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Article

Perceptions about teacher training policy with ICT

Percepciones sobre la política de formación docente con TIC

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Abstract

The objective of this research was to analyze the perceptions about the teacher training policy for the incorporation of Information and Communication Technologies (ICT), in the period 2019-2022, in a Mexican university. The starting point was a semi-structured interview with a central actor in the implementation of the university's teacher training policy, in addition to an analysis of institutional documents. Within the interpretative hermeneutic paradigm, a triangulation of sources was carried out in which dimensions related to conditions, institutional actions, foundations, key concepts and actors are reported. It also presents tendencies, tensions and absences that show the difficulties to concretize the institutional policy in the teaching practice and to give continuity and accompaniment to these processes. It is concluded that the university is undergoing processes of innovation and change, so that its teacher training policies with ICT require the technopedagogical and epistemological integration of a framework of digital competencies

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that guide the meanings and meanings of the training actions, an issue that gives value to the study presented because it allows to clearly identify areas for improvement related to evaluation, monitoring and updating of its educational policy.

Keywords: Information technology, communication technology, teacher training, university.

Resumen

Se realizó una investigación cuyo objetivo fue analizar las percepciones sobre la política de formación docente para la incorporación de las Tecnologías de la Información y la Comunicación (TIC), en el periodo 2019-2022, en una universidad mexicana. Se partió de una entrevista semiestructurada realizada a un actor central en la aplicación de la política de la formación docente de la universidad, además de un análisis de documentos institucionales. Dentro del paradigma hermenéutico interpretativo se realizó una triangulación de fuentes en la que se reportan dimensiones relacionadas con las condiciones, acciones institucionales, fundamentos, conceptos clave y actores. También se presentan tendencias, tensiones y ausencias que dan cuenta de las dificultades para concretar la política institucional en la práctica docente y dar continuidad y acompañamiento a estos procesos. Se concluye que la universidad transita procesos de innovación y cambio, por lo que en sus políticas de formación docente con TIC se precisa la integración tecnopedagógica y epistemológica de un marco propio de competencias digitales que orienten los sentidos y significados de las acciones formativas, asunto que le da valor al estudio presentado porque permite identificar con claridad áreas de mejora relacionadas con evaluación, seguimiento y actualización de su política educativa.

Palabras clave: Tecnología de la información, tecnología de la comunicación, formación de docentes, universidad

Introduction

The traditional paradigm of the teacher, at any level of professional performance, has been changing in recent decades in a more evident way. Constructivist models have been directly involved in this change: the teacher is no longer a transmitter of knowledge and,

instead, has become a facilitator, mediator and guide in the learning process. In this sense, the use of information and communication technologies in the teaching field has been fundamental, since it has allowed the generation of novel teaching-learning processes, as well as the systematization of experiences embedded in them, based on models and the integration of virtual, face-to-face and ubiquitous learning environments for the construction of meaningful learning (Garduño, 2020; González et al.,2023. In addition to this, the incorporation of Information and Communication Technologies (ICT) to teacher training adds to the participation in the information and knowledge society, and favors the reduction of the digital divide (Ferrari et al., 2012), mainly because it contributes to concretize trends and innovations in their use and relationship within the framework of international guidelines, as recorded in the Horizon Report (Johnson et al., 2015).

The capabilities of critical and safe use of ICT by teachers at all educational levels for the mediation of teaching-learning processes, as well as to promote the digital literacy of students, are currently understood in concepts such as teaching digital competence (TDC), whose approach derives from the technological revolution and globalization (Castells, 1999). This competence comprises the intersections between three types of knowledge: pedagogical, technological and disciplinary (Mishra & Koehler, 2006) and, although there is no unanimous consensus on its definition (Velandia et al., 2022), it can be understood in general terms as the set of knowledge, skills and attitudes of teachers that enable them to use technologies to respond adequately to the training needs of information and knowledge societies (Cabero-Almenara et al., 2022).

At the international level, the approach to the CDD in Higher Education Institutions (HEIs) became more relevant during the contingency period for Covid-19, particularly in 2020, a year in which there was a notable increase in publications on this topic (Velandia et al., 2022), which showed the need to strengthen the training processes of teachers in relation to its development. The publications comprised in the period 2018-2022 were characterized by a notorious diversity in terms of the competency frameworks used, and by the identification of five types of research objectives: 1) assessment of digital competence; 2) validations, updates, comparisons or adaptations of competency frameworks, 3) analysis of classroom experiences, 4) designs and validations of new instruments for the assessment of CDD, and 5) analysis of the concept of CDD (Velandia et al., 2022, p. 7). As can be observed,

works on teacher training processes are the great absence in these studies. At the national level, there is no educational policy that establishes a framework for teachers' digital competencies. However, the digital education agenda (SEP, 2020, p. 60) recognizes the right of teachers to constant and updated training. In fact, one of the guiding principles is teacher training, updating and professional certification in digital skills, knowledge and competencies, whose objective is to develop the necessary skills to strengthen their use at different educational levels. As can be seen, a differentiation is made between skills, knowledge and competencies, although the latter are not defined, it alludes to a certification based on standards for the evaluation of skills, abilities and knowledge acquired by people in different environments or spheres of action (SEP, 2020, p. 80). This policy considers the relevance of training so that teachers' digital competencies can be mobilized and transferred to different environments and therefore to different educational levels. In this order of ideas, universities in Mexico have undertaken actions to promote the incorporation of ICT in the work of teachers, mainly from continuous training, as documented by Banoy (2021), but they have been little systematized from research (Solano et al., 2022).

This makes it necessary to question how such actions have been developed, and what results are derived from them. Although there may be different perspectives for this, an interesting perspective is the one related to the officials who have the task of implementing the actions established in educational policies. Despite the mandatory use of technologies during the contingency period in the results of recent diagnostics (2018-2022) conducted with university professors it has been identified that their levels of CDD are low (Fernández-Batanero et al., 2021) and intermediate (Bilbao-Aiastui et al., 2021). It is quite possible that this is related to the fact that the actions carried out by HEIs, at least in the last five years, have had a strong emphasis on technological knowledge or, alternatively, have been carried out from an approach oriented more to operational pedagogical aspects such as class preparation, rather than towards the promotion of critical and safe uses of ICT for an adequate training in digital citizenship from a technopedagogical approach, i.e. integrating Technology, Pedagogy and Didactics (Garduño, 2020). Furthermore, it is recognizable the absence of a consensual reference framework at national and university level on the CDD. In this sense, the context makes it necessary to think about a teacher training policy with ICT in which knowledge, skills and competencies are immersed.

Mexican universities are characterized by their remarkable efforts in terms of innovation in teacher training, so, given the lack of works that delve into the actions undertaken by HEIs in Mexico to incorporate ICT in teaching, it was decided to develop a study in one of them, with the aim of analyzing perceptions about the teacher training policy for the incorporation of ICT, in the period 2019-2022.

This contribution is relevant because it constitutes a background that makes it possible to visualize what has been achieved and what has been learned from the experience and actions of university officials. It also makes it possible to understand the transcendence and orientations of the current educational policy, and to identify absences that can be integrated and strengthen future educational policy actions to be developed in this and other HEIs.

Therefore, the questions that guide this study are: What are the perceptions about the teacher training policy with ICT in the university in the period 2019-2022? What is the status of this training? What are the foundations that are present in the policies, specifically university policies, for teacher training with ICT in this university? From where are the proposals located: from training, qualification, updating, education, and/or professionalization?

Materials and methods

Qualitative research was carried out based on an interpretative paradigm (Sandín, 2003) following the steps suggested by Álvarez-Gayou (2003). Likewise, "reproducibility" (Krippendorf, 1997, in López-Noguero (2002) was used to observe the reliability of the work, so that the methodology could be recreated by other researchers in conditions and places other than those of this study. This reproducibility is contemplated from the approach to the sources of information, the analysis itself and the triangulation. It is assumed that those who participate by sharing information are collaborators, thus recognizing their knowledge and the importance of returning to them the knowledge derived from the research for the development of improvement proposals as an ethical commitment that is built from contemporary intercultural approaches, such as those of Dietz & Álvarez (2014). An important part of this study is that it makes visible the perception of university officials, commonly overlooked by the immediacy and operability expected from a teacher training policy at the level of concreteness of their teaching

practice. However, this vision of the implementation of an educational policy is highly relevant because it guides the understanding of the strategic (established in institutional documents) and the tactical (from the perceptions of the experience of intermediate institutional levels).

The research was developed in four stages: The first consisted of the collection of information, from the realization of a semi-structured interview conducted via videoconference, with a duration of approximately one hour by two interviewers to a collaborator identified as a social and central actor in the policy of teacher training at the university. This interview constituted the first hermeneutic unit.

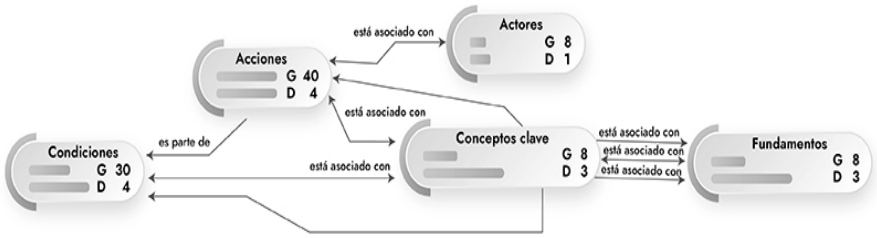
The second phase consisted of the collection of institutional documents whose selection was based on: a) including strategic plans or results of these about teacher training oriented to the incorporation of technologies in their work, b) being located in the period 2019-2022 because the data shared by the collaborator in the interview correspond to the same, and c) being published on official university websites. Eight documents were identified, from which only the sections alluding to issues related to teacher training for the incorporation of technologies in their work were selected. Their typology is diverse, since there are reports that report on what has actually been done, training programs that establish specific goals related to teaching, work programs related to specific areas, and projects that involve comprehensive actions of different scopes in accordance with certain objectives.

In the third stage, a content analysis (A) (Bernete, 2013; López-Noguero, 2002) of both hermeneutic units was conducted. In this regard, we proceeded from the theoretical sampling proposed by Glaser & Strauss (1967) because it maximizes the advantages of simultaneity of case selection, data collection and data analysis. In addition, it was assumed that one of its characteristics is to construct deliberate decisions based on the information needs detected in the first results (Martín-Crespo & Salamanca, 2007). Based on the above, two levels of analysis were considered:

In the first, we started from dimensions identified in the interview:

1) foundations (national and international policies underlying teacher training for the incorporation of technologies), 2) conditions (historical conjunctures or referents specific to the institution that influence that teacher training), 3) institutional actions (efforts aimed

at teacher training), 4) key concepts (transitions in the way of naming/conceiving teacher training), and 5) actors (agents that intervene in teacher training and from where they do so). Based on these dimensions, open coding of the interview was carried out by inventorying the emerging codes in a codebook. A total of eight codes were constructed: actions, actors, concepts, conditions, dissemination of the offer, diversification of the offer, focus of the offer, and results. Subsequently, axial coding was carried out by constructing networks to identify relationships among the codes. This process was accompanied by an analysis of concepts through the elaboration of a word cloud and opinion mining, using Atlas Ti® version 8 software for the first two (Strauss & Corbin, 2002), and Atlas Ti® version 23 for the last one. These exercises allowed to deepen the identification of tensions to be considered in the interpretation of the results obtained in the light of the questions and the theoretical references that guided the research.
The following scheme shows that the most important dimensions are conditions and actions, according to rootedness and density. Key concepts and foundations have an equal behavior among them, while actors appears a little low in terms of density.
Figure 1 Dimensions of analysis of the actions developed at the university for teacher training in ICT incorporation.



Note: Prepared by the authors using Atlas.ti Version 23.

The relationships between the different dimensions show that Conditions and Actions are the ones that articulate with each other, while Key Concepts are related to both. It is noteworthy, however, that Actors are only linked to Actions, and that Key Concepts and Foundations communicate with each other and are associated with Actions and Conditions.

The second level of analysis was carried out with the institutional documents that were entered into Atlas Ti® version 23, and rapid coding was performed based on the analysis of concepts to identify the key words that have rootedness (number of times they are repeated in the document citations) and density (repetition in the

various documents), of co-occurrence between codes as a basis for establishing relationships between codes (axial coding), and the construction of networks to identify patterns; opinion mining allowed identifying the words with the highest frequency of occurrence in the citations made.

Finally, in the last stage, a triangulation was carried out between the results obtained from the analysis of the institutional documents and those of the interview, which allowed a contrast between the vision of the collaborating actor and the institutional vision of the university (Fox, 2005). The triangulation of sources was carried out through the construction of a dialogue of the results of the open and axial coding previously carried out in each hermeneutic unit.

Results

To answer the research questions, we present their relationship with the five dimensions analyzed: conditions, institutional actions, foundations, key concepts, and actors, and finally the triangulation of sources in which trends, tensions and absences derived from the research are shared.

To answer the question What are the perceptions about the teacher education policy with ICT at the university in the period 2019-2022? It was identified that conditions that influence, inhibit or concur in the implementation of such policy are perceived.

The most important condition for the assessment of teacher training in ICT was the contingency caused by Covid-19. From there, it was possible to develop training processes that favored, from virtuality, meetings with academics from different regions and areas.

Unfortunately, with the return to "normality", the academic offer has been concentrated in the face-to-face scenario.
In spite of the above, the following conditions are perceived as favorable to the teacher training policy:
1. training offer for teachers that includes diploma courses and other options, but it is highlighted that for the use of ICT and development of competencies a greater participation of academics is required.
2. The Eminus digital educational platform is considered an institutional innovation that is constantly being updated, which, however, has caused difficulties in its use among teachers.
3. Platform ecosystems, which is related to the previous point and is aimed at offering new tools (such as LIenzos and Lumen) to the

institutional platform to move from the instructional to exercises aimed at improving teaching performance.

Among the enabling conditions are:

1. Institutional technologies, basically related to Eminus, which have enabled training processes because "it became a central theme" (personal communication, November 9, 2022). 2. A varied and accessible offer for greater faculty access to educational technology, for which "they were built based on [it]", in addition to taking advantage of "a lot of external training taken by academics" (c.p.). Progress towards multi/interculturality due to the meeting of different experiences and knowledge of teachers located in different regions and in different fields of knowledge, which allowed an "enrichment in the training with all of them because you had academics from all areas and from all regions in the same course" (c.p.).

Regarding inhibiting conditions, the following were identified: 1. The need to meet several training demands in the current administration has placed ICT-related processes in second place, despite the fact that "a balance has been sought with other needs such as human rights and gender-related issues, especially associated with emerging issues such as student protests" (c.p.). 2. There are no clear policies that include strategies, evaluative actions and follow-up related to ICT training, an issue that already "happened in 2008-2009" (c.p.), which makes it difficult to make the best decisions. 3. "The limited data" (c.p.) on the reasons for attrition in the courses offered, which undoubtedly implies the difficulty of making informed decisions to solve this problem. The "inheritance of the face-to-face" (c.p.) facilitates training associated with formative traditionalism, leaving out virtuality as a learning space. Finally, the concurrent conditions were associated with: 1. the diversity of meanings among academics who take the courses due, among other factors, to the fact that they are voluntary and to the contractual characteristics. Thus, for some it is an "opportunity to add productivity", but for others, many of them Full-Time Professors (FTE), "there is no such interest" (c.p.). Training is a "right stated in the collective bargaining agreement" (c.p.), but this document seems to inhibit participation and completion of the courses. 3. There is no evidence that what is learned in the training courses is echoed in the classroom, although there are "incentive programs that relate training to productivity" (c.p.).

As can be seen, there is a committed and responsible perception of the training policy, as well as knowledge of its scope, limitations and challenges. However, it is also necessary to know the status of the training that has been implemented.

With respect to the question "What is the status of this training?", we present the actors involved in training and from where they do it, as well as the efforts aimed at the implementation of the teacher training policy. Regarding the actors, the process developed by the university has been collective "there are different proposals [...] such as the digital knowledge courses [...] and there was a diploma course [on the subject] where academics participated [...] in its design". There is an institutionalized organization that collaborates in the educational training policy "a coordination of Online Education [that makes] efforts to start working on online degrees" (c.p.). Also, the General Directorate in Information Technologies, which, in parallel and in collaboration with the Academic Strengthening Program Department, "promotes courses and support to academics". On the other hand, there is also the demand of the Union (FESAPAUV) that states: "I want training [for its members]", since "it is in the collective contract" (c.p.).

In this sense, he emphasizes that the offer of the Academic Strengthening Program has no cost, unlike other instances of the University, such as Continuing Education. But perhaps more important is the fact that FESAPAUV participates, together with university authorities, in the Joint Commission for training and education, a body to which it is "accountable [and] supervises the offerings" of the academic strengthening program. In addition to the options offered by the university, the interviewee comments, it is known that "many institutions [universities and technological institutions, for example] offered courses [especially] in instructional design" (c.p.).

As for actors involved in the management of programs linked to the use of ICTs (as understood by the university), the following were identified: "a content manager, a programmer, a graphic designer, a media designer, and a proofreader" (First Work Report 2021-2022, p. 3). This, undoubtedly, can be recognized as a multidisciplinary team for the management of experiences linked to training, particularly required by the Covid-19 pandemic in technological matters with educational application.

The actions developed for teacher training in ICT, as part of the institutional policy, have been the following: 1. Academic working

groups have been organized to analyze the catalog of the Academic Strengthening Program (Profa): “we have this goal for 2023 to sit down and review everything we have in content”. Likewise, there is interest in implementing, as a strategy, some diploma courses and other courses so that academics: “[...] have a clear trajectory of contents” (c.p.). 2. Attention has been paid to digital knowledge, but “based on basic digital competencies” (c.p.). 3. It has been proposed to know who are the participants in training and who have not had access to these processes, since it is known “that there are teachers who have not taken a course in four or five years” (c.p.). In this sense, the following statement is relevant: “the hourly academic does take courses”, while the full-time staff participates in a more diffuse way. This is not a minor problem for this collaborator, since “there are no consequences for those who do not take them” (c.p.). 4. There is interest in diversifying the modalities of academic training by “rethinking the ways to be able to train from an institutional structure” (c.p.). 5. A very significant situation is that “we do not know how the academics who have been trained use technology” after having taken some training option; in this regard, it should be noted that one of the few opportunities to know this is the instrument on academic evaluation, in which it is questioned whether the faculty uses technology. Given the complexity of the follow-up, the interviewee stated that “there are levels of responsibility among the different area directorates, the academic secretary's office, the rector's office, the union, etc.” (c.p.).

From the documentary analysis, a catalog was identified with 62 permanent educational experiences distributed in three fields: inclusive institutional articulation, innovation for the strengthening of the teaching profile, and university social responsibility and social impact. Three indicators are recognizable in these, namely: institutional participation, the relationship between innovation and teaching, and university social commitment.

Another relevant element was the participation of different academic areas that requested the ES, with which they built “274 groups, with 3058 accredited academics” according to the 1st Work Report 2021-2022 (Aguilar, 2022, p. 26). Virtuality has been a topic of constant reflection that has resulted in the redesign of courses in this modality. Similarly, an emerging offer was built highlighting the Course-Workshop Training of trainers for academic innovation according to the 3rd report of activities 2019-2020 (Ladrón de Guevara, 2020, p. 29).

As can be seen, the training policy has a collective, collaborative and participatory character, since the central administration and union bodies have an interest in the implementation of this policy. There is a diversity of instances and people involved, which in turn results in a diversity of training offer and a visualization of its possible modalities. The follow-up and evaluation of this offer is part of the pending processes of the training policy, which to a certain extent is related to its foundations.

In order to investigate the question: What are the foundations present in the policies for teacher training with ICT at the university? We considered the relationship between educational policy and the national and international guidelines that underlie teacher training with ICT. One of these guidelines is the competency-based approach dating from 2008-2009, when in the Profa "there was a development [...] to promote competencies in technology". And although at the time it was considered innovative, the teaching staff was not prepared: "there was no interest as such". It was also identified that there was an "instrumental emphasis" on the use of the institutional platform "Eminus", which has led to the need for training "on how to design a virtual environment" so that they do not "use the platform for the platform's sake" (c.p.).

The trajectory of those first steps towards the incorporation of ICT in the university had a break between 2014-2015, at least in Profa. External training has also been present, and is known due to its registration in databases built for "productivity recognition" (c.p.). Undoubtedly, a conjunctural moment for the recognition of the centrality of the use of technologies was the Covid-19 epidemic. Since 2019, progress that had not been made in years "we advanced it in two by leaps and bounds both in training [...] and in diversifying the use of digital platforms". Despite this, and the fact that "an institutional policy was 'developed to train academics in Eminus 3', when 'Eminus 4 came out, around August 2020', the transition was not and has not been simple because the latest version of the institutional platform 'came to support, but also made the use more complex' (c.p.).

The most important concern "was the attention of students"; however, in the January 2023 exercise "the [same] needs that existed before the pandemic are emerging", mainly because academics say: "I want disciplinary courses, courses that have to do with the writing of academic [texts], the publication of these, and statistical elements" (c.p.).

The documentary analysis points out that there are important conceptual absences that contrast with international policy on the development of digital competencies, digital transformation in both education and industry. One element that stands out is the reduction of the concept of technology to ICT, without mentioning other aspects related to training such as Learning and Knowledge Technologies (LKT), Technologies for Empowerment and Participation (TEP) and Information, Communication, Knowledge and Digital Learning Technologies (TICCAD), the latter barely integrated in the national education policy. These technological connotations allow the transition from a utilitarian vision to a digital culture and citizenship, which concur with the changes proposed by education 4.0 and 5.0 that transcend not only the classroom but also the school as a training space. "The academic recognizes the importance of the use and application of technology in the classroom [...]" (Departamento de Formación Académica UV, 2022, p. 3), so the classroom, whether ICT-mediated or virtual, continues to be the space where its application is based on 'the study and appropriation of digital knowledge' (Departamento de Formación Académica UV, 2022, p. 3), although it is not specified how it is to be applied. 3), although it is not specified how these two processes concur in its development, it highlights a learning environment centered "on honesty and responsibility" (Departamento de Formación Académica UV, 2022, p. 3).

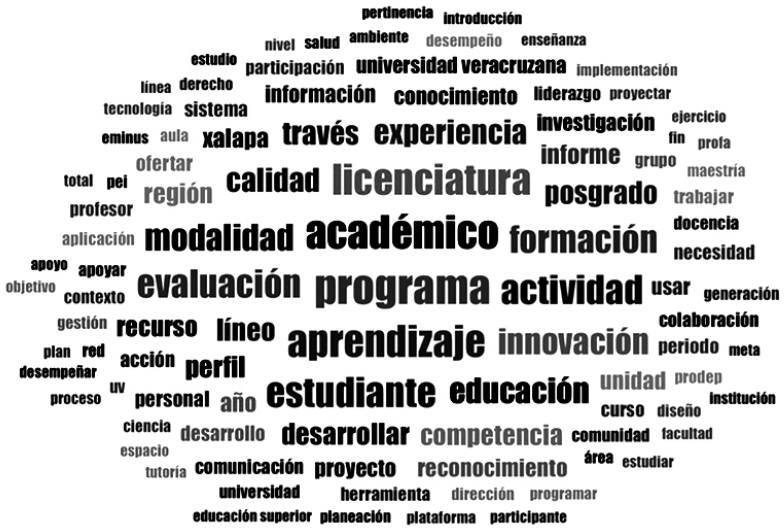
In short, the foundation of the policy in the development of competencies concur with digital knowledge with an emphasis on an instrumental vision, but with the possibility of transitioning towards digital culture and citizenship. As part of these transitions and visions, it is proposed to investigate the key concepts related to the training policy.

In order to know the conceptions of training that prevail in the policy, the question is answered: From where are the proposals located: from training, qualification, updating, education, and/or professionalization?

Based on the analysis, it is recognized that the aspiration is to train academics (see Figure 2), but it is significant that the Joint Commission that has the power to decide names it as "training and coaching", categories that, by far, are less complex and not necessarily linked to the needs of the students.
On the other hand, the problem of non-attendance persists, since of "an academic staff of approximately 6, 600, 2, 500 [people] or more, did not take any course [offered by the Profa]", and this is considered

a challenge and, at the same time, an area of opportunity that has included "directors, academic secretary, the rector's office itself" to consider "that 100% thinking about updating because we consider that it is one of the competencies that is important to take into account" (c.p.). This conception of updating appears in a certain way to motivate faculty participation, but it also contributes to generate confusion about what is considered a competence, which is part of the theoretical foundations of the educational policy of this study. Figure 2 shows that, in the center of the discourse, the word training is linked to the academic or teacher through courses on technological platforms, which gives an idea of the meaning of these virtual spaces within the educational policy.

Figure 2. Word cloud of the interview transcription document.



Contextually, the large number of academics who do not participate in the courses offered is revealing, and this is a pending topic for research and reflection that is very relevant in favor of improving the training of future professionals. From the perception of the official interviewed, professionalization is a goal that requires prior updating in the incorporation of technologies in teaching: "after [updating], I believe that later on we could move on to the topic [of] professionalization" (c.p.). The way considered to achieve this goal was through two diploma courses. In this regard, there is a critical view that if there is no clear route to professionalization, "we are only doing and doing courses and the academics are updated, of course, yes", but we are not getting to the desired point. It was also

pointed out that training had been the concept that had directed the policy of offering academic courses, and that would have been the prelude to professionalization, but "now in a more structured way, now that the avalanche of courses has passed [...]" (c.p.).

It was found that there is a tendency to return to teacher training with ICT in the classroom. This suggests that only in the context of Covid-19 was it considered urgent to develop professionalizing processes for the academic staff, and that, in addition, there is an important resistance to do so from alternative scenarios to face-to-face teaching, at a time when university policy has placed human rights and sustainability at the center of attention, leaving the issue of technology in training processes in the background.

In the documentary analysis there is an important contrast with the exercise of educational policy, since the trends in the generation and redesign of educational programs for the subject of interest here are oriented towards training rather than updating, professionalization or appropriation for both teachers and students. Another relevant notion is that of "educational experiences" because from there it is possible to develop learning exercises in different university contexts and integrate teacher training with ICT. First, that training goes beyond the reductionist or utilitarian sense of ICT, since it integrates political, ontological, epistemological, psychological, pedagogical, didactic, and axiological areas. Second, that teacher training in the field of ICT implies a profile of skills, knowledge and digital competencies (DOF, 2019) as a starting point for the development of educational experiences and the construction of educational trajectories, in which it is necessary to integrate the technopedagogical, technodidactic training specific to the work of teaching. Third, the relationship with technology in university contexts is complex, so it is necessary to clarify the social and citizenship training in virtuality in accordance with national educational policy (SEP, 2020) and international ISTE (Crompton, 2017).

Discussion

By integrating the triangulation of sources, three axes related to institutional perception were identified: trends, tensions and absences, which synthesize the analysis of the training policy and allow conclusions and discussions on the categories set out in the questions related to conditions, institutional actions, foundations, key concepts and actors.

Four trends can be found in the tendencies. The first is the conceptual positioning on training oriented to the technopedagogical approach within the teaching and learning processes (Garduño, 2020; González et al., 2023; Coll & Monereo, 2011), which makes it necessary to specify clear structures and methodologies in the design of technopedagogical teaching and learning experiences, in which contents, objectives and teaching and learning activities concur with the corresponding orientations and suggestions to approach and develop them; and a conception of spaces with methodological as well as technological proposals on how to use them. The second trend is the generation and redesign of educational programs aimed at training rather than at training or updating teachers, a situation that may or may not contribute to the approaches related to the "symbolic dispossession" (Perrenoud, 1996) of teachers, or the concerns related to the deprofessionalization of teachers (Delors, 1996), which place them in a more operative and instrumentalist teaching. A third trend is educational innovation in which various frameworks of competencies and technopedagogical skills necessary to work from teaching technological immersion are proposed (Scott, 2015), which can be integrated into the profile of teachers in updates of the institutional framework and philosophy, although their incorporation is meager, since the university has not taken up, at least explicitly, reference competency frameworks like other international or national instances (DigCompEdu published by Redecker & Punie (2017); UNESCO, 2019; Cabero-Almenara et al, 2020; Edel & Ruiz, 2021; SEP, 2020). A fourth trend is the evaluation associated with the concept of quality that coincides with the approaches of current educational evaluation (Carbonell et al., 2021). However, it is not yet clear how this can be specified in the field of pedagogical training in relation to the development of digital competencies.
The tensions were identified as part of the transitions that the institution has had towards work and teacher training with ICT, which have been recognized in different instances at the national level. Five tensions stand out. One is that training is placed at the center of the discourse of the actor and the official documents reviewed, as opposed to an offer of courses that corresponds more to training. Another is located between training actions oriented to the emergent rather than to long-term training and of greater importance in the processes of digital transformation within the university. Likewise, the prevailing face-to-face modality was registered as a tension in the face of advances in educational modalities such as the use of Massive Open Online Courses (MOOCs) or micro courses. The fourth one specifies the need for an institutional framework of teachers' digital competencies in the face of what is established in

institutional documents that recognize the use of ICT in the classroom and in the university context, in order to incorporate them in educational experiences in the face of future crises and educational digitization processes. A fifth tension raises the need to homogenize or differentiate the teaching population by areas of knowledge in order to offer courses. The academic literature has not made this controversy and its derived lines sufficiently visible, such as whether or not the perception on the incorporation of technology among teachers depends on their disciplinary area, although the low inclusion of ICT by those involved in the arts and humanities is documented, unlike teachers located in science and technology among whom it is more usual (Shelton, 2014; Salcines et al., 2017).

Finally, five main absences stand out. The first is the rethinking that the increasing use of artificial intelligence has brought to the educational field and that requires consideration within university policy. The second is the use and appropriation in the formative processes of the different connotations of educational technology in ICT, TAC, TEP, or TICCAD, (SEP, 2020; DOF, 2019; DOF, 2021). A third is that within the perceptions and institutional documents no theoretical references were found that epistemologically support the educational policy. The fourth is related to the evaluation of the educational policy because it is necessary to consider evaluations on the transfer of what has been learned by participating in the ICT teacher training offer, for example, through the follow-up of graduates of these courses or other mechanisms as suggested by authors such as Lázaro-Cantabrana et al. (2021) and Casini (2022), as well as the assessment of the impact of digital teacher training on student learning (Bilbao-Aiastui et al., 2021). Also on the participation of teachers in decision-making and actions for the incorporation of ICT in their work, which affects the mobilization and transfer of this knowledge (Duarte, 2000; García-Valcárcel Muñoz-Repiso & Hernández, 2013), among which stand out the communication of critical positions, reflective attitudes, and innovation processes, as well as evaluation and monitoring actions both of the actions and of the conditions found in the research.

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