

El efecto del modelo estructural y la sostenibilidad en las universidades públicas: un estudio de caso

***The Effect of the Structural Model and Sustainability in Public Universities:
A Case Study***

***O efeito do modelo estrutural e da sustentabilidade em universidades
públicas: um estudo de caso***

Oscar Zúñiga Sánchez

Universidad de Guadalajara, México

zunigaoscar777@gmail.com

<https://orcid.org/0000-0003-2805-1961>

Resumen

La presente investigación analizó si la estrategia implementada por la Universidad de Guadalajara (UdeG) en el periodo 2012-2016 permitió aumentar significativamente el número de programas de estudios de pregrado con los principios que demanda el desarrollo sostenible como parte de una formación integral del estudiantado. Asimismo, se analizó si el modelo estructural que la caracteriza es un factor que influye en este proceso. Los resultados indicaron que la estructura multidisciplinaria que caracteriza a los centros universitarios regionales contribuyen al logro de estos objetivos. Sin embargo, esto no sucede en el esquema de facultades o centros temáticos que constituyen a la UdeG en su conjunto. Se concluye que la estructura es un factor relevante en las estrategias para incorporar los principios que demanda el desarrollo sostenible al currículo universitario, así como también inhibe el desarrollo de actividades inter y transdisciplinarias, que es una condición necesaria para el tránsito hacia sociedades más sostenibles.

Palabras clave: educación ambiental, gestión del cambio, interdisciplina, modelo napoleónico, reforma universitaria, sostenibilidad, universidad.



Abstract

This research analyzed whether the strategy implemented by the University of Guadalajara (UdeG) in the 2012-2016 period allowed for a significant increase in the number of undergraduate study programs with the principles demanded by sustainable development as part of a comprehensive training of the student body. Likewise, it was analyzed if the structural model that characterizes it is a factor that influences this process. The results indicated that the multidisciplinary structure that characterizes the regional university centers contributes to the achievement of these objectives. However, this does not happen in the scheme of faculties or thematic centers that constitute the UdeG as a whole. It is concluded that the structure is a relevant factor in the strategies to incorporate the principles that sustainable development demands into the university curriculum, as well as inhibits the development of inter and transdisciplinary activities, which is a necessary condition for the transition towards more sustainable societies.

Keywords: environmental education, change management, interdiscipline, Napoleonic model, university reform, sustainability, university.

Resumo

Esta pesquisa analisou se a estratégia implementada pela Universidade de Guadalajara (UdeG) no período 2012-2016 permitiu um aumento significativo no número de cursos de graduação com os princípios exigidos pelo desenvolvimento sustentável como parte de uma formação integral do corpo discente. Da mesma forma, foi analisado se o modelo estrutural que o caracteriza é um fator que influencia esse processo. Os resultados indicaram que a estrutura multidisciplinar que caracteriza os centros universitários regionais contribui para o alcance desses objetivos. No entanto, isso não acontece no esquema de faculdades ou centros temáticos que constituem a UdeG como um todo. Conclui-se que a estrutura é um fator relevante nas estratégias para incorporar os princípios que o desenvolvimento sustentável exige no currículo universitário, bem como inibe o desenvolvimento de atividades inter e transdisciplinares, condição necessária para a transição para sociedades mais sustentáveis.

Palavras-chave: educação ambiental, gestão da mudança, interdisciplinaridade, modelo napoleônico, reforma universitária, sustentabilidade, universidade.

Fecha Recepción: Julio 2021

Fecha Aceptación: Enero 2022



Introduction

In the different national and international frameworks, the importance of public universities to contribute to sustainable development is recognized. According to the United Nations Educational, Scientific and Cultural Organization [Unesco] (2016), the education of individuals is the basis for monitoring the 2030 Agenda for Sustainable Development. It is not about any education, but a quality education that includes both the professional skills of a discipline as well as the sustainable and general ones to access decent work in order to form a global citizenship (Unesco, 2016).

One of the strategies most used by public universities in Mexico to achieve this commitment has been the formation of university networks with the purpose of generating an exchange of best practices and crystallizing the knowledge required to facilitate the process of implementing sustainability both in their noun and adjective functions. Among these university networks is the Mexican Consortium of University Environmental Programs for Sustainable Development (Complexus), the Network of Institutional University Environmental Plans, the Alliance of Ibero-American Networks of Universities for Sustainability (Ariusa), the Union of Latin American University Social Responsibility (Ursula) and the International Sustainable Campus Network (ISCN).

For Vallaeys, de la Cruz and Sasia (2009), university social responsibility (USR) "helps the university to reconnect with the social context and rediscover its identity" (p. vii). These authors argue that although the educational policies implemented in Latin America have achieved greater coverage, that is, more higher education institutions and more students enrolled, said growth has also brought negative aspects.

One of them is the deepening of an identity crisis in the Latin American university. "Crisis", because universities experience difficulties to adequately fulfill their strategic functions and to act as engines of scientific, technological, economic, political and cultural development (Vallaeys *et al.*, 2009, p. vii).

The responsibility of the university with society implies questioning the relevance of educating and training professionals in accordance with the current context of the second decade of the 21st century.

According to the findings found in various investigations (Aleixo, Azeiteiro and Leal, 2018; Blanco, Benayas, Pertierra and Lozano, 2017; Guerenabarrena, Olaskoaga and

Cilleruelo, 2021; Jia, Wang and Fengting, 2019; Wright, 2002), universities have managed to incorporate sustainability into its operations and substantive functions in different ways, which is why it has become a phenomenon worthy of analysis. Most of the studies carried out indicate that the heterogeneity of universities and the complexity that characterizes them are the main reasons that influence their purposes.

Thus, taking into account all of the above, the relationship between the organizational structure and its effect on the inclusion of environmental and sustainable issues in the undergraduate study programs at the University of Guadalajara (UdeG) was analyzed.

Following Zúñiga (2021), one of the obstacles to incorporating the principles of sustainability as part of the curriculum in public universities is the way in which this concept is understood and used by the different internal actors of the university. On the other hand, Guerenabarrena et al. (2021) consider the reticence of academics as an obstacle in the transmission of the principles and contents that the approach of education for sustainable development demands from students; Likewise, the tendency of the same teachers to immobility, two attitudinal factors, and according to the authors, can influence the effectiveness of the implemented strategies. In this context, the field of study of organizations has shown that factors related to the structure can be mitigating in the way that internal actors understand and apply the policies and strategic changes implemented by managers and directors, which in the case that We are concerned with the incorporation of the perspective of sustainable development in the country's public universities within the framework of the 2030 Agenda.

Therefore, the purpose of this article was to analyze the effectiveness of the strategy implemented by the UdeG and the influence that the structure of this institution has when it comes to incorporating the perspective of education for sustainable development in the university curriculum. This case study contemplates the analysis of the information from the 2014-2016 period, data that is the result of the strategy implemented by the UdeG with the purpose of inoculating comprehensive training and sustainability content in undergraduate study programs. To follow up on the research, we start from the following questions: to what extent did the change strategy implemented by the UdeG during the 2012-2016 period influence the study programs so that they contemplate a comprehensive and sustainability approach in accordance with education for the sustainable development? And does the structure that characterizes the regional (multidisciplinary) university centers improve the

reorientation of the study programs with the comprehensive approach and sustainability in contrast to the Napoleonic model based on faculties?

The Napoleonic model

In the 19th century, Emperor Napoleon Bonaparte founded the University of Paris in 1806. As part of this process, it adopted a new structural model and was named the Imperial University. The education and training of professionals at the service of the State was his mantra (Arredondo, 2011). According to Brunner (2014), despite the fact that this reform meant that the old universities were restructured into isolated faculties in order to train specialized professionals for the State, a highly centralized power structure was maintained. For Rendón (2019), this university model did not have as its fundamental purpose "the cultivation of science or the integral formation of man, but rather the teaching of a trade" (p.370).

In the Latin American context, a large part of the public universities of the State maintain features of this model, which is characterized by having a rector or dean in each faculty, and the nucleus of professors in charge of updating the contents of a study program or course is grouped into silos called academies. Another characteristic inherited from this model was the chairs and seminars.

The North American model

According to Arredondo (2011), this model was mainly influenced by the Universities of Pennsylvania, Virginia, Harvard and others such as Oxford and Cambridge. In this regard, he points out that its main features are, among others, having a departmentalized structure, the adoption of a system of flexible and semi-flexible elective courses, and the credit system. Put in such terms, the departments are academic-administrative instances in which the organization of higher education is developed.

Both the Napoleonic, Humboldt and North American models have been the object of inspiration in the development of the substantive functions of Mexican public universities. From the first emerged the schools or faculties limited to a specific field of knowledge; From the second, the teaching-research relationship was inherited as a main axis in higher education. However, from the perspective of the field of study of management, the structure

is part of the analysis lens to understand the functioning of organizations, and in this case that of public universities.

The structuring of public universities in Mexico

The study of higher education institutions has gained relevance since the mid-20th century. The interest that arises in explaining the way in which its mission and its general objective are achieved is of greater interest since the important role it plays in the training of professionals according to current demands, and particularly sustainable development, was recognized.

The way in which public universities institutionalize their commitment to education for sustainable development and environmental education is the subject of study and analysis to explain and predict how this objective is or is not achieved. For this, different study approaches can be used, for example, the structure, culture and behavior of its actors. From the field of management, it is possible to analyze the structural implications required by universities to guide a process of effective change in the incorporation of education for sustainable development in the university curriculum.

Mintzberg (2012) explains that organizations differ from one context to another. He suggests that analysis of it begin by considering its configuration. And he proposes seven models through which it is possible to study them, namely: 1) the business organization, 2) the machine organization, 3) the professional organization, 4) the diversified organization, 5) the innovative organization, 6) the organization missionary and 7) the political organization (Mintzberg, 2012).

Taking into account the above, the configuration that best distinguishes current universities would be: machine organization and professional organization. It should be noted that some universities may be closer to one or the other model or may form a hybrid of both models.

Regarding the machine model, Mintzberg (2012) argues that this approach is characterized by having a high standardization of work processes, where specialization widely predominates. This coincides with what was stated by Birnbaum (1991) and Coronilla and Castillo (2003). This model is the result of the Industrial Revolution, which was characterized by the development of online production and the division of labor. On the other hand, the professional organization model is based more on the standardization of the skills

of individuals —operators in carrying out the work—. Here we seek to have trained people and with greater control in carrying out their work. In this model, its structure or configuration is more horizontal and considers a more decentralized decision-making process. This last configuration is the one that most resembles the country's public universities.

Thinking of public universities as complex organizations leads to a very important consideration of the ideas of Mayntz (1980) and March (1981). The first of them highlighted the importance of the historical context and its interference in the way in which the processes and functions of organizations are carried out. Mayntz (1980) warns that the vast majority of current organizations continue to maintain a structure outlined by the industrial society after World War II. March (1981), for his part, argues that bureaucratic organizations tend to be ordinarily competent and have little initiative, characteristics that could be questioned in the second decade of the 21st century.

However, Birnbaum (1991) points out the existence of contingency factors that could influence the achievement of the general objectives of the universities. Thus, this author considers the size of the university as a factor that influences its functions and the way in which it is organized. Similarly, he argues that when studying universities, a typology of models should be drawn. For example, the bureaucratic model, which he defines as a rational model, with a centralized authority, where the formal becomes the main criterion for its operation; also under this model the channels of communication are delimited. While he points out that this structure facilitates some interactions, it also makes others difficult. In this type of bureaucratic structure, the members of the organization are subject to formal norms that describe their roles within the university.

A second model is the collegiate. Here the metaphor of community is used to describe the functioning of these universities among academics. The existence of an environment of mechanical solidarity is observed in which an egalitarian relationship prevails among the members of the college or university; there is a relative absence of hierarchy in these communities. The prestige of academics is a limited substitute for this hierarchy; Informal relationships predominate for the most part and there is little formalization of behavior —the opposite of the bureaucratic model—. In this model, consensus is the basis for decision-making and, therefore, makes it seem that the administration or management is not professional, that is, they are the same academics who are in charge of the management processes and act more as servers and representatives of the interests of the entire academic

community. This type of model is observed more in small universities, where there is practically a direct interaction between the majority of its members. (Birnbaum, 1991).

Without a doubt, studying the university, its processes and functions is a complex task due to the great heterogeneity of the actors that intervene in the dynamics of substantive functions, management and governance. And in some cases it is necessary to add a structure based on the division and departmentalization of the areas of knowledge. Therefore, the study of these organizations demands a transdisciplinary approach that takes into account the context and the realities experienced within (Cadena and Riviera, 2020). Both academics and students, managers, directors and the State itself and society in general are actors with heterogeneous profiles and expectations that complicate the substantive functions of the university (Acosta, 2006; Brunner, 2011; Ordorika, Martínez y Ramírez, 2011).

The case of the University of Guadalajara

The UdeG is a public university in the state of Jalisco. For the 2016-2017 period, it attended 46% of undergraduate students throughout the state. For the same period, there was a student population at the undergraduate level of 112,335, of which 48% corresponded to men and 52% to women. Of this population, 101,354 were enrolled in quality educational programs (UdeG, 2017).

The number of programs offered for 2016 was 272 at the undergraduate and leveling level (includes higher university technician), of which 145 are evaluated by the Interinstitutional Committee for the Evaluation of Higher Education (CIEES). In the same period, of the 211 degrees, 142 were offered in regional university centers, 62 in thematic centers and nine through the Virtual University System (SUV). Table 1 shows the evolution of educational programs in the period 2014 to 2019.

Tabla 1. Evolución de la oferta educativa 2014-2019

Nivel educativo	2014	2015	2016	2017	2018	2019
Pregrado	199	202	211	219	224	229
Con reconocimiento de calidad	121	133	151	179	209	210

Fuente: UdeG (2020)

Since then, ensuring the quality of educational programs has become one of the efforts to offer an education in accordance with the current demands of society.

As part of its strategy implemented in terms of teaching and learning in the period 2014, the importance of maintaining its commitment to society through the constant maintenance of curricular contents, the establishment of different programs to guarantee a comprehensive education of the student with in order for the student to develop skills and abilities as responsible citizens (UdeG, 2014). Emphasis was placed on establishing a student-centered college curriculum and student learning. Likewise, the consolidation of the pedagogical approach focused on learning and the integral formation of the student was sought. To achieve this, a strategy was proposed to "consolidate the departmental model as the axis of the academic development of the University Network and strengthen it in academic decision-making" (UdeG, 2014, p. 59).

Likewise, the UdeG (2014), in the axis of "Extension and diffusion", proposed the "achievement of full institutional sustainability" (p. 71), and that in order to achieve this, the strategy of "incorporating the dimension of sustainability in study plans and programs, in the generation of strategic lines of research on the subject" (p. 71). The proposed goal for the 2013 period was that 20% of its study programs contemplate topics related to sustainability, and by 2019 this would increase to 80% (UdeG, 2014, p. 71). Regarding the axis of Government, for the period 2011-2016, the Regulatory Commission of the Honorable General University Council (HCGU) approved 111 opinions.¹

Currently, the UdeG is structured by six faculties or thematic university centers and nine multidisciplinary regional university centers. It should be noted that the departments are responsible for teaching, research and extension, in accordance with current regulations. By 2016, there were 152 departments distributed in the 15 thematic and regional university centers.

Method

This research is mixed and uses the case study technique retrospectively, since it is intended to analyze the degree of effectiveness of the strategy implemented in the period 2012-2016 by the UdeG. This research with retrospective directionality will contribute to knowledge so that university managers can design better informed strategies in the future, with a view to contributing to the achievement of what is proposed in the 2030 Agenda for

¹ Este dato contempla el número de dictámenes aprobados en conjunto entre las comisiones, educación, hacienda y normatividad.

Sustainable Development. According to Piñero (2014), retrospective research is located as non-experimental and is limited to evaluating a situation at a point in time.

As part of the units of analysis, the undergraduate educational programs that have included in their curriculum topics of comprehensive training and sustainability offered by the UdeG in the period 2012 to 2016 were considered. The source of these data was obtained through the records disseminated by the General Coordination of Planning and Institutional Development of the university itself. The questions and hypotheses raised in this research can be seen in Table 2.

Tabla 2. Hipótesis planteadas en la investigación

Pregunta de investigación	Hipótesis	Hipótesis nula
¿En qué medida la estrategia de cambio implementada por la UdeG en el periodo 2012-2016 aumentó significativamente los programas de estudio para que contemplen un enfoque integral y de la sustentabilidad acorde con la educación para el desarrollo sostenible?	H1: la estrategia de cambio implementada por la UdeG en el periodo 2012-2016 trajo un aumento significativo en la reorientación de los currículos con un enfoque integral y de sustentabilidad.	H0: la estrategia de cambio implementada por la UdeG durante el periodo 2012-2016 no generó un aumento significativo en la reorientación de los currículos con un enfoque integral y de sustentabilidad.
¿La estructura que caracteriza los centros universitarios regionales (multidisciplinar) mejora la reorientación de los programas de estudio con el enfoque integral y de la sustentabilidad en contraste con el modelo napoleónico basado en facultades?	H1: la estructura multidisciplinaria aumenta significativamente la reorientación de los programas de estudio en contraste con el modelo de facultades napoleónico.	H0: la estructura multidisciplinaria no aumenta significativamente la reorientación de los programas de estudio en contraste con el modelo de facultades modelo napoleónico.

Fuente: Elaboración propia

The unit of analysis consisted of 1,037 cases (study programs), which represented, at the time, the total population. Likewise, the statistical software Statistical Package for Social Sciences version 20 was used, where the 1037 observations were captured.

In the process of data analysis, the chi-square statistic was used, which is a non-parametric test that allows testing the hypotheses proposed in the investigation. Through this test it is possible to recognize the degree of significance between the variables in question.

Results

In this study, the operative variables of analysis were considered, on the one hand, the study programs that explicitly had contents related to the integral formation of the student body and sustainability. This variable is dichotomous in nature and acquired the value of one when the attribute was present and zero in the absence of this content in reference.

On the other hand, the year represented the second variable: it was tested whether there was a significant increase in the inclusion of this trait in the programs during the period 2012 to 2016. This was carried out using the chi-square statistic, a test not parameter that allows evaluating whether or not there is an association between two variables and thus put the proposed hypothesis to the test. The coefficient used as an indicator to determine the degree of significance was an alpha of 0.05. To test this first hypothesis, the total number of cases obtained was used, which corresponds to 1037 study programs. These cases refer to each undergraduate course offered in the period 2012-2016 at the UdeG. Table 3 shows the result obtained from this analysis.

Tabla 3. Matriz de valores observados en el periodo de estudio

			Año					Total
			2012	2013	2014	2015	2016	
El programa cuenta con formación integral o sustentabilidad	No	Observado	142	145	151	160	162	760
		Esperado	142.9	146.6	151.7	156.1	162.7	760.0
	Sí	Observado	53	55	56	53	60	277
		Esperado	52.1	53.4	55.3	56.9	59.3	277.0
Total		Observado	195	200	207	213	222	1037
		Esperado	195.0	200.0	207.0	213.0	222.0	1037.0

Fuente: Elaboración propia

According to table 3, the explained or dependent variable corresponds to the study program that has or does not have the perspective of comprehensive training as an attribute that is (value = 1) or not present (value = 0). As can be seen in the "Observed" boxes, the attribute is present in the variable studied, there was an increase in the number of programs that integrated the perspective of comprehensive training and sustainability. However, the value calculated with the test shows an indication that this difference in value between observed and expected is negligible. Table 4 shows if the gradual increase in the period is statistically significant.

Tabla 4. Resultado de la prueba de significancia para la hipótesis uno (H1)

	Value	Df	Asymp. Sig. (2-sided)
Pearson chi-square	0.473 ^a	4	0.976
Likelihood ratio	0.478	4	0.976
Linear-by-linear association	0.085	1	0.770
N of valid cases	1037		

Fuente: Elaboración propia

In the table above, the coefficient obtained from the chi-square test is a p-value = 0.976, a value that is greater than the indicative alpha = 0.05, which corresponds to the reference value chosen in the hypothesis test. In other words, it can be deduced that the increase in the inclusion of the comprehensive and sustainability perspective in study programs is not significant in the period 2012-2016.

With this result, the first hypothesis could be verified: the strategy implemented by the University in general, during the period 2012-2016, did not have a significant effect on the increase of educational programs that contemplate the perspective of integral formation and sustainability. This result confirms similar findings of other investigations that are summarized in a commitment of the universities in the process of greening the university curriculum continues only in the discourse, without effectively impacting the process of change required by the Education for Development approach. Sustainable in vocational training.

On the other hand, to answer the second question and, consequently, to test the second hypothesis, it was considered to organize the study programs into two groups depending on whether they are programs that correspond to the thematic or regional centers. For this test, the study program whose value may or may not present the attribute to be analyzed was considered as a dependent variable. For this case, only the sum of the study programs that corresponded to thematic and regional centers was considered, discarding those that correspond to group three of the SUV. Table 5 shows the distribution of the cases studied.

Tabla 5. Matriz de valores observados de acuerdo por entidad institucional

			Tipo de entidad			Total
			Regionales	Temáticos	SUV	
El programa cuenta con formación integral o sustentabilidad	No	Observado	466	254	40	760
		Esperado	506.4	224.3	29.3	760.0
	Sí	Observado	225	52	0	277
		Esperado	184.6	81.7	10.7	277.0
Total		Observado	691	306	40	1037
		Esperado	691.0	306.0	40.0	1037.0

Fuente: Elaboración propia

As can be seen in Table 5, the dependent variable corresponds to the study program that does or does not have the aforementioned characteristic. As can be seen in the “Observed” boxes, there is a high number of programs that integrate the perspective of comprehensive training and sustainability in the context of regional university centers. However, in order to determine if this difference is statistically significant, the chi-square

coefficient obtained was analyzed. Table 6 shows the significance values obtained from the statistical test.

Tabla 6. Resultado de la prueba de significancia con ji cuadrada para la hipótesis dos (H0)

	Value	df	Asymp. Sig. (2-sided)
Pearson chi-square	41.420 ^a	2	0.000
Likelihood ratio	52.665	2	0.000
Linear-by-linear association	41.354	1	0.000
N of valid cases	1037		

Fuente: Elaboración propia

The p value obtained (0.000) is less than the chosen test parameter ($\alpha = 0.05$), which means that there is a correlation in both variables studied. In other words, the second hypothesis is confirmed, which argues that the structure of university centers has an effect on the effort that the university makes to incorporate the perspective of sustainability in the university curriculum. Furthermore, the multidisciplinary structure that characterizes regional university centers favors the updating of educational programs to contemplate comprehensive training and sustainable themes.

Discussion

Public universities play an important role in the training of professionals, not only for the transmission of technical and professional knowledge, but also for the sustainable skills required by the approach to education for sustainable development to contribute to the development of the 2030 Agenda. However, this task implies a genuine will by university managers and decision makers to lead a process of effective organizational change in all areas of knowledge. According to the results obtained, the strategy implemented by the UdeG is insufficient.

As it was possible to verify with the data analyzed in this research, the structural models that characterize the UdeG have an effect on the strategy implemented to incorporate the perspective of sustainability in the study programs. Thus, although the multidisciplinary model that characterizes the regional university centers apparently presented a higher value in the incorporation of sustainability in the programs with respect to the thematic university centers, this increase was not significant.

This result also coincides with the arguments held by Gómez (2021), who states that organizational change should be understood in the best way by people and accompanied by adaptability in order to achieve effective change. The process of change implies also considering the culture that characterizes the university, that is, how the substantive activities are carried out and what is the compartment of the actors that execute them, aspects that must be considered in order to achieve an effective transition process. The field of management knowledge is inter and transdisciplinary in nature, as are environmental education and education for sustainable development. The simple fact of adding sustainable content will not transcend if public universities continue to be conservative with the structural models of the last century.

It can be considered that the UdeG —like many other Mexican public universities— maintains a hybrid structuring scheme. On the one hand, a Napoleonic model characterized by faculties with limited areas of knowledge is preserved. On the other, the growing creation of new multidisciplinary regional university centers that bring together a wide range of areas of knowledge structured in divisions and departments. Needless to say, this does not mean that transdisciplinary work in these places is a practice that is part of the organizational culture; For this, substantive changes are required that affect their educational, academic model and the university curriculum itself.

And on the other hand, a model of machine structure, which is characterized by a centralization of authority, and the lack of participation of teachers in the decision-making process, all of which represents an obstacle in the strategy to incorporate training comprehensive and sustainability in the university's undergraduate study programs.

Inter and transdisciplinary work includes aspects that a priori allow public universities to contribute to their commitment to sustainable development. The last in-depth structural reform carried out by the UdeG was in the period 1989-1994. Among other events, it consolidated the Jalisco University Network and, with it, the emergence of multidisciplinary university centers. This reform represented a milestone to consolidate inter and transdisciplinary work; however, this intention still needs to be established as a work culture between teachers and managers, an aspect that represents one of the principles of the 2030 Agenda for Sustainable Development.

The UdeG should not limit itself to implementing strategies that only add courses related to caring for the environment or the promotion of culture, sports and health. A genuine integral formation of the student also contemplates the teaching of transversal and sustainable

competences such as those demanded by the approach of education for sustainable development. Regarding the activities related to sustainability, the UdeG places it in the axis of "Extension and dissemination", leaving aside the axis of teaching and learning, which could affect the fact that it is not attended with the priority required change in study programs. The departments are the instances that constitute the teaching staff, laboratories and research institutes.

For universities to contribute to the fulfillment of the 2030 Agenda, they must rethink their strategy to promote educational programs that contemplate the perspective of comprehensive training and sustainability. In this regard, Díaz (2021) argues:

The university cannot leave by the wayside the humanistic dimension that the student must know and understand, because it is an educational, training institution that aspires to do so in an integral way, cultivating the main dimensions of the person (the intellectual, the aesthetic-spiritual, the physical, the moral) (p.148).

The results shown here make sense for management to design and adopt effective strategies to achieve this purpose. This is stated by Cebrián (2020): "Institutional support and leadership must create a learning community where existing good practices are identified, the exchange of educational resources is promoted, and support and guidance are available from experts and facilitators" (p. 111). Similarly, the findings found here find an echo in those obtained by Jiménez (2021), who points out that despite the fact that Mexican universities have made progress in curricular sustainability and campus greening, the lack of construction of a political agenda continues. of sustainability by the university government. Based on the above, it can be inferred that, in addition to the structure that characterizes them, the lack of political will on the part of managers and decision makers constitute factors that delay the fulfillment of universities with the Objectives for Sustainable Development. .

The UdeG not only adopts a hybrid model inspired by the Napoleonic and North American models, but also a bureaucratic-professional organization model —according to Mintzberg's theory—, characterized by having a highly qualified staff that could make decisions about its job. Both the autonomy achieved by the university to design and develop the contents of the academic offer and the departmental model that characterizes multidisciplinary university centers represent an opportunity for management to adopt strategies that promote curricular innovation to address the problems that impede traffic towards sustainable development. Thus, distributed leadership could benefit and speed up a

process of change such as the one required to incorporate the perspective of sustainability in all study programs.

Conclusion

The UdeG is the second most important university in the country, however, its hybrid and departmentalized structure has an effect on the university curriculum, since it constrains the specialized teaching of a discipline. The departmentalized model imposes academic silos and hinders transdisciplinary collaboration, which is a necessary principle to solve the problems that prevent the transition towards sustainable development with fairer societies.

Current economic and socio-environmental problems are symptoms of the need to transform higher education in the 21st century with structural models that promote transdisciplinarity. From the perspective of institutional change, incorporating sustainability issues into the curriculum and management implies changes that go beyond making improvements to their functions and modifying their organization chart. In this sense, the structural aspect, as well as the size of the university, represent particular factors that must be taken into account in the strategic planning of change.

The public universities of Mexico could manage an effective change process: not only structural reforms, but also a change in the organizational culture. Therefore, the UdeG should think about a gradual and profound academic reengineering that affects its culture through the holistic participation of all key actors, mainly teachers from all areas of knowledge.

Future lines of research

The study of the strategies implemented by public universities can be of great interest if studied from the management approach. Future research could address the way in which each of the internal actors understand the term sustainability and how it can be put into practice both in the school dimension and in the extracurricular dimension.

Acknowledgment

We thank the editorial of the journal and the anonymous reviewers for their comments made with the purpose of improving the quality of this article.

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