

THE EVOLUTION OF TEACHING IN THE ENVIRONMENTAL SCIENCE FIELD: A RESPONSE THROUGH THE DISTANCE LEARNING MODE.

Indaial – April/2011.

Luis Augusto Ebert – UNIASSELVI - luisaugustoebert@gmail.com

Francieli Stano Torres – UNIASSELVI - chellystano@yahoo.com.br

Educational Sector – University Education

Research Area – Innovation and Changng

Paper Nature – Report on ongoing project

Class – Innovative experience

ABSTRACT

There is an exponential growth in Distance Learning (EAD) in Brazil at this moment, however, this growth is followed by disbelief and bias towards, especially its quality in teaching. Thus, this paper aims to contribute with information which allows an improvement in the quality of teaching in university level courses of Environmental Science that use the EAD mode. Quizzes were used for checking students' satisfaction level concerning the courses of Environmental Management and Biological Science. The significant range between the estimated percentages of answers was tested by Qui-quadrado. Approximately 300 students from "Centro Universitário Leonardo da Vinci (UNIASSELVI) were interviewed. From which 72% identified themselves with the environmental causes, 54% want to contribute to the preservation of natural ecosystems, 63% believe that graduation courses contribute to the formation of an ethical and responsible person and 54% assure that the field trips and the laboratory classes offered at the pole face are good. The outcome shows that it is perfectly viable the offer of environmental science courses with a high quality level in the Distance Learning mode and that it is a very interesting alternative for regions where the demand for this kind of professional is growing.

Key words: Environmental Science; Distance Learning; Teaching practices.

1. INTRODUCTION

The Distance Learning (EAD) is a mode of teaching that is increasing exponentially in Brazil. Despite the recent scenery of “EAD”, this teaching mode is not a new idea and it has been present for a long time (MAIA; MATTAR, 2007). According to Tafner et al. (2010), this teaching mode started with the invention of writing going through three generations which can be highlighted as the letter mailing, the new media, such as television and radio, and finally the on-line generation.

It is clear that today, with these new strategies, it is no longer necessary that people be at the same time and place so that knowledge be generated and spread, independently the area on which we are working. The mostly known as synchronical communication when two people are in different places but with an ongoing dialog in real time (MAIA; MATTAR, 2007).

Nonetheless, despite the proven success by “EAD” through the use of these new technologies, in certain areas there is some resistance towards the professionals that have graduated in this teaching approach (HAICK, 2006; PROFIRIO et al., 2010). What before was something generalized due to being an innovative teaching mode, now begins to have focus inside some specific áreas, such as, those concerning environmental science in the majors of biological science and environmental management.

Because these majors are the kinds of majors where the practical activities are greatly important for the solidity and building of knowledge, every pedagogic project in the environmental área offered in a distance mode, must be well developed and structured so they don't cause students any harm (MORAN et al., 2000).

The courses are structured in support pole faces, based on the guidelines recommended by the Ministério da Educação (MEC). This puts an end to the discussion over the viability or not of offering the course with a lot of field trips and/or laboratory classes. These were and still are the most principal excuses used by anti-Distance Learning groups. However, today a lot of

universities offer excellent courses with a great range of included practical activities, breaking this paradigm (PROFIRIO et al., 2010).

Thus, this paper aimed to analyse the opinions of academic students in the environment areas concerning the courses development, why they have chosen this área, their attributions and the field and laboratory activities. These pieces of information aim to contribute to the improvement of the courses offered in a distance learning mode and inserted in the environmental science field.

2. METHODOLOGY

Teaching Degree students in Biological Science and Environmental Management majors from different parts of the country were interviewed. A questionnaire with qualitative questions was made focusing on aspects such as, the reasons why they have chosen the area of environmental science, why the distance learning mode, the contribution of this approach to the formation of the individual and, finally, the quality of the practical classes.

In the universe of students sampled from UNIASSELVI, the Support Pole Faces, distributed all over the national territory, were taken into consideration. The participants were selected using a random criterion through the drawing of students from a set of 283 groups. Based on this total 30 groups were drawn among all poles, which represent 10% of the total of students in the institution certifying a sample representativeness to the study.

The questionnaire applied was sent to the students from March, 05th 2011 to March 15th 2011, using the contact tool available on the Learning Virtual Environment (AVA). In order to register the existence of important variations among the answers given by the groups of interviewed students a qui-square (n.s. = 5%) (ZAR, 1999) was used.

The results were registered in specific sheets and later analysed through statistical softwares producing graphics of percentage with the responses provided by the students.

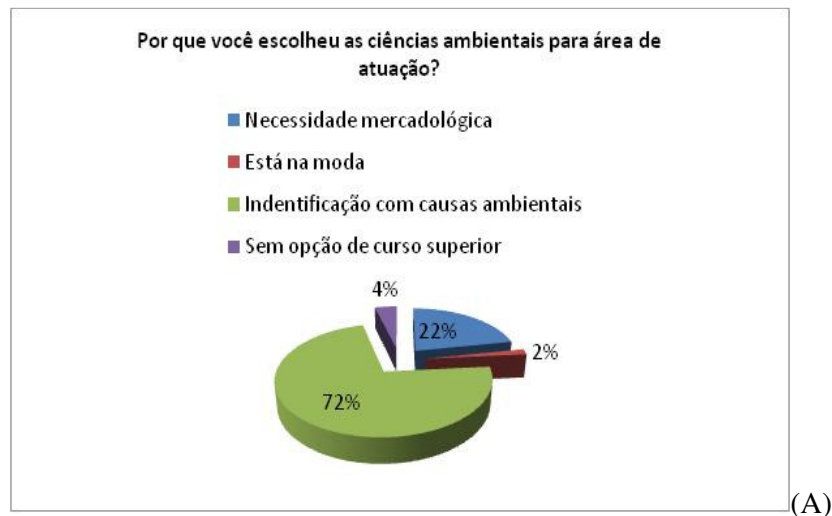
3. OUTCOMES AND DISCUSSION

A total of 301 students majoring in Teaching Degree in biological science and technologist in environment management were interviewed. When asked about choosing the areas of environmental science as a working area, 72% identified themselves with the environmental causes, whereas 22% have noticed a market demand in this area. The rest, with percentage of 4% and 2%, respectively, opted to answer that there were no other courses available and that protecting natural resources is “in” nowadays, which influenced the students’ option for a professional activity. It is clearly noticed that it is about a student who is much more interested in environmental issues and alert to future market demand than a student not connected with issues in evidence in their country and in the world (BELLONI, 2001). This fact certifies a more mature group who did not make their choice based on the simple fact that they had to pick something for college (Pic. 1A). And here, another positive aspect concerning distance learning is clear – it allows students with restricted access to college education to attend courses with which they identify themselves and courses with a high demand in the working market in Brazil.

This fact gets even more relevant when figure 1B, which presents the reason for choosing areas related to environmental science in the Distance Learning mode is analysed. Concerning this question, 54% wish, somehow to contribute to the environmental causes, however, a significant percentage of 23%, already works in their chosen area, which corroborates to the previously stated fact that the group of Distance Learning students is mature. The other 13% and 10% stated that studying in this mode is cheaper and that this is a market in demand, however they had no colleges for their graduation. Therefore, it is possible to notice how important the EAD is for social inclusion and the education of low classes and/or those classes which have no access to college education (MAIA; MATTAR, 2007).

In relation to the EAD contribution to a more ethic and responsible individual concerning the environmental issues, the figure 1C shows some interesting results. The vast majority of 63% answered “Yes” because this is precisely one of the course’s goals. Moreover, other 30% answered that the subjects offered in the curriculum contribute to the increase of the environmental conscience, however, 4% and 3% believe that all the topics given either on the textbooks, on the virtual environment area or meetings face

to face, are out of the context with issues related to the environment and/or simply aim a technical graduation (Figura 1C).



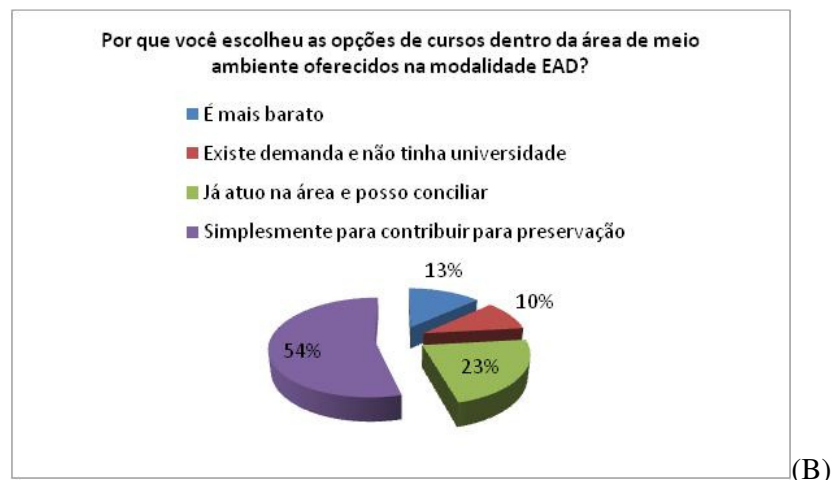
Question: Why have you chosen environmental science as a working area?

Blue color: Market needs.

Red color: It's in or fashion.

Green color: Identification with environmental causes.

Purple color: No graduation option.



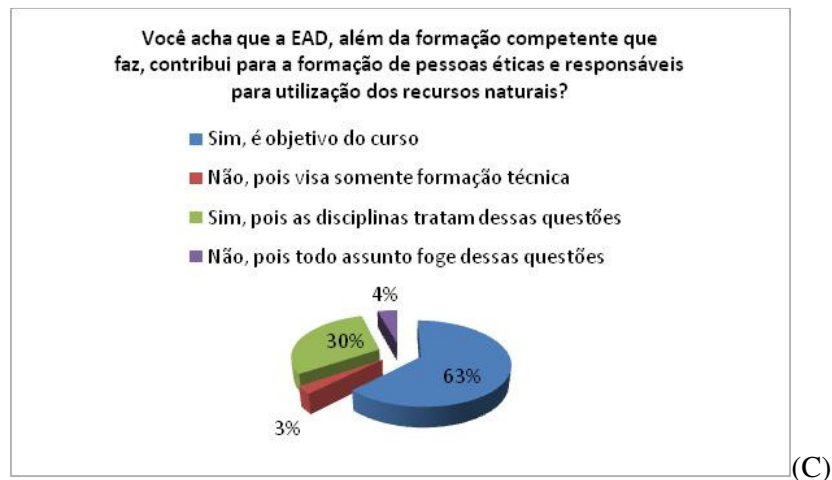
Question: Why did you choose the major options in the environmental area offered in the distance learning mode?

Blue color: Cheaper.

Red color: There is demand and there was no university.

Green color: Already work with it and can add it.

Purple color: Simply to contribute to the environmental preservation.



Question: Do you think EAD besides the competent graduation it gives, contributes to the forging of ethic and responsible people to contribute with the exploration of natural resources?

Blue color: Yes, it is the aim of the course.

Red color: No, because it aims only a technical graduation.

Green color: Yes, because the curriculum deals with these questions.

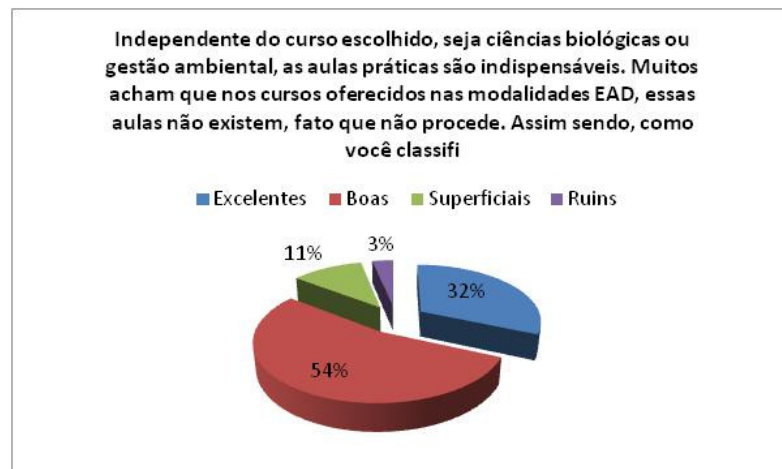
Purple color: No, because every topic in class is far from these questions.

Figure 01. Questionnaires applied to the groups of students from biological science and environmental management courses. In figure (A), there were relevant differences between the answer about “identifying with the environmental causes” in relation to the others, however, among the others there were no differences according to Qui-Quadrado (n.s. = 5%). In figure (B), relevant differences were observed between the answer about “simply to contribute to preservation” in relation to the others, however, among the others there were no differences as Qui-Quadrado (n.s. = 5%). Now, in (C), there were relevant differences between the answer “about “yes, it is the course goal” in relation to the others as qui-square (n.s. = 5%).

The figure 2 approaches what might be one of the greatest doubts for those people who choose to do a major in distance graduation and depend on infrastructure in terms of laboratory or even practical classes or field trips. It is also the great problematic which regards the perpetuation of the idea of inferiority that a courses in the environmental areas, if compared to those offered by an institution with a large infrastructure.

However, the research done shows very pleasant results to that concern with a 54% of the students considering good the practical classes and a 32% considering them excellent, whereas only 11% and 3%, respectively considering the practical and/or laboratory classes superficial or bad. This data, at first, attests the reality of EAD today in Brazil, that can be considered a viable teaching mode with some quality, mainly after the infrastructire adequacy in the accredited pole faces demanded by MEC and that will be the base for all the universities that offer distance courses. Later on it is obvious the students’

satisfaction in relation to the way the activities are performed. This holds true especially for the practical activities which contributes to the strengthen of the idea that, yes, it is possible to create a course that requires a huge volume of practical classes as long as the infrastructure needed is provided. Settings and adjustments must be always present, even though the level of teaching quality offered is very good currently.



Question: How would you classify your practical field classes?

Blue color: Excellent.

Red color: Good.

Green color: Superficial.

Purple color: Bad.

Figure 02. Level of the students' satisfaction related to laboratory and/or practical classes. There were relevant differences between the answers about "good" in relation to the others as in qui-square (n.s. = 5).

4. FINAL CONSIDERATIONS

The current paper brings us relevant information concerning the students' perception of the quality in biological science and environmental management courses. During the early 2000 there was an increase in the offer for EAD courses in Brazil. Soon after that, a lot of doubts about the viability, the quality of the students graduation and mainly retaliation and bias from institutions involved in the process, alerted to the inefficiency of the courses offered bin the environment area which caused a discomfort and frustration to all the parts involved.

It is known that the adjustments are necessary and that in the EAD the costs with logistic and operation might be even higher than a regular teaching

mode, however, in institutions that appreciate quality, the teaching project of the courses already foresees practical and laboratory activities synchronized with the face to face meetings. The technical training and the continuing education of the teachers who are next to the students during the practical activities are also vital, so that those activities have more success. Today, the external teacher-tutors, as they are called, despite graduation in the area, are responsible for all the subjects in the course curriculum. However, when it concerns specific environmental subjects, teachers with technical experience related to the development of the activities might be a good alternative for the improvement of field activities.

The results hereby presented reinforce the idea that it is perfectly feasible to train professionals in all studying areas, regardless the field. Other aspects should also be taken into consideration, such as, the students access to college degrees and the forging of a responsible and ethic citizen making it unquestionable the important role this kind of education has in shaping a city, a state or a country. The adjustments are needed and the investments which demand the graduation of prepared professionals are, very often, really high, nonetheless, the institutions which appreciate quality in teaching will be alert to the process and will ensure educational quality to their pupils regardless their field.

5. BIBLIOGRAPHIC REFERENCES

BELLONI, Maria Luiza. **Educação a Distância**. 2. Ed. Campinas, SP: Autores Associados, 2001.

HACK, Josias Ricardo. **Processo comunicacional docente para a mídiatização do conhecimento na EAD: reflexões sobre o estudo de caso no ensino superior**. In: HETKOWSKI, Tânia Maria; LIMA JUNIOR, Arnald Soares de (Org.). *Educação e Contemporaneidade*. Rio de Janeiro: Quartet, 2006.

MAIA, Carmem; MATTAR, João. **ABC da EAD**. São Paulo: Pearson Prentice Hall, 2007.

MORAN, José Manuel, BEHRENS, Marilda & MASETTO, Marcos. **Novas tecnologias e mediação pedagógica**. Rio de Janeiro, Papirus, 2000.

PROFIRIO, Silvio; DA SILVA, André Almeida; ARCANJO, Jacineide Gabriel; DOURADO, Joseana Genuíno; DOS SANTOS, Joseane Patrícia; DA COSTA, Josenildo José; DA SILVA, Rosangela Lima; BARROS, Analécia Quirino; DE SOUZA, Francisco Ernades Braga; TENÖRIO, Alexandro Cardoso Tenório.

EAD: uma nova cultura educacional na minimização do espaço e na democratização do acesso ao ensino superior. X JORNADA DE ENSINO, PESQUISA E EXTENSÃO – JEPEX 2010 – UFRPE: Recife, 2010.

TAFNER, Elisabeth Penzlien; TOMELIN, Janes Fidélis; SIEGEL, Norberto. **Educação a distância e métodos de autoaprendizado.** Indaial: Grupo UNIASSELVI, 2009.

ZAR, J. H. Bioestatistical analysis. **Prentice-Hall**, New Jersey. 1999.