Teaching and Research of Academics in Mexico: Preferences and dedication according to the international survey APIKS

Etty Haydeé Estévez-Nenninger*, Edgar Oswaldo González-Bello**, Ángel Valdés-Cuervo***, José Luis Arcos-Vega ****, Fabiola Ramiro-Marentes *****, and Laura Edith Gutiérrez-Franco ******

Abstract. The objective of this paper is to analyze the preferences and time of dedication to teaching and research activities of different types of academics from Mexico who have been exposed, unequally, to public and institutional policies oriented mainly to stimulate and recognizes cientific productivity and, to a lesser extent, teaching. Based on the results of the international survey Academic Profession in the Knowledge-based Society (APIKS)¹ answered by 4,631 academics from 127 higher education institutions (HEIs), changes are noted in terms of preference and dedication of full-time scholars to the activities they perform, compared to the previous survey, in accordance with the aspirations to receive the benefits of public policy programs that are aimed at this population. This preference for research has also permeated those hired as part-time professor, and it was even identified that 7% of this type of academic has recognition as a researcher.

Keywords: Academic Profession, Higher Education, Mexico, Research, Teaching

Introduction

Mexico is a country that has a highly diversified and complex higher education system due to its magnitude and heterogeneity, sometimes disconnected in terms of the type of institutions (research centers, technological institutes and public and private universities) with multiple purposes and priorities, and that are organized in different ways to offer tertiary education (Ortega & Casillas, 2014).

^{*}Professor, Universidad de Sonora, México, email: ettyestevez@gmail.com

^{**} Professor, Universidad de Sonora, México, email: edgar.gonzalez@unison.mx

^{***} Professor, Technological Institute of Sonora, México, email: angel.valdes@itson.edu.mx

^{****} Professor, Universidad Politécnica de Baja California, email: arcosvegajoseluis6@gmail.com

^{******} Professor, Universidad Politécnica de Baja California, email: fabiolaramiro@gmail.com

^{******} Student of Master's in Educational Innovation, Universidad de Sonora, email: lauragtz.franco@gmail.com

¹ Comparative study in which more than twenty countries participate: Argentina, Canada, China, Croatia, Estonia, Finland, Germany, Hong Kong, Japan, Kazakhstan, Korea, Lithuania, Mexico, Norway, Portugal, Russia, Slovenia, Sweden, Switzerland, Taiwan, Turkey and United States of America.

The last three decades were the growth and diversification of the higher education system, which led to a significant increase in the number of academic positions (Buendía, Acosta, & Gil-Anton, 2019).

There are several proposals for classification of higher education institutions (HEIs) in Mexico; useful is the one that takes as a criterion the main function or activity established in HEIs, be it teaching or research (Table 1).

Table 1. Type of HEIs: Functions and educational level that serve

Type of HEIs	Functions and Levels
Public Research Centers	Mainly research and teaching in graduate programs.
Federal Public Institutions	Teaching in undergraduate and graduate programs, research, service, and dissemination of culture.
State Public Institutions	Teaching in undergraduate and graduate programs, research, service, and dissemination of culture.
Public Technological Institutions	Mainly teaching in undergraduate and services, graduate programs and research in a minor scale.
Private Institutions	Mainly teaching and research in a minor scale.

Source: Own elaboration based on Rubio (2006) and Cruz & Cruz (2008)

Despite the differences among HEIs, the academics in Mexico share teaching as an everyday activity, while the performance of other activities — research, extension, and dissemination of knowledge—depend, in part, on the requirement established by the HEI where each academic works. Although the type of institution marks guidelines in the performance of academic tasks, it is a variable linked to another differentiating factor: the type of academic contract. This is considered a determining aspect in the shaping of preferences and in the time dedicated to the teaching and research activities, because it sets the conditions for the development of the academic trajectories, of the labor situation, of the economic income and of the formative profile of the academics (Pujol & Arraigada, 2015). The objective of this article is to analyze the preferences and dedication to teaching and research activities of academics, according to the type of employment contract, sex, and participation in educational policy programs.

Academics in Mexico: types of contracts and policies in higher education

In the Mexican higher education system, there are different kinds of nomenclature to classify the employment contracts of academics, varying according to the nature of HEI. Therefore, it is pertinent to point out the following terminology, which is based on the time criterion of dedication to academic activities: full-time, $\frac{3}{4}$ time, part-time, per hours or subject. These types of contracts may vary depending on whether they are accompanied by the rank of "professor," "professor-researcher,"

"researcher," or "technician." In addition, contracts are defined by their nature of permanence with the following terms: definitive/permanent or not definitive/for a specific time (tenure and not tenure-track).

For this article, two analytical categories are used: full-time and part-time professor. The first category refers to academics who have an employment contract in an HEI for the performance of academic activities—teaching, research, extension, and management—for 40 hours per week (teachers of three quarters of time are included here for being a nearest minor number) and they may be tenure or not tenure contracts. The term part-time professor is used to refer to academics who have some kind of contract and work status in the Mexican HEIs to perform mainly teaching activities for a number of hours of institutional affiliation, this varies between 20 or less weekly hours; this labor classification has different nomenclatures according to the type of HEI in question and can also be tenure or non-tenure. In 2017, there were a total of 431,863 academics in the HEIs; if we group them in the two categories proposed in this paper, 29.2% were full-time professors and 70.8% were part-time (National Autonomous University of Mexico, 2017).

In Mexico, the type of contract of the academics is related to certain kinds of higher education policies, whether they are public policies of federal or institutional type—established and regulated from each HEI—or even a mixture of both. The global tendencies of higher education—such as privatization, the competition for positioning in the international ranking, the stratification of academics—have generated pressures and shaping effects on Mexico's public policies (Estévez et al., 2018; Osorio, Blanco, & Rositas, 2013; Tello & Aguaded, 2009; Suárez & Muñoz, 2016), particularly with those initiatives dedicated to promoting academic work.

These policies have specific characteristics in Mexico, which differentiate them from those in other countries. Taken together, these policies defined the rules of the game for academic work from the mid-1980s when the National Researchers System (SNI for its acronym in Spanish), emerged, which is a program of stimulation and recognition of research. This program and the others that were installed in the 1990s function as devices to obtain additional income from the salary and also as a precondition for accessing funds for research and work infrastructure; the distinctions given by these programs have been increasingly influencing decisions on the promotion and permanence of academics (De Vries & Álvarez, 2014). Over time, these policies have increased their coverage in terms of the number of HEIs and participating academics trying to meet the requirements.

The implementation of these policies has been through several stimulus and recognition programs aimed primarily at full-time professors, who at the same time received attraction and pressure to comply with the requirements to access: the SNI, the Performance Rewards Program for Teaching Staff (PEDPD for its acronym in Spanish), and the Teacher Improvement Program (PRODEP for its acronyms in Spanish). These are national programs aimed at promoting and mainly supporting research, so it is presumed that they have influenced preferences and dedication to these types of activities (Buendía et al., 2017; García, 2015; Ruiz & Rueda, 2015; González, Estévez, & Del Cid, 2019).

Such public policies are rethought or reinterpreted by each HEI in the implementation stage and usually are combined with the policies of each university organization (Acosta, 2015; Estévez, 2009). The SNI aims to promote research through the symbolic and economic recognition of the country's researchers. Meanwhile, the other programs are more oriented to support an academic balanced performance of the various activities: teaching, research, mentoring, and management. The PEDPD, promoted by the Secretary of Public Education ([SEP], 2019), gives a little more emphasis to teaching, for example by recognizing the dedication—number of hours in the classroom—tutoring of students and other teaching activities; the weight of these activities varies according the consideration of each HEI.

The PEDPD is the only public policy program that includes part-time professors in its guidelines. However, it is limited to only benefit the personnel of the forty State Public Universities and it establishes requirements that limit access to these resources (SEP, 2019), despite the fact that in these institutions, the academic faculty is composed mainly of this type of teachers (López, García, Pérez, Montero, & Rojas, 2016). Thus, the academic work of the part-time professor is promoted mainly through policies that are defined—as in the case of the PEDPD—at the institutional level. A review of studies on the topic of academics in Mexico allows identifying in more detail some differences and similarities between the full-time and the part-time professors.

Previous national surveys and studies on academics

The national studies on the academic profession have been characterized by being descriptive, comparative, and have been focused mainly on full-time professors. The first international survey on academics was in 1992; it included 14 countries and was carried out under the coordination of The Carnegie Foundation for the Advancement of Teaching (Eugene-Haas, 1996). In Mexico, this survey was led by Gil-Anton in 1992 and managed to clarify the dynamics of the academic body of HEIs—including part-time professors—finding a wide diversity regulated by the difference between institutions, the variety of disciplines and their consequences in the professional activity (Gil-Anton et al., 1994).

Later, in 2006, the Changing Academic Profession (CAP) project was born, which consisted of a comparative study of the academics between 19 countries, including Mexico (Arimoto, Teichler, & Cummings, 2013; Brennan, 2006; Galaz & Gil-Anton, 2009). As part of the CAP comparative research, in Mexico the survey was applied to full-time professors between 2007 and 2008; this study was called: The Reconfiguration of the Academic Profession in Mexico (RPAM for its acronyms in Spanish) (Galaz et al., 2012).

The massification of higher education is associated with the increased of number of academic with contingent contracts in universities of many countries (Anderson, 2007; Andrews et al., 2016; Street, Maisto, Merves, & Rhoades, 2012). Some author refers that a contingent academics are not a

homogeneous group, because is included a professor with full-time and part-time continuing, fixed-term, and casual contract.

Casual academics are frequently engagement in teacher functions, and they don't have time and paid for doing research (American Association for University Professors, 2018; Australian Government, 2014). These academic are exclude for the benefits and rewards for the productivity in the university (Anderson, 2007; Andrews et al., 2016; Mapes, 2019; Street, Maisto, Merves, & Rhoades, 2012). Also, Street et al. (2012) report that they usually receive courses with short time they start the courses and don't have access to fully universities resources (for example, libraries, technology support, and office).

Some academics argues that the excesive number of contingences academic in the university should affected the quality of teaching because they have less time out the class availability for students, limited resources, do not doing research, and are excluded of training programs (American Association of University Professor, 2014; Graham, 2013; Murray, 2019; Street et al., 2012). Although the above statement seen logical, the available evidence is inconclusive and in some cases contradictory regarding the effect of contingency academic in student achievement and engagement (Burgess & Samuel, 1999; Hoffman & Oreopoulus, 2009; Meixner, Kruck, & Madden, 2010; Umbach, 2007).

In the case of Mexico, previous studies (Estévez & Martínez, 2012; Galaz, Padilla, Gil-Anton, & Sevilla, 2008) identified differences among full-time academics concerning their institutions and working conditions, mainly linked to the participation in public policy programs. This type of academics not only attend teaching tasks, but a good part of them are also active in the generation, dissemination, preservation and discussion of knowledge; according to Teichler (2017) these are the tasks that are related to the contemporary academic profession.

From the little that has been studied about part-time scholars, recent qualitative research stand out (Buendia, Acosta, & Gil-Anton, 2019; Chávez, 2011; Dominguez, 2009; López et al., 2016) wich has focused on the analysis of the working conditions of this type of professors in Mexican public and private universities, others have focused on the teaching activities and the evaluation academic work. As in other countries, in Mexico there are also different types of part-time professors, as seen in the aforementioned studies, which varies by time and permanence in hiring.

Certainly, as Buendía et al. (2019) point out, part-time academics are "forgotten" in policies for higher education, they remain "invisible" or "buried" by those who direct higher education and HEIs, because they have not been recognized "as a fundamental actor in the development of teaching and, therefore, in the training of professionals ..." (p.36).

We know of the existence in HEIs, especially in public institutions, of institutional policies embodied in academic programs and regulations that address the working conditions and academic development of part-time teachers. In addition, a significant number of state and federal universities provide incentives to part-time teachers, under different bases. According to Buendía and Acosta

(2016), of the 40 main universities analyzed, 48% establish economic stimulus programs as a complement to the salary to reward teaching. Of the private universities and the technological institutes, it has not been possible to verify the existence of programs of stimulus and recognition, beyond some annual prizes to the "distinguished teacher."

Through part-time hiring, these teachers can increase their teaching load within the HEI by completing a number of hours equivalent to a full-time teacher; this situation positions this type of academic as the main responsible for teaching at a higher education level and keeps them with a high degree of dependency and vulnerability to the needs of the HEI that hires them (López et al., 2016).

Despite this situation and although they are mainly dedicated to teaching, part-time professors have developed strategies of belonging and improvement in their employment situation in HEIs in order to participate in other types of substantive activities, such as research and, eventually, be a member of the SNI. This type of recognition has allowed them to have conditions to access calls for participation directed exclusively to this sector to occupy full-time positions, according to policies designed from within the HEIs; an example of this is the initiative issued by the University of Sonora (Universidad de Sonora, 2019a).

Furthermore, PhD studies continue to be another policy in HEIs for labor improvement of the part-time professor; such is the case of scholarships for doctoral studies directed for part-time professors "with the option of obtaining a full-time Researcher Professor position" (Universidad de Sonora, 2019a). As a reverse phenomenon, there are some HEIs that have designed policies to maintain retired full-time professors as part of the SNI, granting them 20-hour weekly contracts as an "honorary research professor" non tenure, with the purpose of continuing to carry out research activities (Universidad de Sonora, 2019b).

Method

In Mexico the international survey Academic Profession in the Knowledge-based Society (APIKS) was realized during 2018 through a two-step methodology: First, 127 HEIs were selected according to a main criteria: those with the longest trajectory and who carry out research (with academics recognized in the SNI and who also offer graduate programs). Second, taking into account the number of academics by type of HEIs (Table 1) and other strata (gender, STEM/No STEM, type of contract), a quota sampling was carried out for practical reasons, and academics with available and effective emails were included. The sample of HEIs is representative of the universe of institutions that were sought to study: the total of Public Research Centers, Federal Public Institutions and State Public Institutions, 38% of Public Technological Institutions and 14 large private HEIs were included, as they met the criteria of institution selection. On the sample of academics different levels of representativeness can be observed at national level regarding the number of academics by type of HEI (public and private) and contract (full-time and part-time). In the universe of selected HEIs, the

majority of full-time are in public HEIs and only 8% in private ones; in the sample we have similar percentages: 91.5% are full-time of public HEIs and 8.5% are full-time of private HEIs. In the universe of 127 selected HEIs, the majority of part-time are in public HEIs (76%) the rest in private (24%); in the sample, public IES academics are also the majority (58%) although they are underrepresented in relation to those working in private (42%).

In Mexico a digital questionnaire was used (http://www.mie.uson.mx/encuesta) and it contains the same sections as the one used in the international APIKS: Career and Professional Situation, General Work Situation and Activities, Teaching, Research, External Activities, Governance and Management and Personal Background. In addition, questions about public policies for academics in Mexico were added.

A response was obtained from 127 HEIs scholars: 3,770 full-time academics and 861 part-time professors. In full-time professors a smaller number of contracts of 3/4 of labor time was included; in the category of part-time professor academics with part-time, per hour or subject and honorary contracts were grouped. Given the differences in the academics by type of contract—full-time and part-time—the data were analyzed as two sub-samples. In Mexico there is no official information to contact the part-time professors; for this reason, the responses of this sector are very valuable for a first panoramic approach to the characteristics of this type of academics.

Results

Academic preferences: teaching or research?

The results indicate that the preferences of full-time academics are more inclined towards research (67%) than to teaching (Table 2), which would be a change compared to the data from the two previous national surveys (59% in 1994 and 55% in 2008) that marked an inclination towards teaching (Estévez & Martínez, 2012); this turn is consistent with the downward trend observed in the entire period. It is a signal that invites us to analyze the possible factors that relate to or influence these preferences.

Table 2. Preferences on academic activities by type of contract (N=4,631)

		Academics				
	Full-time	%	Part-time	%		
Primarily in teaching	145	4	197	23		
In both, but leaning towards teaching	1110	29	452	52		
In both, but leaning towards research	2267	60	207	24		
Primarily in research	248	7	5	1		
Total	3,770	100	861	100		

On the other hand, it is observed that the part-time academics prefer teaching, although it is intriguing that 25% prefer research activities. It can be noticed that among those who do not have working conditions to carry out research, there is also the aspiration and desire to venture into this activity; and, in a slightly higher percentage (28%), the opposite is identified in full-time professors: they prefer teaching despite having better working conditions to carry out knowledge generation activities.

Academic preferences are analyzed according to whether or not they belong to three different public policy programs, for which it is necessary to identify the participation (Table 3). It can be observed that half of the full-time participants indicated that they participate in this program of recognition to the research activity; this highlights that 7% of part-time scholars also receive this stimulus as researchers (3 professors as emeritus, which is the maximum level), 25% participate in the PEDPD and 4% in PRODEP, programs oriented primarily to full-time professors.

Table 3. Participation in policy programs according to type of contract	Table 3. Partici	pation in policy	programs acco	rding to type of	contract
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		ce rewards teaching staff	Teacher im	provement ram		Research stem
	No	Yes	No	Yes	No	Yes
Full-time	18%	82%	46%	54%	49%	51%
Part-time	75%	25%	96%%	4%	93%	7%

It was to be expected that, among the researchers participating in the SNI program, the percentage of those who prefer research (92%) would be higher compared to those who do not participate in the program; less obvious are the reasons to explain why half of the academics that are not in the SNI prefer research over teaching (51%) (Table 4).

Table 4. Preferences on activities by stimulus programs and contract (N=4,631)

		Performance rewards program for teaching staff		Teacher improvement program		National Research System	
		No	Yes	No	Yes	No	Yes
	Primarily in teaching	9%	2%	6%	1%	7%	0%
Full-time	In both, but leaning towards teaching	33%	23%	26%	24%	42%	8%
ruii-time	In both, but leaning towards research	51%	66%	57%	69%	47%	80%
	Primarily in research	7%	8%	11%	6%	4%	12%
	Total	100%	100%	100%	100%	100%	100%
	Primarily in teaching	21%	28%	23%	20%	24%	9%
Part-time	In both, but leaning towards teaching	53%	51%	53%	40%	55%	24%
	In both, but leaning towards research	25%	21%	23%	40%	21%	66%
	Primarily in research	1%	0%	1%	0%	0%	2%
	Total	100%	100%	100%	100%	100%	100%

The academic preferences on teaching and research by sex show that academic women with parttime contracts are a little more inclined to teaching than men (Table 5).

Table 5. Preferences of academics by type of contract and sex (N=4,0	references of academics by type of contract and sex (N=4,6)	31)
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		Primarily in teaching	In both, but leaning towards teaching	In both, but leaning towards research	Primarily in research
	Full-time	38%	64%	92%	96%
Female	Part-time	62%	36%	8%	4%
	Total	100%	100%	100%	100%
	Full-time	41%	70%	93%	99%
Male	Part-time	59%	30%	7%	1%
	Total	100%	100%	100%	100%

Do academics perform the activities they prefer?

The average weekly hours dedicated to teaching activities by full-time professors were 16.8 hours and 19.7 hours by part-time professors, as reported by the academics who were surveyed; while for research, the full-time allocate 14.6 hours weekly and the part-time 6.0 hours for research activities (Table 6). In comparison with the previous national survey (Galaz et al., 2012), there is a decrease in the weekly hours dedicated to teaching (21.5 hours in 2008) and an increase of four percentage points in the average of hours allocated to research (10.2 hours in 2008) by full-time professors. Note that part-time professors report hours of dedication to research.

Table 6. Average hours dedicated to academic activities according to the type of contract

	Full-time a	cademics	Part-time	academics
	Μ	SD	М	SD
Hours dedicated to teaching	16.8	9.5	19.7	12.0
Hours dedicated to research	14.6	9.4	6.0	6.6

When analyzing the hours of dedication according to the participation in stimulus and recognition programs (Table 7), it can be noticed that the academics participating in one of the programs devote more hours to research activities, those recognized by the National Researcher System. While the academics who do not participate in this program (No-SNI) as well as the rest whether they participate or not in the other two recognition programs, dedicate more time to teaching activities than to research activities.

Performance rewards Teacher improvement National Research program for teaching staff program System Yes Yes No No Yes M SD M SD Μ SD M SD Μ SD М SD

11.4

11.2

18.2

13.4

8.0

7.4

19.4

9.3

10.7

7.8

14.8

17.5

8.3

8.7

16.6

13.4

Table 7. Weekly hours dedicated to activities according to recognition programs

When comparing these results with the previous survey (Galaz, De la Cruz, & Rodríguez, 2009), it can be affirmed that in non-SNI academics the trend of more hours invested to teaching than to research continues and, conversely, the tendency of more hours of research than to teaching continues in academics that are recognized by the SNI. On the other hand, changes are observed in the number of hours: the dedication to research decreased almost three hours per week in the academics that are members of the SNI (20.3 hours in 2008), on the contrary, the number of research hours in non-SNI full-time increased (9.6 hours in 2008); the dedication of hours to teaching remains almost the same (15.2 hours in 2008) (Galaz et al., 2012).

Women with part-time contracts, in addition to prefer teaching a little more than men, show congruence in devoting more hours to teaching than to research (Table 8).

Table 8. Weekly average hours dedicated to activities by type of contract and sex

	Fema Full-time		nale			Male		
			Part-	time	Full-	Full-time		time
	М	SD	М	SD	М	SD	M	SD
Hours dedicated to teaching	17.6	9.8	20.2	12.1	16.2	9.2	19.2	11.9
Hours dedicated to research	13.5	9.1	6.0	5.9	15.4	9.5	5.9	7.3

In short, the preferences and hours dedicated to academic activities show differences according to type of contract and sex; even more in relation to participation in public policy programs and institutionals stimulus.

Discussion and final comments

Hours dedicated to

Hours dedicated to

teaching

research

19.2

9.2

11.5

8.5

16.6

14.8

14.8

9.4

Regarding the central objective of this article, it can be noted first that a change in the preferences of full-time academics in Mexico has been identified. In the two previous national studies academics were inclined to teaching activities, however the results indicate that nowadays the majority is more inclined towards research (67%). This shift is consistent with the downward trend that was observed between 1992 and 2008. In addition, this inclination to conduct research has permeated half of the full-time academics that do not have the recognition of the SNI, also in a quarter of the part-time

professors despite having precarious conditions to perform this activity and, even so, some of them are recognized as national researchers.

Second, in the dedication of full-time academics to teaching and research activities there are also changes. There is a shortening in the gap or distance detected between the hours dedicated to both activities, as reported in the previous survey of 2008. In the past studies, twice as much time was spent in teaching as in research, while current results show that teaching is still the activity to which academics dedicate more hours, however with a decrease in the dedication to teaching and an increase in the average of hours allocated to research; this last result clearly attributable to full-time academics who are not in the SNI but most likely seek to meet the requirements established by public policy programs to access the incentives and recognition they provide. In this sense, consistency is observed between this type of change in the dedication of the full-time professors and their academic preferences.

Part-time academics dedicate more than triple the number of hours per week to teaching tasks than those devoted to research, highlighting that they dedicate 6 hours a week to researching in spite of rowing against the current. Women are inclined a little more than men for teaching, with part-time scholars devoting more time to teaching than full-time professors.

The changes detected in the preferences of the academics and their dedication to the activities in the HEIs, seem to be an effect of the public and institutional policies on higher education and academics that began more than three decades ago and sought to intensify the research task, neglecting and relegating the recognition of teaching (Buendía et al., 2017; García, 2015; Ruiz & Rueda, 2015; González et al., 2019; Estévez & Martínez, 2012). The prolonged life of these policies in Mexico, beyond the initially planned time, opened channels of action that higher education institutions and their academics were pressured to follow. De Vries and Álvarez (2014) argue that the longer these policies remain in operation, the larger the size of the unexpected effects will be.

As a hypothesis, it can be said that in Mexican academics there are symptoms of a phenomenon of "revolving door" in which there are round-trip transits between full-time and part-time scholars, as an effect of public policies and of the programs in the institutions, which has established strict action guidelines so that disadvantaged academics aspire to improve their working conditions. The latter strives to carry out activities of the former, either because they seek to meet the ideal profile while waiting for access to a permanent full-time position -tenure- in an HEI or because they are full-time scholars who have retired with current membership in the SNI and, to guarantee their permanence in this program, the HEI keep contracts with the minimum of hours required and can also receive the corresponding economic stimulus.

In this same logic, it is possible to bet that the country's academic profession, including activities that are most performed and preferred, is linked to the modes of regulation that produce the policies that are addressed to academics, leaving them as "spectators and hostages" of outside forces but influential in their work (Galaz et al., 2009, p.27), despite the multiple demands and interests.

However, given the insistence for more than three decades of the national educational policy to prioritize the development of science, technology, and innovation, as it is done in other countries, it is worth asking: who is taking charge more and more of the teaching activities? And if this is related to the heterogeneous configuration of an academic of which very little is known and represents about 70% of the higher education in Mexico (Buendía et al., 2019) and has as a task to train professionals and scientists in HEIs.

This makes necessary a reflection on the pertinence of considering a change of orientation in the public policies of Mexico, which has as reference the complexity of the academic task and the search of balance in terms of the social commitments that higher education has, that is to say, not only to promote the academic productivity of research, but to recognize with greater emphasis teaching activities.

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