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Artículos científicos

Evaluación de las competencias profesionales desarrolladas durante la formación inicial docente: un estudio exploratorio

Evaluation of professional skills developed during initial teacher training: an exploratory study

Avaliação das competências profissionais desenvolvidas durante a formação inicial de professores: um estudo exploratório

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Resumen

Esta investigación toma como base teórica el enfoque por competencias retomado en el plan de estudios 2018, cuyo objetivo se enfoca en evaluar la percepción de las competencias profesionales desarrolladas por 108 estudiantes de octavo semestre de la licenciatura en Educación Preescolar del Benemérito Instituto Normal del Estado, Gral. Juan Crisóstomo Bonilla, generación 2018-2022. Es una investigación cuantitativa de corte transversal, con alcance exploratorio y descriptivo. Para recabar los datos se utilizó una encuesta *online*, con escala tipo Likert. Entre los principales hallazgos se identificó que las competencias profesionales fueron desarrolladas de acuerdo a la percepción de los estudiantes. La

competencia más desarrollada tiene relación con los contenidos del plan de estudios 2018 con el 98.6 % y un área de oportunidad del 1.42 %, ($\dot{x}$ = 18.44, σ = 1.84), y menos desarrollada, tiene relación con el vínculo escuela y comunidad con el 92.7 %, lo que implica que para el 7.3 % de estudiantes fue una área de oportunidad ($\dot{x}$ = 22.20, σ = 2.66). Por tal motivo, se concluye que es necesario acrecentar un vínculo social entre la escuela normal y el contexto de la escuela de práctica para la toma de decisiones de las problemáticas socioeducativas mediante la enseñanza situada. Finalmente, se propone abrir una línea de investigación sobre el proceso de ingreso al servicio profesional docente.

Palabras clave: autoevaluación, competencias del docente, formación de docentes de preescolar, instituciones formadoras de docentes, evaluación.

Abstract

The research takes as a theoretical basis the competency-based approach taken up in the 2018 Study Plan, whose objective was to evaluate the perception of professional competencies developed by 108 eighth-semester students of the Bachelor's Degree in Preschool Education of the Benemérito Normal Institute of the State "Gral. Juan Crisóstomo Bonilla", generation 2018-2022. It is a quantitative cross-sectional research, with an exploratory and descriptive scope. To collect the data, an online survey was used, with a Likert-type scale. Among the main findings, it was identified that professional skills were developed according to the perception of the students. The most developed competence is related to the contents of the 2018 Study Plan with 98.6% and an opportunity area of 1.42%, ($\dot{x}$= 18.44, σ= 1.84), and less developed, it is related to the school and community link with 92.7 % which implies that for 7.3% of students, it was an area of opportunity ($\dot{x}$ = 22.20, σ= 2.66). For this reason, it is concluded that it is necessary to increase a social link between the normal school and the context of the practice school for decision-making on socio-educational problems through situated teaching. Finally, it is proposed to open a line of research on the process of entering the professional teaching service.

Keywords: self-assessment, teacher competencies, preschool teacher training, teacher training institutions, evaluation.

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Resumo

A pesquisa toma como base teórica a abordagem por competências assumida no Plano de Estudos 2018, cujo objetivo foi avaliar a percepção das competências profissionais desenvolvidas por 108 alunos do oitavo semestre do Curso de Bacharelado em Educação Infantil do Instituto Normal Benemérito de o Estado "Gral. Juan Crisóstomo Bonilla", geração 2018-2022. Trata-se de uma pesquisa quantitativa de corte transversal, com escopo exploratório e descritivo. Para coletar os dados, foi utilizado um questionário online, com escala do tipo Likert. Entre os principais achados, identificou-se que as competências profissionais foram desenvolvidas de acordo com a percepção dos alunos. A competência mais desenvolvida está relacionada com os conteúdos do Plano de Estudos 2018 com 98,6% e uma área de oportunidade de 1,42%, ($\dot{x}$= 18,44, σ= 1,84) e a menos desenvolvida, está relacionada com o vínculo escola e comunidade com 92,7% o que implica que para 7,3% dos alunos foi uma área de oportunidade ($\dot{x}$ = 22,20, σ= 2,66). Por isso, conclui-se que é necessário aumentar o vínculo social entre a escola normal e o contexto da escola prática para a tomada de decisão sobre problemas socioeducativos por meio do ensino situado. Por fim, propõe-se abrir uma linha de pesquisa sobre o processo de ingresso no serviço profissional docente.

Palavras-chave: auto-avaliação, competências de professores, formação de professores pré-escolares, instituições de formação de professores, avaliação.

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Introduction

The development of competencies during the training process until reaching the graduation profile is a problem that deserves to be studied, since it helps not only to propose improvements in the design of study plans and programs but also to know what the perception of the professional competencies developed in the students of the last semester of the degree in Preschool Education who were trained with the 2018 study plan (Secretary of Public Education [SEP], 2018a), generation 2018-2022, of the Benemérito Normal Institute of the State (BINE), Gen. Juan Crisóstomo Bonilla, from the city of Puebla, Mexico.

The study is based on the institutional development plan of BINE, as well as on the mission, institutional vision (BINE, 2016), and its relationship with the social function by contributing to the training of human beings that contribute to the economic and social

progress of the country. As a teacher training institution, the BINE makes visible the conception of education as an integral phenomenon, so it is pertinent to rethink the type of teacher that is trained in normal schools and the role they play as part of educational institutions. higher education (IES).

It is important to emphasize that normal schools in Mexico are institutions designed to train basic education teachers in the country. The first records that exist on them date back to 1600, although it was not until 1900 that 45 institutions were identified (Navarrete-Cazales, 2015). By 2016, 460 were registered, of which 266 were public and 194 private (Medrano et al., 2018).

However, teacher training institutions in Mexico have gone through different academic and demanding scenarios in terms of teacher training. Initially, they arise with the intention of training teachers at a technical professional level, that is, after secondary level studies, they enter the normal school to obtain the title of normal teacher. Then, from the reform to the study plans of 1984, the baccalaureate or upper secondary level began to be requested as an essential requirement to enter a normal school.

Subsequently, in 2010, different institutional evaluation and mobility programs emerged. A very important one is the Institutional Graduate Follow-up Program (BINE, 2016) which has —among other functions— to measure, assess or evaluate the level of student satisfaction with the teacher training received by the institution, as well as activities in areas that they support their pedagogical work; for example, teaching, research and dissemination of culture, in which spaces various actions are considered to fulfill the multiple academic functions.

On the other hand, in terms of preschool education, began in 1880, when "the Mexico City Council approved the opening of a nursery school for children between the ages of three and six of both sexes for the benefit of the working class." ” (SEP, 2018b, para. 2), and was opened to the public on January 4, 1881.

Regarding this important topic, Pérez (2010) affirms that preschool education is defined as an educational level that provides substantial elements for the academic, personal and social formation of children; In addition, it provides them with useful learning so that they can use it during their daily lives, which, of course, requires the use of various material, human, and organizational resources.

On the other hand, regarding higher education, Ozuna (2022) states that these institutions are in charge of knowing and evaluating the achievement of the competences

obtained by the students at the end of their professional career. To this end, HEIs usually base their activities on a competency-based approach, which is proposed by the Ministry of Public Education in the agreement dated July 14, 2018 (SEP, 2018b). This approach ensures that students develop conceptual, procedural and attitudinal knowledge under specific situations that apply them when they are used in practice schools. These competencies allow them to carry out actions in real conditions and prepare them for professional service, which is in tune with the profile of the graduate of the degree in Early Childhood Education (LEPE).

However, to determine the success of an educational program in normal schools there are various methodologies. One of the most common is the one that focuses on knowing the satisfaction of students or graduates, who make value judgments of their process. Another strategy is the monitoring system, which can be divided into stages such as the following: a) pre-graduation, b) admission to the professional teaching service, c) job placement, d) satisfaction of graduates and employers, and e) configuration of a graduate study.

In this regard, it should be noted that in the present investigation —derived from the project entitled Exploratory study on the competences achieved by the graduates of the degree in Preschool Education 2018 study plan (see figure 1)— only the pre-graduate survey is evidenced. In addition, it is worth mentioning that said project was prepared to participate in the 2022 call "Research incentives for doctors" issued by the Puebla State Council of Science and Technology (CONCYTEP).

Figure 1. Project CONCYTEP 2022 and convocation.

Note. The figure shows in the upper part the project data and in the lower part the call of the Science and Technology Council of the State of Puebla (2022). Source: CONCYTEP

Regarding the evaluation, it can be affirmed that this is an activity that is found in the actors of education during the teaching-learning process. An example of this is the results of the evaluation where it can be deduced to what extent the institutional objectives are being met. As Cruz and Quiñones (2012) emphasize, the evaluation raises what students have learned and how it has been applied in practice during their educational process, which offers knowledge about the effectiveness of schooling.

On the other hand, and based on annex 3 of the agreement (07/14/18) of the study program (SEP, 2018b), competencies can be defined as those that synthesize and integrate the type of knowledge, skills, attitudes, and values necessary to practice the teaching profession. These focus on the psycho-pedagogical, socio-educational, and professional areas, which contributes to focusing attention on those situations that deserve to be addressed in order to solve problems in the school context, as well as the knowledge acquired by the students and the needs of the school and the communities where they are. According to the SEP (2018b), the seven professional competencies are:

1) Detects the learning processes of its students to favor their cognitive and socio-emotional development.
2) Applies the study plan and programs to achieve educational purposes and contribute to the full development of the abilities of their students.
3) Design plans by applying their curricular, psycho-pedagogical, disciplinary, didactic, and technological knowledge to promote inclusive learning spaces that respond to the needs of all students within the framework of the plan and study programs.
4) Use the evaluation to intervene in the different areas and moments of the educational task to improve the learning of their students.
5) Integrates educational research resources to enrich their professional practice, and express their interest in knowledge, science, and the improvement of education.
6) Act ethically in the face of the diversity of situations that arise in professional practice.
7) Collaborate with the school community, parents, authorities and teachers in decision-making and in the development of alternative solutions to socio-educational problems.

In the review of the literature, contributions can be identified in the normalist field about the satisfaction of teachers in training regarding the education received (Ramírez et al., 2014). In this regard, the cases of the degree in Preschool Education (LEPE) and Primary Education (LEP) stand out, in studies by Martínez and Santos (2017), Vergara (2017), Hoyos et al. (2019) and Figueroa et al. (2021). The results of these studies make it possible to identify —as mentioned by Figueroa et al. (2021)— that the investigations on the satisfaction in the initial training received contribute in some way elements to recognize what the students expected and the experiences lived within the school context.

For their part, Martínez and Santos (2017) analyze not only the development of competencies of the "normalistas" graduation profile but also other features of the normal school that affect their training, such as the institutional tutoring program and library services and calculation. The findings show that it is necessary to "define specific actions to attend to the less favored aspects based on what is perceived by the graduates" (p. 13).

Evaluation —according to Carrión (2001) cited in Cruz and Quiñones (2012)— is defined as the issuance of an assessment that arises by reviewing data on student learning progress for the purpose of deliberating decisions. On this subject, authors such as Pila (1997, cited by Cruz and Quiñones, 2012) affirm that there are various factors, among which personal and environmental ones stand out, which influence the systematic process of continuous improvement, where evaluation is understood. from recognizing to what extent the teaching and learning process achieves its main purposes and compares those initially established with those achieved.

In an investigation entitled Types of evaluation carried out by teachers in training, carried out by Molina et al. (2022), it is shown that between 2000 and 2004 emphasis began to be placed on the formative approach to evaluation; However, it was from the curricular reforms in basic education to the 2019-2020 school year when the educational model "La Nueva Escuela Mexicana" was reconstructed, which gave greater attention and depth to the formative approach of evaluation, and not only as actions of teachers for information.

For this research, the formative evaluation focused on helping the student improve; However, there are few attempts to encourage students to develop self-assessment and peer-assessment practices based only on the hetero-assessment. Among the types of evaluation, we find the diagnostic one, which —according to Rosales (1990) cited by Cruz and Quiñones (2012)— has to do with illustrating the initial conditions and possibilities of learning. Its purpose is to make pertinent decisions to make the educational act more effective and

determine to what degree people have achieved the proposed objectives. In addition, it serves to recognize the physical, emotional, and family situations that they are going through at the time of starting the course with a free structure.

In this line of analysis, formative assessment —according to Díaz and Hernández (2002) cited by Cruz and Quiñones (2012)— is the one used to verify whether the teaching purposes are being achieved or not; In addition, it provides information about what is necessary to make decisions that lead to improvement. The formative evaluation, therefore, has the role of guiding the activities from the obtaining of data with respect to the way in which the objectives are being achieved. This can be observed gradually in some paths of the 2018 curriculum, especially in the formative path of professional practice and in the modalities of professional practice reports and evidence portfolios (SEP, 2018b).

With respect to summative evaluation —according to Camilloni (1998) cited by Cruz and Quiñones (2012)—, it is the way in which learning is measured and judged in order to certify it, assign grades, determine promotions, etc. In addition, it is intended to make pertinent decisions to assign a total grade to each student that reflects the proportion of objectives achieved in the courses.

For its part, self-assessment requires students to assess qualitative or quantitative aspects of their performance through rubrics response models or scales. The student's self-evaluation gives him the freedom to make any curricular decision. It can be encouraged to become a community that knows the impacts of different processes and levels of competition for improvement.

In the normal school, there is an established institutional calendar with the dates of delivery of the final grades in the semester, but the content, gradualness, adjustments and orientations are in charge of the teacher who teaches the course, who already has a history of evaluations of the learning units and of the framework where the percentage of performance of the entire course is stipulated. In accordance with the regulations of the 2018 Study Plan, 50% of the total final grade must be attributed to an "integrative product" and the other 50% to the learning units, for which reason it is requested to assign a grade and the level of achievement achieved by the student. In addition, it is suggested to involve students in their learning process with a peer evaluation or self-evaluation to promote improvement in their academic trajectory. (SEP, 2018b).

There are some investigations about the self-assessment of the development of competencies of normal students. In this sense, it is considered that "looking at oneself"

allows one to identify some spaces in the training that were not fully covered. Regarding the self-evaluation of teachers in service and in training, Marín et al. (2021) point out the following: "Self-assessment, seen as a group product, represented a challenge to show ourselves to colleagues not only with our qualities but also with the areas of opportunity that we must address" (p. 9), while Galicia (2019) indicates that "although there is a variety in the self-perception of the different types of competences, it is possible to identify which ones are evaluated in more positive terms" (p. 8).

For his part, for Fraile (2009, cited by Taras, 2015) self-assessment in teacher training is an innovative proposal in accordance with democratic values, which is justified because a student must learn to be autonomous and aware of their educational process, which is not always linked to exams and numerical grades. However, it should be noted that some authors (Brown and Harris, 2013, cited by Taras 2015) have pointed out that few researchers have paid attention to student empowerment through self-assessment of their professional skills.

In addition to this, according to the United Nations Educational, Scientific and Cultural Organization (Unesco, 2021), the situation that the world went through due to the COVID-19 pandemic fostered a greater degree of student commitment to their own learning. This situation, in the words of Hincapié and Clemenza (2022), generated a change in educational agents, since greater confidence was created between teachers and students to request support and admit mistakes. In this context, the teacher is no longer the figure who judges the level of knowledge, but rather the mentor who supports and guides his students in their learning process. That same confidence becomes a fundamental reason for the student to want to learn, that is, as a purpose in itself, and not because he is forced by a grade.

Therefore, in the context of the post-pandemic, it is necessary to modify the educational evaluation mechanism so that it is fully aligned with emerging factors. In other words, the attitudes, values, knowledge, and procedures necessary to achieve educational quality must be promoted in students. Therefore, it must be kept in mind that one of the purposes of evaluation in the educational area is to know and ensure the formative process of students.

For Cruz and Quiñones (2012) self-assessment is valuable and brings benefits to the teaching and learning process since it allows the students to reflect on how they achieved their achievements. Therefore, the evaluation seen as a formative process must be used in three moments: diagnostic, formative and summative, which must be complemented by the participation of the student through self-evaluation and peer-evaluation actions.

Having explained all of the above, it can be indicated that the objective of the present investigation was to evaluate the professional competencies developed by the eighth-semester students of the degree in Preschool Education at BINE, generation 2018-2022.

Materials and method

The focus of this research was quantitative, with a non-experimental design, because "it is about observing or measuring phenomena and variables as they occur in their natural context, to analyze them [...] considering already existing situations, not intentionally caused in the research" (Hernández and Mendoza, 2018, p. 174). Likewise, the study was cross-sectional, with a descriptive scope, since it sought to "inquire about the level or state of one or more variables in a population; in this case, in a unique time" (Hernández and Mendoza, 2018, p. 177).

In research with a quantitative approach, the design of the instruments for data collection is elaborated from a numerical base that provides characteristics of validity and reliability (McMillan and Shumacher, 2005). Specifically, for the construction of the instrument, Annex 3 of the agreement (07/14/18) of the study program (SEP, 2018b) was reviewed, where it is highlighted that the graduation profile constitutes the referential element for the construction and design of the Curriculum. This expresses what the graduate will be able to do at the end of the educational program. In addition, it points out the knowledge, skills, attitudes and values involved in the performance of the teaching profession. It is made up of generic and professional competencies, as well as their units or elements. The competencies are organized taking as reference the five dimensions listed below:

1. A teacher who knows his students knows how they learn and what they should learn.
2. A teacher who organizes and evaluates the educational work and carries out a relevant didactic intervention.
3. A teacher who is recognized as a professional continually improves to support students in their learning.
4. A teacher who assumes the legal and ethical responsibilities inherent to his profession for the welfare of students.
5. A teacher who promotes the link between the school and the community to ensure that all students successfully complete their schooling (SEP, 2018b).

The instrument used consisted of 35 items (see tables 1, 2, 3, 4 and 5) and was prepared using a Google form, with a Likert estimation scale, based on questions and/or

statements about the professional competencies considered. in the 2018 study plan. It should be noted that the following recommendations by McMillan and Shumacher (2005) were considered in the design of the statements: 1) clear items; 2) pertinent questions; 3) short and easy-to-understand items; 4) questions with a single objective, and 5) avoid negative items and biased items or terms. Finally, it should be noted that a closed scale was used, that is, the participant had to choose a predetermined response.

Table 1. Dimension 1: A teacher who knows his or her students.

DIMENSION	PROFESSIONAL COMPETENCY (CATEGORIES)	COMPETENCY UNITS (SUBCATEGORIES)	ITEMS
1. A teacher who knows his/her students knows how they learn and what they should learn.	1.1.- Detects the learning processes of his/her students in order to favor their cognitive and socioemotional development.	1.1.1 Proposes the formative needs of the students according to their development and learning processes, based on new pedagogical approaches.	1.- Identical needs of your students based on a diagnosis.
			2.- Elaborate planning considering the new pedagogical approaches.
		1.1.2. Establishes relationships between the principles, disciplinary concepts and contents of the plan and programs of study based on the learning achievement of their students, ensuring coherence and continuity among the different grades and educational levels.	3.- You carry out interventions considering the development and learning levels of your students.
			4.- Relate pedagogical principles, and basic disciplinary concepts with the level of learning achievement of their students.
			5.- Identify the gradualness, depth and continuity of the achievement of learning.
			6.- Consider the context and development of your students to promote learning in the different fields, areas and areas proposed by the curriculum.

General note: Own design of the items elaborated from the dimensions, competencies and units of competence integrated into the 2018 curriculum of the bachelor's degree in Preschool Education (SEP, 2018b).

Specific note: The words in bold were used for the construction of the items.

McMillan and Shumacher (2005) affirm that the majority of the surveys describe the incidence, frequency, and distribution of the characteristics of a population; Furthermore,

they maintain that a scale is a series of levels that "describe various degrees of something. Scales are used to a large extent in questionnaires because they allow fairly accurate assessments of opinions or opinions" (pp. 241-242). The most widely used example is the Likert format, which incorporates values and guides the respondent to determine whether they agree or disagree with the indicator.

Table 2. Dimension 2: A teacher who organizes and evaluates.

DIMENSION	PROFESSIONAL COMPETENCY (CATEGORIES)	COMPETENCY UNITS (SUBCATEGORIES)	ITEMS
2. A teacher who organizes and evaluates the educational work, and performs a pertinent didactic intervention.	2.1.- Applies the study plan and programs to achieve the educational purposes and contribute to the full development of his/her students' abilities.	2.1.1. Uses pertinent and updated methodologies to promote student learning in the different students in the different fields, areas and spheres proposed by the curriculum, considering the contexts and their development.	7.- You use pertinent methodologies to promote student learning.
			8.- You identify the cognitive and socioemotional development of your students for your teaching intervention.
		2.1.2. Incorporates the appropriate resources and didactic means to promote learning in accordance with the knowledge of the cognitive and socioemotional development processes of the students.	9.- Consider the appropriate resources when planning activities to favor the learning of your students.
			10.- Recognize the cognitive and social-emotional development of students when designing learning activities.
	2.2.- Design planning applying curricular, psycho-pedagogical, disciplinary, didactic and technological knowledge to promote inclusive learning spaces that	2.2.1. Elaborates diagnoses of the interests, motivations and learning needs of the students to organize learning activities, as well as the pertinent curricular and didactic adjustments	11.- Make pertinent curricular and didactic adaptations according to the learning needs of your students.
			12.- You elaborate diagnoses based on the interests, motivations and formative needs of your students in order to organize learning activities.

	respond to the needs of all students within the framework of the study plan and programs	2.2.2. Select strategies that favor the intellectual, physical, social and emotional development of the students in order to achieve learning.	13.- Select strategies that favor the intellectual, physical, social and emotional development of the students to ensure the achievement of learning.
		2.2.3. Construct learning scenarios and experiences using diverse methodological and technological resources to favor inclusive education .	14.- Constructs learning scenarios and experiences using diverse methodological and technological resources to favor inclusive education.

General note: Own design of the items elaborated from the dimensions, competencies and units of competence integrated into the 2018 curriculum of the bachelor's degree in Preschool Education (SEP, 2018b).

Specific note: The words in bold were used for the construction of the items.

For the instrument construction process, virtual meetings were organized between researchers from Puebla and the State of Mexico. Dr. Lina Xóchitl García Sánchez, professor of the degree in Preschool Education at the Normal School of Tecámac, State of Mexico, deserves special mention in the design of the instrument and in the development of the research project. Collaboratively, the dimensions, competencies, and competency units of the graduation profile were read, broken down, and analyzed. In addition, a Google form shared with the Tecámac Normal School and graduate research, especially from normal schools, were reviewed.

Table 3. Dimension 3: A teacher who recognizes himself/herself as a professional

DIMENSION	PROFESSIONAL COMPETENCY (CATEGORIES)	COMPETENCY UNITS (SUBCATEGORIES)	ITEMS
3. A teacher who is recognized as a professional who continually improves in order to support students in their learning. students in their learning.	3.1.- Uses evaluation to intervene in the different areas and moments of the educational task to improve the learning of his/her students.	3.1.1. Evaluates students' learning through the application of different theories, methods and instruments, considering the areas, fields and areas of knowledge, as well as the knowledge corresponding to the grade and educational level.	15.- You know how to evaluate your students' learning through the application of different theories, methods and instruments.
			16.- You consider the areas, fields and scopes of knowledge to evaluate the knowledge corresponding to the grade and educational level of your students and educational level of your students.
		3.1.2. Develops proposals to improve the results of their teaching and the learning of their students.	17.- Develops proposals to improve the results of their teaching.
			18.- Develop proposals to improve the learning outcomes of your students.
	3.2.- Integrates educational research resources to enrich his/her professional practice, expressing his/her interest in knowledge, science and the improvement of education.	3.2.1. Uses the available technological means and sources of scientific information to keep updated regarding the different fields of knowledge involved in his/her teaching work.	19.- Uses the available technological means and sources of information to keep up to date in his/her field of knowledge.
		3.2.2. You use the results of research to deepen the knowledge and learning processes of your students.	20.- You know how to use the results of research to deepen your field of knowledge.
			21.- You know how to use the results of the research to deepen the learning processes of your students. students.
		3.2.3. Uses the methodological and technical resources of research to explain,	22.- Uses the methodological and technical resources of research to improve their teaching.

		and understand educational situations and improve their teaching.	23.- You use the methodological and technical resources of the research to explain and understand educational situations.

General note: Own design of the items elaborated from the dimensions, competencies and units of competence integrated into the 2018 curriculum of the bachelor's degree in Preschool Education (SEP, 2018b).

Specific note: The words in bold were used for the construction of the items.

Table 4. Dimension 4: A teacher who assumes responsibilities.

DIMENSION	PROFESSIONAL COMPETENCY (CATEGORIES)	COMPETENCY UNITS (SUBCATEGORIES)	ITEMS
4. 4. A teacher who assumes the legal and ethical responsibilities inherent in his or her profession for the welfare of students..	4.1.- Actúa de manera ética ante la diversidad de situaciones que se presentan en la práctica profesional	4.1.1. Orientates his/her professional performance with an ethical-valoral sense and assumes the diverse principles and rules that ensure a better institutional and social coexistence, for the benefit of the students and the school community.	24.- You know how to guide your professional performance with an ethical-valoral sense for the benefit of your students and the school community.
			25.- Assume the different principles and rules that ensure a better institutional and social coexistence, for the benefit of your students and the school community.
		4.1.2. Prevents and solves conflicts, as well as emerging situations based on human rights, the principles derived from the educational regulations and the values of the teaching profession.	26.- You know how to prevent and solve conflicts, as well as emerging situations based on human rights.
			27.- You know how to prevent and solve conflicts, as well as emerging situations based on the principles derived from the educational regulations.
			28.- You know how to prevent and solve conflicts, as well as emerging situations based on the values of the teaching profession (art. 3 of the Constitution and the General Education Law in force).

		4.1.3. Decide las estrategias pedagógicas para minimizar o eliminar las barreras para el aprendizaje y la participación asegurando una educación inclusiva.	29.- Uses pedagogical strategies to minimize or eliminate barriers to learning.
			30.- You promote participation to ensure inclusive education.

General note: Own design of the items elaborated from the dimensions, competencies and units of competence integrated into the 2018 curriculum of the bachelor's degree in Preschool Education (SEP, 2018b).

Specific note: The words in bold were used for the construction of the items.

Table 5. Dimension 5: A teacher who participates in the operation of the system

DIMENSION	PROFESSIONAL COMPETENCY (CATEGORIES)	COMPETENCY UNITS (SUBCATEGORIES)	ITEMS
5. A teacher who participates in the effective functioning of the school and fosters its link with the community to ensure that all students successfully complete their schooling.	5.1.- Collaborates with the school community, parents, authorities and teachers in decision making and in the development of alternative solutions to socio-educational problems.	5.1.1. Designs and applies different diagnostics to identify problems that affect the work in the school and in the classroom.	31.- Knows how to design and apply different diagnostics to identify problems that affect the work in the school and in the classroom.
		5.1.2. Distinguish the factors and aspects associated with school management that contribute to improving learning and the quality of the educational service.	32.- Distinguish the causes associated with school management that contribute to the improvement of student learning.
			33.- Distinguish the characteristics associated with school management that contribute to the quality of the educational service.
		5.1.3. Participate in institutional evaluation processes and use their results in school planning and management to improve the quality of education offered by the institution.	34.- You participated in the evaluation processes in your school of practice and used their results in the planning to improve the quality of education offered by the institution.
			35.- You use the evaluation results for school management with the purpose of improving the quality of the education offered by the institution. education offered by the institution.

General note: Own design of the items elaborated from the dimensions, competencies and units of competence integrated into the 2018 curriculum of the bachelor's degree in Preschool Education (SEP, 2018b).

Specific note: The words in bold were used for the construction of the items.

In the virtual sessions, the design of the instrument that best suited the exploratory study was selected, in addition to the indicators and assessment levels (from one to five): 1 = Definitely not (DN), 2 = Probably not (PN), 3 = Undecided (I), 4 = Probably yes (PS) and 5 = Definitely yes (DS). In the interpretation of the survey, PS and DS were considered as strengths, and I, PN and DN as areas of opportunity. These criteria were raised to evaluate the perception of professional skills of the eighth semester students of the LEPE (see figure 2).

Figure 2. Instrument, indicators and levels of assessment

Source: Own elaboration.

The previous figure shows the indicators and assessment levels of the applied form. They were broken down by making categories of the dimensions, and the ideas and keywords of the competencies previously analyzed were included in the indicators. Once the instrument was designed, it was validated using a form and piloted with some people outside the study population, but with the same characteristics.

Subsequently, the ethical conditions for the research were taken care of. For this, the authorization of the key informants was essential and relevant, for which the option of resolving the instrument or not was given. In addition, the application of the online survey to the LEPE students was anonymous, confidential and under informed consent so that they answered honestly. Likewise, they were asked to register with a different email so as not to identify their identity.

Regarding the reliability of the survey, Cronbach's alpha coefficient was used to evaluate the internal consistency of 0.939, which reflects a high homogeneity of response equivalence for all items.

The participants were 108 educators in training for the degree in Early Childhood Education from BINE Puebla, Mexico, whose ages ranged from 22 to 26 years. The inclusion criteria for the selection of the population were the following: a) being a student of the eighth semester of the LEPE; b) belong curricularly to the 2018 study plan; c) having the accreditation of all the subjects of the educational program; d) have fully complied with the professional practice carried out in the fourth grade of training; e) have completed their

professional document in the specified time during the 2021-2022 school year and f) are awaiting their professional exam for the month of July 2022.

The exclusion criteria were a) being a student of semesters other than the last one of the LEPE; b) having graduated from study plans prior to 2018; c) not having approved the courses of the seventh semester; d) not having covered the assigned number of hours of their professional practice; e) not having completed their reception document at the indicated time of the 2021-2022 school year and f) having a different professional exam date than July 2022.

The procedure that was carried out at first was the review of the literature to find out in which studies the topic of this investigation had been addressed. In this sense, it was found that in the Normal School of Tecámac there were already works presented in different academic forums, for which the researchers were contacted to find out how they systematized the data of the graduates.

Due to the importance of the research advanced by the Normal School of Tecámac, communication was established with the teachers to find out the instruments they used to carry out studies with the graduates. Thus, and based on an exploratory study, the pre-graduation instrument was built to capture the eighth semester students. These students were chosen because it is in the eighth semester when it is recommended to create a database to ensure contact once they graduate.

To answer the instrument, we had the support of the group leaders and the collegiate of the eighth semester of the LEPE. Then, the eighth semester students were informed about the reason for answering the instrument frankly and anonymously. In this regard, it should be noted that there were some difficulties in applying it due to the various occupations of the students. Finally, the database of all the students of the 2018-2022 generation was achieved.

For data analysis, the statistical program SPSS (Statistical Package for the Social Sciences) was used for the macOS system, version 27.0, which is applied in social sciences. Likewise, a descriptive analysis was carried out using measures of central tendency, that is, standard deviation, median, arithmetic mean, maximums, minimums, and frequency percentages of each of the seven competencies that make up the survey.

Results

In order to respond to the objective of the study -that is, to evaluate the perception of the professional competencies developed by 108 students of the eighth semester of the degree in Preschool Education of the Benemérito Normal Institute of the State, Gral. Juan Crisóstomo Bonilla, generation 2018- 2022—study results are presented.

Table 6 shows the criteria for evaluating the perception of professional competencies of eighth-semester students, which correspond to indicators and assessment levels, corresponding to the 35 items that encompass the seven professional competencies of the graduation profile. Each of the competencies registered in the 2018 study plan is also described. PS and DS are considered as strengths, and I, PN and DN as areas of opportunity. (see table 6)

Table 6. Professional competencies. 2018 curriculum for the bachelor's degree in Preschool. Strength and area of opportunity.

N.°	Indicator	Strength			Area of opportunity			
		DS (5)	PS (4)	% Total	I (3)	PN (2)	DN (1)	% Total
1	Detects the learning processes of their students in order to favor their cognitive and socioemotional development.	69.91 %	27.31 %	97.21 %	1.85 %	0.47%	0.47%	2.79%
2	Applies the study plan and programs to achieve the educational purposes and contribute to the full development of their students' capabilities.	67.59 %	29.63 %	97.2 %	1.85 %	0.62%	0.31%	2.8%
3	Design plans applying curricular, psycho-pedagogical, disciplinary, didactic and technological knowledge to	63.89 %	34.72 %	98.6 %	0.47 %	0.47%	0.47%	1.42%

	promote inclusive learning spaces that respond to the needs of all students within the framework of the plan and programs of study.							
4	Uses evaluation to intervene in the different areas and moments of the educational task to improve student learning.	66.44 %	30.55 %	96.99 %	2.78 %	0.24%	0.0%	3.02% %
5	Integrates educational research resources to enrich their professional practice, expressing their interest in knowledge, science and the improvement of education.	60.19 %	36.67 %	96.8 %	3.2%	0.00%	0.0%	3.2%
6	Acts in an ethical manner in the face of the diversity of situations that arise in professional practice.	72.09 %	26.19 %	98.2 %	1.6%	0.2%	0.0%	1.8%
7	Collaborates with the school community, parents, authorities and teachers in decision making and in the development of alternative solutions to socio-educational problems.	52.59 %	40.18 %	92.77 %	6.11 %	0.93%	0.19%	7.23%

Source: Own design based on the competencies integrated into the 2018 curriculum of the bachelor's degree in Preschool Education (SEP, 2018b).

According to the data analyzed, the professional competencies with the greatest perception are the following: "Apply the study plan and programs to achieve the educational purposes of their students" with 98.6% and an area of opportunity of 1.42%, as well as a maximum of 20 ($\dot{x} = 18.44$, $\sigma = 1.84$); likewise, the professional competence "Act ethically... in professional practice" with 98.2% and an opportunity area of 1.8% and the maximum value of 35 ($\dot{x} = 32.91$, $\sigma = 2.43$).

A high perception on the part of the students regarding competence "Detects the learning processes of their students to favor their cognitive and socio-emotional development" is also highlighted, since the maximum score was 30; in other words, 97.2% saw it as a strength and 2.8% as an area of opportunity and a maximum value of 30 ($\dot{x}$ = 27.80, σ= 2.89); Likewise, the professional competence "Design plans by applying their curricular, psycho-pedagogical, disciplinary, didactic and technological knowledge to promote inclusive learning spaces that respond to the needs of all students within the framework of the plan and study programs" with 97.2% and an opportunity area of 2.8% and a maximum value of 20 ($\dot{x}$ = 18.63, σ= 1.98) (see table 7).

Table 7. Descriptive analysis of the evaluation of perception of the competencies

N.°	Professional competencies of the graduate profile	Arithmetic mean	Standard deviation	Median	Minimum	Maximum
1	Detects the learning processes of their students in order to favor their cognitive and socioemotional development.	27.80	2.899	19	8	30
2	Applies the study plan and programs to achieve the educational purposes and contribute to the full development of their students' capabilities.	18.44	1.841	27.5	6	20
3	Design plans applying curricular, psycho-pedagogical, disciplinary, didactic and technological knowledge to promote inclusive learning spaces that respond to the needs of all students within the framework of the plan and programs of study.	18.63	1.989	19	6	20
4	Uses evaluation to intervene in the different areas and moments of the educational task to improve student learning.	18.53	1.655	18	13	20

5	Integrates educational research resources to enrich their professional practice, expressing their interest in knowledge, science and the improvement of education.	22.85	2.161	24	16	25
6	Acts in an ethical manner in the face of the diversity of situations that arise in professional practice.	32.91	2.436	31.5	25	35
7	Collaborates with the school community, parents, authorities and teachers in decision making and in the development of alternative solutions to socio-educational problems.	22.20	2.657	21.5	12	25
	Total population: 108					

Source: Own design based on the competencies integrated into the 2018 curriculum of the bachelor's degree in Preschool Education (SEP, 2018b).

Table 7 shows the professional competence "Use the evaluation to intervene in the different areas and moments of the educational task to improve the learning of their students" with 96.99% and an area of opportunity of 3.02% and a maximum value of 20 ($\dot{x} = 18.53$, $\sigma = 1.65$) and the professional competence "Integrates educational research resources to enrich their professional practice, expressing their interest in knowledge, science and the improvement of education" with 96.8% and an area of opportunity of 3.2 % and a maximum value of 25 ($\dot{x} = 22.85$, $\sigma = 2.16$).

Finally, the professional competence "Collaborate with the school community, parents, authorities and teachers in decision-making and in the development of alternative

solutions to socio-educational problems" reached 92.77%, which implies that for 7.23% of students was an area of opportunity and with the maximum value 25 ($\dot{x} = 22.20$, $\sigma = 2.66$).

It can be concluded, therefore, that of the seven professional competencies of the graduation profile of the 2018 study plan, the one with the lowest percentage is the one that contemplates "collaboration with the school community, parents, authorities and teachers..." . For this reason, there is an area of opportunity to intensify the social link between the higher education institution and the context of the school of practice for decision-making on socio-educational problems through situated teaching and the use of active learning methodologies.

Discussion

One of the programs offered in some normal schools in Mexico is the degree in Preschool Education (LEPE), whose curriculum has undergone transformations that meet current demands in accordance with the integral development of infants.

However, based on the reviewed literature, it was found in the study by Del Valle et al. (2015) that physical education teachers, both in primary and secondary, feel concerned about the control and organization of the session, as well as the mastery of teaching content and the improvement of their leadership capacity. On the other hand, the eighth semester students of the degree in Preschool Education perceive mastery of content as a strength for teaching the plan and programs of this degree.

On the other hand, among the findings found by Pinto-Santos et al. (2020), it was identified that students have a high self-perception of their CDD, with self-assessments of (x: 5.30) and fairly high percentages for the response option. Likewise, in an investigation carried out by Hincapié and Clemenza (2022), the self-assessment of linguistic and mathematical skills is above the average of the scale.

Similarly, Rojas et al. (2020) point out that the assessment of competencies is key to readjusting curricular designs that attend to the advancement of the knowledge society, while De la Fuente et al. (2005) consider that it is in the "professional-applied" context where a greater amount of competencies is built; In other words, the degree process contributes to factual knowledge, and the construction of procedural knowledge occurs in the applied field.

For their part, Rodríguez-Villamizar et al. (2017) conclude that the perception of students in the competence of knowing-knowing and knowing-doing is considered more than 90% as good, excellent, or very competent, while in the competencies of knowing-being

more than 63% consider themselves tall; however, there is also a small percentage that claims to be little or not at all competent because they express regular knowledge.

In this context, the follow-up of graduates nourishes the form of articulation with the curricular reform and the national requirements; In other words —as mentioned by Marulanda et al. (2010) cited by Gómez-Molina et al. (2019)—, the professional and personal performance of graduates allows establishing indicators regarding the quality and efficiency of HEIs. For this reason, the National Association of Universities and Institutions of Higher Education (Anuies) uses references to evaluate and monitor graduates, although there is heterogeneity in terms of its methodology, limitations and high cost, which means that it is not a priority process. within the HEIs.

Even so, in the study by Hoyos et al. (2019), it is concluded that there are specific recommendations to improve the features of the graduation profile and the services offered by teacher training schools so that students achieve the performance of their profession. Due to this, as Cruz and Quiñones (2012) mention, the evaluation favors both HEIs and the personal sphere of education professionals who work in it, since it allows readjustments and adaptations that favor feedback to reorient the work. inside and outside the classroom.

Conclusions

The present investigation had as a priority to answer the following research question: What are the professional competencies developed by the eighth semester students of the degree in Preschool Education of the BINE generation 2018-2022? Although the data found shows that all of them were developed, the ones that achieved the highest scores were "Apply the plan and study programs to achieve educational purposes and contribute to the full development of the capacities of their students" with 98.6%, as well as "Act ethically in the face of the diversity of situations that arise in professional practice" with 98.2%. In other words, there is a favorable perception of the professional skills developed by the students of the BINE Preschool Education degree program (2018-2022 generation) in the pre-graduation phase, since they perceived themselves as prepared to face the world of work and highlighted a proper assessment of the professional skills developed during their training process as teachers.

There is also a high perception regarding the competence "Detects the learning processes of their students to favor their cognitive and socio-emotional development" with 97.2%, as well as in the professional competence "Design plans applying their curricular,

psycho-pedagogical, disciplinary knowledge, didactic and technological to promote inclusive learning spaces that respond to the needs of all students within the framework of the study plan and programs" with 97.2%.

On the other hand, it is considered a priority to establish communication channels between the institution and the context of the practice schools, as well as to favor greater interaction with the school community (parents, authorities and tenured teachers). This is essential for decision-making and the development of alternative solutions to socio-educational problems in the teacher training of future generations of the degree. In this sense, one of the areas of opportunity found in the research was the competence to "Collaborate with the school community, parents, authorities and teachers, in decision-making and in the development of alternative solutions to socio-educational problems". which is taken into account with greater emphasis in the plan and study program to train graduates in Preschool Education 2022 by strengthening the social link with the practice schools and the community (SEP, 2022).

Another contribution of this research was the reliability analysis of the instrument to collect the data, since Cronbach's alpha provided a result of high internal consistency, which shows that it measures what is desired. Even so, it should be noted that when making a critical evaluation, some areas of opportunity were recognized in the application of the instrument.

In addition, and despite the meeting with the participants to inform them of the objective of the investigation, it was necessary to schedule another one, since the students were slow to answer the online survey at the beginning of the information collection due to the multiple activities they had.

In conclusion, the biggest challenge for HEIs is to rebuild themselves as innovative educational institutions with the capacity to propose and test new forms of education and research. The preparation of the educators who attend this educational level must be sustained under a background of knowledge and skills that allow the integral development of the future citizens of the country.

Future lines of research

In normal schools in Mexico there are few studies on monitoring graduates. As of 2010, these institutions have institutional follow-up programs for graduates (PISE) where little by little databases have been created to carry out academic research. Even so, it is a priority of the normal school and of the research teachers to follow up with their graduates with the following questions: Who are they? and where are they once they are in professional service? In this sense, it is intended to continue with the following lines of research:

1. Studies on the phase of admission to the professional teaching service of LEPE graduates (study plan 2018) to verify or contrast whether what was developed in initial teacher training is reflected in professional practice.
2. Continue with this type of study, adding the co-evaluation and/or hetero-evaluation of the actors involved with the initial teacher training through a portfolio of evidence of its process, and/or a follow-up in the course of practice during their stay in the normal school. that complements in greater depth the skills developed.
3. A follow-up of the 2022 study plan, which is under construction, and has begun with the first generation of students in the 2022-2023 school year, resuming in academic meetings about socio-educational problems and social ties with schools of practice and community.

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