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**Utilization of Mobile Application in Education and  
Increase of Social Inequalities**

(iPad Case in Engineering Universities)

A research based on an exploratory study

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**ABSTRACT**

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This paper is based on an exploratory study which has been conducted in two engineering universities in France. This research shows how digital universities increase social inequalities in French community. French universities compete for having digital environment everyday more than before and spending so much budget of the region for providing tablet to each student. The observation which has been conducted in these two universities show that not only this digital tool isn't useful for having a better learning conditions of students but also wasting a huge amount of money which can be spent for those students who cannot even equipped to new technologies.

Keywords: iPad utilization, digital inequality, education, social inequality

Universities launch digital devices with the purpose of providing access to all students, regardless of where they live or their social background; they can have access to various information and cultural teaching resources and allowing adaptation of teaching to their needs. According to the existing assumptions that digital could be an important factor in reducing digital inequality (Granjon, 2009) in education. Still it is necessary that the technical, material and intellectual are met so that this access to knowledge and its inclusion have real place. According to PISA, France, family background explains 28% of the variation in educational performance of students.

However, the digital divide seems more similar than 20 years ago. If it was due primarily to equipment or connection of inequality, it now appears that it is the differences in terms of digital culture and customs that are more important. This question would be asked that digital implementation would reduce the digital divide?

Most of researchers are focused on inequality in access ('digital device'), actually inequality in access is important because it reinforces inequality in opportunities for social participation. However, differences in rates of internet access ("digital divide") essentially disappeared between 1994 and 2001 (One and Zavodny's, 2003). We cannot presume that current patterns of inequality will persist into the future. Actually access to technology devices could no longer contribute significantly to social inequality simply because nearly everyone would have it.

François Hollande has announced a new digital plan for the school in 2015. Teaching and learning through new technologies would be an ambitious plan for reducing inequalities of schools in France. That gives an impression that digital is going to be the magic potion which will solve the problems. Alain Chaptal; a researcher who observed the place of technology in education systems of France for years reacts to the announcement of Hollande plan. He claims that this plan is extraordinarily naive in thinking that digital will solve all problems of the school and the experiences of recent years show that it's not working. The real digital revolution is that the digital enriches the course teacher. What counts at the end are what the teachers do and not the technology they use and how they appropriate and adapt to the needs of their students.

An Inequality is a difference in the access of the rare social resources. Social inequality is the result of unequal distribution of resources in a society. Digital inequality (Granjon, 2009) within schemes of uses that are practical translations of forms of social relations based on social injustice. They are differentiated modalities of appropriation produced by deficits of capital or skills, or abilities and practical sense (ways of being and doing) that are internalized products form social domination (DiMaggio, Hargittai, 2002).

Taking to the consideration that "digital divide" as a set of differences constitute social inequality practices. In this perspective, addressing the "digital divide" not only returns to pay attention to the conditions of possibility of access and acculturation to the connected computer, but rather to focus on the logic and social regulations that structure the discounted uses. The concept of "digital divide" presupposes shared ownership of all abilities and ignores the obstacles encountered by some individuals to convert the "opportunity" technology into concrete practical benefits.

This paper explains that how technology is used would be as important as who has access to it. This study is focusing on inequality in education which would be inequality in access to new technologies and also in uses of these technologies (Attewell & Battle, 1999 and Becker, 2000).

Digital inequality represents originally unequal physical access to digital devices and internet in home and work settings studied by U.S. National Telecommunication and Information Administration (1999, 2000, and 2002). This paper studies new form of digital divide (Bolt & Crawford, 2000) which demonstrates unequal access to and not well used of new technologies in education. It seems that they have potential to exacerbate existing inequalities (Warschauer, 2000, 2003). Researchers show that unequal distribution of computer and internet resources issues are being narrowed since 1998 (Kleiner & Farris, 2002) but still exist with regard to quality of computer equipment in schools (Cuban, 2001). Providing online access is a reward to the advanced students in schools which amplify other forms of inequality in education (Schofield and Davidson's, 2004). A review article (Dividing lines, 2001) summarizes those set of divides which explain that the inequalities include not so much access to technology devices but the way they are used to educate students.

## **Method**

The study sought to investigate the availability of, access to and use of new technology device (Tablet) within selected engineering universities in France and the variation among those dimensions by university, education government and student population in relation to students' pedagogical progress for entry into work environment.

The overall methodology is based on an exploratory approach in the study was that of a qualitative method involves comprehensively examining, a context or person and also include multiple field-based observations and semi-directive interviews.

The data gathered in two engineering universities during 9 months (6 months in university A and 3 months in university B) in the year 2014-2015 and 2015-2016 academic year.

There are different units of analysis in the study: a) teachers b) students c) director of education. Focusing on particular teachers and their classes enabled us to directly observe (Postic et de Ketele, 1988) how tablet was being used at the instructional level and let us to compare of related (data collected from the interviewed students and teachers of the same class). According to the collected data and examining additional sources (school technology policies), we were able to identify significant pattern of access and uses of new technology device (tablet) in university.

The table one demonstrates the different situations and number of hours of our observation during six months in university (A) (universities names have been changed for the purpose of anonymity)

➤ Table 1

Situation	Class (Theory)	Class (Practical TP/TD)	Project	Break (short break &lunch time)	Teachers Meetings	Total hours without holidays
Hours	271	280	260	289	10	1100

We did observation in the class during theory lectures (271 hours), Practical lectures (280 hours), project rooms (260 hours), short breaks and lunch times (289 hours) (Colette P. 1982) and also the teachers meetings (10 hours).

The table two shows the number of hours have been passed during three months observation in university B.

➤ Table 2

Situation	Class (Theory)	Class (Practical TP/TD)	Project	Break (short break &lunch time)	Teachers Meetings	Total hours without holidays
Hours	203	110	102	80	5	500

The objective of this observation was to transcribe the experience of students and teachers (utilization of iPad in the class through individual work/group work, interaction of students and teachers with iPad inside and outside of class and the role of iPad during the individual/group projects') in mobile learning university which all that implies subjectivity. This observation was base on those students and teachers who have got experience of using iPad during two years.

Participants: a direct observation (Postic et de Ketele, 1994) has conducted in two engineering universities in France. In the first case study, the university distributed 350 iPads to the students each year since January 2013. Table (3) shows 220 students and 95 teachers were observed in university A during six months (totally 1100 hours)

➤ Table 3

Programs (sectors)	A	B	C	D
Students (Figures)	35	59	55	44
Teachers (Figures)	24	26	22	23

The following table states the number of students and teachers in different sectors in engineering university of B which were observed during three months (500 hours).

➤ Table 4

Programs (sectors)	A (part time students)	B (full time students)
Students (Figures)	15	100
Teachers (Figures)	10	32

Data collection took place over 1100 hours and 500 hours in university A and B. observation days were consecutive except holidays and weekends. The other sources of data were collected not regularly, depending on the availability of principal of department and teachers. Classes were observed for an average of one and half hour and half periods of instruction per teacher and sometimes same class with same teacher but different groups of students. Observations were took place during times when tablet was supposed to get used in teaching and learning. Detailed notes were taken.

Semi-directive interviews: teachers were interviewed indirectly with average time 30 minutes per teacher. These semi directive interviews included questions concerning their personal perspectives and experiences with using tablet in their lectures, out of their classes, their thoughts about tablet and also the role of mobile application in enhancing student learning and academic progression. Two administrators and principals of education department at each university were interviewed as well, usually most directly responsible for developing and implementing instructional technology policy (iPad project). Informal discussion was done with teachers before and after observed classes which were drafted and also all emails exchanged between teachers and responsible of project were considered. Informal discussion were held with students during lunch and break times. These discussions included the questions concerning what students did with tablet (iPad) inside and outside university, their thoughts about tablet and how iPad affects their learning and grades.

Some part of data collection was based on method of floating observation (Colette P, 1982). According to this method, the information is floated to us during the discussion and casual talks of students with each other and teachers as well.

## Result

The result of our empirical is dedicated to an output of data showing utilization of iPad and real usage of ‘students’ and teachers. The following table shows the most common uses of iPad among students during the lectures, small quiz, presentation, and projects. The following chart presents a sample (one hour and half minutes) of their regular uses.

	iPad uses	Facebook	Games	Search Google/websites	Chat Messenger	Watch Pictures/video	Reading Text/ppts/pdf	Take notes
Duration (minutes)	Boys	15	25	10	5	10	5	0
	Girls	25	10	5	15	10	10	5

1.1. Tablet is a good entertainment device for the students: checking Facebook, playing games, searching on websites, chatting with messenger, watching pictures and videos, reading documents and taking notes are the most iPad uses of students during the lectures, group works and breaks. For example in the class girls spend more times (25 minutes) on Facebook and messenger Apps compare to boys (15 minutes) whereas boys pass more time to play games (25 minutes) compare to girls (10 minutes). As we know, a tablet is much more divers compare to a book. Students have free access to Wi-Fi and their tablet is always connected so they go on unauthorized websites. Moving from one link to another or one application to other one leads to distraction and losing the concentration. The students spend average seven minutes out of one and half hour class for reading and even in 7 minutes, iPad doesn’t even support short reading because of its diversity.

The following talks are the most common comments of students concerning the utility of iPad utilizations for example: *Chris: "I prefer coming to class with my laptop, I do everything with my laptop same as others but I think that iPad is just a business and doesn't have any pedagogical aspect"*

*Michael: "iPad is cool, what's wrong with you guys, we play games and we have fun (laughing)". Clement (lunch time): "iPad is very good for the image of the university (attract new students)"*

The above talks present the perception of the majority of students. iPad changed their role but not in a useful direction because they believe that iPad project set up for promoting the

image of the university and doesn't have any pedagogical aspects. Among students, iPad is just a cool and fun device. The most common comments of students concerning the utility of iPad utilization are fun, cool, the best for playing games and distraction.

Students are satisfied of being in an equipped digital university, not because of their progress in learning or educational progress but more because of the image of their university. Two observed universities have medium level of education in France as compare to others but they are well known since they brought iPad in their education system and that would give a better chance to their students in finding jobs after their graduation.

1.2. Utilization of iPad and changes in the role of 'teachers': among average 25 teachers in each program, we noticed that few teachers are engaged to iPad during their lectures. Normally majority of teachers believes that iPad isn't a useful device for their subjects and they don't have enough time to find pedagogical aspects of iPad. They give their lectures with Macbooks even for presenting their ppts. Few teachers use some iPad apps like Nearpod and e-clicker for getting short quiz (10 to 30 minutes quiz) for example:

*Teacher A (teachers meeting, addressing a teacher): "as long as I am using e-clicker (iPad apps) I am aware of understanding level of students concerning my lecture by measuring the percentage of their answers and having control on the knowledge of my students and also collaborate easier with my colleagues"*

*Teacher B (teacher meeting): "I don't have enough time to practice this app and become expert and also I can't lose 30 min of my class for an optional quiz"*

*Teacher D and E (addressing to students): "close your iPads please, I respect you but I don't want to see any iPad on your desk, we don't need that for my subject"*

Relating to the above comments, we realized that iPad makes a lecture more complicated, waste their teaching time. Few teachers are satisfied of their digital class but at the same time they don't use iPad more than 15 minutes in their lectures. The majority feels wasting their time for learning how to use iPad in their lectures. We discovered that teachers are not participating regularly for the meetings; which shows the low level of digital acceptance (Bram et al., 2011).

1.3. Utilization of iPad and changes in the relationships of 'students-teachers': as we discovered in the class, mostly teachers send documents to students by mail and students are

able to download documents and carry them easily with iPad and use their pdfs for editing during the lectures for example Teacher C (class finance, addressing students): *"I sent you the questions by mail download them then answer them"*

Students used their iPad to download the questions, read them and answer them on the paper and few students were using iPad calculator which wasn't really helpful in their finance class. Because of limits of tablet, the teachers won't see its' utility in an engineering university .

1.4. Utilization of iPad and changes in the relationships of "teachers-directors": during five iPad meetings of teachers and responsible of the project, we discovered that very few teachers (6 teachers) are interested to iPad project of this university and even these teachers are not participating regularly for the meetings. In the first three meetings of the second semester, nobody came except responsible of the project and responsible of IT department. In last two meetings we could observe some teacher's perception concerning utilization of iPad for example:

*Responsible of the project: "we have few teachers who participate for iPad meetings!"*  
*Teacher A and B (his first time coming to meeting): "we don't have free time and we have so much meetings sometimes, actually I prefer to come to meetings and learn about an iPad application, use the experience of my colleagues who are expert for that app so we need less meetings but more formal and organized"*

*IT responsible: "we provide 350 iPads to students every year but we are not allowed to get not even one iPad for helping students and teachers in their technical needs, that's a shame"*

The director of iPad project is declaring that only few teachers are engaged with iPad project but still the university invests so many budgets to buy 300 iPads for students of new academic year. After two year running iPad projects, there isn't enough output so the iPad project director is thinking to change to PC or other tablets brand, still running iPad projects for one more year till making a decision regarding change of tablet brand. As per my observation, the teachers and the directors are not going in the same directions and teachers don't seem satisfied with the strategies of the iPad project director. Relating the collected data, this is clear that launching this project doesn't lead the school for having better pedagogical progress.

## **Discussion**

Having equal digital access maybe would reduce the existing French social inequalities in education environment but spending so much money for providing tablets to the students who have almost access to one digital device (computer, laptop) in their educational life would sacrificing the right of other students who never had one digital device. My observation shows that technically, tablet doesn't provide the appropriate needs of engineer students. Tablet is not more than a game device for the engineer students. Observed engineer students make all their projects with their own laptops or their laboratory computers which demonstrate clearly usefulness of iPad for their uses. In this paper, we can see that tablet is a new technology device which doesn't reduce digital inequalities because having in access to the latest new technology isn't enough, knowing the skill and how to use this device would be one of those factors which didn't seen with using tablet in engineering universities.

## **Conclusion**

In itself, the digital does not reduce inequalities. If it is not accompanied by an educational action, the digital increases inequality. Digital device has nothing to do with learning the code. The output of our nine months observation shows that students have more critical perception about utilization of iPad in their university and they think that iPad doesn't provide pedagogical usage for them and iPad not only didn't change their learning environment but also made it somehow more complicated and distracting as well. Tablet is oriented consumption more than the creation of content. They are so complicated to use in the classroom in the creative activities (not productive). This study shows that tablet provides technology opportunities and not actually an practical benefits which won't reduce digital inequalities.

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