

Evaluation of the Computer Tool Use in Teaching of Scientific Matters at the Secondary Cycle in the Region of Casablanca-Settat

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Abstract: The computer tool has recently become an indispensable tool in education and is considered as an ineluctable teaching aid for teachers and students that take good account of good time management. The aim of this research is to evaluate the current situation concerning the use of computer tools in secondary education in the casablanca-settat region. Indeed, we conducted a survey of 140 secondary school teachers from the Casablanca-settat region, grouping the disciplines (life and earth sciences and physics-chemistry). The results of the investigation after the quiz counting, have shown that computers are trying to facilitate the learning of science subjects in the secondary cycle but the strategy of dissemination and use of computer tools does not yet seem to be widespread in the secondary education of scientific subjects, despite the training and programs of the ministry which try to advance the generalization of informatics in secondary education. Unfortunately, these courses are still limited in the Moroccan education system and must be generalized to all teachers to improve the quality of education.

Keywords: ICT, secondary school, pedagogy, Informatics, Casablanca

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I. INTRODUCTION

Information technology in the educational field has become indispensable. It stimulates the student's pleasure in learning, promotes their intellectual activity and develops their autonomy. Students can learn and become accustomed to Work which they will later find in the company and the administration, it allows the teacher to address the speech otherwise to his students, and ensures a better follow-up of the students and a greater availability for each one. Thus, the integration of information and communication technologies (ICT) into the teaching of physical sciences was studied by H. Akrim et al (2010) [1]. The present specificity of the introduction of computers into the teaching of experimental sciences lies in its nature as a tool of the physicist, chemist and biologist, which has become accessible to the laboratories of high schools and universities in developed countries. [2]. in addition Serizel J., worked on self-training and medical accompaniment using information and communication technology in education [3], then ERRADI M. [4] pointed out that hypermedia in Continuing education service: design of a software for learning the chemistry of CHIMSOL solutions. The aim of this study is to evaluate and establish the current uses of computer science in life and earth sciences and physics-chemistry in the system of secondary education in the region of casablanca-settat in Morocco. For this purpose, we carried out a study evaluating the computer tools in science subjects (life and earth sciences and physics and chemistry) in professors for the current year 2016/2017.

II. METHODOLOGY

We opted for the questionnaires as instruments of data collection, the following themes:

- 1- Use of the Computer
- 2- Use the data show
- 3- Creation of digital courses
- 4- Creations of educational Animations
- 5- Training in ICT

III. RESULTS AND DISCUSSION

140 secondary school teachers of life and earth sciences and physics and chemistry are concerned by this study (Table 1); they were invited to answer the questionnaire whose results are recorded in Figures 1 to 5.

Table 1: Professors concerned by the Study

Matter	Gender		Total
	women	men	
physique-chemistry	14	46	60
life and earth sciences	39	41	80
Total	53	87	140

1. The computer use

The computer is an indispensable tool in the education field; it facilitates the stain to teachers and also allows students to assimilate the courses well. As well, the computer considered as machine to teach comes to assist the teacher in his course or at a meeting of work practices. Beaufils et al, (1991) [6] have shown that the computer can be presented as a "super-overhead projector," since it allows to show, quickly and well, experimental data, of the results of treatment, curves and diagrams. Beaufils and Richoux have stressed the importance of the integration of the computer as a tool for scientific investigation in the teaching of physical sciences at the secondary school [7]. In our situation, we have analyzed and commented on the results obtained with the help of the histograms representing the percentage of the use of the different computer tools available to teachers (Figure 1). 39.29% of professors have good computer skills, 47.1% have moderate computer skills and 13.57% find it difficult to use the computer.

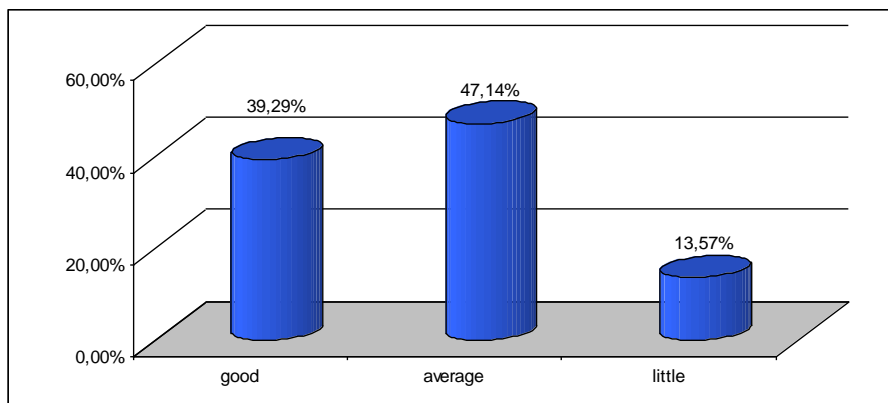


Figure 1: Using the computer

Most of the professors surveyed (89.29%) have a laptop, 42.86% have a pc office, 35.71% of the professors are connected to the internet and 14.29% have other computer tools (figure 2).

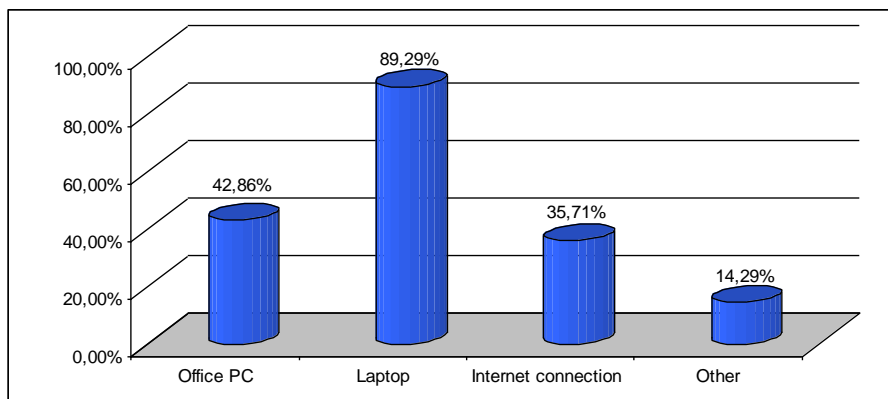
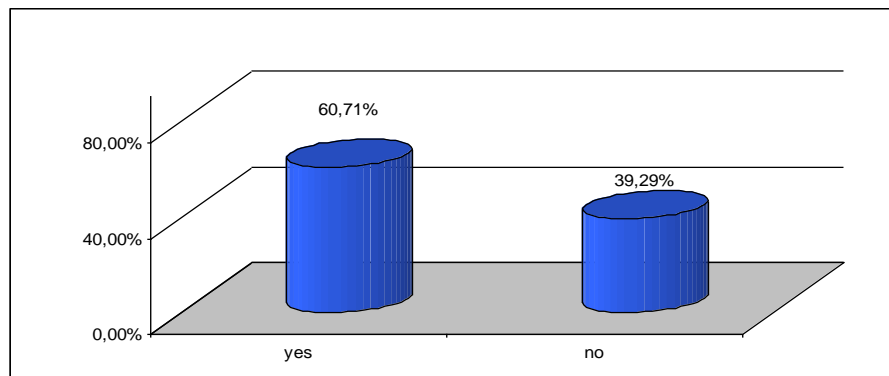


Figure 2: Computer tools used by the professors surveyed

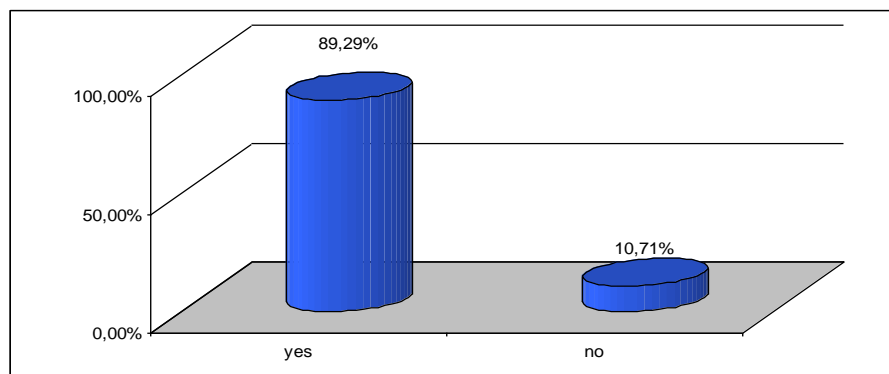
2. Using the data-show

Computer science has become an indispensable tool in teaching. The introduction of computer science in the teaching of experimental sciences, characterized by the use of the computer as a "teaching machine", requires the design and use of software that has automatic acquisition capabilities and tools of numerical and graphical analysis [8]. In class to present the lessons we use the data-show, it allows to see well the documents, figures, animations and simulations etc...60.71% present the courses to the students using the data-show by cons 39.29% do not use the data-show (figure.3).

**Figure.3:** Use of the data show to present the courses

3. Use of computer software to prepare courses

In order to present a digital lesson to the students, the teacher must first prepare it using a set of computer software. It emerges that it is important for the teacher to learn precisely the application of some software so that he can integrate it in its didactic approach, which favours a better adaptation of the software to the didactics of the sciences. Indeed, LEWIS et al. Have proposed pedagogical approaches using computer simulations to develop mental models in learners [9]. The results obtained from our survey show that software (Word, Power Point and Excel) is already widely used by teachers for the preparation and presentation of their course (Figure 4).

**Figure.4:** using software to prepare courses

Microsoft Word is the most used computer software by teachers for the diffusion of their course (89.29%), it is followed by PowerPoint with 57.14% of use and Excel with 7.14% and 10.71% of the professors use other Software (Figure 5).

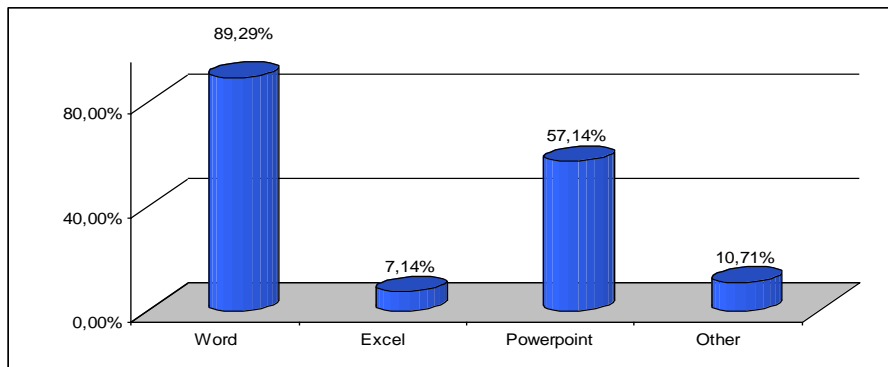


Figure.5: Software used to prepare courses

4. Creations of educational animations

The pedagogical use of flash animations allows the student an aid to understanding, experiments and facilitated manipulations and a better interactivity for education. The Flash animations are multiple and participate in the development of educational projects of teachers. In our investigation 75.71% of professors create their own animations (Figure.6), 68.18% of them use Macromedia Flash for the creation of animation, 22.73% of teachers use Mediator and 9.09% use other software to create their own animations (Figure.7).

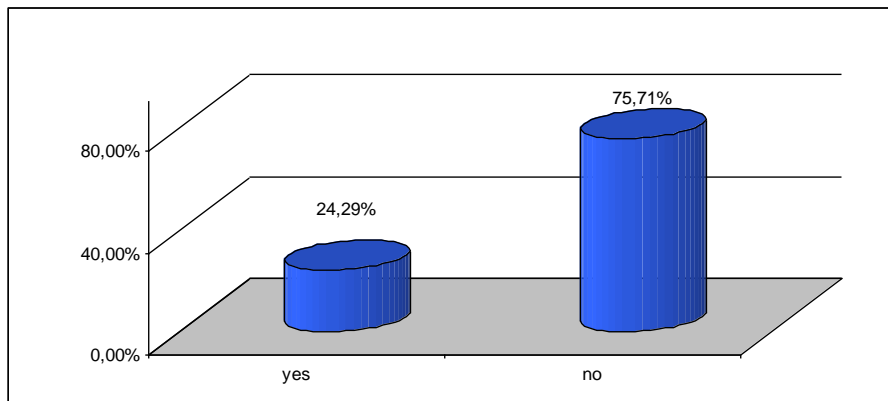


Figure 6: - Creation of educational animations

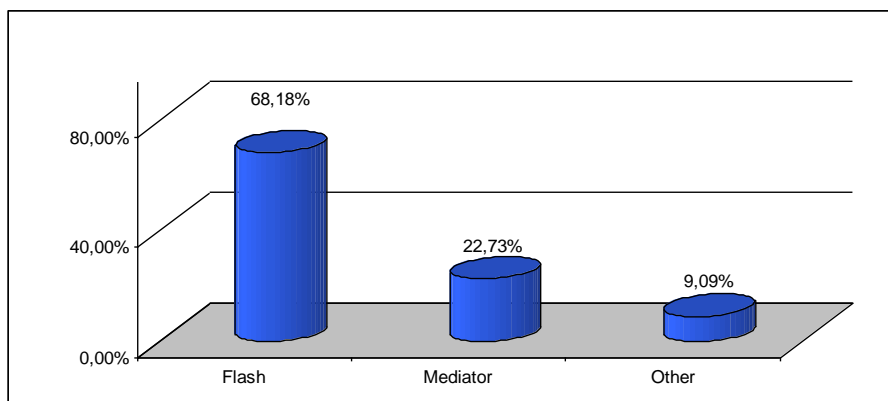


Figure 7: software used for the creation of educational animations

5. ICT training

Information and Communication Technologies (ICT) such as computers and Internet can provide important contributions and support platforms for teachers and learners [10]. The Ministry provided ICT training for teachers as part of the continuing education program. Thus, the GENIE project has generalized ICT in the secondary education system and has aims to encourage training in the ICT field, strengthening the use of ICT in education and training; to develop digital and educational services. And Strengthen structures and infrastructures. The bibliographic analysis shows that the use of ICT in education in general has been the subject of several studies in the sciences of education. Indeed, Cleary et al have analyzed the determinants of the

integration of ICT in class [11]. The majority of teachers claim that they have not received any ICT training; their computer skills are essentially self-directed. In this case, almost all of them wish to benefit from continuing training, the use of certain software and the integration of ICT in the teaching of life and earth sciences, in this constantly evolving field [12]. In our case 64.29% of the respondents were trained in ICT, while 55.56% did not (Figure 8).

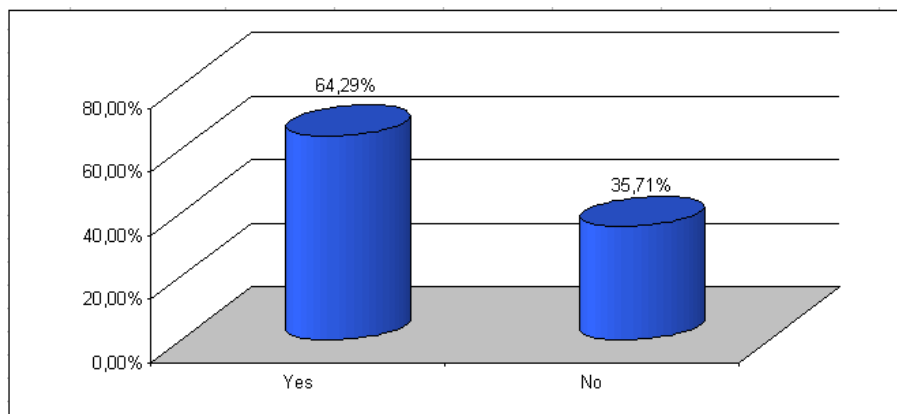


Figure.8: benefit from ICT Training

33.33% of the beneficiaries of the training were very satisfied with the training, 40% were satisfied While 26.67% were not satisfied (Figure 9).

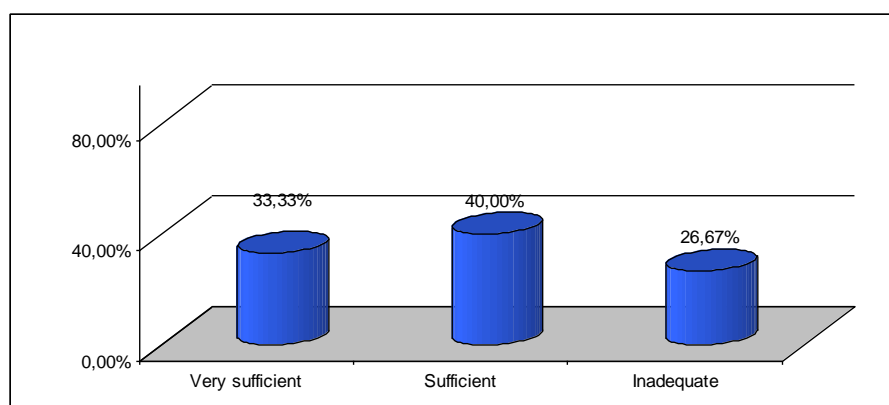


Figure.9: Satisfaction of ICT training

IV. CONCLUSION

In this study we have established a diagnostic and identified the current uses of the information and communication technologies among a sample of 140 teachers of secondary education of Physics Chemistry and life and earth sciences in the region of Casablanca - Settat. In effect, the results obtained show that the integration of the computer tool in secondary education is of great importance at the organizational and operational levels as well as on the learning plan. The results show that the use of ICT techniques is limited in the practice of many teachers in the various scientific disciplines in class. Training in the use of ICT is essential for improving the quality of the Moroccan education system, unfortunately it is still very limited in the Moroccan education system, and it must be generalized to all teachers to improve the quality of education.

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