EFFECT OF INTERNET USE ON THE LEARNING AND ACADEMIC SUCCESS OF STUDENTS AT THE UNIVERSITY

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Abstract

Higher education institutions have invested heavily in ICT since the Covid 19 health crisis; University students do not escape this reality. In this context of race to the digital age, and make use of digital tools for their learning.

In the light of this overview, our research aims to test empirically the impact of internet use on student learning and success. To reach our goal, we chose to interview students from the Faculty of Economics, Management Sciences and Business Sciences of the University of Oran 2 (Algeria).

The results show that there is no link between the use of the Internet for study and the use of the Internet for non-academic purposes and its use during classes with students' learning and academic achievement.

Keywords: University students, Internet, Academic success , ICT ,Learning .

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1. Introduction

Since the world health crisis (COVID-19), Higher education institutions have invested heavily in information and communication technologies and Communication (ICT).

The advent of ICTs in education in general and in higher education, in particular, gives new dimensions to learning and development ((Bouderbane & Smakji, 2010). For (Coulibaly, Karsenti, Gervais, & Lepage, 2010) "ICTs are supposed to add value to education ,allow a more effective pedagogy through a better relationship to the knowledge of the learner, They are also an opportunity to rethink and relocate, in time and space, exchanges between people, thereby opening up new avenues for initial and in-service teacher training activities".

Changes in information and communication technologies are largely singled out as the most striking features of the information age, in particular within the framework of the Internet.

Currently, the Internet offers an endless selection of information accessible to everyone and has become a symbol of change. In other words, the Internet has become the most effective source of information, and the most valuable method for sharing information with the masses in a fast, easy, cheap and reliable way. According to Ersoy and Yasar (2003), cited by (Tutkkun, 2011), Internet useaffects the overall life of each individual.

However, university students do not escape this reality. In this race to the digital age, (Polka & Mattia, 2009) argue that one of the most important concepts in this new century is the use echnology for more effective and permanent learning. For (Lahire, 2017)although new technologies have changed the way we study, their excessive use distorts the usual use of these tools. This provides us with an opportunity to raise the issue of next search: **Does the use of the Internet affect learning and academic success of students?**

Several researchers (Attenoukon & al., 2013; Cole, 1996; Michaut & Roche, 2017) confirm that it is hard to say that there is a causal link between Internet usage and student success. Some even trivialize the link.

They point to the fact that technology has little or no impact on learner outcomes (Michko, 2007; Russell, 1999; Karsenti, 2006) and (Karsenti, 2013) say that using the Internet is a key skill to succeed in education.(Gaudreau, Miranda, & Gareau, 2014) Argued that the use of digital has certainly stimulated learning and contributed to the enrichment of lecture courses, but has also increased at the same time the sources of distraction which undermine the educational relationship.

From this perspective, and in light of the literature's link between Internet use and learning, on the one hand, and between the use of the Internet and educational success, on the other hand, there is a need for closer examination of these relations in different countries and at different times, because every culture and every nation is affected in different ways.

In light of this overview, our research is designed to empirically test the impact of Internet use, Students at Oran 2 University, on their learning and academic achievement.

In order to analyze the problem, we took a hypothetical-deductive approach. We first explored the literature on internet use, learning and academic achievement. Secondly, we began an empirical analysis to test the existing relationships.

2. Literature Overview

2.1 Internet use

The Internet is a huge network of computers connected to each other using a language to communicate and exchange, this language is called a protocol. The Internet was born in the United States in the early 1970swhen the ARPA (Advanced Research Project Agency) decided to link its main research centers to share computer equipment, exchange data and mail.

Originally, the web was a kind of giant showcase, where users were in a passive position. Although t the situation has changed since the 2000s thanks to the emergence of innovative interfaces Called "Web 2.0", which refers to "a technological evolution allowing a set of new practices on the Internet" (Lendevrie & al., 2014).It is a real revolution which has made it possible to connecting individuals and multiplying interactions. During the second decade of this century we are witnessing the advent of the expression web 3.0, although it faces a debate between myth and reality.

According to the digital report in Algeria, this was carried out in 2021 on a sample of 44.23 million Algerians, which highlights several indicators and the profound transformation of Algerian society regarding its relationship with ICT. This study reveals that 26.35 million respondents use the Internet (or 59.6% of the population) and that one in two Algerians use social networks, which represents 56.5% of the population surveyed. The social network Facebook remains the most privileged network of Algerians (with 97.9%).

Despite the increased scientific interest in the development of e-learning, we have very few studies that directly address the use of the Internet by students as part of their training. Most of the studies that have addressed this theme focus on how students perceive and evaluate the functionality of the Internet in their educational activities (Vayre & al. 2009).

2.2 The relationship between learners' use of the Internet for pedagogical and its impact on learning and academic success:

Before focusing on the relationship between learners' internet use and learning As well as with academic success, there is a need to better attempt to define and understand the notion of learning and academic success.

The student's learning activity involves a number of cognitive operations that aims to acquire knowledge. These cognitive operations, added to the student's learning, are tools that he will use to perform the academic tasks requested (Tardif, 1992).

Academic success, in general, is based on the objective performance of the act of learning, and refers to specific institutional standards. According to (Deniger, 2004), academic success means the achievement of learning objectives related to the mastery of knowledge specific to each stage of the student's educational journey and ultimately the

achievement of a diploma or integration into the labor market. For (Perrenoud, 2002), academic success is those who meet the standards of academic excellence and progress through the curriculum are successful. Academic results (scores) and achievement of recognition of prior learning (diploma, certificate, certificate of studies) are indicators of academic success. Thus, for these definitions, academic success is primarily the successful completion of an academic pathway.

In the academic context, success means "validating your courses", "taking your courses to the next level" or "validating a diploma" (Paivandi, 2015). In our article, we chose the Academic Achievement Indicator (the semester average), which is generally correlated with the annual average.

The internet revolution has created a new culture in the modes of teaching and learning. Ways of learning, of working but also of teaching have been confronted with innovations. According to Michel Serres (2012) in his book entitled «Petite poucette», he argues that the world is currently experiencing a revolution on the same scale as the invention of writing and printing.

According to some researchers (Conole et al., 2008; Raby et al., 2011), students seem to find Added value in the use of digital in university pedagogy at different levels of learning, communication and understanding, etc. In the same vein, Raby et al., (2011) in their research highlight the role of technology in students' teaching practices. These authors first concluded that students appreciate ICT-based teaching practices in their learning and that the use of ICT is an integral part of their cultures. In addition, as Richer (2004) and Dix point out (2007) ICT integration has a positive and positive impact on learning and metacognition. However, we find little research on the pedagogical integration of ICT in Africa among academics (Attenoukon et al., 2013).

According to Endrizzi (2012) no study provides evidence that the use of digital technology has an impact on learning or even academic success. For this author, the added value of technologies depends on uses. Gaudreau et al. (2013) quote certain behaviors that have positive or negative effects on performance, such as surfing social networks or uses that are not related to courses, which have the effect of diminishing results. As the use of the internet for educational purposes in relation to courses, this is associated with better grades. They also focused on how to use laptops during lectures and tutorials. For some researchers (Kraushaar and Novak, 2010; Sana et al., 2012) the use of a computer for note-taking or for searching for additional information on the Internet is not significantly correlated with academic results. For Dahmani and Ragni (2009) the use of the Internet for studies is positively correlated with the mean obtained.

As for the meta-analyses of Rémi Thibert (2011), show that the impact of digital is moderatesome of them prove that digital is effective for group work. And that the better the studentthe more the digital will benefit him (Goulding and Kyriacou cited by Thibert, 2011).

At the end of this literature review, we will make the hypothesis that the use of the Internet in favor of studies affects the learning and academic success of students.

2.3 Students use of the Internet for non-academic purposes in the classroom and its impact on learning and academia

For Tindell and Bohlander (2012), many students bring their smartphones to class. Students are increasingly using mobile devices, especially the smartphone in class, without anyone knowing if they are using it properly. According to Alava (2013), in addition to their educational uses, the presence of mobile devices in classrooms leads to new behaviors on the part of students; It can be a source of distraction for students as long as it allows instant access to multiple sources of information and activities: social networks, messaging, email, Internet, games,… etc.

A study conducted by the University of LAVAL (2016) states that students who use the most internets in class generally have the lowest marks on exams. In this sense, students expose themselves to time-consuming distractions in progress by using their laptops to surf social networks, watch videos and play games, these activities hinder the learning process. However, other studies suggest that those who use laptops in class also distract and disturb their classmates with a direct view of their screens and cause them to lose the thread of reflections or discussions which could even constitute a source of conflict (Shirky, 2014).Thus, the use of smartphones in class can become a source of distraction for students and even constitute a lack of respect towards the teacher and other students. It can also create an unfavorable or even disruptive environment for teaching. For Duncan et al. (2012), the misuse and compulsive use of text messages, whose content is often innocuous, can have a negative effect on the quality of learning. However, students on their side believe that doing two or three things at the same time does not compromise the quality of their work (Weimer, 2012).

However, several research projects in psychology, cognitive sciences and neuroscience have already was found that multitasking during school work has a significant adverse effect on Learning and student performance. For the University of Chicago (2016), when the People try to do two tasks simultaneously like listening to a teacher and checking their text messages, their brains just can't do it. Their brains must give up one task in favor of another.

In this regard, Ravizza et al. (2014) report that laptops do not improve classroom learning and that, in fact, students would be better off leaving their laptops at home during classes. Although the use of the computer during a course can create the illusion of a richer engagement with the course content, it more often results in increased dispersion on social networks, YouTube videos, instant messaging and other non-academic content. These results form the basis of our hypothesis, which focuses on the negative effect of the use of the I internet for non-academic purposes, particularly in the classroom, on learning and academic success.

3. Methods

The objective of this research is to understand the impact of internet use on student learning and success. To reach our goal, we chose to interview students from the Faculty of Economics, Management Sciences and Business Sciences of the University of Oran 2

(Algeria). This choice was motivated by the fact that it is the segment of the population that is the most users of digital tools.

The questionnaire was sent to students electronically via Facebook groups to facilitate access. We developed two versions of the questionnaire, one in French and the other one in Arabic. Respondents received the questionnaires between the beginning of May and the end of June 2021. Students were asked to measure the use of the Internet on their learning and success on a five-point Likert scale.

We collected a total of 250 questionnaires. Forty-six (46) questionnaires were eliminated twenty-five (25) due to the proportion of missing values and the remaining twenty-one (21) questionnaires did not meet the required profile (respondents were students from other faculties). Thus, the final number of actionable questionnaires is 204 questionnaires distributed as follows:

Table 01: Gender, level of study and respondent department

The Gender	Man	24.5 %
	Woman	75.5%
The level of study	Bachelor's degree	57.4%
	Master's degree	42.7%
The departments	Common border	17.1%
	Economics sciences	11.8%
	Financial Science and Accounting	20.6%
	management sciences	49.5%
	Business Sciences	1%

Source:Authors

The gender distribution of respondents indicates that more than three-quarters of respondents are women, with 154 respondents. About (25%) of respondents are men, 50 respondents. We distinguish that more than half of the respondents (57.4%) are undergraduate students of which 18.6% in the first year, 12.3% in the second year and 26.5% in the third year. The master level represents 42.7% of respondents. The distribution of the sample according to Affiliation departments shows that the largest proportion (49.5%) is that of students belonging to the Department of Management Sciences. Follow-up by science department students Financial and accounting (20.6%) and common students (17.1%). Less than 12% are students in the economics department and only 1% of respondents are from the business department.

These questionnaires were analyzed using SPSS (version 24.0). Based on the Churchill method (1979) which recommends the use of a Main Component Analysis (PCA).This method would require the researcher to define a sample with 5 to 10 times more respondents than there are items introduced in the same PCR (Tounes, 2003).Our questionnaire has a maximum of 07 items. Our sample size is 204 respondents. Using the same approach, it represents **29 times** the CPA with the most items.

4. Paper results and Discussion

4.1. Internet usage by students

Based on the results obtained, we find that more than 90% of students own smartphones (90.7%). Moreover, it is the tool they use the most even during classes. Followed by students who use their laptop (42.7%). In a low frequency we find the desktop with 16.7%. While only 5.9% use the tablet.

Table 02 The Most Used Devices for Connecting

		%
The Most Used Devices to Connect	Smartphone	90.7%
	Tablet	5.9%
	Desktop computer	16.7%
	Laptop	42.7%

Source:Authors

The analysis and discussion of the results of the study aims to provide answers to the study questions. In order to do this, the various field data related to testing the hypotheses of the study are reviewed and all tests and processes that contribute to this purpose are examined.

4.2. Activities carried out on the internet in everyday life

Table 03. Activities carried out on the internet

		%
Activities carried out on the internet	Play online	19.2%
	Surfing social networks	80.9%
	Use email	54.9%
	Search for a job	28.4%
	Send SMS	58.8%
	Listen and download music	47.6%
	Watch movies	51.5%

Source:Authors

4.3. Internet use by students during classroom teaching

Based on the results obtained, we can deduce that the students surveyed use the internet in various activities during classes with different frequencies. Almost 56% of students use the internet to reach social networks. Followed by those who read and send SMS with a rate of (46.6%).Surfing the Internet unrelated to the course represents 39.2% of the

students surveyed. In a low frequency we find students who play games with their smartphones with a rate of 17.6%.

Table 04 . Internet use during classroom instruction

		%
Internet use during classroom instruction	Read or send SMS	46.6%
	Play games on your smartphone	17.6%
	Surfing the Internet unrelated to courses	39.2%
	Reach social networks	56.3%

Source:authors

4.4. Internet use by students for studies

We note that 70.6% of the students surveyed use the internet to do research related to the courses. In equal proportions we identify students who interact with their peers on Facebook groups about the courses (58.3%). despite the infrastructure problems at the faculty, and the lack of access and high-speed connectivity that prevent widespread use of the Internet, Nevertheless, we have observed a frequent use of digital by students as part of their practical group work; such as the creation of digital working groups, more commonly called "Facebook groups", and those who look at their emails (57.3%). Followed by students who regularly consult the form of distance education with almost 45%. Just 25% of students resort to the faculty's YouTube channel and mainly undergraduate students. This is justified by the fact that this new approach has recently been introduced by the faculty primarily intended for students at this level.

Table 5. Internet use for studies

		%
Activities carried out on the internet	Search the internet for courses	70.6%
	View your emails	57.3%
	Using the e-learning platform	44.6%
	Consult the YouTube channel of the faculty	25%
	Interact with students on Facebook groups about courses	58.3%

Source:Authors

4.5. Study of the validity and reliability of measuring instruments

For (Touzani & Salaani, 2000), the validation of measurement scales is an important condition for the quality of research results. However, the most common method used to

analyze scale validation among methods is Major Component Analysis (PCA).Tounes (2003) defines the CPA as a factor structure through the identified component(s) is (are) clearly related to items. Given the size of our sample of 204 respondents. In our work, we use a minimum weight of 0.40 to associate a variable with a factor. In addition to the removal of items with a factor contribution greater than or equal to 0.40 on several factors. In order to facilitate the interpretation of the axes we have operated a Varimax rotation.

Confirmation of the reliability of measurement tools requires verification of key psychometric properties: stability, internal consistency and equivalence (Touzani & Salaani, 2000). According to (Roussel, 2005), the reliability of a measurement instrument refers to its ability to reproduce the same results even if it is administered several times to the same population. As part of our work, we will measure the reliability of the measuring instruments through the Cronbach alpha coefficient. Although there is no "good" rule for minimum values of Cronbach's alpha coefficient (Igalens & Roussel, 1998), some authors (Nunally, 1978; Hair et al., 2010) argue that a minimum of 0.6 can be accepted. We therefore propose to adopt 0.6 as the minimum Cronbach alpha value in our research. Knowing that a scale has good internal consistency when its items have an alpha close to 1.

4.6. The study of the factorial structure of buildings

This construction is operationalized by four dimensions. The first variable focuses on «Internet use in everyday life» through seven items. The second variable tests the use of the internet for studies, with a multiple scale of four items. Composed of four items, this variable refers to the use of the internet during classroom instruction. The last variable tests student learning, with a multiple seven-item scale. The factorial analysis, traced in the graph below, shows that this construction is explained by four components. Indeed, the initial rotation shows that some items expose difficulties. To cope with these difficulties and to make it easier to read the weights of the variables, we considered it essential to establish a Varimax rotation in order to simplify the correlational matrix.

Figure 01 a DiagramVarimax rotation
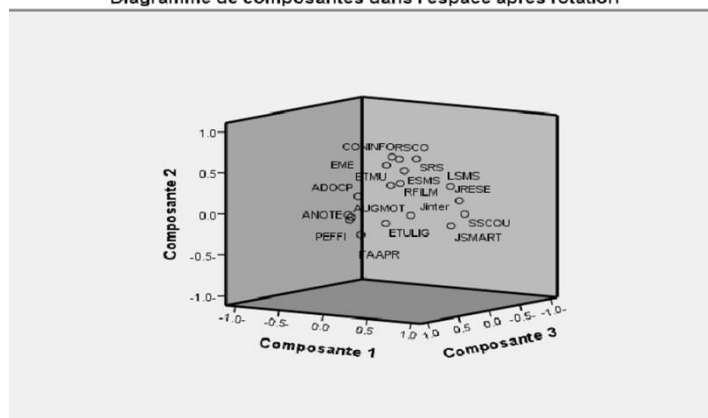
Source: authors

The PCR result after rotation highlights four factors that together restore 57.37% of the total variance. Reading the matrix of components, we notice that the items «job searches», «I participate in exchanges between comrades», «I deposit my notes», «Communicating with my teachers» state a weak correlation with the different axes. We are considering suspending these items.

Table 6. Components matrix after rotation and item deletion

	Axis 1	Axis2	Axis3	Axis4
Play online				0,679
Surfing on social networks		0,645		
Using email		0,538		
Send SMS		0,475		
Listen and download music				0,729
Watch movies				0,658
I'm just looking at information		0,629		
I get course materials		0,652		
Improve my grade			0,460	
Access relevant documentation for my research			0,511	
Increase my motivation			0,677	
Help me plan my academic work effectively			0,589	
Interact with other students online on academic issues			0,460	
Facilitate my learning (course/TD)			0,540	
Read or send SMS	0,571			
Play games on your Smartphone	0,711			
Play online games unrelated to the course	0,804			
Join social networks	0,784			

Source:authors

The comparison of the matrix of types obtained by the last ACP with the composition of the structure reveals that the four factors respectively represent the following dimensions: **the use of internet during the courses, the use of internet in favor of studies, Students learning, Internet use in everyday life.The statistical tests carried out with the constructor allowed us to justify the correlation between the items.** We found a KMO test value equal to 0.703, which corresponds to a mean validity. Also, the value of the Bartlett test is less than 0.01.

In order to confirm our results we will focus in the following on the internal coherence of the four factors.

Table 7. Reliability Test

Axis	Cronbach alpha
Internet use during classes	0.738
The use of the Internet for studies	0.606
Student learning	0.720
Internet use in everyday life	0.610

Source : Authors

The reliability test for the dimensions "Internet use during classes" and "student learning" indicates a satisfactory Cronbach alpha value of **0.791**. This confirms satisfactory internal coherence.

In addition, the reliability score of the dimensions "Internet use in favor of studies" and "Internet use in daily life" is above 0.60. This reveals a score above the threshold chosen ($\alpha > 0.6$). The internal consistency of the items is therefore well checked.

Based on the PCR and reliability test results, we condense the initial scale from 22 items to four dimensions.

5. The impact of Internet use by students

In order to meet our objective, which is the impact of internet use on learning and success, we decided to use linear regression, which aims to verify the causal relationship (independent variable) with effect (dependent variable) between two quantitative variables (Evrad & Mohr, 1997).We have illustrated the results through three indicators: the first is the coefficient of correlation (R) which measures the intensity of the relationship between the variables. The second indicator, the significance threshold (sig), is used to measure the significance of the link and the quality of the fit. The third indicator is based on the Fisher-SNEDECOR (F) test, which tests the equality of two variants by comparing those (Tounes, 2003).

5.1. Impact of Internet Use for Studies on Learning and Academic Success

Table 7. Simple regression of the influence of Internet use in favor of studies in relation to student learning

Introduced variables	The use of the Internet for studies

Dependent variable: Student learning

Analysis of variance

	Ddl	R	R-two	R-two adjusted	F	Sig
The values	202	,049	,11	,016	,25	,05

Dependent variable: Student achievement
Analysis of variance

	Ddl	R	R-two	R-two adjusted	F	Sig
The values	201	,086	,007	,002	1,489	,224

Source: Established by us from SPSS (V24)

The regression analysis shows that the correlation between the use of the Internet for study and the learning of students is unsatisfactory (R = 4.9%). This result is confirmed by the value of R-two which shows that the model returns 11% of the variation expressed in the starting data. The Fisher table gives a value of 3.89 for α= 0.05 for 1 and 202 degrees of freedom. Knowing that the calculated value of **F** (0.25) is much lower. It is thus made clear that there is no relationship between the use of the Internet for study and the learning of students.

Concerning the academic success of students, the regression test shows a low correlation coefficient (R=8.6%). Fisher's F is equal to 1.489 for a sig=0.224. The critical F value is 3.89, at the α= 0.05 threshold for 1 and 201 degrees of freedom. Since the observed value of F is higher than the calculated value of F. We can agree that the use of the internet in favor of studies does not influence the academic success of students.

5.2. Impact Internet use for non-academic purposes on learning and academic achievement

Table 8. Simple regression of the influence of Internet use in daily life in relation to student learning

Introduced variables	**Internet use in everyday life**

Dependent variable: Student learning
Analysis of variance

	Ddl	R	R-two	R-two adjusted	F	Sig
The values	202	,033	,001	,035	,051	,05

Dependent variable: Student achievement
Analysis of variance

	Ddl	R	R-two	R-two adjusted	F	Sig
The values	201	,031	,001	-,004	,187	,666

Source: by Authors from SPSS (V24)

The results of the table indicate that there is no correlation between Internet use in daily life and the learning process. This is confirmed by a near-zero adjusted R-two score (-0.035). In addition to the fact, that the coefficient F observed (3.89, sig. = 0.05) at F calculated for 1 and 202 degrees of freedom (0.051; sig=0.05).

The regression statistics, the characteristics of which are contained in Table 08, show that the correlation between Internet use in daily life and student academic achievement is non-existent. The regression test shows a low correlation coefficient (R=3.1%). Indeed,

the observed value of the coefficient F (0.187 for a sig=0.666) much lower than the value found in the statistical table (F=3.89 at the threshold α= 0.05 for 1 and 201 degrees of freedom).

5.3. Impact of Internet use during classroom courses on learning and academic success

Table 9. Simple Regression of the Influence of Internet Use on Student Learning

Introduced variables	Internet use during classes

Dependent variable: Student learning

Analysis of variance

	Ddl	R	R-two	R-two adjusted	F	Sig
The values	202	,028	,002	,005	,045	,05

Dependent variable: Student achievement

Analysis of variance

	Ddl	R	R-two	R-two adjusted	F	Sig
The values	201	,102	,010	,005	2,116	,147

Source: by authors from SPSS (V24)

The results of Table n° 09 indicate that there is no correlation between the use of the Internet during classes and the learning of students (R=2.8%). The adjusted R-two indicates a low score. This result shows that the model returns 2% of the variation expressed in the starting data. The calculated value of F is (0.045) and the observed value of F (3.89 at the threshold α= 0.05, for 1 and 202 degrees of freedom).Since the calculated value of F is lower than the observed value of F. We can conclude that the use of the internet during classes does not influence the learning of students.

Let's study the impact of internet use during classes on students' academic success. Regression analysis shows that the correlation between these two variables is low (10.2%). The coefficient of linear determination adjusted and also very low. In addition, of the Fisher index which shows that the calculated value of F which is lower than the observed value (F calculated=2.116; sig=0.147; F observed=3.89 at the threshold α= 0.05, for 1 and 201 degrees of freedom).We can conclude that the use of internet during classes does not in any case impact the academic success of students.

6. Conclusions

Acclimatization to new technologies in this new century has become an obligation. Currently, the Internet has become a symbol of change, as it has managed to change the concepts of place and time for education by moving it out of university.

The objective of this research was to analyze the effect of Internet usage on the learning process and academic success among students in the Faculty of Economics, Business and Management Sciences. In order to determine the causal relationship between Internet use and student learning and success, we opted for a hypothetical-deductive approach. This was done by interviewing 204 students.

The results show that there is no link between the use of the Internet for study and the use of the Internet for non-academic purposes and its use during classes with students' learning and academic achievement. Our results confirm those of other studies such as Endrizzi, 2012; Kraushaar and Novak, 2010; Sana et al., 2012. On the basis of these results it is important to raise some necessary realities for future research:

- The first relates to the unequal access of students to ICTs and the limitation of their use for learning, in particular that relating to the possession of computers and Internet modems, except that the massive majority of students own a smartphone.

- The second reality is that academic success can also be explained by other endogenous (pedagogical and academic context) and exogenous factors. (Material conditions, age, educational level of parents, social origin, ethnic origin, previous educational background, etc...).

- A third reality is that the majority of students work at the same time as their study; this affects their learning and academic success. Regardless of the stream and year of study, regular paid work (non-education related employment) decreases the likelihood of fully validating the year (Grignon and Gruel, 1999; Gruel et al., 2009).

- The last reason is the lack of attendance of students in classes, given the pandemic the presence has become not mandatory, and students prefer to be absent. According to (Boyer & Coridian, 2002) a very high level of attendance in class is essential for a successful year.

In conclusion, the Internet is a tool widely used by students as a source of knowledge even if its access is uneven and of poor speed. Nevertheless, it is important to advice and guide students to make the best use of this tool.

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