Integration of ICT in the Social Science Education Case in Secondary School in Madagascar and Environmental Education

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Abstract

This article will attempt to identify teachers' skill and their competence of the introduction of new information and communication technologies (NICT) in schools in Madagascar. The development of information and communication technologies (ICT) has an important contribution in education especially in social education, especially in the learning process. Social studies as sciences related to the development of human life both in terms of social relations, culture, history, law and its interaction with the natural environment are closely associated with the level of human civilization, including current technology. All aspects of human life are studied in the humanities. In this regard, we will address the 1) The use of the TICE product creates a positive reflex towards the environment, which would result in an enhancement of environmental education; 2) The use of ICT allows for more effective teaching through innovation in methods and the use of new teaching tools. All this should contribute to a mastery of active pedagogy. Therefore, to be able to clarify the learning material with the effects of research, so broad and constantly experiencing these developments, information and communication technologies (ICT) must for a purpose that thrive environmental education and seen as favorable in the learning of social science.

I. INTRDUCTION

One of the phenomena related to contemporary development is the rapid growth at all levels of the education system. Which are now becoming a kind of giant industry and employing hundreds of millions of people: teachers and students. The traditional demand of democratic forces, which is to make education massive and accessible to all social strata, has become an imperative of our time(Ghavifekr & Rosdy, 2015). That is why the situation today is difficult to find a country which has not seen an educational boom in recent years. From a point of view and in general, this radicalization of education remains quantitative but is not accompanied by qualitative measures. The teaching aids and learning materials still remain like the blackboard and chalk. This amounts to saying that the teaching aids used have not undergone any changes. Today, of course, schools have new technological means, but they remain a foreign body in the process of educational work. However, the introduction of ICT in education today is an inevitable and objective process (Ghavifekr & Rosdy, 2015). An update is then necessary, this means, an assessment of the level of education in accordance with the progress of information and communication technologies(Oliver, 2002) taking into account their new directions. Making improvements in this area does not mean a mechanical increase in compulsory hours or courses, but a radical improvement in the means of transmitting knowledge(Mor et al., 2014).

Under current conditions, education and ICT must develop as a single system. However, in the course of its evolution, education has

lagged behind ICT, which has undergone profound revolutionary change. The contradiction that has arisen can then only be resolved by a corresponding revolution in education(Alzouma, 2012). In this sense, our work tries to find an ICT tool conducive to education, usable and adapted to the Malagasy context. Our ambition is to lead to an increased facilitation of access to learning and an improvement in the quality and success of this same learning. Also popularize the use of ICT and show how this tool, which offers increased possibilities and easy to use, can be effective in teaching. In accordance with the guidelines for the educational component, the product to be designed, covers or deals with part of the curriculum for civic education in environmental matters. We know today that our resources and our space have limits, and our activities(Farisi, 2016), by their pace and their scope, threaten the great balances and fundamental cycles of the planet. Nationally, most of the Malagasy population depends on natural ecosystems to live(Randrianarivony et al., 2017), it is in this context that environmental education finds its importance with the adoption of technological materials conducive to education(Ghavifekr & Rosdy, 2015) . Since we can design a teaching aid according to the precise needs of the teaching, we are probably very lucky to create, to bring novelty, imagination and diversity to the actions of teaching. That brings us to the following problem: "Does the use of a TICE product contribute to a better result of environmental education in the formal setting?" ". This problem can be approached from different angles: -The use of the TICE product creates a positive reflex towards the environment, which would result in the enhancement of environmental education. -The use of ICT allows for more effective teaching through an innovation of methods and the use of new teaching tools. All this should contribute to a mastery of active pedagogy. These objectives must have a socio-emotional dimension; the playful aspect of our product must bring a dimension of pleasure, essential in the appropriation and acquisition of knowledge.

Thus we will present the ICT in their global and we will not fail to point out the prospects that they offer to environmental education. This after having shown the specificities and urgencies of environmental education. And afterwards, we will proceed to the presentation and the research methodology consisting in the description of the procedures before the experiment and the interpretation of the results after the experiment. Finally, we will analyze the possibilities of using ICT in Madagascar(Tiana, 2008).

Environmental education in Madagascar has an exceptional environment which results in a very high human and ecological density, a unique set of ecosystems, endemism reaching 80% for fauna and 90% for flora, specific species and ultimately a heritage which is of great value both for the scientific community and for the development of the country(Randrianarivony et al., 2017). But the more time advances, the more endemic species and the Malagasy forest are in danger, due to lack of education and proof of negligence in the value that it brings to human life. In time, moreover, Madagascar is recognized by the international community, one of the seven countries in the world sheltering an extraordinary ecological wealth just like a giant like Brazil. That is to say one of the lung parts of the whole world by its greenery and its inhabitants. The existence of this exceptional environment has given rise since ancient times to customary and legislative measures of protection.

Educational tools and materials

As a result of the non-existence of precise and firm environmental education programs, the resources available to teachers are reduced. Few tools and materials are specifically designed for environmental education. Most of them are produced and used for specific projects, in particular by NGOs. Sometimes if some authors acting on their behalf produced textbooks, it is not really environmental education that is meant in them. To date, there is no manual dealing with environmental education, which is not surprising since the

official programs do not mention it. The exploitation of an environmental theme is taken from the books existing in each establishment(ROUBAUD, 1999).

ICT

The acronym TICE refers to information and communication technologies for education. They cover projects and actions aimed at introducing new technologies in the context of education and bring together a set of knowledge, methods and tools designed and used to produce, store, classify, find and read written documents, audio and visual, but also to exchange these documents between interlocutors, in real or deferred time. Thus the formula "TICE" refers to all the computer and multimedia tools and software that can be integrated into a partially or completely remote teaching device or more simply, in a classroom course. "The new information and communication technologies constitute a set of tools which derive from the digital "concept". The term first appeared in the late 1980s and has now become ICT or information and communication technologies(Malik, 2018).

Environmental education

"Environmental education is conceived as an ongoing process, in which individuals and the community become aware of their environment and acquire the knowledge, values, skills, experience and also the will which will enable them to " act, individually and collectively, to solve current and future environmental problems. Indeed, the purpose of environmental education is also civic. It is an education of behaviors and attitudes capable of changing the state of the environment according to the imperatives of development. Environmental education is an integral part of basic education(Ezeanya-Esiobu, 2019). Interdisciplinary by nature, it underpins the aspects of each of the disciplines that contribute to the basic perception, understanding and interest in the fundamental interactions between man and his environment which is both natural and man-made(Leeuwis & Aarts, 2011). These definitions make it

possible to understand, what covers the concept of education relating to the environment, it is now up to us to define its educational objectives.

II. METHOD

We adopted a qualitative research where we use a self-administered and unstructured questionnaire, ie the person responds himself and has been distributed. We chose a different questionnaire and an open survey that is to say, ask several questions. It allowed us to get the facts, attitudes, expectations and opinions of each teacher. Our questionnaire was formed by open-ended questions, in this way the answers will be the subject of their own experiences and their own perceptions. Development of materials and interviews: methods and actions that are the fruit of our creativity, our intervention was developed by the researcher even during the internship with the ministry itself. Which is previously made and established by the leadership of the department using modern technology. The surveys are done head in mind and after a continuity on Facebook and email are the continuation of the research. The creation phase of our teaching material is essential because we prepare it from far and try to communicate with the staff in the ministry in Madagascar it allowed us to directly affect education in the school system. The development of the material studies consisted of several stages: first in a flawless pedagogical design, that is to say in the choice of the treated topic, in the definition of the objectives, in the design of the phases of interactivity where the student will have to respond to the demands of the program. In other words, we had made an example from which teachers can take an idea about learning(Creswell et al., 2007).

In this research method data collection was elaborate, we needed to make "the state of the matter"(Godin-Tremblay & Lussier-Desrochers, 2018), hence the commitment to a two-dimensional approach. First, the preparatory phase of the product which required the collection of information

concerning the research subject by the documentation and the questions(Brooks et al., 2019), in particular by the company of interviews and questionnaires concerning the state of play of ICT from the actors of the colleges concerned. Then, once the product has been produced, we moved on to show the learning and the process in the class, phase on a well-defined population: students from selected colleges. The results of this will be the subject of a reform and the application in order to acquire the effectiveness of the teaching. However, a difficulty lies in any investigation that is done around ICT, while these tools remain poorly defined, poorly understood and therefore poorly known to the world of teachers, which leads to poor knowledge of ICT as well as we referred to the different form of documents. As a result, from the observation from the video and the record video, a certain hesitation was felt due to their incomprehension of a "TICE product", which won us the conviction by explaining our intentions to them and the ICT in question. In addition, as some of these establishments lacked adequate equipment for our learning and adaptation, we had to introduce and procure some, hence an additional investment(Babones, 2016).

We are currently witnessing the information and documentation centers of the colleges which endure the insufficiency or even the non-existence of teaching aids adapted to the current program, in addition to the age of the teaching methods of the teachers which remain traditional, no longer allow to answer educational needs. Faced with the current critical situation, we carried out an exchange with several teachers (5) a TICE product and according to the terms of reference for the preparation of didactic material, it is a rich and complete support which constitutes a factors contributing to the pursuit of quality and success in learning such as the use of WhatsApp, Facebook, Google, internet browsing, etc. In our case, it is a question of updating, of bringing novelty in the realization of environmental education at the college level. Our product in question deals in this sense, one of the themes relating to environmental

education, in particular "forest degradation in Madagascar", in the civic education program for the fourth class. We made and created PowerPoint slides including presentations. Our product deals in fact with the theme which happens to be the main ecological crisis of our island, while it is sometimes neglected by teachers otherwise, for lack of a better means of concretization, is satisfied with an alarmist speech without any incentive.

About the delimitation of the study area We have chosen the region of Analamanga where the stuff in ministry can provide all information and also the teacher can contact me all the time; this is located in Antananarivo as our study area. As for our investigation and experimentation frameworks, they will affect the level of secondary education, within the framework of colleges. Indeed, in its school curriculum, the college still includes civic education as a subject taught. This civic education in question deals best among other subjects with environmental issues. The delimitation of our study area allowed us to identify the establishments concerned by our research, in this sense: - the CEG of Nanisan.

In view of the development of TICE products, the analyses of data are research descriptive qualitative research that we are certainly adopted to the result from the perception and the answer of the teacher of using new technology. After having thought long and hard about the initial question that we set out to find documentation related to it. Research requires gathering information through documentary and bibliographic research(Creswell et al., 2007), interviews and questionnaires. The combination of the reality from Madagascar and each investigation to the personal and teacher makes this research more effective. The bibliographic searches allow us to know the research similar to our topic, which allowed us an increased facilitation in the reorientation of our research object and thus, the best way of approaching it. The bibliographical research that we have undertaken has therefore enabled us to constitute these essential files and thus to define more completely the contours of our object of study. Interviews with stakeholders in

the research theme are very useful, serve to gather information about the research subject. Usually, this technique is employed in interviews(Godin-Tremblay & Lussier-Desrochers, 2018) with people who have personal or personal experience helping to improve knowledge about aspects of the research being undertaken. As a result, having established direct contacts with the teachers allowed us to know the facts relating to the realization of this research.

III. RESULTS AND DISCUSSION

A. Result The use of the TICE product creates a positive reflex towards the environment, which would result in the enhancement of environmental education.

Impact of Our Design with the Ministry on Environmental Education was designed to serve as the basis for environmental education and there are concerns about whether it has been effective in this regard. But here emerges the difficulty of measuring environmental impact, which is far from being a short-term analysis. Already, from ancient times to the present day, the various leaders of Madagascar have always worked to protect this environment(Randrianarivony et al., 2017), several organizations have also been working on the production of various educational materials while the state of our environment is changing. towards constant destruction. Despite this, we remain positive with the application of the approaches established by the team of the ministry and by the approaches which I carried out also, encouraging prospects in the emergence of a behavior and a positive reflex towards -views of the environment. We also believe that our product should be popularized because ICTs are currently recommended for sustainable development in the same way as environmental education(Malik, 2018).

We have understood that, compared to the traditional method where the student is passive, submissive by listening to the words of the teacher who dominates them from the top of his chair, the new method of ICT calls on spontaneous interest and the will of " entrepreneurship among students. The product also promotes the development of intellectual skills, critical thinking and visual faculty unlike the method, which is teacher-centered, which primarily calls on hearing. Following the screening, the respondents pointed out two main positive aspects of our product designed within the framework of the ICT: - they particularly underlined the interest of video projector animations to illustrate and represent more easily complex processes, for example phenomena. dynamics such as the theme of forest degradation. - a great advantage over traditional methods by hinting that the product promotes concentration, active listening and note taking. But alongside the positive impressions that the students expressed towards our product, they also demonstrated their critical thinking and giving feedback.

During the screening, our goal was to empower the students, to trigger a learning situation that could arouse their interest and curiosity. This is why each slide was viewed for a few minutes depending on the students' level of appropriation to allow them to take regular and rigorous notes. Designed in two versions, the product was presented to them in both Malagasy and French. But throughout this screening, the students didn't just take notes even though they were recommended to do so. Speaking to them was also desired and taken into account in the timing of our activity. Moreover, the students are essentially active, so our projection has taken advantage of this need for activity to bring them to form themselves, to accustom them to personal effort, to think, to promote their spirit of initiative. It is in this sense that each slide should be the subject of fruitful discussion after the product is released.

B. The use of ICT allows for more effective teaching through innovation in methods and the use of new teaching tools. All this should contribute to a mastery of active pedagogy.

The projection took much longer to complete. Indeed, as these students are not trained and adapt to the computer tool and most of them are for the first time put in a situation in front of the screen, their ability to assimilate was very slow. Screenings are scarce in schools and most students do not have the ability to capture direct records. We project them different photos which like for example a forest and a dessert to which the requests to make a choice. Indeed, the attention of these students was focused more on the shape of the product than on the one it processes, even the devices that were used for projection. Another problem is that the pupils took notes in their notebooks in the French version, but they badly needed the Malagasy version, especially for comprehension, which took longer for the projection. They took notes throughout the screening, they even asked to redo some slides that were not well understood. From this request, it is more obvious that if the teachers do not know how to handle the tools and materials, it further increases the faculty and the difficulty of adapting for the students. But we can say that our product, once again proved effective, because the students showed interest, despite the fact that their attentions were focused a little more on the external aspect of the product. If such were the remarks of this second experiment, what can be the critical assessment of this one.

Critical assessment During this approach, we witnessed a sometimes incomprehensible silence on the part of the students. But we explained it this way: Stunned, the students expressed a sense of astonishment at the product. They used their visual sense a lot, being very attentive and focused on the projection. Moreover, at the end of it, they did not fail to ask us questions about computers, about the materials used during the screening. From this observation, the limits of our product with these students are found to be: - the attention of the students was rather focused on the animations, than on the real content of the product. - as this experiment took place in the afternoon, we made arrangements to close the windows because of the solar rays detrimental to our projection. But closing those windows resulted in intense heat, which destabilized the students at one point. However, if we tried to open them, the students in certain part of the room could not see the projection. The absence of electricity in the establishment also explains why no audiovisual means are used there. Therefore, recourse to ICT is characterized by the birth of problems, different points of view and competition among the actors of the school. The problems with the integration of ICT are linked to the behavior (Stoebenau et al., 2013)of the users themselves. These technologies arouse both enthusiasm and strong reluctance. In education, two camps have long been established between the die-hards of computers and those who are wary or prefer to ignore it. They know the time and energy required to master the tool satisfactorily, they can rightly be skeptical, even frightened by the frenzy with which keyboard and screen enthusiasts operate. Despite the democratization of ICT, each teacher has his own way of perceiving things. The computer is seen by them as a tool in the service of administrative and management tasks. Between its two seemingly contradictory positions, we find the undecided who, for lack of information and resources, do not know on which foot to dance. In terms of synthesis, the main problem teachers face with technologies is perhaps first of all their degree of acceptability(Farisi, 2016). "Combining technique, knowledge, understanding and culture, acceptability reveals human complexity and the limits it imposes on reason". To these elements, acceptability adds that of the context of use. "In fact, the contextualization of uses reveals that there are differences that can be significant for the same person, depending on the implementation situation. This is sometimes pompously called the transferability of skills and which (Willingham, 2010)is also called the process of decontextualization. If it were a mechanism, that would not pose a problem, but precisely

because the human complexity emerges there". The reasons for not using ICT can be, in addition to equipment problems, those linked to the maintenance of computer parks which are often deficient and to insufficient training of teachers in the tools, it appears that the actual reasons for non-use are closely linked. to a form of resistance to both technological and educational change on the one hand, and on the other hand, to this transition from book culture to digital culture, which seems to pose real problems for many teachers.

IV. CONCLUSION

Integrating computers and technology into schools in Madagascar is an expensive and sometimes complex process, requiring a variety of equipment, skilled personnel for installation and operation, technical support and training of other users. the proper use of these materials. But the obvious benefits it brings to schools and their students are significant enough that the introduction of ICT in the classroom is now one of the priorities of educational planners. In addition, beyond these uses, ICTs have particular links and implications with environmental education, which also has its specificities and urgencies to make it a natural educational act. The TICE tool is reliable, effective but still poorly understood and therefore poorly used despite its qualities. We believe in exploiting and using ICT for environmental education to give it a privileged and lasting place in education systems which, however, remains a peripheral or occasional activity without significant impact in the face of numerous environmental challenges and which is a still fuzzy entity between academic discipline and scholarly knowledge.

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