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Transversalidad del eje “Medio ambiente” en educación superior: un diagnóstico de la Licenciatura en Contaduría de la UAGro

Transversality of the environment axis in higher education: a diagnosis of the bachelor's degree in Accounting from UAGro

Transversalidade do eixo do meio ambiente no ensino superior: um diagnóstico do grau em Contabilidade da UAGro

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Resumen

La educación ambiental es un campo de acción que permite atender los problemas derivados de la compleja relación hombre-naturaleza. La transversalidad, por su parte, surgió como una estrategia para incidir en la formación integral del estudiante, a través de la articulación horizontal o vertical de contenidos o asignaturas en un programa educativo. El objetivo de este trabajo fue diagnosticar la presencia del eje transversal "Medio ambiente" en el perfil de egreso y en las unidades de aprendizaje de la Licenciatura en Contaduría de la Universidad Autónoma de Guerrero (UAGro) como una vía para lograr la sustentabilidad en el currículo.

Es una investigación de enfoque cuantitativo, transversal, descriptivo y exploratorio, para la cual se realizó un muestreo probabilístico estratificado de las seis academias que integran el programa. Además, durante el periodo mayo-diciembre de 2016, se aplicó el instrumento *Diagnóstico sobre vinculación del eje transversal "Medio ambiente"* al coordinador del programa educativo para conocer su percepción sobre la vinculación del eje transversal en cuestión con el perfil de egreso; aunado a ello, este mismo instrumento se aplicó a 17 docentes (25 %) para analizar el mismo número de unidades de aprendizaje (34 %). El coordinador refiere que de 13 elementos que integran el eje "Medio ambiente", 3 *no se vinculan*, 9 están *parcialmente vinculados* y 1 está *poco vinculado*. En relación con los docentes, para el 83 % existe algún grado de vinculación, mientras que para el 17 % no la hay. En el caso de las academias, sólo Contabilidad General presenta un 25 % de *muy vinculada*; en contraparte, la de Inglés se considera como *no vinculada*.

Lo anterior muestra la diferente percepción entre el coordinador y los docentes del programa, así como la desarticulación y departamentalización de las unidades de aprendizaje que no contribuyen al logro del perfil de egreso; también que el docente prioriza los temas disciplinares sobre los ambientales. Se concluye que transversalizar el currículo con este emergente social es una vía para que los educandos cuenten con una formación integral para la atención de los problemas que aquejan al planeta, en dirección al desarrollo sustentable.

Palabras clave: educación superior, medio ambiente, sustentabilidad, transversalidad.

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Abstract

Environmental education is a field of action that allows us to address the problems that arise from the complex relationship between man and nature; transversality emerged as a strategy to influence the integral formation of the student, through the horizontal or vertical articulation of contents or subjects in an educational program. The objective of this study was to diagnose the presence of the environmental axis in the profile of degree and in the learning units (UAp) of degree in accounting of Universidad Autónoma de Guerrero (UAGro) to achieve sustainability in the curriculum. It is a research with a quantitative, transversal, descriptive and exploratory approach. A stratified probabilistic sampling of the six academies that make up the program was carried out. During the period May to December 2016, *the Diagnostic instrument on linking the transversal environmental axis* was applied to the coordinator of the educational program to know his perception of the link between the transversal environment axis and the graduation profile; This same instrument was applied to 17 teachers (25%), to analyze 17 learning units (34%), which served to identify the level of presence of the axis and its link with the graduation profile. The coordinator says that of thirteen elements that make up the environmental axis, three are not linked, nine are partially linked and one is poorly linked. In relation to teachers, for 83% there is some degree of linkage, while for 17% there is not. In relation to teachers, for 83% there is some degree of linkage, while for 17% there is not. In the case of the academies, only General Accounting Academy presents 25% of very linked; in contrast, the English academy is considered as not linked. The above shows the different perception between the coordinator and the teachers of the program, the disarticulation and departmentalization of the learning units that does not contribute to the achievement of the graduation profile, and that the teacher prioritizes the disciplinary subjects on the environmental ones. It concludes that transversalizing the curriculum with this emerging social is a way for pupils to have a comprehensive training to face the problems that afflict the planet in direction of sustainable development.

Keywords: higher education, environmental axis, sustainability, transversality.

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Resumo

A educação ambiental é um campo de ação que permite abordar os problemas decorrentes da complexa relação entre homem e natureza; A transversalidade emergiu como uma estratégia para influenciar a formação integral do aluno, através da articulação horizontal ou vertical de conteúdos ou assuntos em um programa educacional. O objetivo deste trabalho foi diagnosticar a presença do meio de eixo transversal no perfil de graduação e nas unidades de aprendizagem do grau de Contabilidade da Universidade Autônoma de Guerrero para alcançar a sustentabilidade no currículo. É uma pesquisa com abordagem quantitativa, transversal, descritiva e exploratória; uma amostra probabilística estratificada das seis academias que compõem o programa foi realizada. Durante o período de maio a dezembro de 2016, o instrumento de Diagnóstico sobre a ligação do meio do eixo transversal foi aplicado ao coordenador do programa educacional para conhecer sua percepção do vínculo entre o meio do eixo transversal e o perfil de graduação; Este mesmo instrumento foi aplicado a 17 professores (25%), para analisar 17 unidades de aprendizagem (34%), que serviram para identificar o nível de presença do eixo e seu vínculo com o perfil de graduação. O coordenador diz que de treze elementos que compõem o ambiente, três não estão vinculados, os nove estão parcialmente vinculados e um está mal relacionado. Em relação aos professores, para 83% há algum grau de ligação, enquanto que para 17% não existe. No caso das academias, apenas a Contabilidade Geral apresenta 25% de muito vinculados; em contraste, a do inglês é considerada como não vinculada. O que se segue mostra a percepção diferente entre o coordenador e os professores do programa, a desarticulação e a departamentação das unidades de aprendizagem que não contribuem para a consecução do perfil de graduação e que o professor prioriza os assuntos disciplinares nos aspectos ambientais. Conclui-se que a integração do currículo com este social emergente é uma forma de os alunos terem um treinamento abrangente para enfrentar os problemas que afligem o planeta, na direção do desenvolvimento sustentável.

Palavras-chave: educação superior, eixo ambiental, sustentabilidade, transversalidade.

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Introduction

Since the Industrial Revolution, human activities derived from economic development have generated environmental disturbances that, over time, have increased, such as climate change, acidification of the oceans, deforestation, pollution and loss of life. biodiversity, among others (Organization for Economic Co-operation Development [OECD], 2012; Ramírez and González, 2014). An alternative to address this crisis is to channel anthropogenic activities towards a new paradigm: sustainable development, seeking that all areas of action are actively involved and participate (Bermeo, 2003, Novo, 1996).

Environmental education for sustainability

Since the 1970s, environmental education (EE) has been proposed as an instrument to understand the complex relationships between the human being and nature, as an anteroom that contributes and promotes sustainability (Luque, 1999).

The absence of environmental content in educational programs means that graduates of universities do not develop the competencies that contribute to sustainable development, showing, on the contrary, a lack of awareness, will and willingness (Lingren, Rhode & Huisingh, 2006).

One objective of the formal EA is to provide students with elements to face the alterations that affect the planet (Martínez, 2012), while recognizing other issues of social relevance that universities should also include in their curriculum to influence training. integral of the student. These issues are gender, poverty and justice, to name a few (Argueta, 2009, González & Panchi, 2010).

It should be noted that some universities, in their effort to incorporate the environmental dimension into the curriculum, which contributes to sustainability, have made various strategies, including adding one or more EE subjects as compulsory or optional (National Association of Universities and Institutions of Higher Education [ANUIES], 2002); However, due to the lack of planning and articulation, an

atomization of the study plans is provoked, and this subject does not manage to articulate with the others, reason why in practice it ends up relegated (Nieto, 1999).

Curricular mainstreaming

Curricular mainstreaming is constituted as an alternative strategy that incorporates the ethical-moral dimension into the scientific function to improve the quality of education and overcome the fragmentation of the areas of knowledge, the apprehension of values and the formation of attitudes. Its objectives leave an open door to the attention of other socially relevant problems and it is presented as the most coherent model with the characteristics of the EA (Muñoz, 2010, Magendzo, 2005, International Resources Group [IRG], 2009).

In transversality, the disciplines are connected with the relevant emerging issues or problems -social, environmental or health- through axes (Díaz, 2010). The mainstreaming is developed from the definition of these axes that cross horizontally and vertically to the curriculum, characterized by being integrators by linking the knowledge of the subjects of study around them to contribute to an integral formation (Botero, 2008).

Watson, Lozano, Noyes and Rodgers (2013) refer that horizontal integration is the incorporation of sustainability concepts in several courses of the study plan; the vertical refers only to the incorporation of a new course. They argue that the second, although accepted, is insufficient. According to Colombo and Alves (2017), the most efficient way to integrate a subject into the curriculum is in a horizontal way, through activities that involve the learning acquired from various courses.

The transverse incorporation of the environment into the curriculum

Transversality arose in the 60s; and in the 90 it was consolidated in European countries such as England, Wales and France, among others. In Latin America, however, during the same decade, the adoption of the cross-cutting approach in countries such as Chile, Mexico and Argentina was just beginning (Díaz, 2010, Ministry of Education of Chile [MINEDUC], 2004). It is worth mentioning that transversality in Europe and Australia has been approached with a systemic and multidisciplinary approach (Vilches & Gil, 2012; Parra, 2002).

The late adoption of curricular mainstreaming in Latin American countries has been reflected in fewer published studies on this subject. The one made by Tello and Pardo (1996) stands out, who analyzed the presence of EE in the level of secondary education in 16 Ibero-American countries; the results showed that although it is present, the way in which it is integrated into the curriculum is not homogeneous, appearing in some cases as an independent discipline or as a transversal axis in the curriculum. Another study carried out at the Universidad de Concepción of Chile by Torres, Benavides, Latoja and Novoa (2017) evaluated the presence of the main axes of the EA, namely knowledge, attitudes and practices, in teachers who teach Natural Sciences in Basic General Education of municipal educational establishments of the Chilean city of Los Angeles. The investigation evidenced the lack of cohesion of the axes in question, causing the students not to receive the teaching of the subject in an adequate way.

In Mexico and Colombia, EE has been incorporated into the curriculum as a subject limited to the ecological, alien to others and decontextualized (Rojas & Londoño, 2016, Martínez & González, 2015, Eschenhagen, 2011).

By reviewing the curriculum and the programs that integrate it and with the purpose of evaluating the inclusion of the EA, Campos, López and Ramírez (2017) made an analysis of the degree programs with a specialty in biology of the normal schools of Mexico; the result was that it is partial and incomplete, remitted - as anticipated above - only to the ecological.

The analysis of these experiences shows that while European and American universities have studies to diagnose the presence of the environment in their curricula, sometimes as an integrated dimension in sustainability, in Latin America in general and in Mexico in particular, studies they are incipient and represent an area of opportunity.

The scientific contribution of this work is to offer documented information on the incorporation of environmental transversality in the curriculum as a training strategy; the objective of diagnosing the presence of the transversal axis "Environment" in the graduation profile and in the learning units of the Accounting Degree of the Autonomous University of Guerrero (UAGro) as a way to achieve sustainability in the curriculum was established.

Method

This research is of quantitative, transversal, exploratory and descriptive focus, it was carried out in the Faculty of Accounting and Administration (FCA) of UAGro. The opinion of the coordinator of the educational program and of the teachers was evaluated with respect to the presence of the transversal axis and its degree of connection with the graduation profile and the learning units of the Accounting Degree.

The FCA is part of the UAGro educational offer and has two bachelor's degrees (Accounting and Administration); in 2011 their study plans were redesigned with support in Competency-Based Education (EBC), aimed at training professionals with a relevant profile and consistent with the demands of an increasingly globalized and interrelated world.

The Bachelor's Degree in Accounting from UAGro was considered for this research because its study plan is again in the process of being updated, as well as being positioned at the state level as one of the three with the highest demand (Universidad Autónoma de Guerrero [UAGro] , 2016). Finally, it was interesting to analyze the construct presented by the teachers of an educational program that, although it is based on the EBC, in its learning units a traditional approach predominates.

For the data collection, the Diagnostic instrument on linking the transversal axis "Environment" was used in the graduation profile of the methodology proposed by Aparicio, Rodríguez, Beltrán and Sampedro (2014); consists of a structured survey directed to the coordinator of the educational program and to the teachers to identify the presence of the "Environment" axis according to the degree to which its elements are linked to the graduation profile and the learning units.

This instrument is supported by the EBC and the postulates of the integral formation (Universidad Autónoma de Guerrero [UAGro], 2013), as well as in an analysis of theoretical and conceptual referents of the environmental axis, such as González (2000), Galochet (2009) and the United Nations Environment Program [PNUMA] (2006).

The questionnaire in the form of a test consisted of 13 elements: four knowledge, five skills and four attitudes and values (described in table 1) that were answered with four different levels of responses on the Likert scale:

- Very linked to the exit profile (three points).
- Partially linked to the graduation profile (two points).
- Little linked to the graduation profile (one point).
- It is not linked to the exit profile (zero points).

Tabla 1. Elementos del eje medio ambiente

Conocimientos	Habilidades	Actitudes y valores
- Conoce los fundamentos y conceptos básicos sobre la biodiversidad (interrelación del aire, agua, suelo y ecosistemas). - Identifica los conceptos sobre los recursos naturales que tiene el estado de Guerrero, México y el mundo. - Distingue actividades para el aprovechamiento de los recursos naturales. - Relaciona las causas y consecuencias de problemáticas ambientales.	- Analiza situaciones relacionadas con el impacto ambiental. - Desarrolla proyectos de desarrollo sustentable. - Aplica métodos para mitigar los efectos de los problemas ambientales. - Promueve el uso de tecnologías limpias (ecotecnias). - Trabaja con creatividad y rigor científico en la solución de problemas ambientales.	- Valora la diversidad natural. - Se conduce con ética y respeto por la conservación y cuidado del medio ambiente. - Desarrolla una cultura de responsabilidad en la búsqueda de alternativas de solución de los problemas ambientales. - Toma iniciativas en la construcción de soluciones de tipo colectivo.

Fuente: Aparicio *et al.* (2014)

The responses of the diagnostic instrument were rated globally according to the degree of linkage (described in table 2). The information collected was analyzed according to the measurement scales. According to the objective of the research, it was organized, edited and codified in a database using a spreadsheet for analysis by descriptive statistics.

Tabla 2. Grado de vinculación

Muy vinculado	Parcialmente vinculado	Poco vinculado	No se vincula
36-52 pts.	18-35 pts.	1-17 pts.	0 pts.

Fuente: Aparicio *et al.* (2014)

The unit of analysis was the study plan (graduation profile and learning units) of the Bachelor of Accounting. The period in which the surveys were applied to the target population comprised the months of May to December 2016.

Population or object of study

The coordinator of the educational program was considered to identify the level of linkage of the axis with the graduate profile of the degree because he was responsible for coordinating the work of updating the study plan in 2011 and knows its scope.

This plan of the Bachelor in Accounting of UAGro is composed of 55 learning units grouped into three stages of training: stage of institutional training, stage of professional training (core training by disciplinary area and specific vocational training core) and the stage of linkage and integration (described in table 3).

Tabla 3. Etapas de Formación y UAp en la Licenciatura en Contaduría

Etapa	Unidades de aprendizaje
Institucional	6
Profesional	44
Integración y vinculación	5
TOTAL	55

Fuente: Elaboración propia

Of the total learning units, only 50 were considered, which are mandatory, grouped into six academies: General Accounting, General Administration, Information Technology, Quantitative Methods, Legal Socioeconomics and English. The teaching staff consists of 68 teachers as opposed to a group (described in table 4).

Tabla 4. Unidades de aprendizaje y planta docente por academia en la Licenciatura en Contaduría

Academia	Unidades de aprendizaje	Docentes
1. Contabilidad General	23	37
2. Administración General	6	11
3. Informática	5	4
4. Métodos Cuantitativos	7	5
5. Socioeconómica Jurídica	7	7
6. Inglés	2	4
Total de docentes	50	68

Fuente: Elaboración propia

From the population, a sample of learning units was selected through the stratified probabilistic sampling technique (Hernández, Fernández and Baptista, 2006) and the following formula was used:

$$n = \frac{N}{1+N(e^2)} \qquad (1)$$

Where n is equal to the size of the sample; N to the size of the population, and e to the permissible sampling error. When defining the values considered, namely, N = 50 (compulsory learning units) and e = 20%, the formula is replaced as follows:

$$n = \frac{50}{1 + 50(0.2)^2}$$

Which results:

$$n = 17 \text{ (unidades de aprendizaje)}$$

In other words, based on the formula used for a total population of 50 learning units, a representative sample of 17 was obtained, which is equivalent to 34%, distributed among the academies: General Accounting, General Administration, Computing, Quantitative Methods, Socioeconomic Law and English, to give precision in the results of the research (described in table 5). The instrument was applied to 17 teachers, one for each unit and the coordinator of the educational program.

Tabla 5. Muestra seleccionada de unidades de aprendizaje y docentes por academia

Academia	Población (unidades de aprendizaje)	Muestra (unidades de aprendizaje)	Muestra (Docentes)
Contabilidad General	23	8	8
Socioeconómicos	7	2	2
Jurídicos			
Métodos Cuantitativos	7	2	2
Administración General	6	2	2
Informática	5	2	2
Inglés	2	1	1
TOTAL	50	17	17

Fuente: Elaboración propia

Results

The results are presented in accordance with the responses of the coordinator of the educational program, in his role as responsible for the preparation and updating of the study plan and, therefore, the graduation profile.

Graduation profile

The 13 items structured into elements -knowledge, skills and attitudes and values- were rated by the coordinator of the educational program as follows: three unrelated, nine little linked and one partially linked (described in table 6). Depending on the weighting of the Likert-type linkage scale, the result corresponds to the little linked interval that ranges from 1 to 13 points.

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Tabla 6. Respuestas del coordinador del programa educativo a los ítems

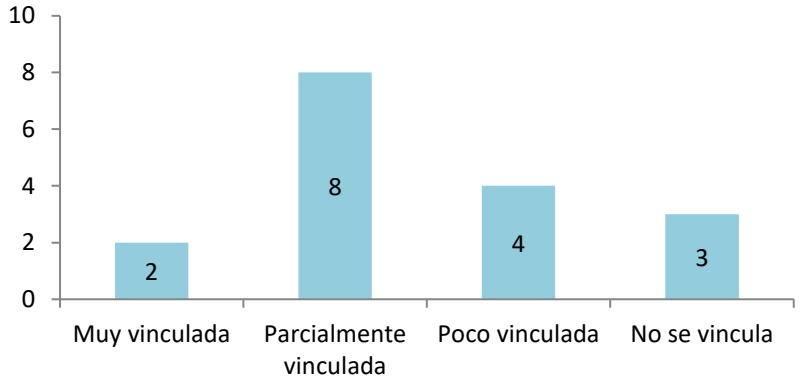
Elementos y sus ítems	Parcialmente vinculado	Poco vinculado	No se vincula
Conocimientos			
- Conoce los fundamentos y conceptos básicos sobre la biodiversidad (interrelación del aire, agua, suelo, flora, fauna silvestre, y ecosistemas).		√	
- Identifica los conceptos sobre los recursos naturales que tienen el Estado de Guerrero, México y el mundo.		√	
- Distingue actividades para el aprovechamiento de los recursos naturales.			√
- Relaciona las causas y consecuencias de problemáticas ambientales.		√	
Habilidades			
- Analiza situaciones relacionadas con el impacto ambiental.		√	
- Desarrolla proyectos de desarrollo sustentable.			√
- Aplica métodos para mitigar los efectos de los problemas ambientales.			√
- Promueve el uso de tecnologías limpias (ecotecnias).	√		
- Trabaja con creatividad y rigor científico en la solución de problemas ambientales		√	
Actitudes y valores			
- Valora la diversidad natural.		√	
- Se conduce con ética y respeto por la conservación y cuidado del medio ambiente		√	
- Desarrolla una cultura de responsabilidad en la búsqueda de alternativas de solución de los problemas ambientales.		√	
- Toma iniciativas en la construcción de soluciones de tipo colectivo		√	

Fuente: Elaboración propia

Learning units

Regarding the items proposed to the 17 teachers, 83% identified some type of linkage with the elements of the transversal axis, while 17% stated that it does not exist (see figure 1).

Figura 1. Diagnóstico de la presencia del eje "Medio ambiente" en la unidad de aprendizaje



Fuente: Elaboración propia

Regarding the valuation by academia, General Accounting presents 25% of the learning units (Accounting I and Auditing I) as closely related to the elements of the "Environment" axis, while the remaining 75% is distributed among partial, little or nothing linked. In the case of the English academy, the units are not linked (see table 7).

Tabla 7. Valoración por docentes para diagnosticar la presencia del eje "Medio ambiente" en las unidades de aprendizaje

Muy Vinculada	Parcialmente Vinculada	Poco Vinculada	No se Vincula
Contabilidad I (CG) Auditoría I (CG)	Contabilidad IV (CG) Administración I (AG) Administración III (AG) Informática I (INF) Informática II (INF) Economía II (MC) Matemáticas Financieras (MC) Pensamiento Lógico Heurístico (SJ)	Contabilidad II (CG) Contabilidad III (CG) Fiscal II (CG) Fiscal IV (CG)	Fiscal I (CG) Habilidades de la Comunicación (SJ) Inglés I (ING)

Academias: Contabilidad General (CG), Socioeconómicos Jurídicos (SJ), Métodos Cuantitativos (MC), Administración General (AG), Informática (INF), Inglés (ING)

Fuente: Elaboración propia

Discussion

The results obtained show that some of the learning units of the discipline have different degrees of linkage with the "Environment" axis, such as Accounting I, which is closely linked; Accounting IV, partially linked, and Accounting II and III, little linked. This shows a lack of coordination between the academies and the inattention of the teachers in terms of the relevance of the content they teach, giving priority to disciplinary topics on social emergencies.

To put these results in perspective, other cases that analyzed the environmental problems in curricula of different educational levels will be cited. Such is the case of Colombo and Alves (2017), who made a diagnosis of the cross-sectional presence of sustainability in the curriculum of the Portuguese Public University, based on an analysis of 66 master's and doctoral programs in engineering. They identified 9 as strongest, 17 medium and 40 as weakest. They conclude that teacher training programs should be strengthened and the inclusion of interdisciplinary methodologies to advance in mainstreaming. The EA for sustainable development requires a reflection and a collaborative dialogue that can not be decreed; the teaching conditions and values of the teaching staff must be investigated (Hamiti and Wydler, 2014). On the other hand, Watson et al. (2013) propose three levels in the transverse incorporation in the undergraduate and graduate programs of Civil and Environmental Engineering at the Georgia Institute of Technology, United States: (I) important advances; (II) some limited progress, and (III) difficulties in spite of interest.

An investigation carried out in Bogotá, Colombia, where the presence of environmental issues in educational programs was evaluated, through interviews applied to 11 directors of undergraduate degrees in Public Accounting from different universities, showed that only six had a positive result. The foregoing indicates the deficiencies in the approach to the subject, which prevents students from appropriating basic concepts about environmental problems, as well as proposing global solutions (Poveda, 2011).

Another research carried out in 77 educational programs of the University of Guanajuato aimed to identify and quantify the subjects that addressed the environmental dimension. The results showed that nine educational programs, within them

Accounting, do not include in the training of their professionals activities that integrate this perspective (Araiza, 2017).

In a different context, but related to the subject, Azcarate, Navarrete and García (2012) conducted a curriculum sustainability study, exploring the teaching practices of three professors from the University of Cádiz (UCA) who carry out their professional activity in different degrees; the result showed that teachers privilege the presence of disciplinary content, linked to the reality of the future profession, on issues related to environmental problems.

This situation is not peculiar to the bachelor's degrees in Accounting. A study conducted in 2014 at the UAGro evaluated the presence of the "Environment" axis in 12 higher education programs, with the participation of curricular design coordinators; even though five were closely linked, the rest showed the need to strengthen their presence to contribute to sustainable development through education (Aparicio et al., 2014).

In the case of the graduate profile of the Bachelor of Accounting, it is evident that there is little connection with elements of the "Environment" axis. In the opinion of the coordinator of the educational program, environmental competences (knowledge, skills and attitudes and values) are not incorporated into the student's training. Succar and Araiza (2017) suggest that, along with the disciplinary knowledge related to current problems, training in values and ethical behavior with social responsibility is important.

This work is similar to the previous ones because it investigates directly with teachers and students, as main actors in the educational process, about the presence of the environment in educational accounting programs. However, it is different because it incorporates the coordinator of the program as a key informant, depending on being responsible for the curricular update, and took as its object of study the learning units and their connection with the graduation profile.

The results of this investigation, of exploratory and descriptive scope, are partial and not definitive; It will be continued with a methodological proposal to mainstream the "Environment" axis in the curriculum, seeking awareness and involvement of teachers, coordinators and authorities of the educational program within the framework of updating the study plan.

Conclusions

The planetary environmental crisis demands that universities fulfill their mission to train graduates with the necessary competencies to attend to emerging social issues, including those related to the environment, as a way to achieve sustainable development.

Although the UAGro considers sustainability as one of its guiding principles in its educational model, and its respect for the environment in its code of ethics, this does not materialize in the design of its study plans or in its respective programs. of learning units.

The results of the diagnosis carried out showed that the majority of the respondents consider that the "Environment" axis is not closely linked to the graduation profile and the learning units of the Accounting Degree of the observed educational establishment. The above shows that the teacher gives more weight to disciplinary issues on environmental issues.

It is also noteworthy that the participation of the coordinator and the teachers allowed to have a comprehensive vision of the educational program under study.

For all the above, it is necessary to strengthen the processes of teacher training, both in environmental issues and didactic skills, but also in transversality, so that this important training strategy can be developed.

Transversalizing the "Environment" axis in the curriculum with the participation of teachers, coordinators and education authorities is the best strategy for students to have a training that is relevant to current needs and requirements, oriented towards sustainability.

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