"The cell phone is free!": A study of the student's propensity to Smartphone Dependence and the teacher's perception in the classroom

https://doi.org/10.56238/sevened2024.016-019

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ABSTRACT

The pedagogical practices of 30 years ago are incompatible with the current reality. The innovations provided using ICTs significantly reduce this time window. In view of this scenario, through a descriptive study, using the sequential mixed method, with quantitative and qualitative data collection, it was sought to meet the objective of the research, which is to analyze what are the effects of the use of the smartphone in the classroom on the student-teacher relationship in the Administration course of the Federal University of Pampa. From the application of the smartphone addiction test – SPAI-BR, the results indicate that about 43% of students can be considered smartphone dependent. With the qualitative stage of interviews with teachers, it was found that this group sometimes presents feelings of uselessness and lack of motivation in the teaching practice. However, they evaluate it as a good teaching tool, although little used in the classroom. Participant observation also showed that students commonly spend more time in the classroom attentive to what happens on social networks than in academic activity, collaborating even more to demotivate the teacher in pedagogical practice. The present work also brings as a contribution an analysis of the difficulties faced by teachers in the development of their activity and also presents the dichotomous reality between teachers and students' smartphones.

Keywords: Higher education, Teaching challenges, Smartphone addiction.

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INTRODUCTION

Education is a process that is constantly evolving. The pedagogical practices of 30 years ago do not apply to today's reality, in the same way that 30 years from now the most modern practices of today will be incredibly obsolete. In this sense, the innovations provided by the use of information and communication technologies (ICT) reduce this time window, so that the teaching of 10 years ago is already very different from the one that exists today. And certainly in 10 years the current practices will be outdated. Cetic (2011) states that several countries, from all continents, have invested in the use of ICTs in the innovation of pedagogical processes in schools.

According to data from UNESCO (2010), investments and the use of ICTs in initial teacher training should be in accordance with the fact that the use of such technologies is already a practice used by most young people in the world. The agency also states that many students have become digital citizens while the training of educators and practices in classrooms, at all educational levels, remain in the twentieth century.

In formal education, these technological devices, especially cell phones, receive some criticism from teachers, in relation to the problems they cause, such as distraction and deviation of the students' focus from the subjects covered in the classroom. Dealing specifically with the use of cell phones, Machado (2012) argues that it is necessary to carefully analyze the issue. According to the author, it may be necessary to establish restrictions on the use of these devices in schools, to allow a better progress of pedagogical actions and to "disconnect" students a little from the frenetic pace of today's life, or it is possible to make this equipment a work element for the development of various educational projects.

Research such as those by Lee (2013), Campenella et al. (2015), Choi et al. (2015), Kim et. al. (2015), Haug et. al. (2015) and Skarupová; Oláfsson; Blinka (2015) point to studies on the influence or impact of the use of technologies on personal behavior and social relationships. However, it is necessary to propose an advance in the depth of these influences, in the context of the classroom. In view of this scenario, this article aims to discuss the use of cell phones in the educational context, based on the following research problem: **What are the effects of the use of smartphones in the classroom on the student-teacher relationship in the Administration course at the Federal University of Pampa?**

Supporting this discussion, the following general objective is obtained: To analyze what are the effects of the use of smartphones in the classroom on the student-teacher relationship in the Administration course at the Federal University of Pampa. And specific: a) To investigate the degree of smartphone dependence of students of the Administration course at the Federal University of Pampa; and b) To analyze the vision and practices of the professors of the Administration course at

the Federal University of Pampa in relation to the use of smartphones by students in the educational context;

The interest in conducting a study on this subject is justified by the fact that the use of smartphones and the resulting dependence on the internet has become a globally recognized public health issue (WORLD HEALTH ORGANIZATION, 1996; AMERICAN PSYCHIATRIC ASSOCIATION, 2014), and the topic has been addressed in different ways in several studies, as shown by the studies by Ming et. al.(2006), Takao et al.(2009), Yen et al., (2009), Binning (2010), Turel and Serenko, (2010); Walsh et al.(2011), Oliveira et. al. (2017). The Federal Government, through the Reconnect program, aims to develop policies to combat the immoderate use of technology, which negatively affects family relationships (BRASIL, 2019).

The insertion of ICTs in education can be an important tool for improving the teaching-learning process. These technologies can generate positive or negative results, depending on how they are used. However, every new technique is only used with ease and naturalness at the end of a long process of appropriation. In the case of ICTs, this process clearly involves two facets: the technological and the pedagogical (Ponte, 2000).

Technology alone is incapable of transforming the educational environment (FERNANDES, MEDEIROS; 2012). For the inclusion of these technologies in education, in a positive way, several factors are necessary, such as those pointed out by Cetic (2011): a) the teacher's mastery of existing technologies and their use in practice; b) that the school be equipped with a good physical and material structure; c) that governments invest in training the teaching staff; d) that the teacher remains motivated to learn and innovate in his pedagogical practice and; e) that school curricula can integrate the use of new technologies.

Next, the theoretical framework will address in a more specific way the concepts related to the challenges of teaching in higher education in the use of technologies and also on the theme of smartphone addiction.

THEORETICAL FRAMEWORK

OS CHALLENGES OF TEACHING IN HIGHER EDUCATION IN THE USE OF TECHNOLOGIES

According to Masetto (2008), the structure in which higher education is organized in Brazil, since its inception, privileges the mastery of knowledge and professional experience, as sufficient requirements to teach in university courses. However, there is a growing awareness that the role of teaching in higher education needs to change, because, as in any other professional activity, teachers need their own specific training, which "is not restricted to having a bachelor's degree, or even a master's or doctor's degree, or even just the exercise of a profession" (MASETTO, 2003, p. 13).

According to Masetto (2003), the main focus of change is found in the teacher's own action, which must cease to be the center of the process and move to a learning scenario in which the learner occupies the centrality. It is necessary that teacher and student become partners and co-participants in the same process (SILVA and CILENTO, 2014).

However, it is expected that, in the digital culture, the teacher knows how to operate with information in hypertext and explore communication networks in interactivity. It is also expected that they know how to develop a pedagogy that contemplates the hypertextual and interactive dynamics of the web, making these communicational dispositions favorable to dialogical and collaborative educational practice, demanding new teaching knowledge that can be developed in the continuing education of teachers in tune with the socio-technical changes that emerge with digital culture (SILVA, 2005, 2014).

The popularization of cell phones and the technological development associated with them have highlighted these devices in actions related to *m-learning* (Schmiedl et al., 2010, Robles et al., 2011, Xie et al., 2011), so that these devices have the potential to make learning more accessible, collaborative and relevant (Unesco, 2012). However, despite the potential that cell phones have in educational terms, the school, in general, does not use them, often choosing only to prohibit their use in the classroom (Seabra, 2013). Seabra (2013) and Machado (2012) analyze problems and possibilities of using cell phones in the school environment, stating that this equipment can collaborate in pedagogical actions, as a research and production tool, overcoming its negative effects.

Despite its limitations, m-learning cannot be defined as *restricted e-learning* , confined to a smaller device. Nor is it a hardware platform. It is a new concept related to learning, characterized by ease of access, mobility and permanent connectivity, possible anytime and anywhere (Caudill, 2007; Traxler, 2007; Parsons et al., 2007). *M-learning* should be studied not only with regard to technology, but also with regard to broad and sustainable development, considering all the transformations involved, such as social and educational transformations based on access to information and knowledge at any time and in any place where the learner, when carrying it with him, permanently, it enhances the opportunities for its use, increasing the chances of learning.

According to Traxler (2007), the first definitions of m-learning were initially centered on technology, basically relating m-learning to learning with the use of mobile technologies. However, more than the simple use of mobile and wireless technologies for learning, it is important to characterize m-learning by what differentiates it from other practices or modalities of teaching-learning. In this regard, a current of literature (Sharples et al., 2007; Traxler, 2007; Winters, 2007; Kukulska-Hulme et al., 2011) points out that m-learning can be characterized by helping to provide: greater control and autonomy over one's own learning - individual-centered learning; learning in context, that is, at the place, time and under the conditions that the learner deems most appropriate;

continuity and connectivity between contexts, such as the possibility of the learner accessing the cell phone to obtain information while moving in a certain area or throughout an event; spontaneity and opportunism, which means bringing the possibility for the learner to take advantage of times, spaces and any opportunities to learn spontaneously, according to their interests and needs

SMARTPHONE ADDICTION

Dependence, according to Orto (2017), is a condition where the individual has an uncontrollable need for a behavior or substance, and the lack of this behavior or substance can cause a state of malaise, anxiety, nausea and tachycardia. The diagnostic manuals for diseases DSM-IV (AMERICAN PSYCHIATRIC ASSOCIATION, 2014) and ICD-10 (WORLD HEALTH ORGANIZATION, 1996) recognize the existence of two groups of dependencies. Substance use dependencies and behavioral dependencies. The World Health Organization (WHO) defines substance use addictions when the individual uses, solely or continuously, substances that are harmful to the body, presenting disorders and disorders in the absence of their use (WORLD HEALTH ORGANIZATION, 1996). When the individual repeats a certain behavior and it generates a reward reaction, behavioral dependence occurs. Games (there may be some type of betting, digital or physical), work, sex, physical exercise, shopping and technology are some of the types of behavioral dependence, according to the World Health Organization (1996) and Oliveira (2012). Griffiths (1996a) and Caplan (2007) defend the idea that technological dependence is a type of behavioral dependence, while Kuss and Griffiths (2012a; 2012b) and Davis (2001) associate it with something beyond behavioral dependence, such as attention-deficit/hyperactivity disorder, depression, and social phobia (PICON, et al., 2015).

New services, technologies and also problems have emerged with the growing number of internet users where, in Brazil, 181 million users were registered by the IBGE (2018) in 2017. The most relevant of the technological dependencies is internet dependence. According to research, this represents a growing problem in health care, providing the individual with essentially emotional complications, such as stress, depression and suicidal tendencies, anger and anxiety (YOUNG and ABREU, 2011; ORTO, 2017; BŁACHNIO et al, 2019).

Internet addiction has been studied in academia since 1995, with the seminal works of Griffiths (1995) and Young (1996). Fortim and Araujo (2013) also state that internet addicts resort to this medium to escape from reality, distract themselves, obtain pleasure or even some kind of emotional support, temporarily relieving their problems. By understanding that, according to Lee et al. (2013) smartphones are an essential part of people's lives, some present, due to not being able to disconnect from their smartphones, problems concentrating on their daily activities. For Picon et al. (2015), the fact that "it is always close to the body and within reach of the hand wherever the

individual is", the various forms of communication that the smartphone allows people also makes room for the smartphone to negatively interfere with individuals (PICON, et al., 2015), so that it is used almost everywhere, such as in bed, bathroom, work, restaurants, etc. (CHOI, 2015). Consequently, these people become dependent on the use of the smartphone.

In this sense, Lin et. al (2014) consider smartphone dependence as a form of technological dependence. Won-jun (2013) states that it is a condition "where the individual feels enslaved by their smartphone and related services". Kwon et. al (2013a), Salehan and Negahban (2013), Mok et al. (2014) directly link smartphone addiction to internet addiction, as they understand the intrinsic nature of the latter. King et al. (2010) state that smartphone addiction can also be called nomophobia, a term created in the United Kingdom whose meaning refers to the expression "*no mobile phobia*" or phobia of remaining without a cell phone, in our translation.

Current studies on Smartphone Addiction have been initiated in order to investigate the impact of cell phone use on students and university students. The studies of Lee at al (2015) point out that the greater the degree of smartphone addiction, the lower the self-learning capacity in South Korean students. In this sense, Lepp, Barkley and Karpinski (2015) point out that American students who use smartphones a lot have lower academic performance, compared to students considered not dependent on smartphones.

STUDY METHOD

The present study is characterized as descriptive, as it seeks to describe and analyze the effects of smartphone use in the classroom on the student-teacher relationship. According to Gil (2010), research of this type has as its primary objective the description of the characteristics of a given population or phenomenon or the simple identification of the existence of relationships between variables and intends to determine the nature of this relationship. Regarding the approach, this research is classified as a qualitative and quantitative study. The qualitative approach was based on an interview with the faculty of the Administration course at the Federal University of Pampa – UNIPAMPA and participant observation in the classroom. Regarding the quantitative approach, it is reported that a questionnaire was applied to the student body of the Administration course of the same University. Silva (1998) defends the use of the two approaches together. For the author, the relationship between the quantitative and the qualitative is complementary, that is, the quantitative is concerned with orders, quantities and their relations, and the qualitative formulates a framework of interpretations for measurements or understanding for what is not quantifiable.

In view of the research approach, it was decided to use the sequential mixed method, starting the collection of quantitative data and in a second stage, qualitative data. According to Tashakkori and Creswell (2007), mixed-methods research is defined as one in which the investigator collects and

analyzes data, integrates findings, and draws inferences using qualitative and quantitative approaches or methods in a single study or research program" (TASHAKKORI AND CRESWELL, 2007, p. 4). In the mixed method, the researcher bases the investigation on the assumption that the collection of different types of data ensures a better understanding of the researched problem (CRESWELL, 2007).

Regarding data collection, three diversified techniques were selected: questionnaire application, face-to-face interview and participant observation. Questionnaires are defined by Gil (2012) as an investigation technique, based on a set of questions, which are applied to people in order to collect information about knowledge, values, beliefs, interests, expectations, present or past behavior, etc. The questionnaire used in this study is the *Smarphone Addition Inventory* (SPAI-BR), developed and validated in Taiwan by Lin et al. (2014). The SPAI scale is based on the CIAS scale, which was developed by Kim et al. (2006). Prepared in English, it consists of 26 questions with answers on the Likert scale, where each alternative is equivalent to a score ranging from 1 to 4, as follows: 1 - strongly disagrees; 2 - moderately disagrees; 3 - moderately agrees and; 4 - strongly agree.

The translation and cultural adaptation to the Brazilian Portuguese language was carried out by Khoury et al. (2017). In this process, the SPAI-BR scale ceased to be of the Likert type and became dichotomous, with answers of the type "Yes" and "No". Its application was non-probabilistic for convenience, considering a population of 351 students, obtaining a return of 104 online questionnaires (via Google forms) and printed questionnaires (collected in the classroom).

Regarding the interview conducted individually with university professors, it can be stated that the interview is a meeting between two people, so that one of them obtains information about a certain subject (LAKATOS; MARCONI, 2007). Lakatos and Marconi (2007) point out that the structured interview, also known as standardized interview, has as its main characteristic the use of a previously organized script. The interview script was prepared by the authors based on the theoretical framework, with the following questions: 1) Teaching time; 2) Sex; 3) Age; 4) Research Area/Focus; 5) How do you feel about the use of smartphones by students in the classroom at times not scheduled by the teacher? 6) Do you think there is a use of the smartphone when used in a guided way by the teacher? 7) Do you think that the excessive use of smartphones in the classroom harms the teaching-learning process? If so, how much does it harm? 8) Do you think that the excessive use of smartphones in the classroom helps in the teaching-learning process? If so, how much does it help? 9) Do you use the smartphone as a teaching tool in the classroom? If so, how often? 10) And how do you use it, give examples?

From a total of 20 effective professors of the Administration course at the Federal University of Pampa, 04 interviews were conducted, and these were recorded and later transcribed for analysis

in the IRAMUTEQ software. From this group, substitute professors and those who are not performing academic activities were excluded

Regarding participant observation, it is clarified that the authors carried out during the teaching internship period of the graduate course, each in their respective classes and class professors, sought to observe the behavior of students in relation to the use of smartphones in the classroom. For Gil (2012, p. 103) "participant observation is the technique by which one arrives at knowledge of the life of a group from within itself".

Interpretative analysis was used to triangulate the data, which according to Severino (2007, p. 59) is "to interpret in a restricted sense, to take one's own position regarding the ideas enunciated, to overcome the strict message of the text, to read between the lines [...], to explore all the fruitfulness of the ideas exposed". The analysis carried out in this research was based on the joint analysis of the collected data.

ANALYSIS OF THE RESULTS

In the analysis of the quantitative stage of the work, the students who responded to the survey represent approximately 29% of the total of 351 students of the Administration course, in the day and night shifts. Table 1 presents the quantitative of the responses collected.

Table 1 - Responses to the *Smarphone Addition Inventory* (SPAI-BR) questionnaire

Alternative	YES	NO
1. I've been told more than once that I spend too much time on my smartphone.	56	48
2. I feel uncomfortable/anxious/restless when I don't use a smartphone for a certain period of time.	45	59
3. I think I've been staying more and more time connected to the smartphone.	70	34
4. I feel restless and irritable when I don't have access to my smartphone.	38	66
5. I feel willing to use the smartphone even when I feel tired.	59	45
6. I use a smartphone for longer and/or spend more money on it than I initially intended.	31	73
7. Although smartphone use has had negative effects on my interpersonal relationships, the amount of time I spend on it remains the same.	38	66
8. On more than one occasion, I slept less than four hours because I was using the smartphone.	33	71
9. I have considerably increased the time spent using the	30	74

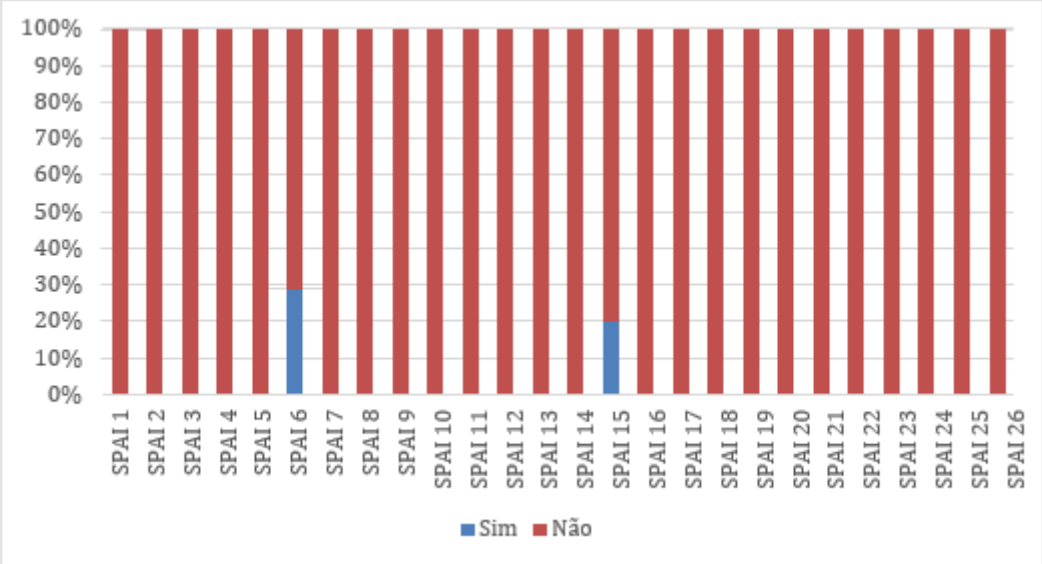
smartphone in the last 3 months.		
10. I feel bothered or down when I stop using the smartphone for a certain period of time.	23	81
11. I can't control the impulse to use the smartphone.	33	71
12. I feel more satisfied using my smartphone than spending time with my friends.	7	97
13. I feel pain or discomfort in my back, or discomfort in my eyes, due to excessive use of the smartphone.	40	64
14. The idea of using the smartphone comes as the first thought in my head when I wake up in the morning.	47	57
15. Smartphone use has had negative effects on my performance at school or work.	21	83
16. I feel anxious or irritable when my smartphone is not available and I miss something when I stop using the smartphone for a certain period of time.	32	72
17. My interaction with my family members decreased because of my smartphone use.	30	74
18. My leisure activities have decreased because of smartphone use.	22	82
19. I feel a great urge to use the smartphone again right after I stop using it.	35	69
20. My life would be boring if I didn't have the smartphone.	31	73
21. Browsing on my smartphone has caused damage to my physical health. For example, I use my smartphone when I cross the street, or while driving or waiting for something, and that use may have put me in danger.	29	75
22. I've been trying to spend less time using my smartphone, but I haven't been able to.	27	77
23. I made smartphone use a habit and my quality and total sleep time decreased.	31	73
24. I need to spend more and more time on the smartphone to achieve the same satisfaction as before.	11	93
25. I can't have a meal without using my smartphone.	16	88
26. I feel tired during the day due to late-night/late-night smartphone use.	16	88

Source: The authors

According to the criteria established by Khoury et al. (2017), of the total number of respondents, 59 participants (56.73%) cannot be considered smartphone dependent, as they marked less than nine "Yes" answers, out of a total of 26 statements. The other 45 respondents (43.27%) can be classified as smartphone dependent, as they marked "Yes" in their answers to nine items or more. The averages found were 8.18 for the "Yes" answer and 17.81 for the "No" answer. The standard deviation found was 5.12, both for "Yes" and "No".

The statements with the highest number of "Yes" signed, with 70, 59 and 56 statements, respectively, were number 3 ("I think I've been staying connected to the smartphone more and more"), number 5 ("I feel willing to use the smartphone even when I feel tired") and number 1 ("I've been told more than once that I spend too much time on the smartphone"). The statements that received the most "No" answers are number 12 ("I feel more satisfied using the smartphone than spending time with my friends"), 24 ("I need to spend more and more time on the smartphone to achieve the same satisfaction as before") and 26 ("I feel tired during the day due to using the smartphone late at night/early in the morning"). These statements obtained 97, 93 and 88 negative responses, respectively. Graph 1 shows the percentages of yes and no answers that each statement obtained.

Graph 1 - Percentages of positive/negative answers per affirmative



Source: The authors

The percentage of smartphone dependents found in this stage of the research, 43.27%, is higher than the 35.66% of smartphone dependents found by Khoury et.al (2017).

For the textual analysis of the 4 (four) interviews conducted with effective professors of the Administration Course at the Federal University of Pampa, the free software "*IRAMUTEQ*" (*Interface de R pour les Analyses Multidimensionnelles de Textes et de Questionnaires*) was used,

which allows statistical analysis on textual corpus and tables of words/individuals, in addition to having an open data source (CAMARGO and JUSTO, 2013).

The semi-structured interview for the teachers was composed of 10 (ten) questions, and the first 4 (four) (teaching time; gender; age; research area/focus) indicate that the majority of respondents are female (3 people), with ages ranging from 27 to 38 years (mean of 32.75, with standard deviation of 5.12) and average time in teaching activity of 6.75 years (SD: 5.05). The respondents' areas of research/focus, in alphabetical order, are: production management, public administration, inter-organizational relations and information systems and technologies.

Teachers are divided on their sentiment regarding students' smartphone use at unscheduled times. Some describe feelings of worthlessness and demotivation, especially when students talk to each other while the content is being explained. Others do not feel bad or have already adapted to this reality, looking for ways to compete with the attractiveness of the internet when preparing classes.

Regarding the use of the smartphone when used in a teacher-guided way, the respondents state that, although this can be a good tool, there is a lack of knowledge of how to extract the full potential. Currently, the smartphone is most used to access the institution's virtual learning environment (Moodle).

The next question seeks to know from teachers if they think that the excessive use of smartphones in the classroom helps the teaching-learning process. The respondents believe that it can be useful, as long as it is under guidance, and that it should be something different from what currently bothers them.

The smartphone is a didactic tool partially used by teachers. When used, the answers point to infrequency of use every two weeks, and this use is used to send communications to students via WhatsApp, search for information about companies to solve exercises or even to carry out directed reading.

These six questions are also examined through the aforementioned software, in search of patterns in the answers collected. The analyses performed on the textual corpus in the "*IRAMUTEQ*" software were: 1) Classical textual statistics 2) Analysis of similarity of words present in the text and; 3) Word cloud.

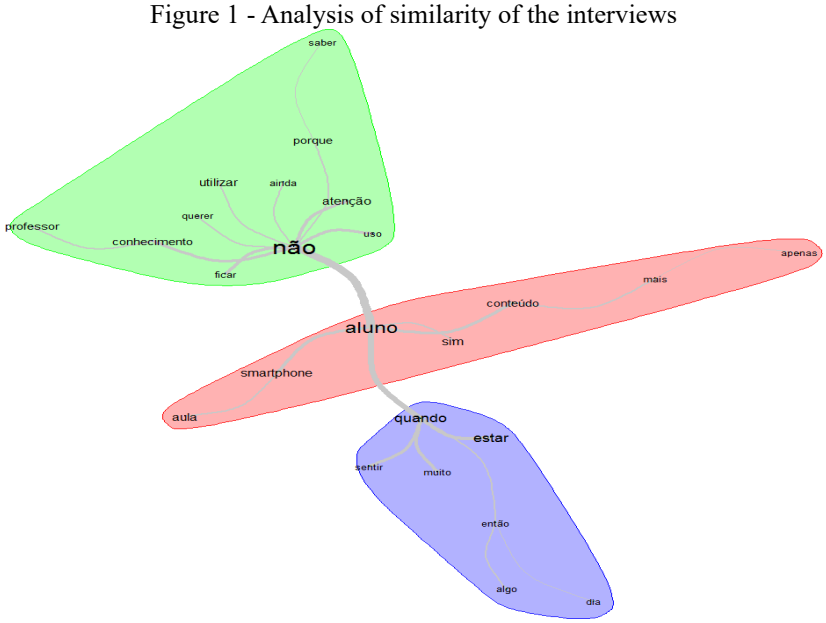
The textual statistical analysis of the corpus presented the following results:

- Number of texts analyzed: 4
- Number of occurrences: 602
- Number of different word forms: 249
- Number of hapax: 164 (27.24% of occurrences and 65.86% of different forms of words)
- Average occurrences per text: 150.50

According to the authors Camargo and Justo (2013), the results identify the textual parts of the interviews, showing the number of words, the frequency and the words that only appear in the text once, called *hapax*, as well as the different forms of words and the average number of words per text analyzed.

Figure 1 shows the analysis of the similarity of the words by interviews.

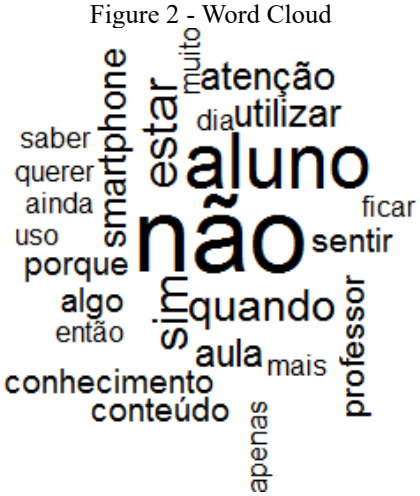
Figure 1 - Analysis of similarity of the interviews



Source: Data obtained by the authors, through the IRAMUTEQ software (2019).

Figure 1 - Analysis of the similarity of the interviewsFigure 1 (graph) points out that the occurrences and similarity between the words and their consequences indicate a connection between them, thus facilitating the identification of the structure of the representation (CAMARGO and JUSTO, 2013). Each color represents a different cluster, from which three large groups can be noted in the texts, being classified and pointed out 4 words of greater frequency in the interviews, It is noticed that the words most used in their discourses were the words "no" and "student", and the word "no" is linked to the terms know, use, attention to use, knowledge, want and teacher and the word "student" is linked to content, Yes, smartphone and class, demonstrating the thought that teachers have of denying the use or use of smartphones and the reticence they have when associating the class with the smartphone, preferring to develop content. Figure 2 shows the word cloud.

Figure 2 - Word Cloud



Source: Data obtained by the authors, through the IRAMUTEQ software (2019).

The same authors also explain that the word cloud obtained, expresses and joins all the words, organizing them graphically according to their occurrence in the text, and the greater its size and density, the more visibility it will have in the word cloud. The word cloud consists of a simple lexical analysis (in relation to vocabulary), and Figure 2 shows the words with the greatest inference in the text, in the order of their relevance: no; pupil; be; when; yes; smartphone; among other words.

Regarding participant observation, it was found that students are extremely connected to their devices. They often use their smartphones in activities unrelated to class, mainly accessing social networks, such as Facebook and Instagram, completely distracting themselves from academic activity. Other students, usually in the evening period, although outside their working hours, "disconnect from class" because they are still solving work issues, through email or communication applications, such as Messenger and WhatsApp. It is also recorded that the teachers observed rarely used the smartphone and, when they did, it was to send material to the students themselves or to consult the watch, a habit also observed among the students.

FINAL CONSIDERATIONS

In view of the results previously analyzed, it can be concluded that the present research achieved the proposed objective of analyzing the effects of smartphone use in the classroom on the student-teacher relationship in the Administration course at the Federal University of Pampa.

It was possible to investigate the degree of smartphone dependence of the students, by collecting responses from 104 of the 351 students of the Administration course (representing approximately 29% of students of the course). Of these, 59 participants (56.73%) cannot be considered smartphone dependent, as they marked less than nine "Yes" answers in their questionnaires, according to the criteria established by Khoury et al (2017), and the other 45 respondents (43.27%) were classified as smartphone dependent, when they marked "Yes" in their

answers to nine items or more. For comparison, Khoury et al. (2017) found 35.66% of smartphone addicts in their studies in 2016.

Regarding the analysis of the teachers' vision and practices, in relation to the use of smartphones by students in the educational context, the interviews took place with 4 of the 20 effective teachers, representing 20% of this group, and show that there is a division in the answers. They recognize the importance of using technology in the classroom on the one hand, and on the other hand, they do not know how to exploit this tool to transform the class and thus "win the battle". Feelings of demotivation and/or worthlessness show that at certain times, the battle for the smartphone is lost.

The students observed are often more concerned with what happens outside the classroom than with the knowledge that the teacher is trying, sometimes in vain, to transmit to him. And for that, screens are the bridge to the outside world. Such practice, at the same time, demotivates and challenges the teacher in the search for solutions to hold the attention of the former, and thus allow the latter to develop their disciplines with quality and objectivity.

As limitations to this study, it is highlighted that the results obtained show the only reality of this portion of the academic community, where those studied are from the large area of applied social sciences. Another limitation found was the low adherence of the faculty to participate in the interviews. At this point, it is believed that one of the factors for low adherence is the period at the end of the semester in which the interviews were conducted.

As suggestions for future studies, it is recommended to carry out this research with other students and professors from other major areas of knowledge. Such research could give a broader overview of the effects of smartphone use in the classroom on the student-teacher relationship. Another suggestion is that, with data from this type of study, new pedagogical practices and new teaching tools can be developed, to hold the student's attention in front of this small Pandora's box.

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