE 3



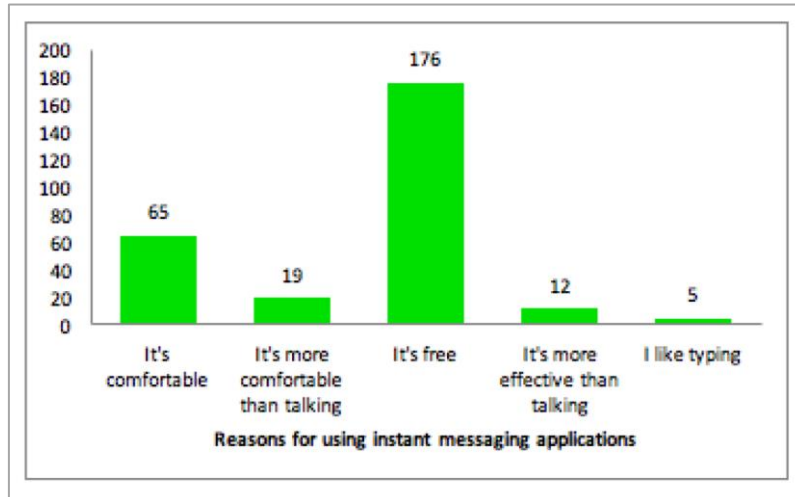
3.4. GRAPHIC OR TABLE 4



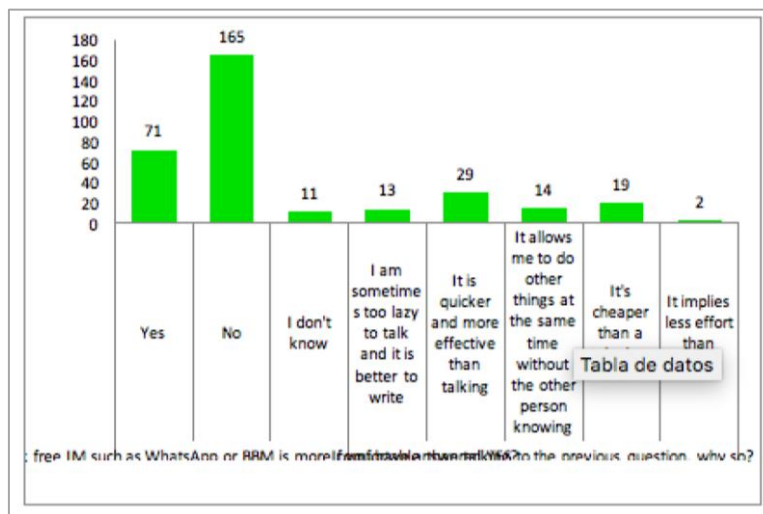


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3.5. GRAPHIC OR TABLE 5



3.6. GRAPHIC OR TABLE 6



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