THE INTEGRATION OF INFORMATION & COMMUNICATION TECHNOLOGY IN SECONDARY EDUCATION INSTITUTIONS IN MOROCCO: THE EVALUATION OF ACADEMIC ACHIEVEMENT & THE ASSESSMENT OF THE ADMINISTRATIVE MANAGEMENT THROUGH MASSAR SYSTEM

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ABSTRACT: *This theoretical and applied study aims to study the situation of the information and communication technology (ICT) in the education system in Morocco, especially analysis of the remarkable evolution of the use of the ICT in the public secondary educational institutions in the area of Educational Delegation of Fez in the Regional Academy for Education and Training Fez-Boulemane in Morocco, through the selection of ten institutions for secondary education representing 50% of the total of secondary institutions in Educational Delegation of Fez, as well as evaluating the acquisition of knowledge in schools on the basis of the ICT and working on the diagnosis of the role of "MASSAR" Program within the framework of the process of the school measure. Among the results that have been reached at present is the quantitative weakness of the computer network used in high school, and in the limited value of the information technology used by the students, which will enable them to get to school knowledge. As that the recruitment of "MASSAR" Program in administrative and educational process, remains very limited.*

KEYWORDS: Secondary Education, Integration of ICTE, Massar Program, Training, Pedagogical Act, Administrative Management, Leading Change.

INTRODUCTION

In recent years, Information & Communication Technologies have undergone rapidly growing changes and huge influences of digital revolution on people's lives have been noticed in many levels. The social, economical and cultural impact has been significant in every aspect of daily life.

This accelerating advent of Technology caused by the accumulation of discoveries and inventions, are so powerful and influential, that it has led to a space carrying billions of data and numbers spread at a wide scale.

According to a new statistic report of the International Union of Telecommunications (Report ITU, 2014), the United Nations, stated that by the end of 2015 the world Internet users will reach half the population of the globe which is approximately 3.4 billion, while the number of the Internet users in Morocco has reached 17 million in 2014, which constitutes half of its population. The number will double by the end of 2015.

The spread of modern means of communication and Information Technologies in all aspects of modern life pushes us to approach this field and take advantage of all the possibilities offered in order to prepare the learner for the future.

If Information Technology was enforced in all countries including Morocco (Akrim 2010), a reevaluation of the Educational Curriculum should be considered with all the changing conditions of societal development (Knoerr, 2005). Thus, integrating Information Technology in Education has become crucial in both facilitating the learning process and providing a complete pedagogical training for teachers. This will strengthen their personal potential for self-learning, their ability to adapt to changes and their capacity to launch initiatives for a better developed society.

To support this vision, the National Charter for Education and Training, which main objective is to promote education, has called in his tenth Amendment, for the integration of Information & Communication Technologies in Education (Special Committee for Education and Training in Morocco, 1999) which has been integrated in our educational system about ten years ago. The Moroccan Ministry of Education has made considerable efforts to equip educational institutions with multimedia labs, connect them to the Internet and launch the Project GENIE (Genie Administration, 2006).

In this regard, researchers announced, "The communication & media technologies came to the educational field (Bestougeff, 1982) to complement what has been done in the educational field, it apparition has also been an opportunity to develop new pedagogical methods already approved in teaching". (Moudani, 2011).

Despite all of the above, in addition to the large debate about the efficiency of modern Information Technology in Education, to solve issues and problems, educators have always dreamed of a lively school open to technology (Fahim Mostafa, 2005), a dream that has been postponed. The change requires a change in habits and learning new techniques, which is hard to accomplish in a traditional setting. It may collide with a strong and fierce resistance by teachers and administrators who aren't convinced of it importance for whatever reason.

The objective of "MASSAR" is to integrate Information Technology into the educational system, develop working methods in the educational management system, and reinforce the role of governance in the educational act. It does also ensure that the principle of transparency and equal opportunity is respected among students, through individual tracking of each student by teachers or parents.

The MASSAR system will also enable parents to access the school portal for academic results, report cards, schedules, exam dates, and monitor their children progress. With MASSAR, parents will be more involved in the education of their children, and more committed to their

performance in school. MASSAR system is a complete program that provides a full and comprehensive data used by teachers and administrators to manage exams and evaluations.

Because, we believe of the importance to integrate technology in the education system and because of the crucial role of technology in developing societies, as well as our involvement as professors and researchers in many activities and trainings related to technology, we saw the need to research more the causes and offer solutions and recommendations about it.

In this regard, we have tried to shed the light on the fact of integrating information and communication technologies in the educational and administrative action plan and develop their use by assessing and identifying barriers, through case studies performed on teachers and administrators, since they are the core problem in Secondary Education Schools. A good example will be the implementation of MASSAR in the Administrative Management of students and teachers in these institutions, as well as improving the educational Action Plan.

Problems

Several studies have shown that few schools in Morocco use modern technologies (ALOUIDADI, 2013) and the majority of teachers adopt traditional methods of teaching, communication and management, making it hard to diversify their teaching methods which weaken the ability to manage teachers at one hand and the administration on the other hand.

Another factor of the complexity of the educational learning operation is the lack of some experimental tools inside the educational institutions labs and the impossibility to run experiments which hinders the learning process.

Based on what was stated before, and for the following reasons:

- The ranking of Morocco stays low as stated internationally and within the Arab countries in the field of Education.

- The educational learning practices are still under traditional teaching and managerial methods.

- Failure to invest in modern technology known in various fields and especially Education.

- The working methods adopted in educational institutions remain very traditional.

- The non-use of multi-media labs in schools.

- The lack of innovation in the educational system reflects negatively on the quality of education, and the entire pedagogical team including the principal, teacher and student.

Research Question

for all these reasons, the necessity to search the issues behind this slowdown push us to ask the following question: at what extend do educators and managers know the added-value of Information technology in developing the learning process and its impact on academic achievement, psychical capacity of learners and the development of the educational working methods.

- What are the Information Technology structures available in high schools?

- What are the means of Communication available to educators in these institutions?

- What is the amount of coverage allowed for Information Technology for each trainer?

- What are the solutions considered to manage the learner during the educational learning process and how to avoid the lack of tools in computer labs?

- Can the Information Technology play a positive role in developing the educational learning process?

- Have we thought of educating administrators and educators about the importance of integrating mew Technologies into the educational and administrative act?

- What MASSAR Program as an Information system, do to manage all educational and administrative operations?

- How far the application of MASSAR Program is possible inside Secondary education institutions?

RESEARCH METHODOLOGY

In order to answer these questions, three questionnaires were set for principals, teachers and students of Public High Schools as a tool to help gather information and facts along with data and statistics (ASSAF, 1992, 180).(The Ministry of National Education, Department of Strategic, Planning and Statistics, 2014). All data were collected and distributed with the approval of the Regional Academy of Education in Fez-Boulemane. The student's questionnaire has 13 questions; the teacher's questionnaire has 17 questions and the Principal's 14 questions. Some of them are closed and the others are open ones. Most of these questions take into consideration the following points:

- Personal information

- Personal knowledge of Information Technology

- Training in Modern Technologies

- The implementation of Modern Technology in the Educational field

- The MASSAR System and its integration into the educational field

The questionnaire has been carefully drafted taking into consideration a range of factors which affect the integration of modern technologies in education. The questions were simple and the content comprehensive (Jerjaoui, 2010). Before using these questionnaires, they have been tested on a small group of 10 teachers, 5 students and the principal.

Few Public High schools, part of the Regional Academy of Education in Fez-Boulemane - have been selected as a sample representing 50% of total secondary institutions in Fes Academy. Here are the participating high schools:

- Moulay Driss High School

- Ibn Hazm High school

- Ibn Hanbal High school

- Abd Karim Raiss High school

- Salah Eddine Ayoubi High school

- Ibn Rochd High school

- Sidi Brahim High school

- Youssef Ibn Tachfine High school

- Moulay Rachid High school

- Ben Souda High school

This sample included 120 students (representing 3% of these institutions), 40 teachers (10% from these institutions), 10 Principals (representing 100% of principals of these institutions). The percentage of responses has been recorded as following:

- 65% for students

- 85% for teachers

- 100% for principals.

Theoretical Framework

The Information & Communication Technologies are mainly correlated to the second industrial revolution, which relied on electromagnetic technology associated with photography, transistors, integrated circuits, Micro-chips related to computing industry, Fiber-Optics, and Satellites. All these technologies combined together are called information technology, which is represented in many advanced industries (Salam, 2003) such as Computing Industry, Communication Industry, Publishing & Printing Industry…

There are many forms of Information Technology like communication by satellite, radio and broadcasting satellite, digital telephone networks, multi-media computer Hardware, interactive video- conference, CD-ROMs, local and global computer networks, virtual reality, and computerized conferences...etc

The concept behind integrating Information & Communication Technologies in the learning process, is not about adding a new course to the teaching program, it's mostly a tool which adds a new dimension to the learning process, by helping the learner build an effective learning path for him self, look for information, develop his capabilities and stretch his horizons by interacting in many different ways using different sources. Thus, the integration of modern technology is done by the completion of school work as part of the official program (teaching/learning) using technological tools and methods that couldn't be possible with traditional settings inside the classroom (Haddad and Draxter, 2002).

So the principle of Integrating Modern Technology into education doesn't consist of:

- Teaching a new course about computer, its program and applications, it's mostly about using skills and knowledge related to Information & Communication Technologies and integrate them into the learning process.

- Training the apprentice on the use of technology once he graduate and tackles the professional life, because these tools and means develop rapidly, and thus, he will face more advanced systems and applications. The objective in integrating Information & communication Technologies since the early stages of learning is to build skills, behaviors, and a certain way of thinking able to help the apprentice understand technology and facilitate his integration into the digital Technology System.

Integrating Information & Communication Technologies in education is represented in the following practices:

- The use of modern Information & Communication technologies as a way of learning

- The use of computer as an administrative tool in educational institutions

- Providing additional ways for better understanding (Multimedia: text, image and sound...)

- Students are taking more responsibilities, especially in acquiring knowledge, self-evaluation and gaining self-confidence

- Developing his awareness to review, criticize, and support his ability for research

- Providing collective working conditions

- Enrich teaching methods

- Enable learners to be more independent when it comes to looking for information, processing and implementing it using special tools. Doing so, will help them assess themselves, work on their personal development and be responsible towards their training.

- Train learners on collaborative work either with one or within different groups.

- Develop the role of the teacher by adopting many sources, which requires the implementation of new rules of cooperation between teachers and their surroundings.

- The optimal use of programs and systems.

The educational system undergoes a massive use of Information Technology through the abundance of digital resources, programs and systems both on web portals, CD-ROM or DVD's. The ministry of National Education, through evaluating academic achievement and assessing the management of administration, has set various educational programs for an added value both in practices and strategies. A best example is MASSAR program (Department of Information system, 2013).

MASSAR Program

Massar Program is an information system that aims to establish new educational, managerial and communicative ways at established educational institutions through two main components:

- The management of information in schools which consists of tracking each student's progress, managing schedules and social aid operations, part of this aid refers to "REF-ELEVE" system.

- The development of electronic services for the learners such as developing the educational institutions' monograph by creating websites and a Ministry Portal for students and their parents.

Massar Program can also manage all operations carried by both Private and Public schools by Allowing:

- The school to enter students' information starting with registration to the end of school year, or dismissal. It also helps setting schedules for each classroom, students' lists, exam dates, homework and vacations…

- Teachers to enter students' grades directly in the system.

- Students, parents and the administration to check schedules, homework dates, exam grades, students' progress in every course and final quarter report directly from the portal.

- to gather information about employees such as names, birth dates, previous schools they worked in…etc

- manage absences (employees, students, medical certificates, the nature of the absence)

- Control transfers and orientation and evaluate results.

The MASSAR Program help the ministry to stay informed and detect all disparities related to previous practices as showing results to students in advance, whether in public or private sector.

Field and Analytical Framework

The academic achievement and the administrative management in educational institutions in Morocco are evaluated through the integration of Information & Communication Technologies in their program. Massar is an example. It relies on analyzing results of the questionnaires that have been distributed to a certain targeted group of students, teachers and principals; and also data retrieved from official statistics of the National Ministry of Education.

Table 1: indicates the percentage of those who answered the questionnaire

Recipients	Students	Teachers	Directors
Total number of recipients	120	40	10
The number of recipients that responded	78	34	10
Percentage of recipients that responded	65%	85%	100%

The study focuses on a sample of 10 High schools representing 50% of High schools in the Academy of Fez-Boulemane, which is an important indicator of the integration of Information & Communication Technologies in classrooms. The choice of secondary education is far from arbitrary, it is considered as the bridge linking higher education with fundamental education. It' is also the door that opens up to large horizons for learners. We have also recorded important ratios from people that received the questionnaire: 65% for students, 85% teachers and 100% for principals that showed interest. All the data retrieved from these questionnaires were analyzed and processed using special programs SPSS.

To assess these results which show the role of technology in the education system in Morocco, and to develop the use of it inside the educational institutions, evaluate academic achievement and the administrative management into the secondary education in Morocco through MASSAR program, we relied in this study on few factors taken from the Statistics Institute of UNESCO (UNESCO-UIS, 2008b).

The information and communication technology in education in Morocco position

The urge to integrate Information technology into the education system in Morocco starts to take a new turn, given the tight relationship between Information/ communication component and the educational system reform workshops. The introduction of new technologies can reinforce both internal and external efficiency of the entire educational system, and position the student as the main element of the educational process, as already mentioned in the Emergency Plan implemented by the National Education Ministry, 2009-2012).

Since 2006, The Information and Communication Technology in Morocco have focused on a more progressive integration strategy, which relies on infrastructures, trainings and development of digital contents. Many schools were equipped with computers, multimedia rooms, interactive boards, and internet connection available also for educators, administrators and inspectors.

However, the data shown in Table 2 clearly illustrates the big difference between the strategy and the information technology set up in reality within the educational institutions. The ratio of one computer for each student remains very low: the secondary education schools in Fes have registered 120 students for every computer, 14 students for every computer for each school that participated in the study, and 64 students for every computer registered in total schools in the study. The result is very low compared to many African countries (Beche, E., 2013).

As a conclusion, the major obstacles preventing Information & Communication Technologies to be more effective in the educational process in Morocco, is the fact that schools are not technologically equipped enough, the same thing noticed in many African countries (Karsenti,

2009; Collin & Harpper-Merett, 2011),and the worse is the lack of teachers trainings. The percentage of trained teachers is 18% in fundamental training and 33% in continuous education.

Table 2: shows the IT equipments status in the concerned schools

Name of Institution	IT infrastructure				
	Multimedia Labs	Internet connection	Mobile computer trolley	Interactive Whiteboard	Total Students
High school Moulay Idriss	1	Yes	Computer + Datashow	15	359
High school Ibn Hazm	1	Yes	Computer + Datashow	10	1208
High school Ibn Hanbel	1	Yes	Computer + Datashow	18	641
High school Abdelkarim Raïss	1	Yes	Computer + Datashow	15	720
High school Salh Adin Alayoubi	1	Yes	Computer + Datashow	17	544
High school Ibn Rouchd	1	Yes	Computer + Datashow	16	1835
High school Sidi Brahim	1	Yes	Computer + Datashow	14	966
High school Youssef Ibn Tachafine	1	Yes	Computer + Datashow	20	274
High school Moulay Rachid	1	Yes	Computer + Datashow	15	1757
High school Ibn Souda	1	Yes	Computer + Datashow	15	1551

The fact is, Information Technology hasn't been fully integrated in the educational system, we still sees it as a lesson or an independent course that has to be understood and assimilated not only by students but by educators and administrators also. The whole pedagogical process is to be archaic and up to now, IT didn't get to destabilize the teacher/ student relationship, the student relationship with it environment and the learning environment in general.

The Development of IT inside the secondary education institutions

According to the study, the results show that the majority of educators (teachers & principals) are more positive towards using technology, Table n°3 indicates a percentage of 88% of teachers who own computers with an internet connection at home, even though this percentage remains very important, a large number of them don't use computers when they are teaching (further explanation will be shown in Table n°6).

However, teachers taking advantage of trainings have not been keeping up with the new positive direction, which consists of their growing awareness of the importance of technology reflected mostly in the equipment they have at home. The training represents 18% for Basic training and 33% for continuous education as shown in Table 4, this reflects negatively on developing the use of IT in secondary educational institutions which are limited in most cases to personal use or for preparing lessons. The same results were obtained in Greece (Komis, 2010) and Morocco (El Ouidadi, 2013). The results show that in order to develop the use of Technology in the education process, we have to increase the number of teachers trainings to 55%, in addition to equip institutions with enough computers, so they can take advantage of their trainings, which will definitely improve the educational learning process and thus increase its effectiveness.

Table 3: Shows students, teachers and trainers with an internet accessible computer at home

		Students		Teachers		Directors	
	Reply	Yes	No	Yes	No	Yes	No
Computer at home	Nb	43	35	30	4	10	0
	%	55%	45%	88%	12%	100%	0%
Internet at home	Nb	37	41	30	4	10	0
	%	48%	52%	88%	12%	100%	0%

For directors, it seems clear that there is a tangible development in using modern technology inside schools, especially secondary education institutions, and even in their personal use, the study shows that all directors have been equipped with a computer with an internet connection, wireless cell phones, and they have benefited from trainings in Basic education, Genie program and Massar programs.

Table 5 shows 20% of directors are proficient in IT while 70% have an intermediate level. All these elements enabled directors to efficiently manage some administrative operations inside these institutions as shown in Table 8 which we will further explain in details.

Table 4: shows ratios and the trainings offered for students, teachers and directors

Training Information		Students		Teachers		Directors	
	Reply	Yes	No	Yes	No	Yes	No
Course material	Nb	78	0				
	%	100%	0%				
Initial training	Nb			6	28	10	0
	%			18%	82%	100%	0%
Continuing education	Nb			11	23	9	1
	%			33%	67%	90%	10%

(Genie Program)				7	27	10	0
Training in the Massar System	Nb			7	27	10	0
	%			21%	79%	100%	0%

The reason why we focused mostly on students in this study is the effect they have on the integration of IT and modern technologies into the educational process. Now, it's more participative and the student becomes the core focus of this initiative. He has an important role through his interactive participation in lesson preparation and through his self reliance to look for, process and use information during different study stages.

Table 5: shows the degree of mastery of IT by students, teachers and trainers

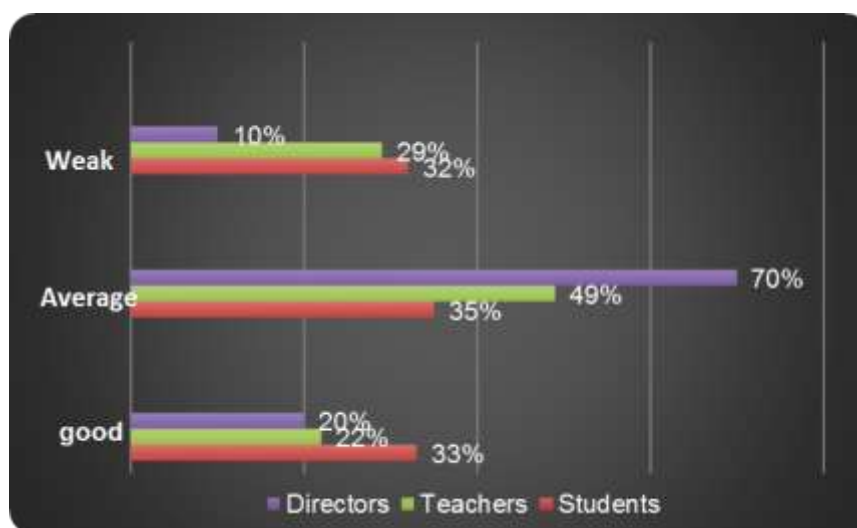| The degree of mastery of Informatics		Students	Teachers	Directors
Good	Nb	26	7	2
	%	33%	22%	20%
Average	Nb	27	17	7
	%	35%	49%	70%
Weak	Nb	25	10	1
	%	32%	29%	10%

Figure 1: the degree of mastery of Informatics

From these results, Table 3 shows that 55% of students own computers and 96% of them are connected to the internet. Figure 1 shows that 33% are proficient in Information Technology and 35% are intermediate while 32% of students don't have any prior knowledge of IT, in addition most of them have IT as course either in the common core or 1st and 2nd year baccalaureate, or in all common levels.

All the indicators of this study were helpful in encouraging students to improve their use of modern technology in their study or personal life.

The evaluation of Academic achievement of institutions of secondary education through the integration of information and communication technologies to the educational process

The Academic achievement is considered as the result of the impact of the organization of information and levels of processing it by the student. Many studies confirm the existence of a functional relationship between academic achievement and the integration of IT in schooling (Richards, 1996), knowing that schooling can't be regarded as an ending goal but as a mean that reinforce creativity, empowerment and equity, also finding qualified trainers and scholars (Hind Alaoui, 2011).

The internet and modern technologies are considered among one of the important techniques that encourages students (Meloni, 1996) to search and acquire appropriate scientific ways that match their way of thinking and get updated on new educational methods such as simulation and virtual reality technologies.

Table 6: shows the internet usage frequency by students, teachers and directors

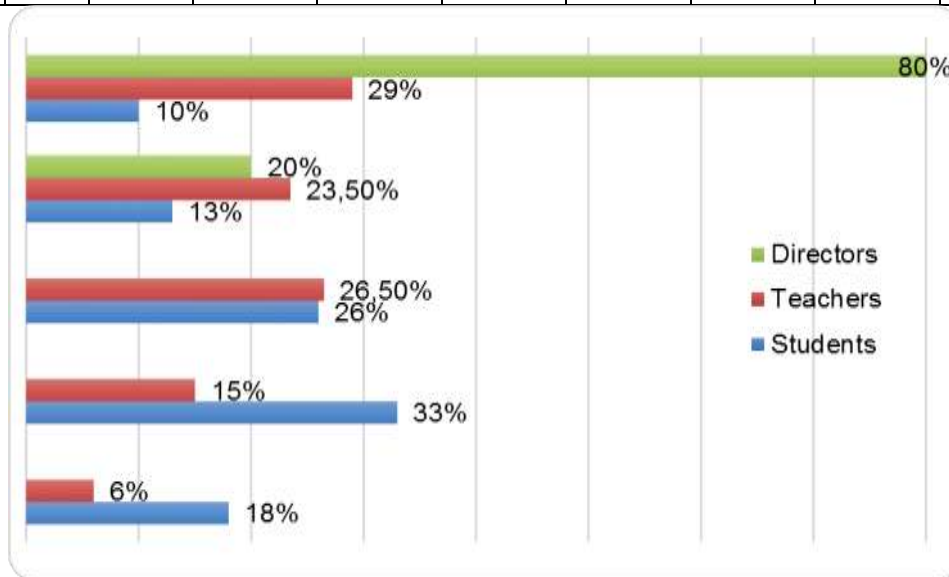| Categories respondents	Internet usage frequency									
	Once a week		twice a week		three times a week		Five times a week		every day	
	Nb	%	Nb	%	Nb	%	Nb	%	Nb	%
Students	14	18%	26	33%	20	26%	10	13%	8	10%
Teachers	2	6%	5	15%	9	26,5%	8	23,5%	10	29%
Directors	-----	-----	-----	-----	-----	-----	-----	-----	10	100%

Figure 2: internet usage frequency

Technology information & communication is also contributing in detecting some of the hidden aspects of the student's personality, refining his skills and developing his esthetic sense and sensory perception, his ability for comprehension and solving problems and developing his perceptions to analyze and take initiatives. Technology can play a leading role in supporting creative initiatives;reinforce student's ability to present small projects by using sequences from

short films or animated leaflets for example. It can also help draw students to classes and fight some aspects of school dropping in some classes.

During this study, we focused on two factors that are linked to the academic achievement and its relationship with IT. The first factor is the frequency of internet use (Alawad, 2005) and the second one is the type of educational websites visited by the student. We notice that the percentage of internet used by the student in Figure 2 ranges between 18% as a one time use in a week, and 10% during every day of the week. We also notice 33% of use twice a week and 26% three times a week, 13% use the internet five times in a week. These ratios are encouraging and we will link them to the type of websites visited by students. Table 3 shows that sites visited by students are divided between social sites with a varying 27% and 45% and pedagogical sites with 5% and 31%. We can conclude that the percentage of students using the internet are encouraging; however we notice that such use is mostly directed towards personal use, which minimizes the positive effects of using technology in academic achievement.

Thus, with the abundance of information nowadays, the teacher has to adopt new roles in teaching students about the negative sides of some media, and outputs and teach them some methods to decode and analyze every information presented to them. In addition, the teacher can help the student acquire some skills to identify media content sources and political, social, commercial and cultural goals behind them, the teacher can also guide the student through the right and effective use of the internet and modern technology to develop his academic achievement (Teeter, 1997). The best example is the use of modern technology by the teacher when he teaches courses. Figure 4 shows that the percentage of teachers using modern technology inside their classrooms ranges between 12% and 32%, mostly scientific courses and some language classes. We can conclude that the teacher is still far behind from his new role which consists in motivating and giving the example of the best student in using technology and communication to develop his academic achievement.

Table 7: shows the sites visited by students using the internet

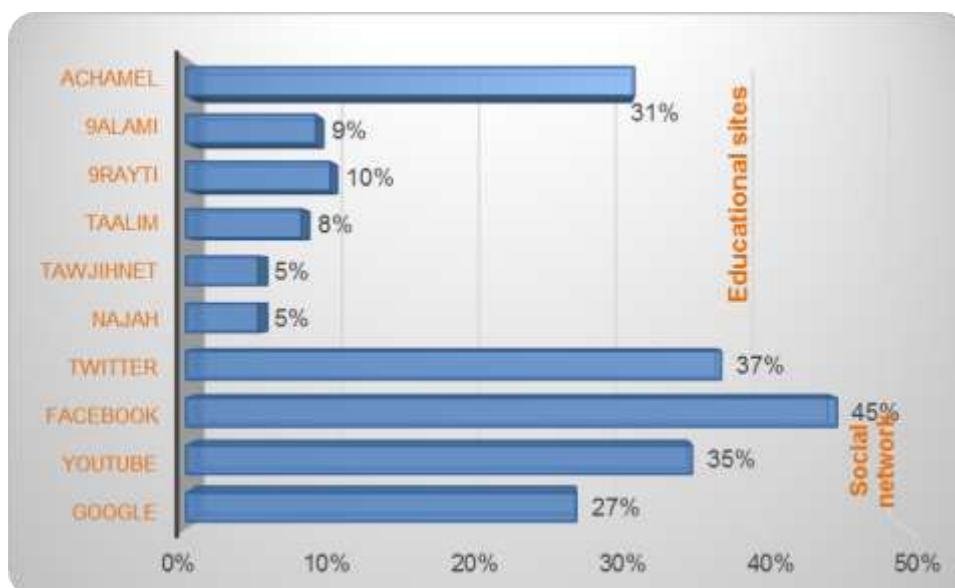| Reply		Social network				Educational sites					
		Google	Youtube	Facebook	Twitter	Najah	Tawjihnet	Taalim	9rayti	9alami	Achamel
Yes	Nb	21	27	35	29	4	4	6	8	7	24
No		57	51	43	49	74	74	72	70	71	54
Yes	%	27%	35%	45%	37%	5%	5%	8%	10%	9%	31%
No		73%	65%	55%	63%	94%	95%	92%	90%	91%	69%

Figure 3: web sites frequented by students online

Table 8: shows the courses that use IT

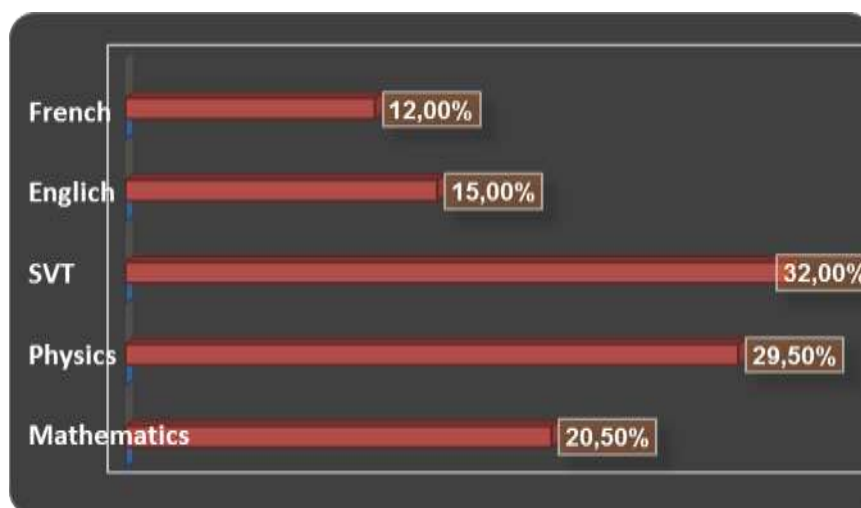| Subjects	Reply	Subjects that requires the use of ICTE by Students		Subjects where teachers use ICTE	
		Yes	No	Yes	No
Mathematics	Nb	21	57	7	27
	%	27%	73%	20,5%	79,5%
physics	Nb	23	55	10	24
	%	30%	70%	29,5%	70,5%
Biology	Nb	25	53	11	23
	%	32%	68%	32%	68%
Philosophy	Nb	15	63		
	%	19%	81%		
English	Nb	16	62	5	29
	%	20,5	79,5	15%	85%
French	Nb	13	65	4	30
	%	17%	83%	12%	88%
History/ Geography	Nb	9	69		
	%	11,5%	82,5%		
Islamic Education	Nb	14	64		
	%	18%	82%		
Arabic	Nb	10	68		
	%	13%	87%		
Translation	Nb	17	61		
	%	22%	78%		

Figure 4: courses where IT is used by teachers

The evaluation of Academic achievement of institutions of secondary education through the integration of information and communication technologies to the educational process

Table 9: shows the operations accomplished through MASSAR system inside institutions

One of the areas addressed by this study is the administrative management in the secondary education institutions through the integration of the MASSAR system «in the educational process.

We know that the administrative tasks of the school director aims to develop the educational act which is the basis for the educational process, because any institution whose ambition is to attain its goals cannot be achieved without a strong and efficient administration that uses modern technologies within its management, it can also create ties and new ways of collaboration between the administrative staff, students, and parents, and create also communication channels within civil society.

The MASSAR system's goal is establish new working methods for management and communication in the educational institutions that are tightly linked to improve the level of education inside these institutions. The study shows its improvement as a new system to manage all educational operations in secondary schools education.

| Operation	Reply	Students		Teachers		Directors	
		Yes	No	Yes	No	Yes	No
Statistics	Nb					10	0
	%					100%	0%
Management of human resources and school time	Nb					3	7
	%					30%	70%
The management of the school	Nb					1	9
	%					10%	90%
Media and communication services	Nb	11	67	6	28	4	6
	%	14%	86%	18%	82%	40%	60%
Educational Affairs Services	Nb	0	78			1	9
	%	0%	100%			10%	90%
Schooling services	Nb					10	0
	%					100%	0%
Evaluation of students	Nb			34	0	10	0
	%			100%	0%	100%	0%
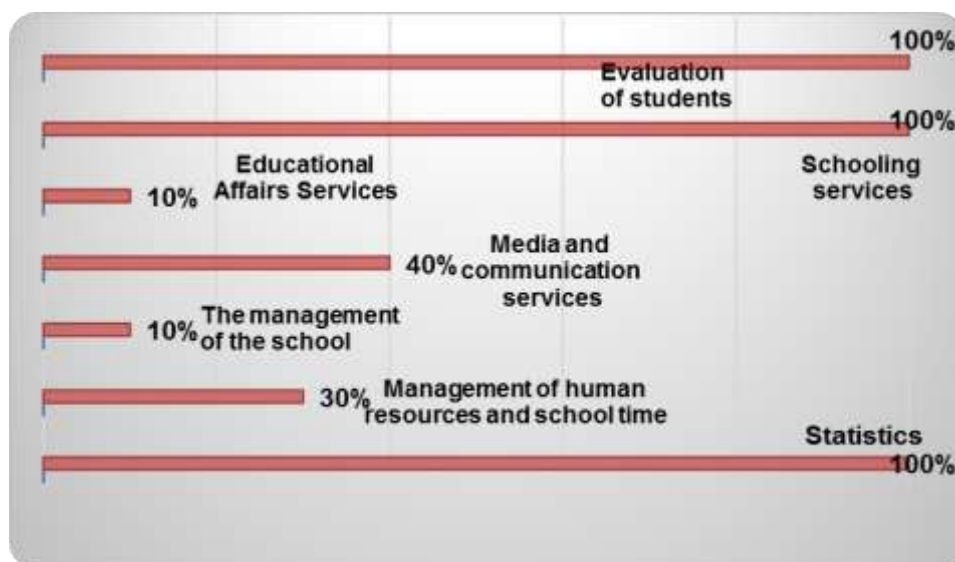
Figure 5: services where IT is used by teachers

In Figure 5, it shows that the operations performed or supervised by the director in these secondary education schools that are involved in the study, using "MASSAR" system, indicates the percentage of these operations which ranges between 100% for grading, schooling services and general census of students inside these institutions. The ratios presented

in this study especially for the Preparatory High schools in the Academy of Fes have shown an increase in services especially those related to the tasks performed by directors using modern technologies of 100%, while some services still have some issues. This progress made through integrating information technology in the educational process by the director decreases greatly with the teacher using MASSAR system in some educational services, 18% concerns the communication service especially between the teacher and students, except for the grading operation which reaches 100% as illustrated in table 8. As for those students who communicate with the administration through the system, the percentage didn't exceed 14%.

According to these results, there is a huge difference between each category: directors/ teachers/students. In general, the percentage of integrating MASSAR system is still low and encounters many difficulties, with the exception of few services that are using it such as grading, and tracking systems. The secondary schools are still far from reaching their goal of creating, through MASSAR system a new collaborative relationship between the administrative and educational staff, students and parents.

CONCLUSIONS

In this study, we aimed to focus on some topics summarized as follow: the position of Information & Communication Technologies in education in Morocco, the development of IT inside secondary institutions, the evaluation of the academic achievement in institutions through the integration of information and communication technologies into the educational process, and the assessment of the administrative management through the integration of "MASSAR" system in secondary education in Morocco.

In this study, we have relied on some factors set by the UNESCO Institute of Statistics (UNESCO-UIS, 2008b) in order to ensure both an adequate use of data taken from the questionnaire.

As a conclusion, the main issues preventing information technology to be influent in the educational process in Morocco is the lack of technological materials and equipments inside secondary schools, the percentage of students with computers reaches 64 students, in addition to the shortfall recorded in the trainings allowed to teachers, 33% is the percentage for teachers that had received training in continuous education. That is why; Information Technology still doesn't have a positive effect in the educational process in secondary schools in Morocco.

For the development of the uses of modern technology, an important percentage of students owning computers with 55% and 98%, with an internet connection, have been noted. In addition to their proficiency of information technology with a 33% rate, we can add to that the number of times they are using the internet and modern technology. All these factors are considered important in pushing students to develop their use of technology both in their studies or personal use. As illustrated in our analysis, most of the sites visited by students are social sites rather than educational and directed for personal use.

Thus, it has been very important to involve the teacher in the whole process, because of the multitude of roles he can play; the teacher can teach the students to be more aware of the negative sides of technology, he can also provide students with the necessary skills to identify media content sources, guide them to the right and efficient methods to best use of the computer and new ways to improve his acquisition of knowledge. The study illustrates that the

preparatory high school teachers don't use modern technology when they teach, the rate using technology ranges between 12% and 32% mostly geared towards scientific courses and languages which leads us to conclude that the teacher is still far from accomplishing his new role to empower and give a good example to the student to better exploit the information & communication technologies in his school performance.

As for integrating MASSAR system into the educational process inside High schools, and especially the responsibilities related to the Director, we have noticed a 100% rate for operations that have been accomplished, while some of the services know some struggle, such as the teacher' related services and the students' contribution remains very low with a percentage of 14%, represented through their communication with the administration and the teachers. It is apparent that the integration of MASSAR system into the educational process is still stumbling with the exception of few services such as grading and Tracking systems, and the secondary schools are still falling behind creating new relationships of cooperation between the administrative and educational staff and students and their parents.

In order for the Information & Communication Technologies to be effectively integrated into the educational process in secondary education institutions, some methods have to be developed through:

- Every one in the educational process has to be involved

- Equip schools with internet connection computers

- Provide more trainings for teachers and the pedagogical staff about integrating technology in education

- Set a new training plan regionally and benefit from qualified people in this field

- Diversify trainings in order to enlarge the circle of people who benefit from these trainings to increase the effectiveness of the services provided

- Reconsider both Basic and continuous education, by starting Information Technology as a module training centers for teachers, directors and inspectors which will deepen the creative pedagogical and communicative aspect of these technologies

- Look for methods to encourage the pedagogical staff to use technology and communication in every field

- Start a new department responsible for updating and renovating work at the administration, it can also offer a continuous training to the staff which enables them to keep up with the rapid pace known in the educational field.

- Help the pedagogic department to develop it methods in management reach the scientific and technological development in diverse human activities.

- Create a new job for technician or engineer in Information technology in every secondary education school responsible for programming and maintaining IT equipments.

- Help organize awareness campaigns to show the importance of Information technology in enriching the learning environment by setting and valuating "Good Practices".

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APPENDIX 1: Student Questionnaire

1. Do you own a computer at home?
   Yes ☐   No ☐

   If yes, is it connected to the internet?
   Yes ☐   No ☐

   If No, do you go to cyber cafe?
   Yes ☐   No ☐

2. How many times in a week do you use the internet?
   1 x/week ☐ 2 x/week ☐ 3 x/week ☐ 5 x/week ☐ Everyday ☐

3. How many hours do you spend on the internet?
   …………………………………………………………………………………

4. Cite some sites you go to?
   ………………………………………./……………………………………

5. Do you use the internet in your studies?
   Yes ☐   No ☐

   If yes, cite some educational sites you visit:
   …………………………………………………………………………………

6. What are the main courses requires you to use the internet?
   …………………………………………………………………………………

7. How good are you in using IT?
   Good ☐   Intermediate ☐ Poor ☐

8. You have studied IT in:
   - Preparatory secondary level   Yes ☐   No ☐

   - Qualified secondary level   Yes ☐   No ☐

9. Does the teacher use IT in his class?
   Yes ☐   No ☐

   If Yes, list some of these classes:………………………………………

To integrate IT in the educational process, the Moroccan National Education Ministry has introduced a new system called MASSAR.

10. What do you know about MASSAR system?
    ………………………………………………………………………………….
    ………

11. Do you use Information & Communication Technologies to communicate with:
☐Teacher   ☐ Administration   ☐students
12. Are you with or against Massar system?
☐Agree: explain………………………………………………………………
☐Disagree: explain……………………………………………………………
13. What are the changes the MASSAR system have brought in both you study and personal life?
…………………………………………………………………………………………
…………………………………………………………………………………………

APPENDIX 2: Teacher Questionnaire

1. Do you own a computer at home?
        Yes ☐   No ☐
    If yes, is it connected to the internet?
        Yes ☐   No ☐
2. Did you have a training in IT (computer)
        Yes ☐   No ☐
   If No, are you ready to have training?
    Yes ☐: explain ……………………………………………………………
    No ☐: explain…………………………………………………………..
3. Define your level in IT?
    ☐Good   ☐ Intermediate   ☐ Poor
4. In your opinion, does the age affect the use of IT in teaching?
        Yes ☐   No ☐

    If yes, list some of the difficulties?
    ……………………………………………………………………………………
5. Do you use IT in your teaching classes?
        Yes ☐   No ☐

    If yes, list some of these techniques……………………………
List some lessons in which you use the computer ……………………………
6. Which learning method do you prefer: traditional? Or using technology?

    ☐Traditional method: explain………………………………………………
    ☐Using technology: explain…………………………………………………..
7. Does your High school have internet?
        Yes ☐   No ☐

    If yes, do you use internet in your High school?
        Yes ☐   No ☐☐ Sometimes
8. Do you use ITC with:
    -   Students Yes ☐ Naïf No, explain…………………………………………
    -   Teachers   Yes☐   No ☐if No, explain…………………
    -   Administration Yes ☐   No ☐if No, explain…………………

9. If you agree with integrating ITC in teaching, what are your suggestions to better develop ITC in teaching?

....

10. How far are you aware of MASSAR's goals?

☐ Good   ☐ Intermediate   ☐ Poor   ☐ No knowledge

11. Did you have training in MASSAR system?
Yes ☐   No ☐

12. Do you think the objectives set by MASSAR are in favor of the teacher?

Yes ☐   No ☐

13. Do you think the goals set by MASSAR will make the teacher's job easier, especially in evaluations?

Yes ☐   No ☐

14. What are the advantages brought by MASSAR
     ☐ Save time
     ☐ Facilitate the access to the students' grades in other subjects
     ☐ Check the students' progress
     ☐ Save grades electronically so there is no risk of loss as it was before on paper

15. What are the disadvantages brought by MASSAR?
     ☐ The need to master IT
     ☐ The difficulty to have a computer with an internet connection
     ☐ Set a limited time to enter grades
     ☐ Others

16. Suggest ways to develop working on MASSAR program?
……………………………………………………………………………

APPENDIX 3: Director Questionnaire

1. How would you define your level in mastering ITC?
     ☐ Good   ☐ Intermediate   ☐ Poor

     Did you have any training in Informatics?
Yes ☐   No ☐

     If the answer is No, are you ready to receive training? Why?
☐ Yes: explain…………………………………………………………
☐ No, explain…………………………………………………………

2. Does your administration have computers used for management?
     Yes ☐☐ No

3. Do you prefer a traditional way of administration management? Or using ITC in management?

☐Traditional management method: explain

………………………………………………………………………………

☐Using Informatics: explain

………………………………………………………………………………

4. What are the advantages and difficulties in using IT in the school administration?

    ………………………………………………………………………………

5. If you agree with integrating ITC in educational & learning institutions, what are your recommendations to better develop our administration? And the mechanisms needed to implement them?

    …………………………………………………………………………………

    ……………………………………………………………………

To integrate IT in the educational process, the Moroccan National Education Ministry has introduced a new system called MASSAR

6. What do you know about the objectives set by MASSAR system?

    ☐Good   ☐ Intermediate   ☐ Poor   ☐ No knowledge

7. Are you with or against Massar system?
☐Agree: explain……………………………………………………………

☐Disagree: explain……………………………………………………………

Do you think the goals set by MASSAR are in favor of the learner?
Yes ☐   No ☐

8. Do you think the goals set by MASSAR will make the teacher's job easier, especially in evaluations?

Yes ☐   No☐

9. What are the advantages brought by MASSAR
    ☐Save time
    ☐Facilitate the access to the students' grades in other subjects
    ☐Check the students' progress
    ☐Save grades electronically so there is no risk of loss as it was before on paper

10. What are the disadvantages brought by MASSAR?
    ☐The need to master IT
    ☐The difficulty to have a computer with an internet connection
    ☐Set a limited time to enter grades
    ☐Others

11. Suggest ways to develop working on MASSAR program?…………