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**ENVIRONMENTAL
ACCOUNTING IN
PUBLIC UNIVERSITIES
INSTITUTIONS IN
THE STATE OF
PARANÁ: A STUDY
OF THE CURRICULUM
SCENARIO**

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Abstract: The objective of this study is to verify the presence of Environmental Accounting in Public Institutions of Universities in the State of Paraná, through the survey of their curriculum, showing which disciplines are directly related to Environmental Accounting in the Accounting course. The study is characterized as a field research observing the curriculum of each course by consulting the *website* of each institution, using the data collection method. Since during the last decades, the environmental concern of people around the world has been increasing on a large scale, with that the Environmental Accounting gains more and more prominence, and for this area of accounting study to be improved, it is necessary to turn our attention, in educational terms, to the curriculum that has been offered by institutions in the geographic context of Paraná. Currently, even with the advancement of technology and environmental concerns, most institutions do not have subjects aimed at teaching Environmental Accounting. This phenomenon can make students less likely to understand that such discernment can be decisive in the social, environmental and financial spheres.

Keywords: Environmental Accounting; Curriculum Grid; Public Institutions of Universities.

INTRODUCTION

Natural resources like land, water, air, energy are the main inputs of any business process. The rapid development of industries is causing more environmental problems such as pollution, carbon emission, greenhouse effects, water and air contamination, soil degradation and loss of biodiversity. As a result, responsibility for the environment has become one of the essential areas of corporate social responsibility. The traditional accounting system is limited to recording and reporting business process financial

information to both internal and external stakeholders.

The insertion of disciplines related to Environmental Accounting becomes important in this context, because during the graduation period, the look at the environment must be encouraged in the future accountant so that the professional has this knowledge at the time of assistance, or even the decision-making in companies.

Gradually, such updates must reach public institutions of universities, since “concerns arising from environmental issues, at a global level, exert pressure on traditional accounting to incorporate environmental responsibility into it” (Feil et al., 2017).

The old traditional role of the accountant is increasingly outdated, as its function becomes more than a link between the Government and Private Management, in Environmental Accounting such a link is present directly with the environment, people and business inserted in it.

Responsibility for the environment has become one of the essential areas of corporate social responsibility. While our traditional accounting system is limited to recording and reporting business process financial information to both internal and external stakeholders.

This limitation can be alleviated through the implementation of Accounting programs with an environmental link. For this to happen, it is necessary that public institutions of universities definitively include subjects in their accounting courses that can help the student’s critical thinking in relation to such issues.

According to Souza and Ribeiro (2004) Accounting is responsible for “the elaboration and provision of information to internal and external users about environmental events that cause changes in the entity’s equity situation”. Therefore, this study sheds light

on the updated curriculum of the Public Institutions of Universities in Paraná, which have the Accounting course, bringing an overview of the teaching of accounting, focused on environmental issues, in the State.

The purpose of this article is to gather information from public universities institutions in Paraná regarding the discipline of Environmental Accounting or similar, demonstrating which colleges have the discipline and which do not.

THEORETICAL REFERENCE

Science must disseminate an improvement in the environmental issue and, consequently, in people's quality of life (Patriarcha-Graciolli et al., 2010). Therefore, accounting as a science must be frequently updated, so that it does not lose relevance in the current context.

According to Freire et al. (2012), "as the curriculum must reflect market requirements, the CFC warns that the proposed curriculum is flexible and must be adjusted according to the labor market", that is, if the university curriculum in the environmental area does not update it is likely that the job market will start to find professionals from other areas with such knowledge, so it is only necessary to train them for traditional accounting.

Jacobi (2003) states that it is necessary to reinforce the feeling of responsibility and ethical values in society, thus needing to define limits and delineate a cluster of initiatives through educational practices that reinforce such a feeling. Gonçalves and Heliodoro (2005) point out that "accounting cannot ignore environmental problems, since it is the link between companies and the community".

Despite basic education in Brazil addressing environmental issues, it is perceived that universities in the accounting area, there is a setback in this informational process with few topics of this nature being addressed in accountant training, even

though this professional plays an extremely important role in generating information for decision-making within companies. It is believed that including Environmental Accounting subjects in the training of future accountants will provide professionals with an interdisciplinary, critical and reflective view of environmental issues, thus avoiding possible embarrassment for the companies under their responsibility.

According to Tiensen (2010) the concept of Environmental Accounting is very similar to that of Traditional Accounting, what differentiates the study from one and the other is that the second is based on the amount of capital used by man to generate income for the company and the first is based on the amount of capital used to benefit the environment.

This way, with environmental concerns being at the heart of the main discussions regarding the future of humanity, it is the function of the modern accountant to demonstrate real information regarding the Environment to the community.

According to Barbieri (2007), the adaptation of management to the demands of the environment represents a great challenge for companies. Companies do not have the obligation to publish sustainability reports, even so, one can see the insertion of these reports in companies from the most varied sectors, in view of the problem of the depletion of natural resources by man, an environmental issue, which, when ignored in training future professionals can make the topic vague for the student.

Therefore, it is of little relevance to the student, who does not see this market as an opportunity, which, in addition to being financial, since few professionals have the competence to prepare accounting reports focused on the Environment, is also an opportunity to actively participate in caring for the planet.

In this case, accounting professionals come to be considered with a fundamental role in helping companies to solve problems related to environmental degradation (Galvão and Tenório, 2009). However, although accounting is considered an information and recording tool, it is worth mentioning that the procedures and methods adopted by the company to protect the environment, several studies show that accountants are less knowledgeable and less prepared for these issues in this area of knowledge. (Feil et al. 2017; Maciel et al., 2009; Martendal et al., 2013; Yamaguchi et al., 2015).

This new condition of the Accountant faces serious difficulties when it comes to the measurement of environmental issues, still very recent with regard to the equivalence of currency values. According to Yamaguchi and Montibeller Filho (2013), the environmental domain of accounting remains underutilized in companies due to the impasse found in practice and the reluctance of many managers. In addition, the imprecision of content and definitions, measurement using traditional accounting practices and the complex integration between environmental accounting and traditional accounting were identified as other factors that hinder the effective use of environmental accounting in organizations (Akdoğan and Hicyorulmaz, 2015; Nikolaou and Evangelinos, 2009).

According to Lozano (2010) there has been an increase in the number of universities institutions that have incorporated sustainability into their curricula in the last decade, and according to Rusinko (2010) there are others that are exploring ways to integrate sustainability. This trend can lead to accounting studies to measure data more accurately and to build firm foundations for structuring the company's environmental plans, such as carbon credit initiatives and commitments to society at consistent levels of

proximity. However, the entire process must be carried out with integrity so that there is security in the information extracted through multidisciplinary analyzes of topics related to the environment.

METHODOLOGICAL PROCEDURES

In this study, the curricula of each course were observed through consultation carried out on the *websites* of each institution. The updated curricula of universities institutions that offer the Accounting course were consulted, namely:

- a) Instituto Federal do Paraná (IFPR);
- b) Universidade Estadual de Londrina (UEL);
- c) Universidade Estadual de Maringá (UEM);
- d) Universidade Estadual do Norte do Paraná (UENP);
- e) Universidade Federal do Paraná (UFPR);
- f) Universidade Estadual do Paraná (UNESPAR);
- g) Universidade Estadual do Centro-Oeste (UNICENTRO) - Irati campus and Guarapuava campus;
- h) Universidade Estadual do Oeste do Paraná (UNIOESTE) - Marechal Cândido Rondon campus, Cascavel campus and Foz do Iguaçu campus;
- i) Centro Universitário União da Vitória (UNIUV);
- j) Universidade Tecnológica Federal do Paraná (UTFPR) - Pato Branco campus; and
- k) Universidade Estadual de Ponta Grossa (UEPG).

This way, the research was classified as field

research, considering that it is a research that aimed to provide more information on the investigated subject (Köche, 2010; Beuren, 2006).

For data collection, bibliographic research and documentary research were used. Both are distinguished by the fact that bibliographic research uses bibliographic material produced by several authors, while documentary research is based on first-hand documentary materials (official documents, contracts, reports, etc.) or second-hand (research reports and of companies, statistical tables, etc.) (Prodanov and Freitas, 2013). Thus, documentary research can be used as the only research design and stands out for allowing the organization of data that are dispersed in several places, generating a new source of consultation (Prodanov and Freitas, 2013; Beuren, 2006).

Considering that the research was not limited to the description of events, but tried to understand the complexity of the social reality resulting from the use of environmental accounting in the curricula of undergraduate courses at universities institutions located in the State of Paraná, the classification regarding the approach of the problem was qualitative and quantitative.

Both qualitative and quantitative research are concerned with the individual's point of view: the first considers the proximity of the subject, for example, through the interview; in the second, this proximity is measured using materials and empirical methods (Knechtel, 2014).

According to Strauss and Corbin (2015), qualitative research basically has three components:

- a) data, which may come from various sources such as interviews, observations, documents, records and recordings;
- b) the procedures, which can be used

to interpret and organize the data; and
c) written and oral reports, which can be presented in articles, lectures or books.

RESULTS

Information about the curriculum was taken from the websites of Public Institutions of Universities in the State of Paraná, with the aim of searching for content related to Environmental Accounting.

The consultation was carried out between February and March of 2022, according to the availability of the curricula present on the websites of public educational institutions in the State of Paraná, thus seeking subjects related to the teaching of Environmental Accounting.

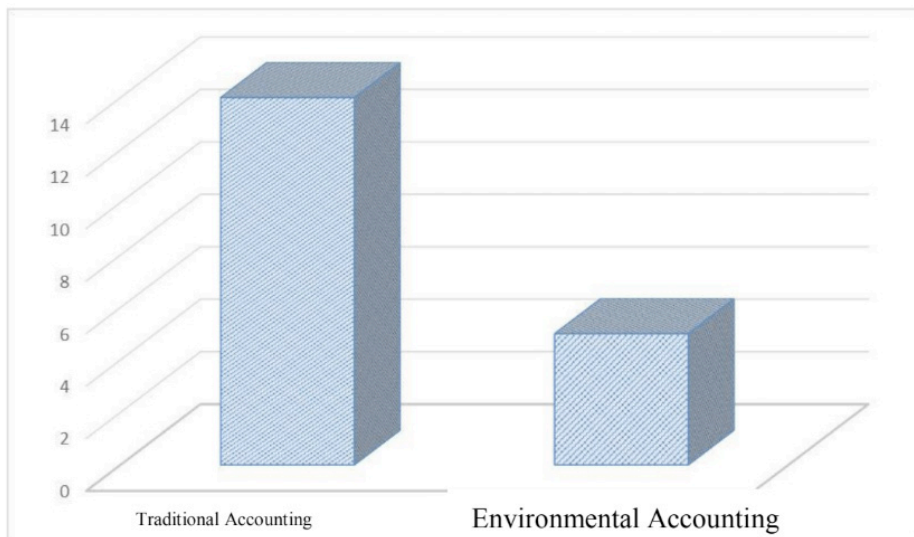
Chart 1 shows all Public Institutions of Universities in the State of Paraná that were considered, with each campus being considered an independent institution.

Taking into account all the institutions, including each campus individually, it appears that out of 14 institutions, only 5 have disciplines related to Environmental Accounting, thus providing the image of teaching Environmental Accounting in Public Institutions of Universities in the State of Paraná. This becomes more evident in Graph 1, which shows how lacking the educational scenario in Environmental Accounting is in the State of Paraná.

The situation worsens when one observes that of the 5 institutions that offer the Accounting course, only 3 have mandatory environmental disciplines, namely UEPG, UNIOESTE (Campus Marechal Cândido Rondon) and UNIOESTE (Campus Cascavel). UNIUV and UEM, on the other hand, have such disciplines in the elective modality. Therefore, few institutions of the State generate a provocation of economic, social and environmental sustainability in

Educational institution	Discipline	Series	Hourly load	Mandatory
IFPR	Not found	-	-	-
UEL	Not found	-	-	-
UEM	Social and Environmental Accounting	3rd grade	68	Not
UENP	Not found	-	-	-
UFPR	Not found	-	-	-
UNESPAR	Not found	-	-	-
UNICENTRO (Campus Irati)	Not found	-	-	-
UNICENTRO (Campus Guarapuava)	Not found	-	-	-
UNIOESTE (Campus Marechal Cândido Rondon)	Accounting for Sustainability	5th grade	68	Yes
UNIOESTE (Campus Cascavel)	Environmental Accounting	5ª Série	68	Yes
UNIOESTE (Campus Foz do Iguaçu)	Not found	-	-	-
UNIUV	Environmental Accounting I and II	2nd Grade	60	Not
UTFPR (Campus Pato Branco)	Not found	-	-	-
UEPG	Social and Environmental Accounting	2nd Grade	68	Yes

Table 1- Universities Institutions that offer the Accounting Sciences course in Paraná.



Graphic 1- Traditional Accounting and Environmental Accounting

undergraduate students in a consistent way.

In Chart 2, the workload and the syllabi of the disciplines taught in the institutions that have disciplines related to Environmental Accounting have been shown.

Of the analyzed institutions, only UEM and UNIUV do not present the menus of the subjects on their *websites*. However, it can be noted, through the available menus, the link between Environmental Accounting and environmental reports for disclosing the environmental and social impacts of events that companies participate as responsible and that affect not only economically the people who are inserted in this context.

It is considered that introducing such content in undergraduate courses in Accounting Sciences has the potential to make academics aware of their role in building a more sustainable society through the formation of solid knowledge of environmental, social and environmental nature that can be used when are embedded in companies.

In Graph 2, it can be seen that only 36% of the Public Institutions of Universities in the State of Paraná have disciplines related to Environmental Accounting, and only 22% have disciplines in the mandatory modality. This means that in the scenario of universities in the State of Paraná, the contents of Environmental Accounting are still not very present. If it is considered that the evolutionary degree of environmental awareness of a given nation directly reflects the stage of Environmental Accounting in that country (Paiva, 2003, p. 18), the undergraduate courses of these institutions urgently need a review that prioritizes the Environmental Accounting in their curricula.

Therefore, even though the sustainability theme has gained relevance in recent years, its emphasis depends on the actors (Meyer and Rowan, 1977) who play a leading role in the environment of public institutions of

universities. These actors, when influenced by an environment that does not value this theme, tend to prioritize exclusively the economic aspect to the detriment of social and environmental aspects (Bilert, 2013). It is in this fight that Accounting must be engaged and where the undergraduate courses in Accounting Sciences need to be situated so that they can train professionals with broad responsibility in their role as defenders of a more sustainable society.

FINAL CONSIDERATIONS

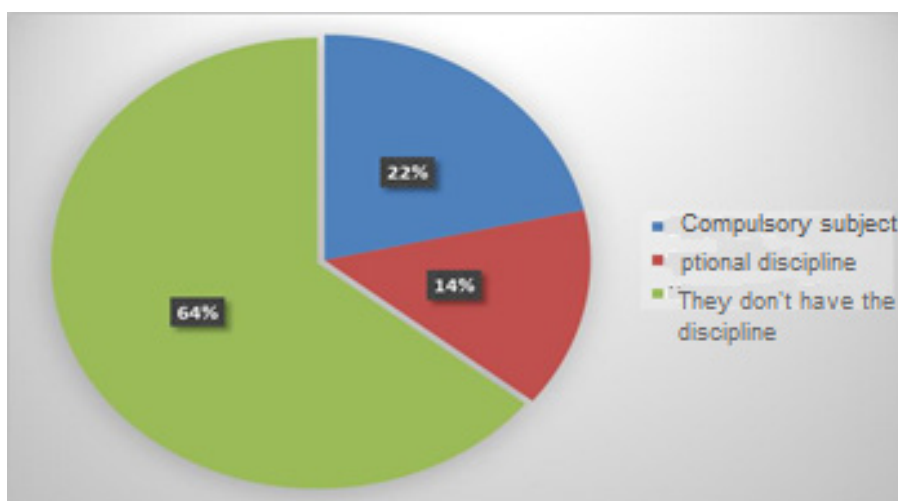
Considering that most Public Institutions of Universities in the State of Paraná do not include subjects of an environmental nature in the curricula of Accounting courses, it was possible to highlight in this study the need to update the curricula of these institutions.

According to the analysis of the curricula, it was noticed that only 5 institutions (36%) present disciplines related to Environmental Accounting. Within a general scenario in which there are 14 institutions that offer the Accounting course, this is a small number of institutions that have been concerned with training professionals with access to this content, since only 64% of the institutions do not have related disciplines. In addition, of the institutions that include Environmental Accounting in their curricula, the number becomes even smaller when taking into account whether the subject is mandatory or optional, since only 22% offer such disciplines in the mandatory modality.

It is considered that this gap can cause delays, since Accounting has the function of linking governments, companies and the population in general. If academics do not have such content in their curriculum, they may lose membership in the job market, as environmental reports such as the Social Balance and Added Value Statement are becoming more and more necessary in

Educational institution	Discipline	Hourly load	Syllabus
UEM	Social and Environmental Accounting	68	It does not provide the menu online
UNIOESTE (CampusFoz do Iguaçu)	Accounting to Sustainability	68	Environmental Education and the study of accounting as a mediating instrument in the relations between society and the natural environment, with emphasis on (i) environmental sustainability as a limit for economic activities; (ii) in the theoretical-conceptual foundations that guide the development of accounting practices related to environmental and social sustainability and socio-environmental management and responsibility in companies and; (iii) in the mechanisms and practices accounting methods used in the identification, measurement and disclosure of environmental and social phenomena in entities.
UNIOESTE (Campus Cascavel)	Accounting Environmental	68	Study of the Concepts and Objectives of Environmental Accounting. Assets, Liabilities, Revenues and Environmental Expenses. Environmental management. Methods for Valuing Environmental Assets and Liabilities. Environmental damage: concept and form of repair. Accounting for Environmental events. Demonstrations and Environmental Reports. Emerging themes and processes related to environmental accounting.
UNIUUV	Environmental Accounting I and II	60	Does not provide the menu online
UEPG	Accounting Social and Environmental	68	Introduction to the accounting environment. Introduction to the environment. Accounting for environmental events. Environmental management. Environmental management system (EMS). Corporate sustainability. Environmental management accounting. Expenses, assets, liabilities, expenses, costs and environmental revenues. Socio-environmental report: in Brazil and in the world. Environmental indicators and socioeconomic aspects of sustainable performance. Accounting and the Universal Declaration of Human Rights.

Table 2– Workload and syllabi of Environmental Accounting disciplines.



Graph 2– Environmental Accounting in Public Institutions of Universities in the State of Paraná

companies. In addition, alternatives that can positively affect the environment, such as impact measurement mechanisms, are not being presented to Accounting students in most Public Institutions of Universities in the State of Paraná.

In addition to highlighting the Accounting teaching scenario in these institutions, the study also suggests a low evolutionary degree of environmental awareness. Although the State does not suffer from natural environmental tragedies as dramatic as in other regions of the world, the need for further studies on the subject is increasingly evident, which may result from the awareness of a greater number of people who understand the importance of maintaining an even more sustainable society.

It can be observed this way that the teaching of Environmental Accounting in the State of Paraná is currently far from the proposal of environmental integration in decision-making that is so important for companies today.

When educational institutions, especially those maintained with public funds, do not bring disciplines that clarify the importance of social and environmental issues, it is assumed that intellectual promotion has been left aside. The academic, when becoming a professional, will not have the environmental view of the issues that will be presented to them, maintaining the cycle where only economic and financial analysis prevails in the preparation of reports to support decision making.

Therefore, the teaching of Environmental Accounting in Public Institutions of Universities in the State of Paraná must be restructured, so that graduates have an education with an environmental vision capable of making them not only a useful professional for the companies under their responsibility, but also to build a more sustainable society.

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