Metodología para la transversalidad del eje medio ambiente

Methodology for transversality of the environmental axis

José Luis Aparicio López
Universidad Autónoma de Guerrero
jlcoordinador@hotmail.com

Columba Rodríguez Alviso
Universidad Autónoma de Guerrero
columba26@yahoo.com

Juana Beltrán Rosas
Universidad Autónoma de Guerrero
rosas_gro@hotmail.com

Resumen

Este artículo presenta una metodología para identificar la presencia del eje medio ambiente en programas educativos de Licenciatura en la Universidad Autónoma de Guerrero, México. Se sustenta en la educación basada en competencias y en el constructivismo, por ser enfoques que recurren al humanismo para abordar problemáticas actuales. Se divide en cuatro fases: conformación del comité, análisis de referentes teóricos y conceptuales, construcción y aplicación de instrumentos en un programa educativo, e identificación del nivel de transversalidad. Aunque la metodología propuesta se aplica al medio ambiente, es factible de adaptarse a otros ejes transversales, como derechos humanos, multiculturalidad y pobreza, pertinentes para el contexto educativo del estado de Guerrero.

Palabras clave: Educación ambiental, educación basada en competencias, educación superior, plan de estudios

Abstract

This paper presents a methodology to identify the presence of axis environment in educational programs Bachelor's degree in the Autonomous University of Guerrero, Mexico. It relies on education based on competencies and constructivism, as approaches that rely on humanism to address current problems. It is divided into four phases: formation of the Committee, analysis of theoretical and conceptual references, construction and application of instruments in an educational program, and identification of transversality level. Although the proposed methodology is applied to the environment, It is feasible to adapt to other transversal axis, as human rights, multiculturalism, and poverty, relevant to the educational context of the State of Guerrero.

Key Words: Environmental education, competency-based education, higher education, curriculum

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Introduction

In 2010 the Autonomous University of Guerrero (UAGro) initiated the revision of the curricula of higher education, by forming an interdisciplinary team called Institutional Commission of Education Development (CIDE), that proposed a guide to update and redesign their curricula. This group found, among other things, more than 70% was not within the framework of a Competency-Based Education (EBC) nor incorporating the guiding principles of its Educational and Academic model (MEyA). Although they were profiled the transversal themes of environment, human rights, gender, multiculturalism and poverty, these were not concretized in Units of Learning Programs (UAp) and, Consequently, neither in their class plan or descriptive letter; It is worth mentioning that this instrument has been updated and institutionalized as didactic sequence. Some authors who established the need to integrate cross-cutting themes in the curriculum are Yus (1998), Palos (2000), Molina (2007) and Nieto (1999).

This article proposes a methodology that allows to identify the presence of axis environment in the curricula of Educational Programs (PE) of higher education. It is the result of a research carried out between 2012 and 2013; we worked with a sample of twelve

programs to determine if they included it in any of its stages of formation. We utilized the research-action method, based on information provided by the coordinators of the Committees of Curricular Design (CDC), as well as the point of view of different UAp teachers of every participating PE.

THEORETICAL AND METHODOLOGICAL BASIS

The development of the methodology for diagnosing shaft cross-cutting environment is based on the theories of constructivism and humanism to be relevant for a comprehensive training of the student.

1. Constructivism and humanism in higher education

Constructivism argues that knowledge is represented differently in the human mind. It is based on discovery learning, learning by doing. Knowledge is actively produced by the subject, but not as a mere copy of reality, but with a sense for the person, while allowing it to adapt to their environment; It is not reduced to the external that it includes the own constructions.

The EBC socioformativo approach is rooted in humanism because it is considered to be competent should be ethical, this implies that the various educational areas training is working on coexistence, solidarity, justice, respect and search of self-realization (Tobon, 2010), especially in this century that there is a global trend to seek solutions "humanist" to the problems we live (Chacón, 2000).

The purpose of higher education is the formation of a useful citizen, conscious, who possesses knowledge, skills, attitudes and values that enable them to contribute to the development of society. This person who goes to a university must be distinguished not only by its knowledge but for their willingness to serve others (Salgado, 2006). In addition, you must have the ability to think critically, to analyze, identify problems, and research to come up with practical, feasible and effective solutions. You must also be able to relate to others, to work in teams and to use technological tools to carry out the tasks of the profession.

In the current international context, it is recognized that student learning is developed in stages and that the fundamental or core competencies provide a livelihood for more specific. Some are common to all professions, such as critical thinking, interpersonal relationships, use of language and management technologies, while others are specific and correspond to the disciplinary field (Salgado, 2006).

EBC This approach is consistent with the UNESCO proposal (1996), which provides an education based on four pillars: learning to know, it is that each person learns to know and understand the world around him, with technological changes , economic and social, to live with dignity, develop their skills and communicate with others, and also be happy in their learning; learning to do, means going beyond the apprenticeship is learning a competition to face different and unpredictable situations, is also teamwork and switch between school and work in a real context; learning to live together, is undertaking joint projects, resolve conflicts intelligently and analyze the risks and challenges of the future; and learning to be, it is to develop autonomy and strengthen judgment and personal responsibility in the collective destiny.

In higher education, they deserve special attention emerging social issues that seek to address issues such as inequality, discrimination, violence, poverty and environmental degradation; hence the importance of incorporating into the curriculum in all areas of knowledge.

Since the late sixties of last century began to address environmental issues in international meetings and agreements to halt or mitigate damage. The efforts resulted in the eighties that the environmental dimension is incorporated into formal and informal education systems and consederara environmental education as a tool for sustainability in curricula at different levels, with an interdisciplinary approach (UNEP, 2012).

These issues should be addressed transversely and emphasize the emotional or attitudinal; treatment should go beyond the classroom, become a bridge between common knowledge and scientific knowledge between academia and reality (Yus, 1998).

2. Mainstreaming

There are three stages in the evolution of mainstreaming. Initially, cross-cutting themes are only added to the contents of the subjects; Later, when they began to consider as knowledge, skills and attitudes they thought of applying them and relate them to other subjects across the curriculum; in a third and last time they were resumed in the projects, to be addressed in an integrated and contextualized way (Gavidia, 2000). This research studied the transversal axis from passing through the curriculum, this corresponds to the second stage proposed Gavidia.

Palos (2000) states that the transverse axes are determined by issues or issues of social relevance situations analyzed in all its conceptual complexity and ethics throughout the curriculum. According to Molina (2007), the transverse axes involve skills development on issues relating to the identification of hazards, vulnerability reduction and prevention or mitigation of risk. Means an approach to everyday life and contextualize the content through real situations.

Mainstreaming might think from the dimensions: institutional, to carry out actions for the climate of the organization; curricular, through the incorporation of knowledge, skills and attitudes; and as a social emerging to address issues that society demands Luzzi (2000).

3. Mainstreaming in UAGro

In the case of the UAGro, the MEYA makes a distinction between threads and transverse axes. The former refers to the training of students, these are heuristic, theoretical and epistemological, axiological and socio-professional; Meanwhile, cross-cutting themes are related to social, ethical, economic, technological and cultural issues: human rights, environment, gender, technology, media, multicultural, school discipline, diversity, pluralism, equality, freedom and poverty (UAGro , 2004).

For this research, based on the theoretical refrerentes exposed, cross UAGro issues are considered as crosscutting and analyzed as emerging social demanding comprehensive attention from the curriculum.

4. Methodology

The qualitative method of action research continued to be a singular paradigm, critical, linked to professional practice and focused on the transformation and change; (McKernan, 1999). CDC coordinators participated twelve and twelve teachers of UAP, with representation from all areas of knowledge. (Table I).

This is a descriptive study that looked at the rationale, implementation and extrapolation in two dynamic and continuous cycle of four phases each. Structured interview techniques and unstructured observation were used. It was a systematic and collective reflection, whose expertise was used to improve the methodology set out in Table II.

Table I. education programs and learning units participating in the diagnosis of mainstreaming

Nur	Programa Educativo	Unidad de aprendizaje	Área de conocimiento
1	Biología	Ecología de comunidades y Ecosistemas	Ciencias Naturales y Exactas
2	Ingeniería en Sistemas Ambientales	Análisis de Sistemas Ambientales	
3	Ingeniería en Producción Sustentable	Liderazgo y Autogestión	
4	Ingeniería en Recursos Maderables y no Maderables	Liderazgo y Autogestión	
5	Ingeniero Topógrafo y Geomático	SIG y Gestión de Recursos Naturales	Ingeniería y Tecnología
6	Enfermería 4	Bioquímica, Nutrición y Salud	Ciencias de la Salud
7	Enfermería 1	Salud Reproductiva	
8	Artes	Análisis del Mundo Contemporáneo	Educación y Humanidades
9	Ciencias de la Educación	Educación y Desarrollo Sustentable	
1	Ciencias Políticas y Administración	Políticas Públicas I	Ciencias Sociales y Administrativas
1	Sociología de la Comunicación y Educación	Métodos de Investigación I	
1	Desarrollo Regional	Geografía Regional	

Table II. Phases of action research

	Ciclo 1	Ciclo 2
Planificación	Selección de participantes. Diseño de instrumentos. Definición de componentes del eje transversal medio ambiente.	Corrección de instrumentos.
Actuación	Prueba piloto con la aplicación de instrumentos de diagnóstico.	Aplicación de instrumentos.
Observación	Reuniones para abordar la transversalidad con los participantes.	Observación de la forma como respondían los instrumentos, con apoyo del plan de estudios y el programa de UAp de la que son responsables.
Reflexión	Análisis de las respuestas de la aplicación de la prueba piloto.	Esta fase representa el análisis de resultados con los que se elaboró la guía metodológica propuesta.

METHODOLOGY FOR DIAGNOSING THE PRESENCE OF MIDDLE SHAFT ENVIRONMENT

The methodology of this model serves as a reference for diagnosis of gender mainstreaming in the curricula of higher education institutions, both within the UAGro and other institutions. Proposes four phases, namely:

1. Establishment of a Curriculum Design Committee (CDC)

For the collegial work is recommended to consider the following:

a. Convene full-time teachers and stakeholders to work collaboratively on various meetings on: the definition of the transverse axis, the construction and implementation of a pilot test instruments and generalization, analysis of results and evaluation of the whole process.

b. Due to the above, structure a Curriculum Design Committee (CDC) responsible for conducting an assessment of the environmental presence in their PE transverse axis.

c. CDC appoint a coordinator who convene regular or special meetings, coordinate the work, record the evidence and encourages collaborative work.

2. Analysis of theoretical and conceptual references of the median transverse axis environment

At this stage the environment transverse axis is conceptualized and its components are defined in a framework of the EBC. The shaft should be validated by a team of specialists in education and the environment, with the analysis of different theoretical and methodological approaches. In this case it was consulted Gonzalez, 2000; Galochet, 2009; and UNEP 2006, among others.

Although some authors the expression is redundant environment, literature in Spanish is accepted by its strong roots in the everyday (RAE, 2013). The environment concept is a "hybrid between nature and society, incorporating therein a number of factors working in

the media in which man lives." It contains a variety of biotic and abiotic components; processes of exploitation, degradation and modification; and practices, applications, games and conflicts of individuals (Galochet, 2009). Multidisciplinary and cross deserves treatment because over the years has been incorporated into the school curriculum through their natural, social and economic dimensions (Gonzalez, 2000; Galochet, 2009). UNEP (2006) recognizes that it has an economic development and should therefore be protected by humans.

For this model, the environment transverse axis consists of the components: knowledge, skills, attitudes and values related to the study of the interaction of air, water, soil and ecosystems where humans get a social benefit and add value economic, within a framework of sustainable development.

To define the components are considered the reasons stated and the principles of comprehensive education (UAGro, 2004). They describe the performance to be achieved by a trained graduate in

environment axis (Table III). It is made up of four knowledge, and four six skills attitudes and values, and considered by an expert group on the subject, the amount may be variable in other crosscutting.

Table III. Axis components of the environment

Conocimientos	Habilidades	Actitudes y valores
• Construye conocimientos sobre la interrelación del aire, agua, suelo y ecosistemas. • Construye conocimientos sobre los recursos naturales que tiene el estado de Guerrero, México y el mundo. • Construye conocimientos sobre el aprovechamiento de los recursos naturales. • Construye conocimientos sobre las causas y consecuencias de problemas ambientales.	• Analiza situaciones relacionadas con el ambiente. • Evalúa 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. • Muestra respeto por la conservación y cuidado del medio ambiente. • Posee actitudes de responsabilidad en la búsqueda de alternativas de solución de los problemas ambientales. • Toma iniciativas en la construcción de soluciones de tipo colectivo.

The components of the shaft atmosphere here referred to are: knowledge and learning to understand the relationships of the Earth system where humans get natural resources and can cause environmental problems. The skills and learning to do from knowledge. Finally, attitudes and values such as learning to live together and to be adopting a position of respect, responsibility, commitment and collaborative work in solving environmental problems.

3. Construction and application of tools to diagnose the presence of the transverse axis in a PE

Construction and implementation of three instruments is required to diagnose mainstreaming environmental axis.

The design of the instrument 1, as prepared questionnaire, involves clarifying certain elements of the curriculum, such as: the educational program as an institutional document; the area of knowledge where every educational program is located; the graduate profile, to recognize the attributes that must have all graduated; and the learning unit (PMU), which sees competition and duration of the activities to develop. The instrument 1 is not included

in the job but its essence is reflected in the tool 2 through environmental components transverse axis and forming steps.

The instrument 1 enables teachers interviewed to determine if they are present or axle components in the competence of its PMU and to what extent, the expected responses are: fully, partially, little or nothing.

It is essential that for this phase, the group of participating teachers know CDC and the methodology with which the PE was built conceptually understand mainstreaming and manage their components.

Pilot

The pilot with the application of the instrument 1 to some teachers, selected by random sampling is done. It should be noted systematically and keep a record of how to respond. It is essential to support the curriculum and program of UAP for which they are responsible.

Generalization

The observations made by teachers in the pilot are analyzed and selected the most relevant for making adjustments. After the instrument is set and applies to teachers, to cover 100% of UAP EP.

4. Identification of the level of mainstreaming

The instrument 2 (Figure 1) the information gathered with the application of the instrument 1 in order to quantify the presence of the components of the transverse axis (Table III) in PE, at each stage of training is systematized. For the above the following applies:

a. It requires having applied the instrument 1 on all PE UAP.

b. The nomenclature is: UAp1 (Learning Unit 1), UApO1 (Optional Learning Unit 1

c. If the instrument 1 reveals the existence of a component of the transverse axis in the UAP, it is assigned as a value number 1.

d. The presence of axis components forming step is identified. The knowledge to be acquired in three stages, but with emphasis on the EFI. Similarly, learning skills emphasized in VET; and the acquisition of attitudes and values in EIyV.

e. The horizontal and vertical values are added. Frequency is the number of times the expected environmental components are presented in the shaft UAP.

f. The frequency components show a change in the number of UAP of each PE. The example shown is 49 U

Componentes del eje transversal (14 componentes)		Etapa de Formación Institucional (6 UAp)	Etapa de Formación Profesional (35 UAp)		Etapa de Integración y Vinculación (8 UAp)	**Total** Frecuencia de los componentes en la (s) etapa(s)
			Núcleo de Formación Profesional Básica	Núcleo de Formación Profesional Especifica		
Conocimientos	Construye conocimientos sobre la interrelación del aire, agua, suelo y ecosistemas.	UAp1 ,UAp2, UAp3, UAp4, UAp5, UAp6 (1+1+1+1+1+1+1) = **6**	UAp1, UAp2, UAp3…N UApO1, UApO2…N (1+1+1+N…)=**35**		UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**49**
	Construye conocimientos sobre los recursos naturales que tiene el estado de Guerrero, México y el mundo	**UAp1, UAp2, UAp3, UAp4, UAp5, UAp6 (1+1+1+1+1+1+1) = 6**	UAp1, UAp2, UAp3…N UApO1, UApO2…N (1+1+1+N…)=**35**		UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**49**
	Construye conocimientos sobre el aprovechamiento de los recursos naturales.	**UAp1, UAp2, UAp3, UAp4, UAp5, UAp6 (1+1+1+1+1+1+1) = 6**	UAp1, UAp2, UAp3…N UApO1, UApO2…N (1+1+1+N…)=**35**		UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**49**
	Construye conocimientos sobre las causas y consecuencias de problemas ambientales.	**UAp1, UAp2, UAp3, UAp4, UAp5, UAp6 (1+1+1+1+1+1+1) = 6**	Ap1, UAp2, UAp3…N UApO1, UApO2…N (1+1+1+N…)=**35**		UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**49**
Habilidades	Analiza situaciones relacionadas con		UAp1, UAp2, UAp3…N UApO1, UApO2…N		UAp1, UAp2, UAp3…N (1+1+1+N…)=	**43**

	el ambiente.		(1+1+1+N…)=**35**	**8**	
	Evalúa el impacto ambiental.		**UAp1, UAp2, UAp3…N UApO1, UApO2…N (1+1+1+N…)=35**	UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**43**
	Desarrolla proyectos de desarrollo sustentable.		**UAp1, UA2p, UAp3…N UApO1, UApO2…N (1+1+1+N…)=35**	UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**43**
	Aplica métodos para mitigar los efectos de los problemas ambientales.		**UAp1, UAp2, UAp3…N UApO1, UApO2…N (1+1+1+N…)=35**	UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**43**
	Promueve el uso de tecnologías limpias (ecotecnias).		**UA1, UA2, UA3…N UAO1, UAO2…N (1+1+1+N…)=35**	UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**43**
	Trabaja con creatividad y rigor científico en la solución de problemas ambientales.		**UA1, UA2, UA3…N UAO1, UAO2…N (1+1+1+N…)=35**	UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**43**
Actitudes y valores	Valora la diversidad natural.			UAp1, UAp2, UAp3…N (1+1+1+N…)= **8**	**8**
	Muestra respeto por la conservación y cuidado del medio ambiente.			**UAp1, UAp2, UAp3…N (1+1+1+N…)= 8**	**8**
	Posee actitudes de responsabilidad en la búsqueda de alternativas de solución de los problemas ambientales.			**UAp1, UAp2, UAp3…N (1+1+1+N…)= 8**	**8**
	Toma iniciativas en la construcción de soluciones colectivas.			**UAp1, UAp2, UAp3…N (1+1+1+N…)= 8**	**8**
TOTAL		**24**	**350**	**112**	**486**

Figure 1. Tool 2 (Identification of the presence environmental axis in a PE UAGro of 49 UAp)

With the results of the instrument 2, the instrument is built 3. Calculations were performed to identify the percentages and total formation stage (Figure 2).

a. The nomenclature is: C (Knowledge), Y (skills) and AV (Attitudes and Values).

b. If there are 6 UAP in EFI (first stage) and 4 components, there will be a frequency of 24, the maximum value for this stage.

c. If there are 35 UAP in VET (second stage) and 10 components, there will be a frequency of 350, maximum value for this stage.

d. If there are 8 UAP IVUS (third stage) and 14 components, there will be a frequency of 112, which is the maximum value for this stage.

e. Thus, a frequency will have a minimum value of 0 and a maximum of 486 around the PE.

f. Mainstreaming four levels are considered: nothing, little, fairly and fully.

g. The minimum and maximum values are distributed at each level of mainstreaming (none, little, medium and full), arithmetically.

Note, for example, that in the stage of institutional training, six UAP, if anything mainstreamed level has a frequency of up to 25%, equivalent to a range of 0-6; these percentages increase arithmetically at each level; in the fully mainstreamed it would have a frequency between 76 and 100%, equivalent to an amount of between 19 and 24 components. In this case, it is essential that the four components of the transverse axis (corresponding to knowledge) are present in stage impregnated maximum possible UAP. With this same logic Stages of Training and Integration and Linkage interpreted in Figure 2.

ETAPA DE FORMACIÓN	UNIDADES DE APRENDIZAJE	COMPONENTES DEL EJE MEDIO AMBIENTE			NIVEL DE TRANSVERSALIDAD			
		NÚM. DE COMPO-NENTES	VALOR MÍNIMO	VALOR MÁXIMO	NADA TRANSVERSALIZADO	POCO TRANSVERSALIZADO	MEDIANAMENTE TRANSVERSALIZADO	PLENAMENTE TRANSVERSALIZADO
					frecuencia menor de 25%	**frecuencia de 26 a 50%**	**frecuencia de 51 a 75%**	**frecuencia de 76 a 100%**
ETAPA DE FORMACIÓN INSTITUCIONAL	6	**4** C	0	24	de 0 a 6	de 7 a 12	de 13 a 18	de 19 a 24
ETAPA DE FORMACIÓN PROFESIONAL	35	4 C+6 H=**10**	0	350	de 0 a 88	de 89 a 175	de 176 a 263	de 264 a 350
ETAPA DE INTEGRACIÓN Y VINCULACIÓN	8	4 C+6 H+4 AV= **14**	0	112	de 0 a 28	de 29 a 56	de 57 a 84	de 85 a 112
TOTAL	49	**14**	0	486	de 0 a 121	de 122 a 243	de 244 a 364	de 365 a 486

Figure 2. Instrument 3. Identification of the level of mainstreaming

The total values indicate the level of mainstreaming of all the EP, in three stages, with each level divided into ranges, with a frequency of 0 to 486. The ideal level is fully mainstreamed. The EP analyzed should have a frequency of between 365 and 486. A PE nothing mainstreamed levels shortly mainstreamed and medium mainstreamed must have a mainstreaming process to absorb the environmental axis. This work should then be coordinated by the CDC.

Recommendations

Finally, consider that:

a. The presence of all components within a maximum of UAP, especially on best, provides a global vision of the curriculum (frequency of 76% to 100%).

b. They should consider new contents in the EP, they must adapt or reinterpret existing ones.

c. Midhinge environment, or other, must respond to emerging social problems or the university context.

d. In each PE should be a differentiation in the components:

• Institutional Training Stage. Emphasis on knowledge.

• Training Stage. Emphasis on knowledge and skills.

• Stage Integration and Linkage. Development of knowledge, skills, attitudes and values.

DISCUSSION OF RESULTS

International Resources Group (2009) He published an elaborate work in Honduras who was referring to this proposal with regard to environmental diagnostic axis; both agree raise it as the set of conceptual, procedural and attitudinal. In this latest study five stages, where the first two are similar to this study were developed; Honduras first profile for an environmentally responsible graduated defined and then greening is diagnosed subjects; This methodology forms a CDC, the transverse axis is defined by knowledge, skills and attitudes, and tools for diagnosing the presence or absence of the transverse axis are designed.

The said work continues with the selection of content, the impregnation of planning and selection of learning activities and assessment. The scope of this article is to detail specific guidelines for diagnosis. The likely application of the methodology to all UAGro PE is a long-term project that demands solid steps; is a large university, undergraduate PE are 67, 25,545 students and 1,152 teachers (UAGro, 2013).

Moreover, Nieto (1999) proposed that the environmental dimension, also understood as transverse axis must appear in classical subjects and activities of integration of curriculum; his proposal is similar to that of Gavidia (2000), who considers mainstreaming as a shaft through the curriculum and how integration projects. This reveals that a way to impregnate the environmental dimension in UAGro and other universities, is through the curriculum, which would update and adjust schedules teachers, infrastructure and evaluation systems.

Mainstreaming is a source of new research, which aims to propose a redesign of PE you when necessary, through the selection of UAP which must appear, so that all axle components are integrated. In this redesign, of course, it must be emphasized

mainstreaming in the process of integration and linkage, as proposed by the authors mentioned above, through inclusive learning strategies.

Somehow, mainstreaming leads to interdisciplinarity. One of the authors supporting more interdisciplinary in solving global problems that affect humanity, is Morin (2005). In its complexity theory explains the need to build complex to interpret reality of natural, social and human processes visions. He says there is no simple phenomenon and requires the participation of various sciences since there is an epistemological sovereignty.

In this sense, the proposed methodology for the diagnosis of gender mainstreaming in the curriculum is aimed at reaching mainstreaming, to prepare students in the understanding of environmental problems, in developing skills that give them tools to manage and mitigate risks, but especially in changing attitudes, essence of humanism.

CONCLUSIONS

In Latin America and Mexico there are few concrete proposals on how to incorporate environmental issues into the curriculum, transversely.

Regarding the UAGro, Educational and Academic Model 1999 data, even if contemplated environmental issues, these have not been mainstreamed in the plans of undergraduate and graduate study. It is noteworthy that the Educational Model 2013 also provides guidance for mainstreaming.

Action research turned out to be relevant to the preparation of the proposal. This methodology:

- Provides the basis for a job with theoretical and methodological foundations on components of mainstreaming environmental axis.

- It is a pioneer in addressing environmental mainstreaming environment axis on the upper level, from the perspective of constructivism and EBC, but should begin other research processes and phases include new proposals for mainstreaming, implementation and evaluation. In these processes, teaching, leadership and management training it is essential.

• Can be provided for future projects on gender mainstreaming; It is applicable to issues such as human rights, gender equality and multiculturalism, among others.

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