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The generalization of using the ICT in the work of the physics teachers in Moroccan schools: Obstacle of training courses and solutions

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ABSTRACT: Continuous training courses for the teachers in ICT are essential to integrate it in the practical of teaching. However, teachers in Morocco rarely benefit from continuous training courses, especially in ICT. In this paper, we propose distance learning in ICT based on e-Learning platform. The objective of this distance learning is to generalize the ICT continuous training courses for all the Moroccan teachers of physics sciences. This Training combines by the elements of efficiency effectiveness and flexibility, because our distance learning use some approaches that allow each teacher to preplan their learning activities and collaboration with other teachers, also they can chose any needed courses. The other added value of our distance learning is to offer various advantages: First, updating their knowledge in ICT, Second helping teachers improve their ICT qualifications, Third encouraging teachers to integrate and generalize the use of ICT the their scholar activities.

KEYWORDS: distance training, ICT, physics teachers, continuous training

1 INTRODUCTION

Education and Training is a major challenge for the development of our country's social, economic, cultural. Therefore, they are officially classified in the second national priority after the territorial integrit [1]. Thus, it was necessary to undertake a profound reflection to reform the education and Training systems. The teacher's qualification should be the subject of special attention.

Thence the MEN (Moroccan Minister of Education) launched in 2005 the GENIE program [2] (Generalization of Information Technologies and Communication in Education in Morocco), which aims to improve the quality of education by the integration and generalization of information communication and technology (ICT) in education , based on three important and complementary pillars : The infrastructures pillar, which concerne the equipment of schools with multimedia classrooms connected to the Internet. The content developments pillar, which focuses on the development of digital educational content to support the curriculum. The trainings pillar, which aims to give teachers the necessary foundation for the use of multimedia.

Little research treats the obstacles of the integration of ICT in education in general and in physics sciences in particular, the aims of this integration is to improve quality of teaching and learning (MEN 1999) [3] which is confirmed by several researches.

In this paper, we treat the obstacle of qualification and training of teachers, while the MEN has launched an initial computer training aims to train 230,000 people (teachers, inspectors, technicians, principals ...) durating the period of 2009 – 2013 [4].

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2 BACKGROUND AND PROBLEMATIC

Several changes underway in the Moroccan educational system aim to improve the quality of education and training to respond more effectively to the demands of modernization and the challenges of globalization. Formally, the area of teacher training is one of the keys to any kind of reform such as education system. Also, «Teachers have the right to benefit from a powerful initial training and continuing education opportunities, allowing them to continually improve the level of their educational practice and to best perform their missions»[4].

Teachers training, both initial and continuous, can renew their teaching methods to encourage innovation in education, mobilize elements of knowledge and expertise in their teaching practices. Thus, teachers are encouraged to develop their professional skills and even acquire new skills in order to make their teaching more effective.

Little research has addressed the practices and obstacles to the integration of ICT in the physics sciences in Morocco.. Ahaji, El Hajjami, Ajana, El Mokri et Chikhaoui (2008) affirm that the integration of ICT has a positive effect in teaching and learning in geometrical optics [5], On the other hand the results of Alj and Benjelloun show that 94.4% of teachers surveyed expressed great interest in the use of ICT in their teaching practices. However, only 8% of them integrate ICT in the classroom on a regular basis [6]. While Biaz et al. after a survey shows that the percentage of teachers who have received training in ICT "in the context of continuing training courses" does not exceed 20% [7]. This raises the question of generalization of training to all teachers and leads us to think seriously to have an model to generalized the continuous training courses to all the teachers. Indeed, the part relating to evaluate and assisting beneficiaries after completion of training should be considered. From that we propose an efficient flexible continuous distance learning for teachers of physics science in ICT, this proposition gives the teachers the opportunity to have every needed continuous training courses in ICT to initialize and update their knowledge without the obstacles of time and displacement. Thus, this training aims to encourage the integration of ICT in the physics classrooms.

3 METHODOLOGY

3.1 SAMPLE

In this section we present the results of a recent study (September 2013) with 80 physics teachers belonging to 17 high schools of the Academy of Tetouan Tangier. The response rate to the questionnaire was 96,38%.

The aim was to highlight on the one hand, the idea that physics teachers has concerning to the previous ICT training courses. On the other hand, to detect their vital needs in ICT.

3.2 INSTRUMENT

To do this, a survey questionnaire was sent to physics teachers during the month of September 2013, the questionnaire was in Arabic and it was given directly to respondents.A small accompanying word instructed to inform respondents about the goals and the progress and objectives of the survey was attached to the questionnaire. The questionnaire was constructed with a small number of issues closed and semi-closed type. In total, there were 13 questions.

We present below the main results of our investigation.

4 RESULTS

The results of the questionnaire showed that 46% of physics teachers have not received any continuous ICT training. For other teachers, the length of the majority of these training is very short.

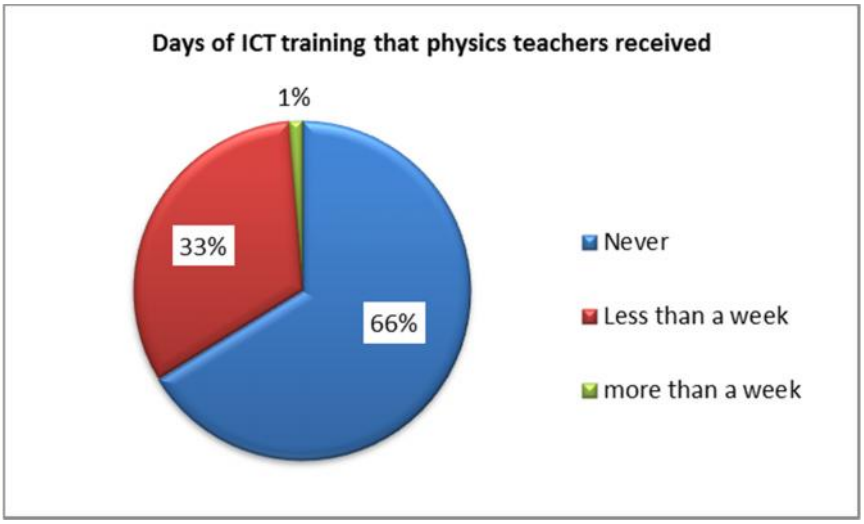

Fig.1. Days of ICT training that physic teacher received

Through the graph above seems clear that more than two-thirds of professors of physics have never benefited from any ICT training, while the remaining one-third of the teachers had benefited from a Short-term training which is less than one week

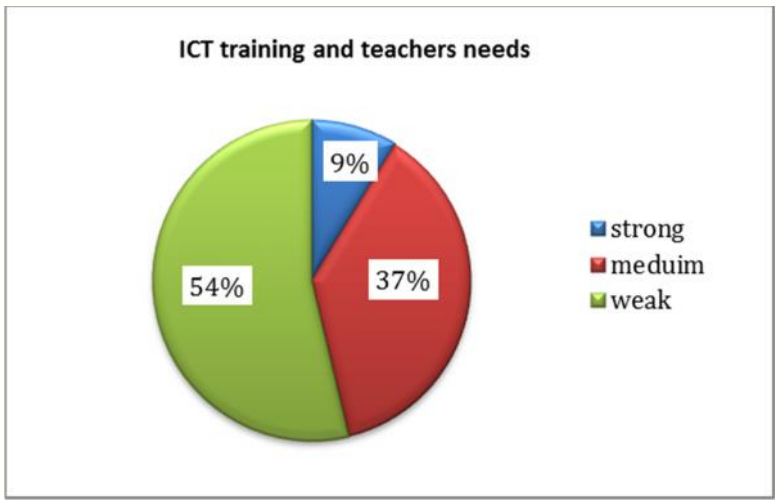

Fig.2 Relation between the previous ICT training and teachers needs

Most of physics teachers who had benifit from the ICT training courses believe that the training followed are not suitable with their specific needs, but only 9% from those teachers are satisfied.

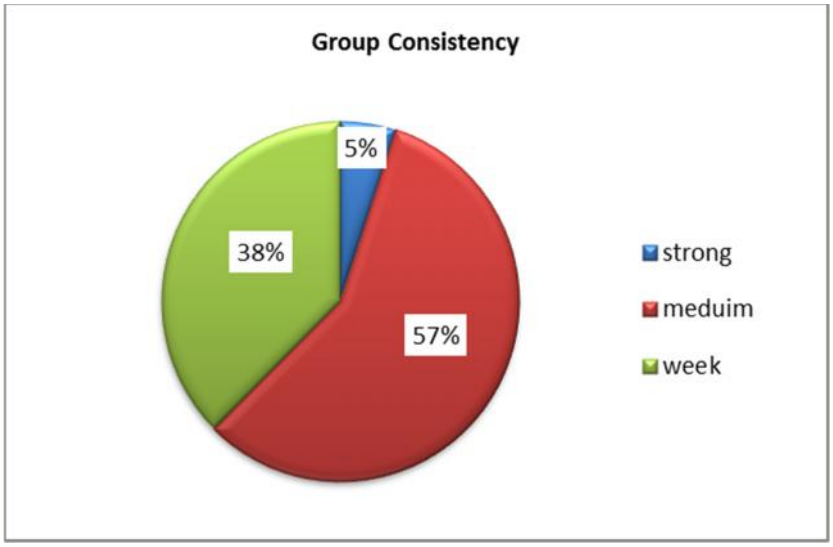

Fig.3 Consistency of the group of physics teachers in the previous ICT training courses

The graph above shows that only 5% of teachers see that the group is consistent in terms of their level of ICT as well as their specialty

The questionnaire also allow the physics teachers to express their needs to the computer softwares and others ICT tools that can be used in their professional practices.

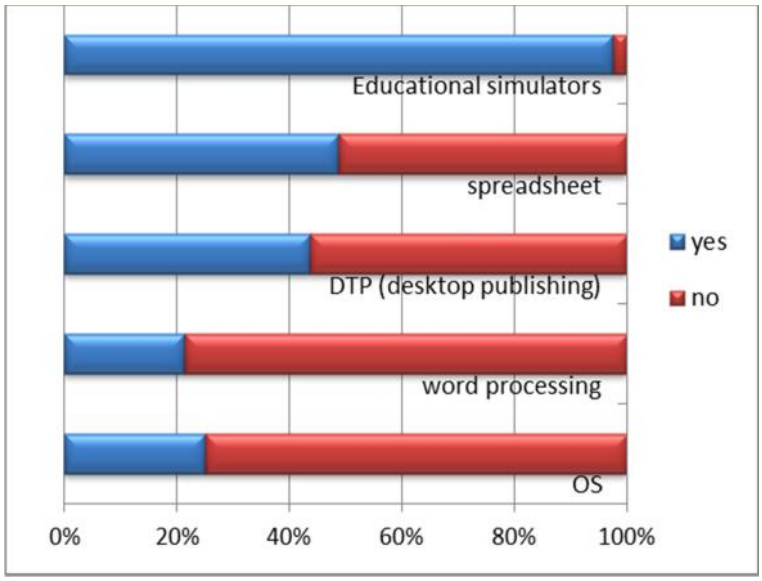

Fig.4 The needs of teachers in ICT tools

With regard to the needs of teachers in training, over than 97% expressed their desire to have special training in the field of education simulato, on the other hand the rate of spreadsheet and DTP (desktop publishing) is almost 50%, regarding to the word processing and operation system the ratio was in the rang of 22%.

In connection with the motivation of the physics teachers to follow online ICT training courses, more than two-thirds of them expressed that they have a big motivation

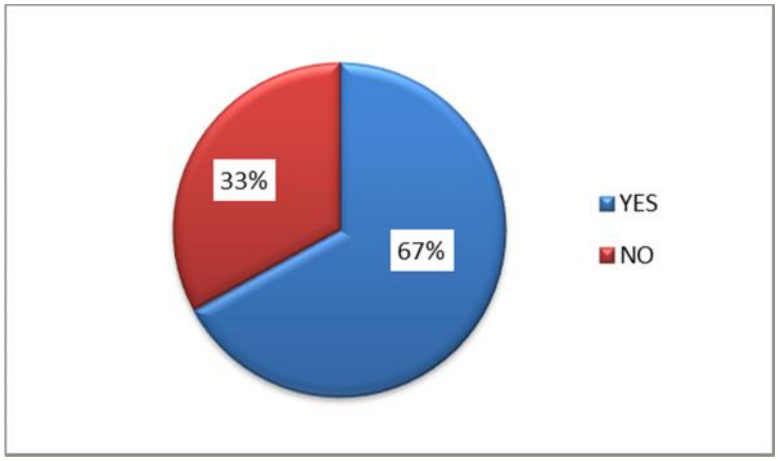

Fig.5 Motivation of physics teachers to follow online training in ICT

5 DISCUSSION

In this section, we discuss the results of the investigation to know the major obstacles of the integration of the ICT in the physics classrooms and we will try to bring a solution to them. Our results show clearly that:

1 The physics teachers rarely receive ongoing training in ICT, and these conventional training courses are limited in time. That's why we should look to generalize the training for all teachers and to have a long term training courses without causing dropout of school while teachers are undertaking training.

2 The previous trainings do not take into account the specific needs of the physics teachers in terms of required computer software's, especially the physics simulation software's.

3 The previous trainings do not take into consideration the material taught of teachers nor their ICT level. Teachers group will be chosen on the basics of their material taught.

4 Focus must be put on the physics software's in the trainings to respond to the needs of all the teachers.

5 On the other hand, we asked teachers about their motivations for a distance continuous training in ICT. The results of our research have encouraged us to offer an online training for those teachers in order to remedy the problems encountered in face to face training. In fact, online courses offer flexibility for teachers in choosing the timing and content of their learning. In addition, online training will last much longer than the duration of face-to-face training.

6 SUGGESTED SOLUTIONS

Our research is targeted at filling the gap of lack of continuous ICT training courses by proposing a distance training courses in ICT for all the physics science teachers. This training is based on an e-learning platform, which is rich, in ICT courses, so the teachers have the opportunity to choose any course at any time depending on their own desires and needs. Then they can start benefiting from those courses any time they like without any obstacles of time or displacement. Each course is divided into chapters, and each chapter consists of file text, videos lessons, animations and simulation software's. The teacher can also go to an online test to assess the skills acquired.

This platform is rich also with the physics science animation and simulation software's, so the teachers can download any needed software to use it in their teaching activities, and it also provides a space for physics science to share courses and discuss problems of physics science learning in order to seek solutions to these problems in collaboration with other teachers using some of synchronous communication (e.g. chat) and asynchronous (e.g. Forum).

In order to encourage and motivate the teachers for this distance training courses in ICT, we suggest distributing a certificate of Merit or mastery in ICT to teachers who complete this training with a score of 70%.

7 CONCLUSION

The research that we conducted with teachers of the delegation of Tangier Tetouan of the country of Morocco, allowed us to put the fingur on the obstacles of the ICT training courses and to conclude that a the best way to solve the luck of ICT training courses is by proposing a continuous distance learning in ICT for the physics teachers this training should be:

1. Flexibile in time and space, so that the physics techears can start reading at any time and at any place without leaving his place of work and causing the wastage of school.
2. The trainig should opened for all the physics teachers without exeption.
3. This continuous trainig courses should be according to teachers desires and needs .
4. This training provide also simulations softwares lessons.

This kind of training can encourage and motivate teachers to integrate in this courses easily and update thier knowlege in ICT, so the teachers will easely integrate the ICT in thier teaching.

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