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Practice of Digital Resources to Develop the Quality of Education in Morocco: The Case of the Life Sciences and Earth

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Abstract
To develop a strategy for developing the quality of education in schools in Morocco, it is necessary to make a diagnosis on existing teaching practices, resources, infrastructure and equipment in place to do these digital resources by improving well designed to facilitate the experimental approach, learning scenarios documentary and to improve cognitive skills in learners.In general, there are five phases to conduct an educational project by model "ADDIE" (Analysis, Design (Design), Development, Implementation, Evaluation).In the sector of life sciences and earth, improving the educational system and strengthening the experimental teacher training, based primarily on the integration of ICT and innovation in learning by teaching scenarios well studied to improve the skills of learners.Therefore, the design of learning scenarios integrating ICT in the field of life sciences and earth is from the diagnostic resources available in the school, we made a joint presentation of digital resources, and involvement of students in the working class group (workroom). 70% of students are generally more reluctant towards ICT in education than is suggested by their exposure to new media.
Key words: educational project ACDIE model, Lesson plans, Evaluation

Introduction

During the last decade, education systems have expanded enrollment in the vast majority of developing countries. Improving school and university qualitative performance was generally accompanied by: -A deterioration in school performance illustrated by the low success rate in examinations and significant rate of loss The continuing problem of lack of relevance between school, family expectations and needs of society.

In this vein, we observe that education officials emphasize in administration procedures and management systems approaches that focus more on the structures, institutions and resources, on objectives and purposes of education. While claiming an active child-centered pedagogy, teachers continue to practice the latest teaching methods. Therefore there are several educational approaches were developed including introducing new technologies of ICT in the teaching field (Nicole and Serge Lebrun Berthelot, 1994 R. Lohuis, 2001).

This simultaneous efforts to modify instructional approaches and focus on the acquisition of acknowledgments may contribute ultimately to significantly strengthen education systems. To do this there are two essential points: First, the transition to more active learning will not happen without a reflection on learning outcomes, as witnessed by the recent work of several authors and government current thinking on competency frameworks for the education system (H . Hermans and F. de Vries, 2004).

Second, the integration of technology in schools requires a better understanding of meta-skills that are implicitly required for their use and develop with these uses, and a deeper understanding of the relationship to the circular and systemic they generate between tools, practices and teaching methods. (Lebrun, 2011).

Paquette (2002), is based on instructional design to define instructional design as follows: instructional design is one of the foundations of instructional design, plus those of software engineering and the cognitive engineering. This definition has been improved by Josiane Basque (2004) defines instructional design as instructional design incorporating more principles and practices from the disciplines of education.

Learning scenarios from cognitivism and constructivism want to activate mental processes and metacognitive skills of learners. They try to get them to discover how they learn so that they can subsequently better manage and control their learning (H. Hermans, by F. de Vries, 2004).

Under the influence of these new paradigms, models of instructional design were gradually transformed by focusing on:
- Knowledge modeling, that is to say, the detailed analysis of the knowledge to be acquired in order to identify the type and to establish links between them.
- Taking into account prior knowledge of the learner.
- A vision of the media which defines them as tools rather than as presenters content.
- Greater control of the learner on their learning.

The question fads arises with the introduction of every new technology in formal media training learners in the education system, then based on what pedagogical approach to integrate ICT across schools?

I-Materials and Methods

1-Presentation of "ADDIE" model

Phases of the ADDIE model are presented here according to Basque (2004), whose constituent tasks may vary depending on the context and the type of learning system design:
- Analysis: This phase involves analyzing a number of components that are used to guide the development project of the apprenticeship system: training needs, the characteristics of the target audience, the context in which will fit training, existing resources can be used or adapted to the learning system, etc..

-Design: This phase aims to specify learning objectives, develop instructional strategy, selecting learning media and, where appropriate, to develop media specifications (which may take the form, in some cases, models or prototypes) of the various elements making up the training materials included in the learning system. During this phase, there are two levels: on the one hand, the macro-design, which consists of the design of the overall architecture of the learning system and the micro-design, which consists of to the design of each of the different components of the learning system (J. Van Patten, 1989).

- Development (Production and Direction): This phase consists in shaping the learning system, using various tools (paper, pencil, camera, camcorder, TV camera, word processing, graphic editor, programming software, etc..).

- Implementation (Broadcasting): This phase is to make the learning system available to students, which requires the establishment of an organizational and technological infrastructure. In the case of a given class course is when the teacher makes his performance.

- Evaluation: This phase is to assess the learning system to make a judgment on its quality and efficiency, and in the case of a summative assessment on whether to continue the dissemination of the learning system. Formative evaluations of the various components of the learning system can also be made in different phases of instructional design, not just at the end of the process.

2- Approaches and models for the production of digital educational materials

-Realization phase of the material

In this phase is to develop the components of educational materials before the test and deliver. It should be noted here that, as part of a project where many uncertainty factors are present, this phase may be to produce a model or a prototype exploratory (Mr. Leonard D. and Lalonde, 1997).
Two approaches is noted in instructional design.
- The first approach is prototyping. It is characterized by a relatively short phase of planning and design, that is to say that all the phases that we've seen so far are not drafted very quickly to allow to develop a product that looks the finished product.
- The second approach is a planned approach. Opposite to the previous one, it is implicit in MISA. Much of the planning and design done before starting the implementation. In this approach, the testing is not used to power the design but rather to verify the effectiveness of the equipment prior to completely enter the implementation phase.

- Testing

The testing of the draft essentially aims to verify the quality of all teaching materials from at least some subjects, which obviously did not participate in its design and its implementation (Figure 1). Ideally, the profile of these subjects should be consistent with that established for the target audience. During this testing, other individuals must observe the actions, reactions and comments of the subjects and the results of their actions in the learning units (RS Smith, 2004). If well done, this step should eliminate major flaws educational materials as well as most

of the problems of expression, communication and ergonomics.

Figure 1: Staging learners in a multimedia room

-Knowledge modeling

The axis of knowledge modeling allows for an account of the changes to the content knowledge of teaching materials: add details to the content of a guide, a tool, a cloakroom, complete content; change of content items that are misunderstood ... etc..

-Educational design

The axis of instructional design used to describe the changes to the apprenticeship system. These changes may affect the sequence of activities in a learning event, the formulation of a set, the time allocated to an activity or a graph or diagram.

- Media Design

The axis of media design is used to verify the functionality of the system after the testing. We can for example ensure that it meets the standards of media material, size and style or template of an instrument are consistent, a menu screen is readable, that understanding the symbols, icons and buttons is easy. We also evaluate the usability of the interface.

- Evaluation procedures and implementation

This step is to evaluate the learning system produces to pass judgment on its quality and efficiency, to get there are two criteria to optimize the quality of digital educational materials:

- Ergonomic Evaluation Criteria REA

Ergonomic criteria, we see them as rules or guides, are the basis one of the best tools that we can use to see, understand and explain ergonomic problems (DL Scapin and JMC Bastien, 1997). These ergonomic criteria have three characteristics that distinguish them from other ergonomic activities and make it a tool of choice:

1.They are based on an analysis of the interface, faster and less expensive than usability testing activity;
2. They can be used by non-specialists in the field of usability;
3. They are sufficiently explicit to allow accurate and standardized enough to give reproducible results measures.

- Educational Evaluation Criteria REA.

Educational criteria for REA must meet the priority selection criteria established in the framework of the support to the creation of multimedia and audiovisual educational programs and updated annually through administrative organization of national education. The second test shall be in accordance with the curriculum for secondary education (figure2).

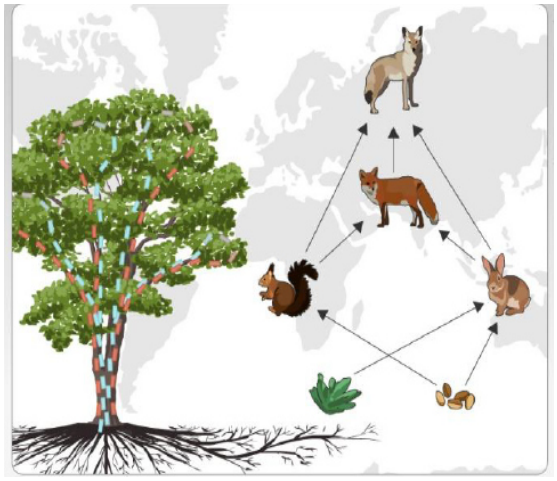

Figure 2: Different feeding relationships among living things

4- pedagogical scenarios

The scenario is a way for teachers to integrate ICT in a pedagogical approach. It aims to foster among teachers ownership of IT as a means of teaching and learning in the classroom used for teaching interests identified and incorporated as much as possible in an explicit didactic approach (see Table 1).

Table 1: Different steps for the achievement of learning

stage	Technical and pedagogical method	For added value ICT	Teacher roles	roles Learners
Planning learning	Method: Interrogative Technique: Questions / Answers	Improving the skills of students in the field of computer	Asks questions about the concepts already seen in the course.	Answer questions posed by the teacher.
Discovery Software Edumédia	Method: Demonstrative Technique: Handling	Helps students quickly understand how to use the application.	Answer questions. Direct students to achieve the objectives.	Following the explanations of the teacher. In the case of ambiguity asked teacher re-explanation.

The pedagogical scenario includes the pedagogical approach in choosing appropriate tools for defining a consistent training of students. Each scenario is characterized by a learning progression that contains many features including:

Material: Life Sciences	*Lesson Title: The flow of matter and energy in the ecosystem*
Module: Ecology	*Target Audience: 14 students of common core (Group 7)*
Activity Title: The feeding relationships between organisms	*Duration of activity: 2 H*
Skills to be developed: - Use the application EduMedia supporting digital training - Working with rigor, precision and confidence.	Educational objectives: - Identify data feeding relationships - Design criteria of food chains - Handle basic instructions effectively - Write correctly legends schema - Identify errors in incorrect ecosystem.
Prerequisites: - Know what Ecosystem - Identify the characteristics of an ecosystem - Develop animations using basic instructions	Expected Result: - Master the characteristics of food chain and food web - Understand the different feeding relationships, - Become familiar with the use of ICT in learning
Resources used: Multimedia-room establishment equipped with computers and a video projector, - CD-ROM training in life sciences.	

- Realization of learning

This step Suggest different strategies for information gathering, research on the Internet, and easily use the EduMedia file, showing the following items (Table 2):

Table 2: Practical pedagogical scenario and integration of students

Stage	Technical and pedagogical method	For added value ICT	Teacher roles	roles Learners
Completion of Activity 1	Method: Experimental Technique: Experimental	Show students the various blocks constituting plants and animals and living environments	-Displays the activity using a video projector. -Encourages students to complete the activity by following the instructions outlined in the slideshow.	-Perform the requested instructions. -Ask questions if there are difficulties.
Completion of Activity 2	Method: Active Technique: Case Study		-To heterogeneous groups of three students (group work). -Exposes the contents of the activity to the students	-Are group activity. -Share the results with each other. -Control activities carried out by students.

- Supervise the work of teams of 3 students, and observed the interactions of students and intervenes as little as possible.
- Stops the work of teams after a certain time for comment on the information obtained and the usefulness of digital resource, in terms of sources of scientific information.
- Encourages students to determine that the use of ICT is useful for carrying out their work and explain their choice.
- Supervise the work of teams and intervenes as little as possible.

-Evaluation of learning

At this stage of the process, the teacher can assess among students who actively participate in the exchange, capacity meta - cognitive students, as they participate in an objectification and make a return on what they have learned and the means used for their learning.

The Evaluation is an integral part of the learning process and the development of skills. Its function is to support learning and to provide information on the state of development of one or more skills (Table 3).This evaluation is thus profitable:

Table 3: Evaluation of learning facilitated by using a flach SC4 activity for 20 minutes

Stage	Technical and pedagogical method	For added value ICT	Teacher roles	roles Learners
QCM	Method: Interrogative Technique: Questions / Answers	Motivate students. Assess students' answers automatically.	To distribute the students See the results obtained by students A point if necessary.	See the results. Ask questions if there are problems.
Evaluation Workshop	Distribute workshops assessments. Ask students to export activities to a text file. Copy individual files from students in a removable storage medium.		Each student must meet the workshops requested by using the "EduMedia" program.	

-The learner: to indicate the steps it has completed, the difficulties encountered, its achievements, its weaknesses, its strengths, weaknesses, knowledge to adjust, to help to identify, understand, interpret, correct his mistakes.
-the teacher: to tell him how to place his educational program and what are the obstacles it faces, to enable it to verify understanding of the concepts which have been addressed. To find out what the learner has understood, acquired, whereupon he stumbles, how he learns what helps or disturbs, interested or bored, etc..

II- Results and Discussions

ICT have indeed been considered as an adjuvant, they were used in addition to certain modules or certain courses. It was indeed improve the quality of education nationwide.

62% of students are generally more reluctant to ICT in education than is suggested by their exposure to new media. Among these students we found that 30%, they are not necessarily comfortable with educational innovations perceived as too experimental, and 8% of students they are reluctant to adopt new tools or to change their ways if the value does not seem their obvious. Such reluctance is due to the fact that innovations are inherently uncertain, disruptive, uncomfortable (Françoise Poyet, 2011: G. Paquette et al, 1997).

In our opinion the students have not appreciated the use of computer technology; they knew that it is not a duty, they do not have enough time to write their answers, and they did not understand the question. Some authors discussed further transformations wrought by some teachers SVT and the role of the teacher in the internal didactic transposition (Chevallard, 1991; Ravel, 2003).

ICT should primarily serve to improve education as it exists and not radically change. They appreciate the technologies they consider those practices and allow them to be more efficient in their daily tasks, while 30% of students do not want the model of teaching face-to-face is presented in question, this suggests that the quality of education is more important than the technological environment (Eric Sanchez, 2012; Paryono P, 2010.).

Recent researches in science teaching have shown that the difficulties in learning are partly responsible for observed failures. These difficulties are not only related to knowledge itself, but also the preconception of learners about science. This is one of the individual characteristics that mainly influence learning.

This multidimensional approach to serving learners is also at the heart of the work of Jean-François Cherry & Popuri Aruna (2011) that provide a rich inventory of devices using digital technologies can be deployed to facilitate learning and teaching transition from education secondary and higher education.

For discussion of students, I fired three main advantages of ICT tools for teaching:
- Thanks to ICT, images can easily be used to teach and improve the memory of pupils and students in the long term.
- Thanks to ICT, teachers can easily give complex explanations and ensure proper understanding of the pupils or students.
- Thanks to ICT, teachers can make interactive classes and courses enjoyable, which could improve the attendance rate and the concentration of students.

Indeed, ICT tools are not designed to be mastered by teachers but to enable them to create a more effective

learning environment. The integration of ICT in education is therefore necessary for teachers and educational leaders from around the world.

The educational scenario is used to cover different levels of training and in the theoretical bases, wants to separate dominant characteristics (Pernin, 2003). Closer to our concern, Knitting and Plégat-Soutjis (Knitting and Plégat-Soutjis 2003) develop an ergonomic approach and are interested in the design of the device at the training module. They develop the concept of communication scenario to attract attention to the importance of specifying how the exchange will take place between the players in the training of students.

In addition, the constituent cognitive processes of the proposed activities are mainly involved in understanding and handling of new concepts in the resource documents. Although these two approaches appear to promote the active engagement of the learner.

Conclusion

Instructional sequences using ICT requires careful consideration during the design and after. Should be organized both the proposed activities and their relationships, time or not, but also the roles of the different actors. In addition, certain activities can take place simultaneously and players can simultaneously perform different tasks. It becomes very complex to explain and implement these teaching sequences, even for an experienced, in order to share particular teacher.

Experimentally, the ADDIE model is very effective for success, promote and develop the teaching-learning process.

Officials education system should structure an innovative vision of the knowledge economy with the CTBT, overcome prejudice to allow the school to organize practices, curricular organization, acquiring knowledge, new teaching models by based on the opportunities offered by ICT in terms of constructivism, especially for science subjects, but keeping intact the national educational functions. Institutional must fight against overcrowded classrooms and follow the maintenance and servicing of computer equipment.

This is the key to not only successfully bridging the digital divide, but also to take the road to modernity moderate all Moroccan schools in particular the rural world costs, it is also the key to keeping a status, posture, visibility in this constantly changing international environment to increase the quality of our education system.

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