

Training Needs for New Qualified Teachers in the Context of the European Digital TA Project: A Systematic Review

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Abstract: This article develops a systematic review of the existing scientific literature related to the needs and challenges of newly qualified teachers in the context of the European Digital TA project, particularly from the 5 countries associated with it: Belgium, Ireland, Czech Republic, Poland, and Spain. The justification of the project is given by the high levels of dissatisfaction expressed by teachers during their first years of practice, which translates into various problems such as malpractice and attrition, with negative consequences for the education system. After searching for available information in three academic and specialized databases—Google Scholar, EBSCO, and ERIC—using keywords, a synthetic version of the PRISMA method for systematic reviews was applied, and then a screening was carried out using different inclusion and exclusion criteria, from which 34 selected articles were selected and analyzed. The main results show that, although the challenges and training needs of the newly qualified teachers are diverse and complex, they can be placed in the following categories: differentiation, individual learning needs of students, classroom management/behavior management, special education needs, inclusion, workload, collective support and collaboration among teachers, mentoring, teacher efficacy, extrinsic characteristics of the job, teaching students from disadvantaged backgrounds, and planning.

Keywords: new qualified teachers; teacher needs; teacher challenges; european project; teacher training.

Received: 07-03-2024

Accepted: 24-06-2024

1. Introduction

An important barrier that newly qualified teachers (NQTs) experience while teaching involves the transfer of theoretical knowledge into practice, a factor compounded by the diverse European educational systems (Hirsch & Rubach, 2024). This challenge is exacerbated by the varying systems of education and teacher training procedures in different countries, which can result in NQTs who are ill-equipped for key tasks such as classroom management, student monitoring, and inclusive learning (Althubyani, 2024). As part of the European Digital TA project, this systematic review aims to identify and analyze the specific training needs and obstacles faced by NQTs across five participating countries: Belgium, Ireland, the Czech Republic, Poland, and Spain, where this article was downloaded. The study reveals that many NQTs who left their previous jobs to pursue academic qualifications end up disillusioned in the initial years of their practice, leading to high attrition rates and professional misconduct. Awareness of these needs is crucial at both a personal level for NQTs and for the education system in which they operate to enhance student achievement through effective teaching. This study will elucidate the specific needs and concerns of NQTs in teacher training and development to aid in designing an efficient and user-friendly web application that caters to their personal and professional development needs, aiming to reduce early career burnout or dissatisfaction.

This systematic review addresses the training needs of newly qualified teachers or those in the final stages of their training within the European context. These needs are defined as the shortcomings and deficiencies that teachers experience in their initial years of professional practice, realizing that their theoretical and academic training was insufficient to meet the challenges of everyday teaching. This gap often leads to concern, lack of motivation, anxiety, and even attrition among new teachers. The research is conducted within the framework of the European project Digital Academy in teaching practice for a seamless transition from pre-service to in-service (DigitalTA; ID: 101055620), a project funded by the European Union thanks to the Erasmus + Teacher Academies call. The project aims to enhance the practical training of in-service and pre-service teachers across EU countries and reduce the professional dropout rate.

This study seeks to provide the theoretical and diagnostic foundation for the Digital TA project, facilitating the development of case studies and other critical aspects related to the design of a digital training platform. The Digital TA project perspective considers learning as derived from a complex interaction with other individuals who feel connected by belonging to a community. For this reason, the initiative is committed to the development and validation of a European digital platform for the support and improvement of teaching practices developed and carried out by, with, and for teachers. To this end, it will develop a common virtual environment for NQTs in transition (trainees or student teachers, newly qualified teachers, beginning or in-service teachers), school mentors, HEI teachers, and continuing education teachers. In this environment, each teacher and his or her reflective action will be at the center of a training activity committed to the constant improvement of his or her skills (Fernández-Arias et al., 2024). According to the above, the general purpose of this research is to develop a systematic review of the existing literature on the training needs of NQT in the European context, specifically in the 5 countries participating in the digital TA project: Ireland, Belgium, Spain, the Czech Republic, and Poland.

To address the proposed general objective, the following specific objectives were stated. First, selecting databases and search engines for the literature search on the detection of needs for NQTs in the European context; second, defining inclusion and exclusion criteria for screening articles; third, identifying studies that meet these criteria through a detailed search; fourth, assessing the validity of the selected studies, with a focus on methodology and results; fifth, developing a discussion on the findings, highlighting points of convergence and divergence among the articles. The methodology used is a simplification of the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method.

The problem statement emphasizes the necessity of thoroughly filtering the literature on the training needs of NQTs, as observed and analyzed within the framework of the European Digital TA project. The success of this project relies, in part, on an accurate diagnosis of these needs. The significance of the problem is underscored by the number of NQTs potentially affected by the lack of this knowledge, indicating its critical impact on the Digital TA project. According to data from the *europapciudadana.com* portal (2024), the number of teachers in basic education—from preschool to high school—amounts to 8 million. Considering that all teachers were at some point in their lives inexperienced novices, this number reveals a great impact for the proposed research and for the Digital TA project (Revuelta-Domínguez et al., 2022). The significance of the problem lies in the medium- and long-term repercussions that would have arisen if this research had not been conducted. These repercussions include, among other issues, the attrition of teachers who do not feel adequately prepared for professional practice, low levels of job satisfaction, and, consequently, a decline in the quality of education provided by teachers. This, in turn, affects the overall efficacy of the European educational system.

2. Methodology

Systematic reviews are a form of research that compiles and provides a summary on a specific topic. Its main goals are to delimit relevant concepts, synthesize evidence, identify the methodologies used, and identify research gaps around interest. The present work is based on a synthesis of the PRISMA method (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which represents the most updated methodology for systematic reviews and is widely accepted by academic and epistemic communities. This approach involves eight relevant steps: protocol development, literature review, screening by inclusion and exclusion criteria, quality assessment, selection of sections to analyze, summary of the studies, and writing of the review.

To achieve the proposed objective, the following research question was posed: What are the challenges and training needs of European NQT? To respond to this question, the analysis focused on 5 representative European countries: Western Europe (Belgium, Ireland), Eastern Europe (Czech Republic and Poland), and Southern Europe (Spain). The choice of keywords for the search is based on the pedagogical perspective that proposes ideal versus real scenarios, and that recognizes a series of deficiencies with a tripartite approach: the situation of the educational environment, i.e. the educational system, curriculum, contents, material resources, social structures, and authorities; the situation of the student as an individual being waiting to be trained and the social environment that surrounds and determines him, such as his family and friends; and the teachers who, despite having a previous training, due to their inexperience and, sometimes, their poor training, face issues, difficulties, problems, needs or challenges (Wagner et al., 2024).

In the context of the Digital TA project and after a discussion among experts, it was decided to use two keywords for the literature review: needs and challenges. Educational needs are the existence of an unmet and indispensable condition on the part of NQTS to allow them to function under normal conditions and perform or achieve educational objectives, even if they are not aware of it (Aagaard et al., 2024). Moreover, it is important to talk about challenges, which, unlike needs, imply a more individual and difficult-to-carry-out objective in the educational context, which is reflected in poor academic performance, but which, at the same time, is stimulating for those who propose it. Researchers can say then that needs and challenges are similar in their essential interpretation but differ in their approach. While needs are a more general, systematic, structured, organizational process recognized by a group of individuals who work in the educational community and, through deliberative exercises, reach a consensus to take charge of them, a challenge, on the other hand, is the assumption of a more specific problem related to a particular adverse situation, and overcoming it is more stimulating for the person who assumes it.

There were three databases from which the information was extracted: Google Scholar, EBSCO, and ERIC; the keywords to search for information are those associated with NQT needs detection: “training needs for novice teachers,” “training needs for novice teachers,” “training needs for recently graduated teachers,” “challenges for graduated teachers,” “challenges for novice teachers,” “challenges for recently graduated teachers,” and “challenges for novice teachers.” The search period for this research spans the past 20 years, from 2004 to 2024. Despite significant changes in educational models and environments, the fundamental principles of NQT training, aimed at cultivating agents of change and promoting societal good, have remained consistent. All resources were searched or consulted between May and June 2024. The following are the results for each source (Table 1).

Table 1: Results by Descriptors (Source: author’s own creation).

Source	Descriptor	Number of Results
ERIC	Training needs for novice teachers	5
	Educational needs for new teachers	0
	Training needs for recently graduated teachers	4
	Challenges for graduate teachers	0
	Challenges for new teachers	0
	Challenges for novice teachers	0
EBSCO	Training needs for novice teachers	224
	Educational needs for new teachers	2151
	Training needs for recently graduated teachers	2151
	Challenges for graduate teachers	2274
	Challenges for new teachers	391
Google Scholar	Challenges for novice teachers	224
	Training needs for novice teachers	17100
	Educational needs for new teachers	16700
	Training needs for recently graduated teachers	17300
	Challenges for graduate teachers	15900
	Challenges for new teachers	17100
	Challenges for novice teachers	17100

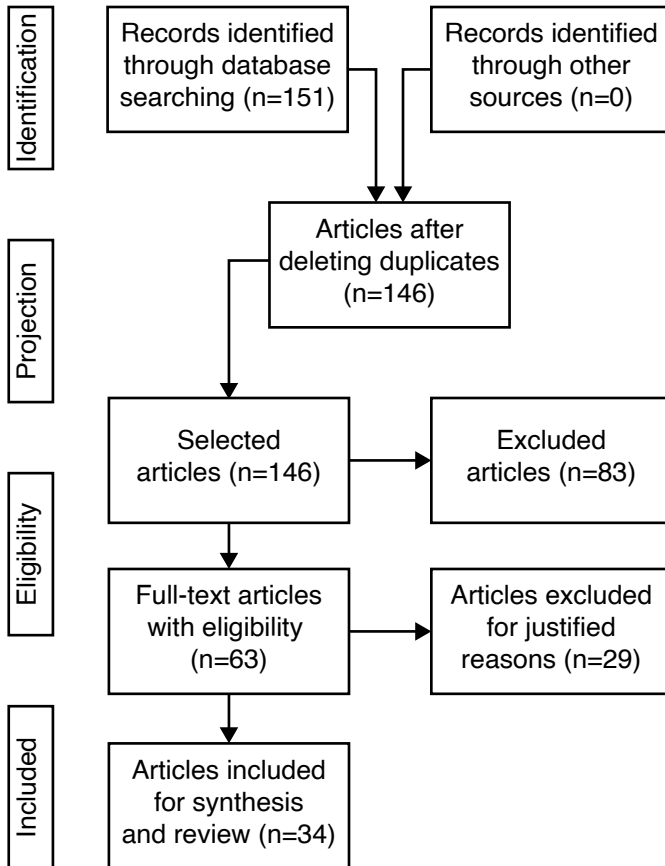
The inclusion and exclusion criteria for the review are:

- Articles published between 2004 and 2024
- Articles with qualitative, quantitative and mixed approaches

- Full download articles
- Articles whose object of study was directly related to the object of study: training needs and challenges for teachers recently incorporated to the job market
- European articles

Defining these criteria made it possible to filter the articles, discarding those that did not contain information sufficiently related to the object of study of the research. Figure 1 shows the flow chart of the search and selection process following the criteria of the PRISMA methodology, the purpose of which was to ensure transparency and clarity.

Figure 1: Flow Chart According to PRISMA (Source: author’s own creation).

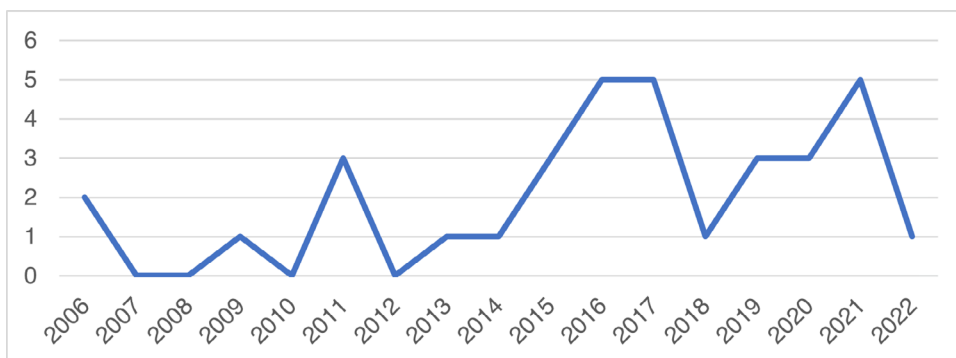


3. Results

The results of the systematic review are presented in the following order: First, the number of articles by year and a detailed trend analysis; then, the number of articles by methodology, where the qualitative, quantitative, and mixed approaches are conceptualized; next, a typology of articles is developed based on the main needs and challenges for novice NQTs according to the sources; then, a numerical analysis is made for each major theme defined; subsequently, it is analyzed whether

the selected articles did fieldwork or not; and finally, the type of database from which the articles are extracted is analyzed. Figure 2 shows the history of publications on the needs and challenges of NQTs over 20 years.

Figure 2: Number of items per Year (Source: author's own creation).

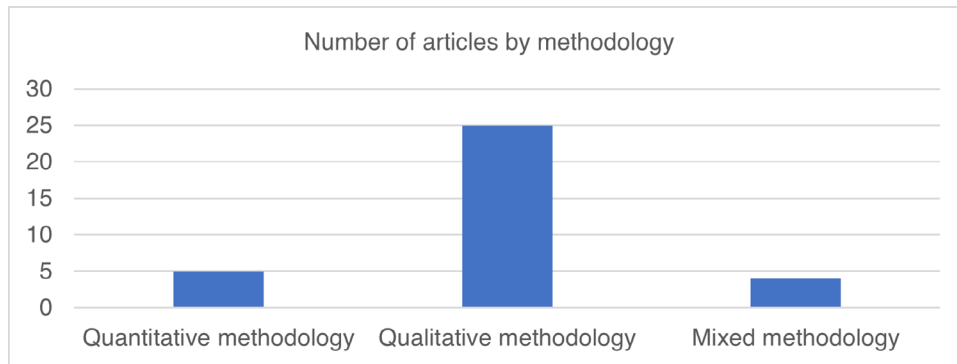


There has been an upward trend in the last decade in terms of the number of publications. The trend analysis reveals an inconsistent publication pattern, with only one article published in 2018. However, from 2014 onwards, there is a noticeable increase in literature related to NQTs, except for the years 2023 and 2024, where new literature is likely still being developed (Figure 2). This may be due to the following reasons.

The first is that the responsibilities and tasks of school leaders and teachers during the last decade have increased, with some schools being granted greater autonomy. School leadership policies have had to adapt to the new environments and challenges posed, including the training of teachers to work in these contexts. Thus, many countries are seeking to develop conditions to respond to future educational scenarios (Örtégren & Olofsson, 2024). Expectations for school leaders and teachers have evolved, resulting in increased pressure, challenges, and a rethinking of task distribution, levels of training, support, and incentives.

Additionally, recent educational research has emphasized the relationship between emotional intelligence (EI) skills and better psychological adjustment among academic professionals, highlighting a gap in university and professional training that has not adequately addressed these skills. Issues such as work stress, burnout, and job desertion have been extensively researched in the educational field (Sorensen & Graf, 2024). While these issues have always existed and received attention, they have become more prominent due to the growing awareness of the importance of workers' mental health as both individuals and social beings. A third reason relates to the uncertainty stemming from the crisis and labor pressure, which is expected to intensify in the coming years due to the implementation of neoliberal policies in education. In the European context, competitive examinations are required to obtain a permanent teaching position, often necessitating years of filling interim positions. During this period, temporary contracts are renewed, work locations change and there is a high dependence on vacancies and other uncertain variables. Figure 3 shows the results by type of methodology used in each of the 34 articles, categorized into three types: quantitative, qualitative, and mixed.

Figure 3: Number of Articles by Type of Methodology (Source: author’s own creation).



In alignment with the prevalent research approaches in the educational field, most of the studies, specifically 25 out of 34, employed qualitative methodologies (Figure 3). Given the epistemological differences among various academic communities, it is essential to clarify what constitutes a qualitative methodology to distinguish it from other types of research. Quantitative research has several characteristics. Among the main characteristics are its measurement of phenomena, use of statistics, hypothesis testing, and cause-effect analysis. In contrast, qualitative research delves deeply into phenomena, is typically conducted in natural settings, derives meanings from data, and does not rely on statistical analysis. From these characteristics, two fundamental distinctions were made: the definition of a representative sample and hypothesis testing through inferential statistics as key features of quantitative research and the in-depth exploration of phenomena without the use of inferential statistics, employing only descriptive statistics to organize data and calculate measures of central tendency, as characteristic of qualitative research.

Table 2: Results from other Researchers (Source: author’s own creation).

Challenge Group	Needs	Sources
1. To achieve inclusion at school	Differentiation, individual learning needs of students (in metropolitan contexts)	Munoz Carril, Gonzalez Sanmamed and Fuentes Abeledo (2011)
	Special Education Needs	Kumar and Owston (2016)
	Inclusion	Riascos-Erao, Ávila-Fajardo and Quintero-Calvache (2009)
2. To improve Management and planning skills	Teaching students from disadvantaged backgrounds	Masoumi and Noroozi (2023)
	Classroom management/behavior management	Skantz-Åberg et al. (2022)
3. The concretion of a continuous support for teachers	Planning (in general)	Bergum Johanson et al. (2023)
	Collective support and collaboration among teachers (as in professional learning communities)	Wagner et al. (2024)
4. To improve Teacher’s self-perceived efficacy	Mentoring	Masoumi and Noroozi (2023)
	Teacher efficacy (a teacher’s perceived sense of efficacy on student outcomes)	Sorensen and Graf (2024)
5. The conciliation between teaching work and personal life	Extrinsic characteristics of the job (employment opportunity and tenure, salary, relationship with parents)	Althubyani (2024)
	Workload (to combine with social and family life, to combine with didactic innovation)	Revuelta-Domínguez et al. (2022)

In addition, mixed research studies were identified, with greater emphasis on the qualitative part. On the specific methodologies of the quantitative approach, most of them do not mention an explicit methodology, but some of them refer to comparative

cases. The rest of the research can be deduced to be qualitative in approach according to the previously defined methodological and epistemological criteria. Among the methodologies used for the qualitative approach, the case study with interviews, ethnography, and discourse analysis were identified. Regarding the needs and challenges highlighted in each article, it is important to note that there is no universally accepted classification. Although some researchers have attempted to create typologies, there is no broad consensus, particularly one that is widely accepted by the educational community. In the selected articles, we aimed to identify the primary teacher training needs analyzed and then classified them according to Table 2. It is important to note that some articles address multiple needs or challenges faced by NQTs.

Due to the diversity of conceptions on the aforementioned topics, it is necessary to clarify conceptual issues for two main reasons: first, to justify the organization and classification of the different teaching needs in 5 principal groups of challenges (to achieve inclusion at school; to improve management and planning skills; the concretion of continuous support for teachers; to improve the teacher's self-perceived efficacy; the conciliation between teaching work and personal life); and second, to address the close thematic relationships between some concepts that may lead to confusion.

The first group of challenges is formed by teaching needs related to teaching methods for individual learning needs, special education, and inclusion in general, but also teaching in disadvantaged contexts. Not all students approach the learning process with the same background or in the same manner (Mingot & Marín, 2024). Each child possesses unique abilities, interests, rhythms, motivations, and experiences that mediate their learning process, making it distinct and unrepeatable in each case (Gulko et al., 2024; Kerimbayev et al., 2023). This is related to the concept of differentiation or individual learning needs, which can be defined as those that indicate the aspirations and expectations of different groups of students to increase the quality of their competence and school performance. However, certain individual needs cannot be solved by such means. It is necessary to implement a series of aids, resources, and special or extraordinary pedagogical measures different from those usually required by most students (Bergum Johanson et al., 2023). These students often present learning difficulties or lags relative to the curriculum appropriate for their age, which require specific interventions: means of access to the curriculum, adaptations within the curriculum itself, and/or special attention to the social structure and emotional climate of the educational environment (Liu, Zhao, & Su, 2022). The topic of educational special needs is closely related to inclusion in the classroom. Inclusion can be defined as the process by which it is ensured that all students, regardless of their abilities, needs, or characteristics, have access to quality and relevant education in a safe and respectful learning environment (Edstrand & Sjöberg, 2023). Teaching students from disadvantaged backgrounds was a recurrent issue in the literature review. This issue is as broad as it is complex because it involves a series of disadvantages ranging from the social to the economic, including the family. Regarding the second group of challenges, classroom management and planning are designated as important needs for teacher development. Classroom management can be defined as the wide variety of skills and techniques that teachers use to keep students organized, orderly, focused, attentive, and academically productive during a class (Sidi, Shamir-Inbal, & Eshet-Alkalai, 2023). Classroom management is interrelated with the topics mentioned above, as it involves the performance and specific situations faced by NQTs. However, it has its case studies and approaches.

Continuing with conceptual clarifications to explain the typology in Table 2, to the third group it becomes necessary to differentiate what mentoring implies concerning the support among teachers. Mentoring, or mentorship is the process of a professional relationship in which a more experienced and knowledgeable person, the mentor, helps, orients, and guides another person, the mentee, with less experience to support their professional career and personal growth. This topic should not be confused with the general support that teachers receive from more experienced colleagues because it is not a systematic and ongoing process like mentoring (Gouseti et al., 2024). Instead, it refers to resources such as the Digital TA project and other platforms or educational spaces that facilitate individual and group exchanges between teachers.

Regarding the fourth group, the literature review identified needs related to teachers' self-perception associated with their impact on student development. Their articles highlight the need to carry out an objective exercise in relation to the real impact that their performance has on student development through indicators and metrics. Regarding the fifth group of needs, a significant challenge or need for NQTs identified in the literature, highlighted by the number of articles, is related to the extrinsic characteristics of the job. These include employment opportunities and tenure, salary, and relationships with parents.

Extrinsic job characteristics are highly related to workload. The workload is related to the time necessary to dedicate to the set of tasks or functions that a person can assume in his or her job. The workload represents an occupational hazard typified in the law, with teachers often being the victims of burnout because the work outside office hours is not accounted for, though it has the same complexity as the functions they perform. It should also be noted that some training needs are relatively recent or have not previously been considered in the same way. One such case is mentoring, with significant contributions to the educational field emerging only in the last decade, specifically in 2016, 2019, and 2021. Although mentoring has existed in other areas for over a decade, its application in education represents an appropriation of knowledge from psychology, reflecting a heightened awareness of worker mental health and the necessity of peer support among teachers.

Regarding the number of sources per subject, as outlined in Table 2, the results are quantitatively expressed in Figure 4. Eleven major needs were identified concerning the main object of study—training needs and challenges, associated with 5 main challenges. Of this total, 20 sources are associated with the first group of challenges (to achieve inclusion at school): 9 sources provided knowledge on differentiation and individual learning needs, 6 on special education needs, 3 on inclusion, and 2 on students with unfavorable backgrounds. Regarding group 2 (to improve management and planning skills), 11 sources were identified: 9 on classroom management and behavior in general and 2 on planning. 10 sources were found for group 3 (the concretion of continuous support for teachers): 7 on collective support and support among other teachers and 3 on mentoring. Finally, for group 4, 2 sources were identified for teaching effectiveness self-perception, and for the fifth category, extrinsic characteristics of the job and workload are clear needs revealed by 4 studies on extrinsic job characteristics and 4 on workload. It is relevant to note that the three most important training challenges or needs for NQTs, which should be the focus of most educational resources, are classroom management, individual needs, and collective support. The least emphasized areas are planning, teaching students from socially disadvantaged backgrounds, and teacher effectiveness.

Figure 4: Number of Articles for each Topic (Source: author's own creation).

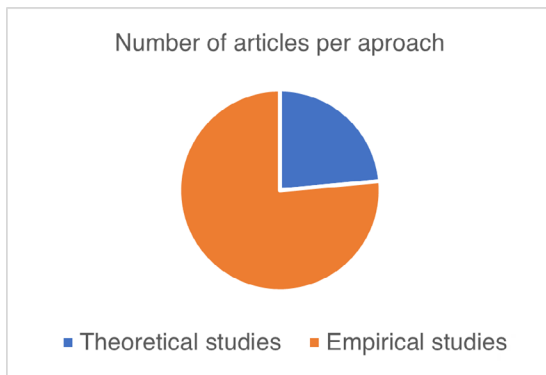
These results align with those expressed in other systematic reviews, which describe the educational needs of teachers and emphasize classroom-related issues over external ones. This confirms that training and support for NQTs should focus more on the teaching-learning process (Figure 4). Similarly, the findings indicate that teacher training should not be considered complete upon obtaining a professional degree, as the first five years of professional practice are critical in determining future performance. The most significant results, in numerical terms, highlight the importance of addressing individual learning needs, suggesting that these should either be better reflected in the curriculum or, if already present, improved in focus and teaching methods. This underscores the clear need for NQTs. The same applies to classroom management and student behavior. Neither practice nor theory alone is sufficient, as NQTs consistently identify these areas as significant challenges. Additionally, it can be inferred that bad performance in heterogeneous groups is not necessarily the responsibility of the teachers. Evidence suggests that more reinforcement, better tools, increased authority, and autonomy, or simply more support may be needed to address this major challenge effectively.

Differentiation, individual learning needs, special education, and classroom management emerge as main concerns for NQT. In response, collective support is also a clear need for them; we can then move towards a possible correlation between the needs found in the studies cited during this work: given the feeling of not being able to deal with the class or to specify the inclusive approach in daily actions (which corresponds to the needs expressed by the NQTs, such as teaching in a more individualized way), professional collective support or the figure of a mentor is sought. The feeling of insecurity, low perception of self-efficacy, and low self-esteem led to the need for support in different modalities (individual or collective). This situation has consequences on the teacher's efficacy in the classroom. Efficacy, self-esteem, and performance are linked, and the challenges found suggest that training (for inclusion at school) and support are essential, but they cannot go without specific work on the emotions of NQT and the reduction of the feeling of insecurity thanks to a better self-esteem and self-efficacy perception.

Regarding the number of articles by approach, we found a total of 8 articles with a theoretical approach. These included contrasting ideas, systematic reviews, or academic essays that did not involve fieldwork (Figure 4). The topics on which the work was done were planning, teaching efficiency, and collaborative support. In contrast, 26 articles were identified that did fieldwork through field data collection. Most of the

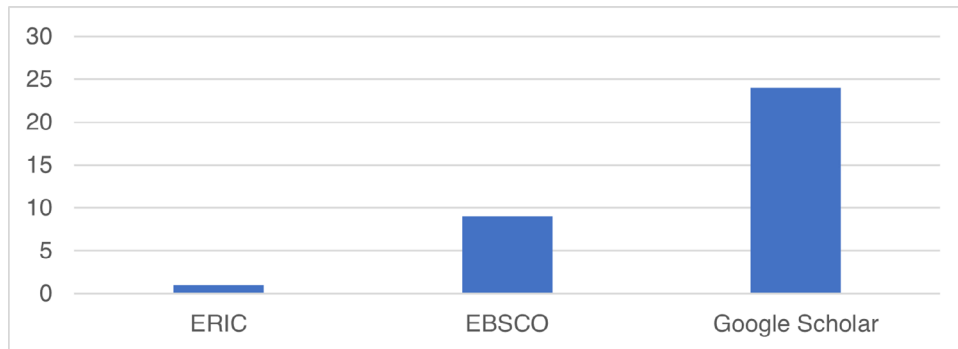
instruments used in these investigations were survey forms, interview guides, focus groups, or observation checklists. The topics on which fieldwork was conducted were all those listed in Table 2, except planning.

Figure 5: Number of Items per Approach (Source: author’s own creation).



Lastly, the database from which the largest number of articles was extracted is Google Scholar, as expected due to its rising popularity and use in the academic field. A total of 24 articles that met the inclusion and exclusion criteria were found in Google Scholar, 9 in EBSCO, and 1 in the specialized database ERIC (Figure 5 and 6). It is important to note that articles in Google Scholar are also more frequently cited than those from other databases. This can be attributed to the fact that EBSCO and ERIC require authorization or permission for access, whereas Google Scholar is freely accessible.

Figure 6: Number of Articles in each Database Consulted (Source: author’s own creation).



4. Conclusions

According to the stated objectives, the systematic review has been successful. The research question was answered, and the articles were located, downloaded, analyzed, and the desired information was extracted from them. The databases provided the necessary information, the proposed methodological model was followed with the expected level of rigor, and valuable lessons were derived, resulting in a comprehensive synthesis of the last 20 years in this field of educational knowledge.

The results obtained show that the needs and challenges of NQTs are diverse. On one hand, articles focused on educational needs were identified, which include educational policies, their understanding, adoption, and critical evaluation, as well as those stemming from the construction of a society that demands a particular type of individual. Pedagogical needs were also found, relating to the foundational knowledge of the teaching profession and work and navigating the tensions between pedagogical and disciplinary knowledge. Additionally, individual, social, and professional needs for the development of teachers as human beings were identified in different sources. Finally, research needs were discovered, which pertain to the training processes in research and the documentation of pedagogical practices. As an unexpected contribution of this article, the needs found indicate that a training plan around the emotional preparation for the act of teaching could probably positively impact the designated needs. Efficacy, self-esteem, and performance are linked. Better training and support of NQTs are essential, but they cannot go without specific work on the emotions of NQTs and the need for a better self-esteem and self-efficacy perception. There is a powerful effect of teachers' beliefs in or their ability to positively impact student learning.

The contribution of this systematic review to the knowledge gap lies in synthesizing and pinpointing the needs of NQTs, providing valuable insights for several reasons:

- To support the actions of professors, researchers, and the technical team involved in the Digital TA project.
- To modify or update training programs, orienting them more towards addressing the specific needs of NQTs rather than adhering strictly to traditional training methods.
- To implement public policies aimed at improving educational outcomes. This includes concrete actions for teacher training and the effective use of resources in the European education system.
- To develop more projects aimed at preventing NQTs from dropping out of the labor market.

The findings complement existing knowledge by emphasizing NQTs, a group often overlooked in favor of more experienced teachers. This review also updates the knowledge base by incorporating recent articles that consider contemporary phenomena such as COVID-19, the inclusion of new technologies, and the rapid socioeconomic and cultural changes faced by society. The theoretical limitations encountered during the development of the systematic review include its restriction to five countries, guided by the Digital TA project approach. A more comprehensive European review would require the inclusion of articles from all member states. Another limitation is the challenge of accurately translating certain terms referring to NQTs across different languages. Although it is a narrowly defined term, such a diversity of languages makes bibliographic searches a bit more complex. Lastly, the systematic review was influenced by the ranking of articles in search results. Most metasearch engines do not order searches by the number of citations or journal indexing but follow other algorithmic criteria. This affected the selection process of relevant articles.

Future research based on these results could involve periodic updates every 5 or 10 years to analyze trends in quantity and topics related to NQT needs. Additionally, future studies could explore the impact of new technological tools and platforms, such as the Digital TA project, which significantly influence NQT training and support. Another

interesting line of future research could be analyzing the evolution of teachers who use platforms like Digital TA through prospective or retrospective studies. Conducting a quasi-experiment with a control group of teachers who did not receive such support compared to those who did could provide valuable insights into the platform's effectiveness.

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