

Review Article

A comparison of teacher induction systems in Türkiye, China, New Zealand, and Germany

Tuğba Baran Kaya¹ and Adnan Baki²

¹Kırıkkale University, Education Faculty, Kırıkkale, Türkiye (ORCID: 0000-0001-9924-4352)

²Trabzon University, Fatih Faculty of Education, Trabzon, Türkiye (ORCID: 0000-0002-1331-053X)

The purpose of this study is to compare Turkish novice teacher induction system with China, New Zealand, and Germany in terms of assignment to teaching, duration of induction, and opportunities provided in programs. Those countries selected are known to have the best practices for induction training. Despite their differing policies regarding novice teacher training, they provide novice teachers with many exemplary aspects of support. The comparison shows that collaboration activities are formalized in three countries, except Türkiye. While novice teachers in Türkiye have the same workload as experienced teachers, novices in the other three countries have a reduced workload and have more free time for education. A mentoring program is being conducted in all countries, including Türkiye. Türkiye has weekly seminars on liberal education topics, while the other three countries have mostly branch-specific seminars. The paper concludes with a discussion of the educational implications of the induction programs.

Keywords: Teacher training; Teacher induction systems; Cross-cultural; Novice teacher

Article History: Submitted 7 September 2022; Revised 31 January 2023; Published online 17 April 2023

1. Introduction

Support mechanisms are a vital component of teachers' professional development. Teachers who have access to a variety of formal and informal support networks also learn more about the teaching profession and are more satisfied with it (Friedrichsen et al., 2007). A teacher induction program that focuses on teacher training, teacher support, and vocational viability of teachers is one of the effective ways to support novice teachers' professional development, improvement, and life-long learning, even though its model relies on an important set of aims, style, and implementation (Wong, 2002). Below are a description of induction programs, induction programs in some countries, and the aim of this paper.

1.1. Induction Programs for Novice Teachers

Beginner teacher induction programs are more or less official programs aimed at providing support to new teachers (Beijaard et al., 2010). According to Wong et al. (2005), induction programs serve as a form of staff development, lasting 2 to 5 years for many teachers,

Address of Corresponding Author

Tuğba Baran Kaya, PhD, Kırıkkale University, Education Faculty, Department of Mathematics Education, 71450, Kırıkkale, Türkiye.

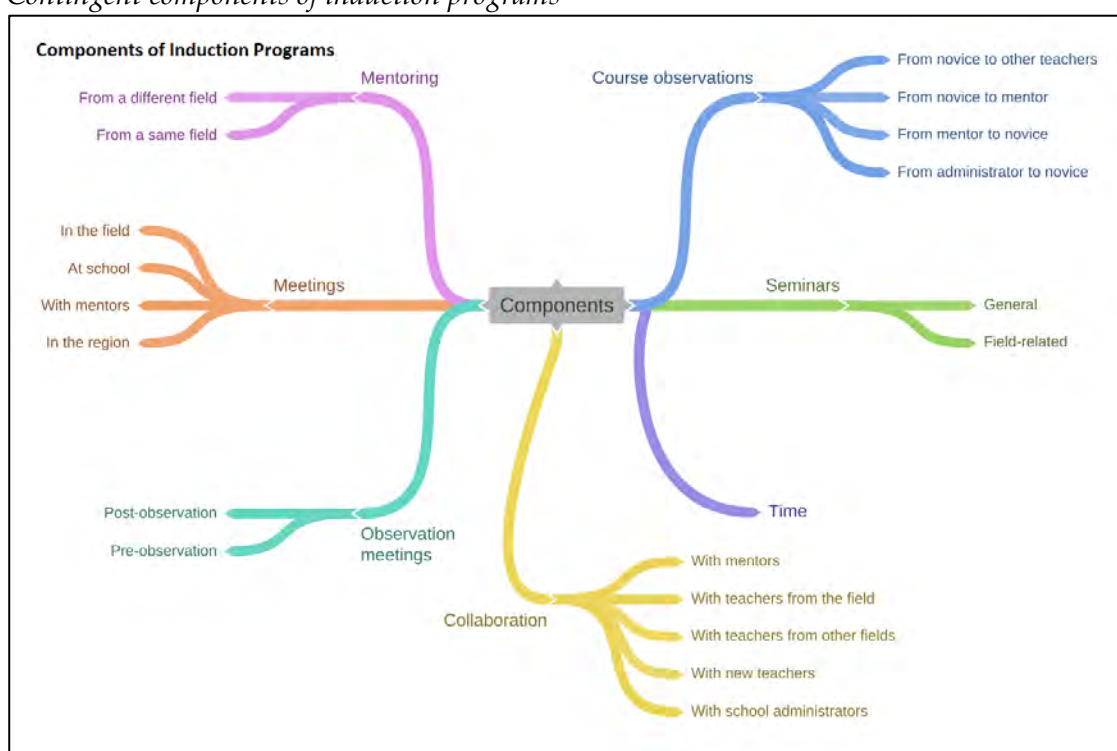
✉ tugbrn@gmail.com

How to cite: Baran Kaya, T. & Baki, A. (2023). A comparison of teacher induction systems in Türkiye, China, New Zealand, and Germany. *Journal of Pedagogical Research*, 7(3), 43-69. <https://doi.org/10.33902/JPR.202318067>

encompassing many people and components, and are well-organized and comprehensive. In these programs, novice teachers learn how to evaluate students' learning, deliver courses proficiently, develop a repertoire of instructional practices, gain more in-depth knowledge and a broader awareness of subject fields, and work with parents.

The purpose of an effective and comprehensive induction program should be to provide more than just finding paper for the photocopier (Carver & Feiman-Nemser, 2009) or to ensure that teachers are viable in the profession, and concurrently enhance their skills and efficacy as well (Weiss & Weiss, 1999). Literature provides insight into both the formats of induction programs as well as their opportunities (Bond, 2012; McBride, 2012; Wood & Stanulis, 2009). A summary of the contingent components of induction programs is shown in Figure 1.

Figure 1
Contingent components of induction programs



It is important to note that mentoring is the main component of many induction programs around the world. Mentoring is a practice in which novice teachers are matched with experts and senior teachers who provide on-the-job training and support, and it is attempted to develop a professional relationship between them (Ingersoll & Smith, 2003; Wong, 2005). There are basically two types of observations that occur in mentoring-based induction programs. The novice teacher can observe the experienced teachers, or the experienced teachers can observe the novice teacher (Gordon, 1991).

Free time is considered another opportunity for novice teachers to participate in induction activities by reducing the workload (Bleach, 2012; Collinson & Ono, 2001; McBride, 2012). As well as sharing experiences and trying to understand others, collaborative communities allow teachers to work together to resolve classroom and school problems and to provide professional and moral support to each other (Fresko, & Nasser-Abu Alhija, 2015). Finally, seminars can be held weekly, bi-weekly or monthly. One of the greatest advantages of the seminars is that they allow teachers to engage in professional dialogues, share their experiences, and offer moral support to one another, and their organization may have the purpose of sharing information, addressing concerns, or preparing for the future (Gordon, 1991).

This paper examines to what extent some countries have the above-mentioned components of teacher induction system and what other cultural-specific opportunities they have.

1.2. Induction Programs in Some Countries

In this section, information on induction processes of other countries is compared to Turkish induction programs. Several countries discussed here (China, New Zealand, and Germany) are regarded as having best practices in induction programs. While they have different policies for novice teacher training, they have many aspects of support for novice teachers that are exemplary. The following is a brief description of the induction processes in these countries.

1.2.1. The case of Türkiye

The *Regulation on the Training of Novice Officials* of the Ministry of National Education governed the induction programme in Türkiye from 1995 to 2015. This regulation included 330 hours of applied training for all civil servants as well as some information for novice teachers specifically (assessment-evaluation, daily plans, etc.). For teachers subjected to the applied training, it was stated that they could not perform independent on-call duties or deliver courses, but only be able to do so with a guidance teacher (Ministry of National Education [MoNE] 1995). Clearly, novice teachers' program is determined by a regulation that has been implemented for all novice civil servants, and the issues specific to novice teachers have not been sufficiently addressed. Furthermore, despite not being stated otherwise in the regulation, newly appointed teachers were informally expected to deliver courses independently and be available for on-call duties. In fact, studies have shown that this training program is insufficient (Ayvaz Düzyol, 2012; Erdemir, 2007; Kocadağ, 2001; Özonay, 2004; Sari & Altun, 2015; Solak, 1999; Yıldırım, 1997).

In the Official Gazette dated 17.04.2015 and numbering 29379, the Ministry of National Education published the "Regulation on Teacher Appointment and Relocation of the Ministry of National Education," which led to the release of the "Directive on Novice Teacher Training Process" on 02.03.2016. As a result of these regulations, some innovations have been made in the induction process (Topsakal & Duysak, 2017). A number of problems arose for novice teachers in this process, since they could complete their induction training in any province other than the region they were assigned to, including a mentor with at least 10 years of professional experience who specializes in the same field as the novice, a restriction on independent course delivery and on-call duty during the induction, and permission to conduct courses under the mentor's guidance (MoNE, 2016a). Moreover, three days a week are dedicated to pre-course preparation, course monitoring, and after-class activities with a mentor (Aktekin, 2016). This practice, which included foundational changes, was short-lived, and the Ministry of National Education stated in its letter dated 17.10.2016 and numbered 11424855 that all novice teachers would spend their inductions in the regions that they were assigned to and deliver courses independently and perform on-call duties, etc. MoNE, 2016b) indicates that there are teacher shortages at the date and in future appointments. The practice of course preparation, monitoring, and after-class preparation that took place three days a week was changed to two hours of observation per week, and four hours of in-school observation and preparation.

1.2.2. The case of China

In China, novice teacher training programs go beyond helping novice teachers adapt to their teaching roles and develop basic teaching skills (Miao, 2009). It is the primary goal of induction programs in China to secure novices' core competencies and accelerate their progress toward becoming expert teachers (Britton et al., 2003a). Moreover, the novice is not the only person responsible for their professional advancement and learning. It is also the responsibility of all teaching staff (Ma, 1992).

A prevalent view in China is that the four-year pre-service training in higher education faculties is inadequate, especially for acquiring practical teaching knowledge. Therefore, starting from the first day of their teaching career, all novice teachers are required to continue their professional learning with general apprenticeship mentoring, teaching research groups, and other activities organised by the course preparation groups in each school (Li & Li, 2013).

Induction activities in China (Shanghai) are summarized by Wong et al. (2005) as follows:

- Welcome ceremonies in schools;
- Regional workshops and courses;
- Teaching competitions organised by the region;
- Mentoring provided by the region (apprenticeship practice);
- Connecting new teachers directly with field experts in the area;
- Regional awards for selected novices/mentors for their work;
- Half-day training sessions held by education faculties and schools for several weeks of the year;
- Peer observation inside and outside of school;
- *Open courses* and questioning and discussing after these courses;
- *Report courses* where a new teacher is observed, commented on, criticised, and suggestions are made,
- *Conversation courses* in which novice or experienced teachers, who are not taught about these subjects, explain a course design and the rationale for this design.,
- Research projects and action research conducted by new teachers and supported by schools, regional teaching research staff, or induction staff;
- Booklets for new teachers and mentors developed by local councils or schools;
- Year-end celebrations of teachers' work and cooperation.

1.2.3. The case of Germany

There are basically two stages to teacher education in Germany. The first stage is university education, while the second stage is induction training called Vorbereitungsdienst. Induction training takes place in schools where teaching is provided and in teacher training institutes or similar institutions (Kultusminister Konferenz [KMK], 2017). It is necessary to pass the State Exam-I or to have a Master's degree after completing university education to reach the induction training stage (Baki & Bektaş-Baki, 2016; KMK, 2017). Induction training, which is the second stage of teacher training, lasts between 12 and 24 months in different states of Germany. In addition to orientations and peer reviews, novice teachers are provided with teaching under the supervision of an experienced teacher, independent teaching, and training through seminars (KMK, 2017). This training focuses on the field of action and the professional development of the teacher personality, as well as providing comparable and transparent assessment standards throughout the country (Brinkmann & Kropp, 2012; Wehrhöfer, 2013).

The German system has some positive experiences that can inspire other countries. For example, some states in Germany offer both undergraduate and continuing education at centres within universities, in order to better coordinate both parts of the teacher education continuum (undergraduate education and induction training) (European Commission, 2004). The 18-month induction process in Nordrhein-Westfalen (NRW) is summarized in Table 1, which illustrates the stages of induction training and the opportunities provided at each stage.

Table 1

Induction in the state of Nordrhein-Westfalen (NRW), Germany

Stage	Duration	Timeline	Duties/Responsibilities
Stage 1	3 months	May-July or November-January	Knowing the training school, observation, orientation, teaching under supervision of guiding teacher
Stage 2	12 months	August-July or February-January	Training at the Centre of Teacher Training for School Practices (Zentrum für schulpraktische Lehrerausbildung- ZfsL) and independent teaching in parallel with teaching terms
Stage 3	3 months	August-October or February-April	Completing school-dependent training, taking the exam irrespective of the given courses

Note. The table is adapted from Gerdes and Annas-Sieler (2011).

1.2.4. *The case of New Zealand*

In New Zealand, the stage of induction training is called the Advice and Guidance (AG) program. It is believed that the AG program serves as the first step toward teachers' lifelong professional development in this country (Wong et al., 2005). The induction process in New Zealand can be summarised as observation of practices, purposeful feedback on teaching, and professional development and assessment (Lind, 2007). New Zealand Teachers Council [NZTC] grants provisionally registration status to novice teachers after they complete their undergraduate degree. Before applying for the full registration status, they must attend a 2-to-5-year AG period (Piggot-Irvine et al., 2009). This is due to the fact that provisionally registered teachers must document the AG support they will receive throughout their induction when they apply for a permanent full certificate (Wong et al., 2005). A provisional certificate allows novice teachers to teach for a maximum of six years. Obtaining a full certification proves that a teacher meets all six standards for the teaching profession and provides assurance of high-quality instruction (New Zealand Education Council, 2018). In general, these standards pertain to professional knowledge, professional practice, professional relationships, and professional leadership (Britton et al., 2003a). It is the purpose of the induction programme in New Zealand not only to provide full registration certificates to novice teachers, but also to support them in becoming high-quality teachers (New Zealand Teachers Council, 2011). Therefore, the induction policy emphasizes support rather than evaluation (Howe, 2006).

1.3. **Aim and Importance of the Research**

Chinese students' mathematical achievements in international exams have drawn researchers' attention to how Chinese teachers are trained (Han, 2012; Li & Li, 2013; Wang, 2018). The professional development of both novice and experienced teachers is highly valued in China (Preus, 2007). Therefore, many comparative studies have been conducted on the training and professional development of Chinese teachers and teachers from other countries (Cai & Wang, 2006; Cai & Wang, 2010; Guo & Pungur, 2008; Ma, 1999; Schleppebach et al., 2007; Wang, 2001; Zhou et al., 2006). Due to the fact that it reaches all novice teachers, combines multiple sources of support, provides support beyond staying in the profession, and is well-funded, the induction training program in China has risen to the fore in the world (Wong et al., 2005). It is New Zealand that mandates and finances induction training for novice teachers. Induction training for novice teachers has been extensively funded even during times of financial distress (Grudnoff, 2012). In fact, New Zealand is a world leader in funding induction training for provisionally registered teachers (novice teachers) in schools (Cameron et al., 2007). International literature has also reported its effectiveness in developing novice teachers (Britton et al., 2003b; Britton, 2006; Howe, 2006; Wong et al., 2005). Harmonious collaboration and colleague solidarity are key to this success (Howe, 2006). Germany is another country with an outstanding teacher induction system. According to Howe (2006) and Paine and Schwillle (2010), Germany has one of the world's leading induction programs. As one of the world's most efficient vocational training systems due to its legendary apprenticeship practices in the industry, Germany provides a comprehensive teacher induction program (Vorbereitungsdienst) to all new teachers.

There has been a drastic change in the induction programme in Türkiye in a short period of time. Some of the studies focusing on induction programs address the needs of novice teachers during the induction process (Dağ & Sarı, 2017; Yetkiner & Bıkmaz, 2019), and their perception of efficacy and the obstacles that they encounter (Gülay & Altun, 2017; Kozikoğlu & Senemoğlu, 2018; Yılmaz, 2017). Other studies aim to unearth the views of novice teachers (e.g., Altıntaş & Görden, 2017; Hangül, 2017; Ulubey, 2018), of school administrators (Özan & Nanto, 2018) or of novice teachers and other stakeholders of the process (e.g., İlyas et al., 2017; Kozikoğlu & Soyalp, 2018; Tunçbilek & Tünay, 2017) on the induction programme. However, studies that examine teachers' induction processes more comprehensively and from different perspectives are quite limited (Baran-Kaya, 2019; Çakmak et al., 2019).

According to Dias-Lacy and Guirguis (2017), novice teacher training and mentoring does not make novice teachers good teachers. There is a critical need to organize these programs in order to accelerate the professional development of novice teachers (Moir, 2009). For this purpose, this comparative research aims to explore similarities and differences in terms of opportunities provided to teachers in novice teacher induction programs by comparing Türkiye to three leading countries in teacher induction. In this way, this research will serve as the foundation for the development of the current, and considerably new, teacher induction system in Türkiye.

2. Method

Since this study aims to address the similarities and differences in the opportunities provided with teachers in induction programs in Türkiye and in other countries, comparative education research was utilized. Although there is not a circumscribed and widely-agreed definition of comparative education (Hamad, 2013), it is a field of study that includes examining different education systems, identifying their similarities and differences, as well as suggesting and interpreting solutions for similar situations or problems (Çubukçu et al, 2016).

2.1. Documents

The document analysis method was used to elicit information about the teacher induction systems of Türkiye, Germany, China, and New Zealand. In document review, documents in print or electronic form are examined or evaluated (Bowen, 2009). In the research, the reviewed documents consist of official documents on the induction systems of Germany, China, and New Zealand (KMK, 2017; Ministry of Education (MoE), 2019; New Zealand Education Council, 2018; New Zealand Teacher Council, 2011), international reports (Jensen et al., 2012; World Bank, 2009), comparative studies and books on the induction systems of one or more of these countries (Britton et al., 2003a; Brundrett et al., 2006; Fulton et al., 2005; Han, 2012; Howe, 2006; X. Huang, 2018; Ingersoll, 2007; Kaur et al., 2017; Kuhlee et al., 2015; Long et al., 2012; Paine & Schwille, 2010; Scherer, 1999; Stephens & Moskowitz, 1997; Wang, 2001; Wong, 2005), national and international books on the induction systems of countries (Benade, 2017; J. Huang, 2018; Krüger, 2014; Li & Huang, 2013; Tan, 2013), and national and international studies addressing the opportunities, challenges, and coping strategies as well as professional developments of novice teachers (Blömeke et al., 2015; Blömeke & Klein, 2013; Cameron, 2007; Decker et al., 2015; Gellert, 2008; Grudnoff, 2012; Han & Paine, 2010; Higgins & Parsons, 2009; Huang et al., 2010; Langdon, 2011; Lee & Feng, 2007; Liang et al., 2013; Lovett & Davey, 2009; Ma, 1992; Meschede et al., 2017; Miao, 2009; Moore, 2014; Piggot-Irvine et al., 2009; Richter et al., 2011; Richter et al., 2013; Robinson, 1998; Salleh & Tan, 2013; Yang, 2009; Zhang et al., 2016).

The data for Türkiye have been compiled from both official and national documents and studies. The reason why both official and national documents and studies are used for all four countries is the idea that there may be differences between the system existing on paper and in practice. However, a few studies on the induction of novice teachers in Türkiye is a limitation of the study.

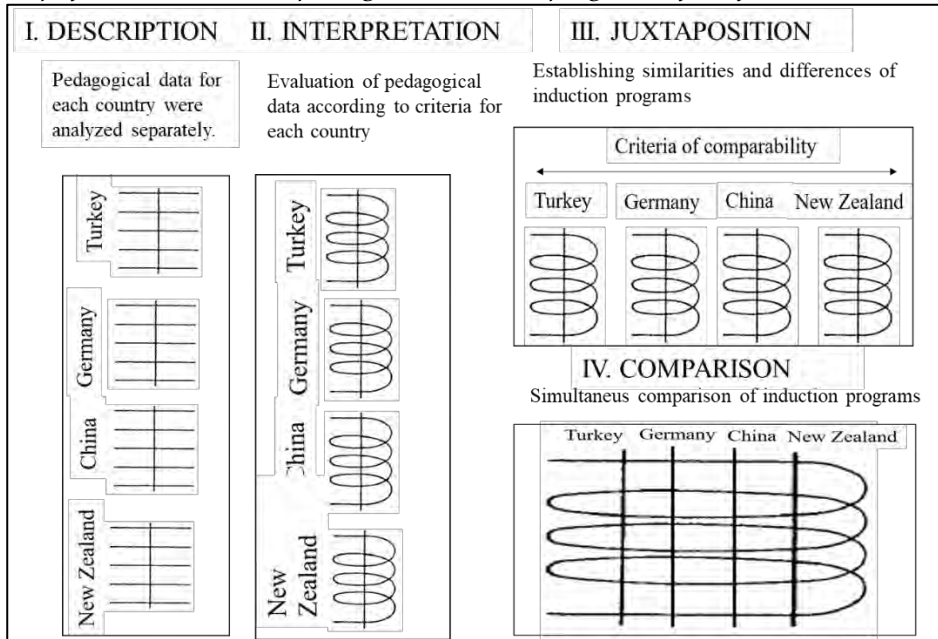
2.2. Document Analysis

Comparative research has different approaches (Çepni, 2012). As part of the analysis of the documents, the analytical model, which is also known as the Bereday Model, was used, which compares Turkish, German, Chinese, and New Zealand induction programs for novice teachers based on assignment and length, opportunities, quality of support, and evaluation. This model consists of four stages: description, interpretation, juxtaposition, and comparison (Bray, 2005). The first step in the model is the descriptive stage, which is the disclosure of pedagogical data for individual countries. As a first step, the novice teacher training models in Türkiye, Germany, China, and New Zealand are briefly presented in terms of opportunities, duration, scope, and evaluation (in the introduction). For all countries, both official documents from education ministries and comparative studies, national and international publications, and chapters on the

relevant countries in some books were used in this stage. In subsequent steps, based on the relevant documents, the induction processes in the countries were evaluated separately (interpretation). In the third stage presented in the discussion section (juxtaposition), the documents on the developmental opportunities provided by the induction processes in the countries, the role of these opportunities in the professional development of novice teachers, and the difficulties experienced were carefully examined and discussed together. In the final stage, a simultaneous comparison was made (Tables 3, 4, 5, and 6). Figure 2 summarizes the steps followed when comparing the induction programs of the four countries.

Figure 2

Steps followed when comparing the induction programs of the four countries



Note. The process is adapted from Bereday (1964).

3. Findings and Discussion

This section compares novice teacher induction systems from Türkiye, China, New Zealand, and Germany. This comparison provides a perspective on how the induction program of Türkiye could be structured better. For this purpose, induction programs will be compared according to the criteria specified in Table 2.

Table 2

Criteria for comparing induction programs

Terms of assignment and length of induction programmes

Opportunities provided in induction programs

- Mentoring
- Collaboration
- Free Time
- Seminars
- Observations

Quality of the support provided in induction and teachers' professional development

Evaluation

Table 2 reveals that the first comparison criterion is assignment to teaching and length of the four induction programs. A discussion of the type of opportunities that novices in the four countries are provided in this process, how the quality of those opportunities are impacted by these opportunities and how the professional development of novices in these four countries is

impacted by these opportunities has been conducted as part of the induction process. Furthermore, how novice teachers were evaluated and how the induction process ended were also included in the comparison process. From this perspective, it is apparent that criteria were established that cover the entire process from assignment to induction. Following this section, a comparison of teacher induction systems will be introduced under different headings.

3.1. Terms of Assignment and Length of Induction Programs

Having examined the terms of assignment to teaching in the concerned countries, it has been found that each assignment is made by the principal of each school without any examination in New Zealand (Broadley & Broadley, 2004), whereas in other countries teachers are assigned via exams. To be assigned as a teacher in Germany, one must pass the State Exam-I or hold a Master's Degree (Baki & Bektaş-Baki, 2016; KMK, 2017), but in China, both written and oral exams must be taken and passed (MoE, 2011, 2013 as cited in Huang et al., 2017, p. 19). Teacher assignments in Türkiye require passing scores on the Public Personnel Selection Exam [PPSE] and passing an interview.

Teachers in all four countries are required to attend induction programs after being assigned as teachers, but the duration of these programs varies. The duration of these programs varies between 12 and 24 months in Germany (KMK, 2017), 2 years in New Zealand (Langdon et al., 2014), and one year in China (Han, 2012; Paine et al., 2003b). In China, however, novice teachers are assigned to mentor teachers for 2-3 years despite their induction lasting only a year (Huang et al., 2017). In Turkey, on the other hand, there is a one-year induction program. It can be argued that Turkey has a more restricted induction programme than other countries, based on the fact that induction programs for a year or less are induction programmes with restrictions (Britton et al., 2003a). In addition, Feiman-Nemser (2001) argue that robust induction programs last more than a year. A comparison of the assignment conditions and the length of the programs in Türkiye and other countries can be found in Table 3.

Table 3

Comparison of assignment conditions and length of program in teacher induction systems

	<i>Türkiye</i>	<i>Germany</i>	<i>China</i>	<i>New Zealand</i>
Assignment to teaching	PPSE examination and interview	State Exam-I	Written and verbal exams	No examination. Principal's own selection of novice teachers.
Length of the programme	12 months	12-24 months	One-year probation status. But 2-3 year-long mentoring.	24 months

3.2. Opportunities

The induction programs of four countries will be discussed in the context of five opportunities that stand out in the literature: mentoring, collaboration, free time, seminars, and observations. These opportunities are also formal or informal opportunities in the induction programs of four countries.

3.2.1. Mentoring

A significant portion of induction activities in Türkiye are mentorships (Baran-Kaya, 2019). The official requirement is to assign a mentor who has 10 years of professional experience and works in the same field as the novice (MoNE, 2016a), but in practice, this is not the case at all. Most novice teachers are appointed with teachers from different fields (Baran-Kaya, 2019; Güler, 2019; Kaygusuz, 2020) who are also less experienced (Baran-Kaya, 2019), and occasionally teachers from different schools (Kaygusuz, 2020). İlyas et al., (2017) and Özcan and Nanto (2018) have also found that mentors were not properly selected. Moreover, research shows that mentors do not act effectively as models and facilitators (Naillioğlu-Kaymak & Sezgin, 2021) and they do not support novices enough (Gökulu, 2017; Kaygusuz, 2020). Furthermore, the fact that too many novice

teachers are under the mentor's tutelage (Baran-Kaya, 2019; Kaygusuz, 2020) further obscures this issue. According to the principles of mentor appointments in China, novices are assigned mentors from the same field (Lee & Feng, 2007; Paine et al., 2003b) and with at least 5 years of experience (Miao, 2009). It is also common for German novices to be paired with a mentor from the same field, and, as in Türkiye, the mentors are selected by the school principal based on their experience and expertise (Richter et al., 2013). Mentors are assigned to novices from the same field as those in their school, as well as from the same field in the region in New Zealand (Britton et al., 2003b). Despite the fact that many studies confirm that experienced mentors from the same field are appointed to novices in other countries than Türkiye, Aitken et al. (2008) provide evidence in their studies that mentors from different fields are appointed to novice teachers in New Zealand, especially in early childhood institutions, due to a shortage of induction-completed teachers. A study performed by Lee and Feng (2007) showed that mentors are not appointed in China from the same year-level even if they are all from the same field. Therefore, it is possible to say that even though mentor appointments are based on clear criteria for developed countries, there may be some exceptions.

3.2.2. Collaboration

In China, novice teachers are provided with the most distinctive and varied induction opportunities, apart from mentoring. There are a number of activities in China, along with observations, workshops, and seminars prevalent in Türkiye, Germany, and New Zealand. These include open courses, teachers' research groups [TRG], report courses (open courses delivered by novices), research courses, sample courses, and teaching competitions. Novice teachers directly attend some of these activities (e.g., report courses, TRGs, non-compulsory teaching competitions), whereas they participate in others (e.g., sample courses and open courses delivered by experienced teachers, report courses) during only the planning phase and then attend as mere observants. One of the most foundational activities in China is the Teaching Research Group (TRG), which organizes teaching research activities (Huang et al., 2017). Teachers in these groups, who are all from the same field, are expected to support novice teachers as they develop their teaching practices with the assistance of the members of the group (Ma, 1999). In fact, these groups primarily prepare and conduct open courses (Han & Paine, 2010). In light of the structure and activities of TRGs, it is possible to say that they are purely collaborative communities.

Britton et al. (2003b) found that novice teachers in New Zealand can receive support from a variety of sources, including heads of departments, buddy teachers, advice and guidance coordinators, and informal mentors. Similarly to China, collaboration is coming to the fore in New Zealand. According to Britton (2006), all parties involved in the New Zealand education system, along with administrators and buddy teachers, need to address the fact that new teachers have special needs, and the system should pay particular attention to them. Apart from mentoring, induction activities in New Zealand include observation, feedback, buddy teachers, meetings with administrators, regional mentors from the same field, field-specific workshops, and short university courses. From the above, it is evident that the New Zealand process offers many different types of advice and guidance from many sources and from many different locations. Unlike China, it is organized in a general sense and includes activities that exist in other systems as well (Schwille et al., 2007). Unlike the other two induction systems, German novices are initially trained in pedagogical and pedagogical content knowledge in postgraduate teacher education institutions (KMK, 2017). In other words, the training process involves a theoretical perspective (Richter et al., 2013). It is also here that novices are constantly advised and evaluated by their instructors and peers (Terhart, 2007). Therefore, it can be considered an official collaboration. As a second stage, they are assigned to regular German schools, where they receive practical on-the-job training and make observations, and teach independently and under the supervision of experienced teachers (Paine & Schwille, 2010; Richter et al., 2013). Moreover, German novice teachers' course load is reduced in the second stage. In addition to a balanced course load, four days a week are reserved for reflection and collaboration seminars (Howe, 2006). During the

induction period, there is no collaboration between universities and schools in Türkiye except during a one-year internship in pre-service teacher education (Güler & Çelik, 2022). While collaboration forms the basis of novice teacher training programmes in countries such as China and New Zealand that have come to the fore with their induction, it has naturally emerged in Türkiye, through professional interactions in the school environment, even though it is not a formal activity of the induction process. As novices struggle with issues, they receive informal support through consultation with other teachers during breaks or during spare time (Baran-Kaya, 2019).

3.2.3. Free Time

One of the distinguishing features of New Zealand induction training programs is providing free time for novices. The first year of the induction process includes 20% free time, with 10% free time in the second year (Britton, 2006; Grudnoff, 2012; Howe, 2006), and novices are given less responsibilities (Howe, 2006). Mentors in New Zealand are also given 20% of their free time without salary cuts and are paid extra to mentor novices (Grudnoff, 2012). In China, especially in Shanghai, there are fewer contact hours for novice teachers as well as for other teachers compared to many other systems, since the activities and collaborations in the TRGs, which require novices' attendance, are included in the regular school curriculum. Additionally, TRG leaders are paid extra for their leadership (Tan, 2013). The Turkish government, on the other hand, imposes aggravated responsibilities on novice teachers instead of reducing their teaching load. A study by Baran-Kaya (2019) reveals that approximately 40% of novice mathematics teachers deliver courses for more than 30 hours, and about 42% for 25 to 29 hours, whereas novice teachers in China teach for 10–18 hours, which is even lower for mathematics teachers (Miao, 2009). According to Kaygusuz (2020), both mentors and novices in Türkiye have too much work and course load. In addition to the high course load of the novices, their work-load has increased due to the requirements of the administrators that do not match with professional development (Baran-Kaya, 2019; Ulubey, 2018; Yılmaz, 2017), since it is perceived that the newcomers should handle the administration and paperwork of the school. School administrators also use contracted teaching as a means of intimidating hourly-paid teachers by threatening them with termination. Because of their administrative obligations as well as their teaching duties, novices remain at school until the end of their working hours (Baran-Kaya, 2019). Even after all classes are over and students have left the school, novice and experienced teachers in China stay at school for one more hour to work in teachers' offices (Miao, 2009). Unlike Türkiye, such work focuses on improving the quality of instruction, not on administrative duties.

During the week, novice teachers in Türkiye are fully occupied with teaching and administrative duties, while attending seminars on the weekends (Tavukçuoğlu, 2021). According to some studies, novices in countries other than Türkiye are not always given free time as described above. A study in New Zealand showed that novice teachers' free time is so valued that it is not interfered with at all (Britton et al., 2003b). Clement (2000) states that 20% of the free time, or one day per week, is the maximum amount of free time available to novices in the country, which cannot even be applied uniformly. He states that half free time is more usual than full free time. Another study conducted in New Zealand by Aitken et al. (2008) on induction training found that time constraints are one of the most important issues in educational institutions. At times, novices find it difficult to observe teaching practices and conduct interviews. Novices seek greater support and cooperation to overcome these obstacles. Even in New Zealand, which is known for providing novices with a generous amount of free time, novices cannot find enough time to complete their induction activities. Consequently, it is not possible to say that all novices in a country benefit equally from the induction programs.

3.2.4. Seminars

As in Türkiye, seminar activities are conducted as part of induction activities in the other three countries as well. Several weeks of the year, half-day seminars are held in education faculties of

universities and schools in China (Wong et al., 2005). These induction seminars held in China include seminars to support teaching knowledge as well as more general topics related to teaching, management, professional responsibilities, and ethics (Britton et al., 2003a). For novice teachers in New Zealand, off-school professional development programs are organized by the national counselling service (Grudnoff, 2012). Among these external supports are workshops in the field and short courses at universities (Britton et al., 2003a). As stated earlier, in Germany, pieces of training are usually accompanied by theoretical courses in institutions called *Studienseminare* (Richter et al., 2013). In these seminars, lecturers/heads of departments who have special scientific and practical expertise in teaching the subject area also provide training (KMK, 2017). A study by Decker et al. (2015) addresses these seminars in Germany. Researchers found that novices displayed higher levels of reflection skills during seminars where different perspectives were actively discussed. Although there are active and interactive seminars in Germany, there are also passive and transfer-oriented seminars as seen in Türkiye. These passive seminars, however, did not have much impact on novice teachers in either Türkiye or Germany (Baran-Kaya, 2019; Özen et al., 2019). Another criticism brought to the seminars in Türkiye is that the content is insufficient (Kılıç et al., 2016; Tavukçuoğlu, 2021; Ulubey, 2018), that it is delivered by incompetent instructors (Özen et al., 2019; Yılmaz, 2017) and that it is not subject-specific (Baran-Kaya, 2019; Güler, 2019).

Turkish compulsory induction forms include the activity of making novices read a book or watch a movie, which is unusual in induction programs around the world. Every month, Turkish novices are required to write a summary of a book or film from a list determined by the Ministry of National Education. The purpose of these books and films is to increase teachers' intellectual equipment (Baran-Kaya, 2019). However, studies have already critiqued the compulsory nature of the reading activity in those induction forms and their irrelevance to teachers' fields (Baran-Kaya, 2019; Ulubey, 2018).

3.2.5. Observations

Observation is one of the important induction activities that differs from country to country. Schools in China usually include the number of courses to be observed in their professional development plans. The observation process is well-organized. The teaching and curriculum offices at each school monitor and regulate it (Miao, 2009), and these observations also include post-course evaluations (Yang, 2008, as cited in Miao, 2009). Lee and Feng (2007) reported that mentors in China make mutual observations of novice teachers' lessons during their support for them.

In New Zealand, induction programs require around two hours of face-to-face meetings per week. One hour of observation is ideally spent on novices' development, professional readings and opportunities for development, goals and questioning, etc. (New Zealand Education Council, 2018). The mentor, as in China, observes the novice teacher and provides feedback based on certain criteria, as well as allowing the novice to reflect on this feedback (New Zealand Education Council, 2015). In some studies, novice New Zealand teachers report that finding time to observe and interview is difficult (Aitken et al., 2008). In Germany, although the observations are mostly for evaluation purposes, novices are visited five times by their mentor teachers at the school, in total 10 times within 18 months, and their course practices are monitored and graded (Paine & Schwille, 2010; Richter et al., 2013). In Türkiye, in the induction program revised in 2016, three days a week were reserved for course preparation, observation, and end-of-course evaluation with mentors. However, this system lasted for a very short time. In the next teacher assignment (February 2016), it was decided that novice teachers should observe the course for 2 hours a week and devote 4 hours to in-school practices and observation (MoNE, 2016b). Even this short-term observation, however, has been shown by research to be ineffective. The main obstacles to observation activities, according to Baran-Kaya (2019), are the mentors' views that observation interferes with novices' learning, and the lack of mentors from the same field.

Table 4 provides a summary of opportunities in the investigated induction programs.

Table 4
Comparison of prominent opportunities in the induction programs

	Türkiye	Germany	China	New Zealand
Opportunities emphasised	Mentoring and seminars, observations	Mentoring and trainings in off-school institutions	Mentoring, collaboration (teacher research groups) and course preparation groups) and open course practices	Mentoring, free time, collaboration
Work-load-Free Time	Equally-weighted with experienced teachers. It is possible that newcomers are overburdened. There is an average course load of over 27 hours per week. There is no free time to attend induction activities.	Approximately 14-hour course-load for a week. Also, novices are initially given fewer responsibilities as they are in training schools.	Novices are given fewer responsibilities. They have teaching load for 10-18 hours. Also, novices are given approximately half-day off every week so that they can attend induction activities.	Novices are given fewer responsibilities than others. Novice teachers in their first year are given 20% of the free time (e.g., delivering four courses a day instead of five days), 10% of the free time in their second year, and additionally 20% of the free time is given to mentors.
Mentoring organisation	Novices are assigned with mentors who are from the same school, mostly from a different field, occasionally inexperienced. These supervisors are not trained. Also, supervisors are not provided with any incentives to be encouraged for this duty.	Novices are assigned with mentors who are from the same field. Mentors are matched by school administrators with novices in accordance with their experience and professional expertise. They are not trained for their duties. Nevertheless, novices mostly experience mentoring that is not transfer-oriented but constructivist.	Mentors with at least 5-year of experience and well-equipped in their field are appointed for 2-3 years. Mentors are selected from teachers working in novices' schools. In addition to the limited provision of financial support, high status is given to them for their promotion to high-level status.	Experienced and equipped mentors are appointed for 2 years to novices by taking the school type of novices into consideration. Albeit exceptions, mentors are generally from the same fields as novices. There are no novices left without mentors assigned with. Support is everywhere. Novices also have mentors from the same region. Although mentors are given 20% of free time, they are not deprived from any salary cuts. Also, mentors are provided with an extra \$4000 of payment due to this duty.

Table 4 continued

	<i>Türkiye</i>	<i>Germany</i>	<i>China</i>	<i>New Zealand</i>
Observations	A pre- and post-observation meeting is necessary for effective observation. The observation period is limited to off-school and/or short-term observations.	A total of 10 observations are conducted at the Centre of School Practices Teacher Training program in 18 months. Assessment is also a focus of these observations.	(Peer or other teachers' observations of one or two courses in a week by mentor/novice teams. Courses are designed in TRGs and reflections are made after classes.	One-hour observation, one-hour meeting is undertaken. At the same time, AG coordinator makes observations for a few times in a year.
Seminars/Trainings	Weekly seminars about general culture topics	Mostly about the field	Mostly about the field	Mostly about the field
Collaboration	Collaboration is an informal opportunity. Usually, they are restricted with support provided by other teachers in the school, which include topics about adaptation to the school and the region and other challenges.	Collaboration is not formally structured. There are not intense collaboration activities as seen in China and New Zealand.	Collaboration in China is very comprehensive consisting of planning and practices along with TRGs. Collaboration activities are included in usual school curriculum. Mostly they focus on improving the field teaching.	Every two weeks, novices and AG coordinators meet to discuss their needs and challenges. Additionally, novices receive peer support from fellow teachers. In addition, novices receive informal support from other people in the New Zealand education system.

3.3. Quality of the Support Provided in Induction and Teachers' Professional Development

Studies conducted in Germany, China, and New Zealand on the quality of the above-mentioned opportunities provided to novices and their impact on their professional development can provide a deeper understanding of how induction programs are reflected into practice and their impacts on novice teachers. Several studies demonstrate that TRGs and open courses in China contribute to the development of novice teachers in terms of subject teaching knowledge, including Han (2013), Han and Paine (2010), Ma (1999), and Yang (2009). It is understood from the studies of Wang and Paine (2001), Wang (2001), and Wang et al. (2004) that mentoring practices in China have important contributions to the development of novice teachers in the context of subject teaching knowledge, as well as open lessons and TRG activities. According to Huang et al. (2017), Chinese novice teachers often have robust subject knowledge due to their undergraduate programs. With the support of the one-on-one mentoring practice, novice teachers can become familiar with teaching routines and learn key teaching skills (course plan, practice, and assessment) unproblematically and quickly. Paine et al. (2003b) stated that one of the main objectives of Shanghai's education system for new teachers is to enable them to learn their routines, acquire pedagogical content knowledge, better understand students, and gain reflective skills. Based on the findings of the above-mentioned studies, the aims were achieved. In addition to these studies highlighting the positive aspects of induction activities in China, novices also expressed some negative aspects. Lee and Feng (2007) found that mentors provided novices with four types of support, namely information provision, mutual course observation, collaborative course preparation, and office discussions. For a variety of reasons, course plans could not be intensively monitored. According to the researchers, frequent monitoring may indicate interference and too much formality based on the cultural context. The lack of observation and support regarding teaching plans was also cited by mentors and novices in Türkiye as a reason for avoiding interfering with novice teachers (Baran-Kaya, 2019). It is possible to say that mentors have a similar perspective on cultural context in this regard. One of the results of Baran-Kaya's (2019) study is that the majority of novice mathematics teachers' mentors do not take the time to meet and support them, and only help when they are consulted on a difficult matter. In Lee and Feng's (2007) study, a novice stated that their mentor only responded enthusiastically when they asked a question. Therefore, although in many studies conducted with novice teachers in China demonstrate that induction activities have significant contributions to professional development, there are also studies that show that they have limited contributions to novices because some induction activities are not executed effectively. Cameron (2007) also found that not all New Zealand novice teachers work in supportive and collaborative environments. Positive and negative results have also been revealed in studies conducted in New Zealand about induction activities and the effect of these activities on professional development.

According to Grudnoff (2012) and Lovett and Davey (2009), some novices from New Zealand can benefit from professional development opportunities, while others cannot. According to these studies, some factors negatively impacted the induction process, such as teaching in other fields, not seeking others' support with a potential feeling of inadequacy, and not receiving any support from others. Similar findings were also found in the studies of Baran-Kaya (2019) and Gökulu (2017), which discussed the induction program in Türkiye. New Zealand novices reported being welcomed and appreciated in their schools, but many did not receive adequate mentoring and support and were not evaluated appropriately, according to Cameron et al. (2007). As shown by Cameron et al., (2007), Dewar et al., (2003) and Cameron et al., (2006), it is not always possible to provide systematic, continuous, and structured induction experiences to all new employees. A study by Renwick (2001) showed, however, that among novices in New Zealand schools working in primary, secondary, and multi-purpose schools, those in primary education were more satisfied with the level and effectiveness of the induction process. They held regular meetings with their supervisory teachers and viewed these teachers as their main source of support. Despite this, they acknowledged that the level of official support they required had decreased. Similar to Renwick

(2001), Piggot-Irvine et al. (2009) also discussed the quality of the induction programs in early childhood, primary, secondary, and local Maori settings in New Zealand. The findings of the study showed that novices were not only mentored but also provided with wider support and cooperation. Successful induction examples in the research included the execution of observation and feedback activities, the presence of effective mentors, and the allocation of free time so the new employees could receive support from their peers. According to the case study of Aitken et al. (2008), every novice is assigned a mentor teacher who provides one-on-one support. In addition, efforts were made to ensure that the mentor teacher and novice were a good match. All institutions recognized the importance of allocating time for novice-mentor meetings as well as dedicated time for discussion and learning. Both novices and mentors had opportunities for development. In spite of this, it can sometimes be difficult to schedule time for observing novices' teaching practices and interviewing them. In response to these challenges, novices have sought greater support and collaboration. In early childhood institutions, the shortage of teachers whose inductions have been removed has led to mentors being appointed from outside novices' fields. In this case, they again focused on group support and sharing ideas and resources. A number of opportunities for novice development were also identified, including providing support and training to mentor teachers, and giving novices fewer responsibilities and duties than other teachers.

The above studies examining professional development opportunities in New Zealand suggest that a small number of novice teachers are not as fortunate as others, although most of participants in those studies receive adequate and effective support. This small number of New Zealander novices, who stated that they could not get enough support, were mostly able to find support from another resource, if not from one resource. According to the results of Baran-Kaya's (2019) and Sari and Altun's (2015) studies, there are deficiencies in all support resources in Türkiye. That is, novices could not get any support from their informal mentors, just as they could not get it from their formal mentors, since they could not make a good selection of informal mentor. There are novices who cannot find a teacher even in the whole region who is from the same field to provide support them. Instead of making the induction program run more efficiently, the administrators nearly undermined the entire operation of the process due to their demands that do not match with professional development. It is obvious that the seminars do not offer an interactive learning environment either as they merely include general topics to be discussed. Due to the lack of planning for off-school activities, novice teachers do not have opportunities to confide in their colleagues (Baran-Kaya, 2019).

Various studies have been conducted on free time, which has been seen as one of the most important factors that make New Zealand stands out with its induction program. Unlike the study of Aitken et al. (2008), Mansell (1996) and Piggot-Irvine et al. (2009) demonstrate that New Zealand novice teachers are given sufficient time. Haigh and Anthony (2012) explore how the opportunities discussed above, such as mentoring, collaboration, and free time, affect the professional development of novices in New Zealand. Their results show that induction training in New Zealand contributes to the development of novices in terms of knowledge, pedagogy, and classroom management. However, the conditions in the schools where those novices work may change the situation in terms of meeting their needs. An interesting finding is that while other teachers had the chance to visit their classrooms, they did not make these visits regularly because they thought it would be a burden. A major obstacle to classroom visits in Türkiye is that novices don't have time to visit the classrooms of other teachers and their mentors, and that the curriculum isn't planned according to those visit (Baran-Kaya, 2019; Kaygusuz, 2020). However, similar to the findings of Haigh and Anthony (2012), some of the novices who had this chance did not undertake classroom visits with the thought of burdening others (Baran-Kaya, 2019).

As opposed to many other countries, China and New Zealand view induction programs not as a way to retain novice teachers, but rather as a way to help them reach their potential (Fulton et al., 2005) and as an investment that will advance the learning of hundreds of thousands of students (Britton & Paine, 2005). In fact, it can be said that both programmes offer professional development

opportunities to novices and contribute to their professional development, although it has been observed that there are some deficiencies in their operations as discussed in some studies above. According to the results of some studies, Chinese novice teachers have been provided with opportunities primarily related to pedagogical content knowledge and their professional development reflects this. For example, Paine (1990) states that acquiring knowledge is a prerequisite for Chinese novice teachers, followed by personality traits and affective skills. It is inferred that knowledge development is given particular attention in New Zealand, albeit not as much as seen in China. Furthermore, Paine et al. (2003a; 2003b) state that the induction program in New Zealand goes beyond providing psychological and emotional support to novices, emphasizing the professional knowledge and skills they need to develop.

Following the discussion on China and New Zealand, the professional development opportunities that the induction program provides to novices in Germany and the professional development that takes place with the effect of these opportunities will be discussed with the studies conducted with German novice teachers. Richter et al. (2013) found most novices are provided with constructivist-oriented mentoring, which includes opportunities for reflection, trying new teaching methods, and making independent decisions. One-third of the participants in Blömeke et al.'s (2015) study demonstrate a strong knowledge base and beliefs. It is among the study results that it is mostly dependent on the school context. Blömeke and Klein (2013) also provide significant information about the impact of school management and school climate on becoming high-quality teachers. According to König et al. (2015), in the first three years of school, important skills such as interpreting instruction and making decisions develop. As a result of these three studies, it is possible to conclude that German novice teachers improve their knowledge and teaching skills during their initial years, but that the professional development of German novice teachers varies from school to school. Baran-Kaya's (2019) study indicates that no novice teacher states that they have made progress with field teaching knowledge, except for one novice among other Turkish novice mathematics teachers who states that they have a one-year experience and have improved their knowledge of the curriculum. Similar results can be found in the studies of Kutlu (2018) and Keleş (2019). Novices state that gaining experience increases their professional motivation and self-confidence (Baran-Kaya, 2019; Gülay & Altun, 2017) and contributes to their development in classroom management and order-setting (Baran-Kaya, 2019; Köse, 2016). It is possible to say that the induction program in Türkiye provides novices with knowledge of legislation, some personality traits, and classroom management skills. Opportunities to develop content-specific teaching knowledge are quite limited (Baran-Kaya, 2009; Güler, 2019).

Terhart (2007), on the other hand, approaches the German induction program, the *Vorbereitungsdienst*, critically. According to him, this stage is very tiring because novices feel insecure in their new positions. Despite the fact that they are expected to act as teachers in schools, they are still students in training seminars. This insecurity is felt both in the classrooms and in the teachers' room. Furthermore, novices' performance is not always based on accurate, clear, or consistent standards, as other people's initiatives also play a role. Aside from this, Terhart (2007) mentions that beginners can feel lonely in this process after they gain a position in a school to become a teacher. These negative effects that the researcher outlined regarding *Vorbereitungsdienst* also seem to affect novice mathematics teachers in Türkiye. The presence of excessive course-load and administrative responsibilities, as well as seminars on weekends, exhausts novice mathematics teachers (Baran-Kaya, 2019; Polat & Bakan, 2018). Yet, training seminars in Germany are held on a week day. Therefore, it can be inferred that novice teachers in Türkiye may be less fatigued than their peers in other countries because of the excess of course-loads and responsibilities. Similarly to Terhart (2007), some novice Turkish teachers also mention that they still feel like students (Baran-Kaya, 2019).

Table 5 summarizes the contributions of the induction process discussed above to novice teachers in each country.

Table 5

Contribution of induction programs to novice teachers in four countries

Countries	Contributions to novices
Türkiye	Even though there is extensive time allocated to in-class and in-school activities (284 hours), it is found that these activities are not practiced. That is, they have nearly no contribution to the teaching knowledge and pedagogical content knowledge. Induction process contributes to knowledge of legislation, classroom management, and personal development.
Germany	In postgraduate institutions providing teacher education, trainings are delivered for the teaching knowledge and pedagogical content knowledge. In addition, although the novices vary according to the school environment, they make progress in becoming quality teachers in terms of teaching knowledge and skills. In addition, the induction process contributes to the development of personal characteristics such as professional satisfaction and being more independent.
China	The induction programme comes to the forefront with its contribution to the development in the pedagogical content knowledge. In addition, education and professional ethics contribute to the development of personal characteristics.
New Zealand	Induction activities are carried out to improve the knowledge and skills of the novices. There are development opportunities for both novices and mentors in induction programmes.

3.4. Evaluation in the Induction Programs

After passing various assessments, the novices in the concerned countries will be able to become teachers or be eliminated. Mentors in New Zealand are primarily responsible for gathering information to move novices from provisional to full registration. The information collected by the mentor and the administrator is very important for full registration (Moore, 2014). However, this information requires official written records to document professional discussions, observations and feedback, critical reflections, and professional development (New Zealand Education Council, 2018). Evaluations are standards-based and regular. When a novice meets all six standards in professional knowledge, professional practice, and professional leadership and demonstrates that they are capable of providing high-quality instruction, they are granted full certification. In fact, they can serve for a maximum of six years with a temporary certificate (New Zealand Education Council, 2018). Although evaluations at the end of the New Zealand induction program are crucial for teachers to continue their careers, the induction policy is more support-oriented than assessment (Howe, 2006). In New Zealand, the evaluations at the end of the induction process are similar to those in Türkiye. Both countries use the information collected by the mentor and the administrator. In Türkiye, the program is based on whether the documents in the file are complete, whereas in New Zealand there are various standards and criteria based on professional knowledge and skills (Baran-Kaya, 2019). Additionally, although it is a criterion for evaluating Turkish novice teachers, it has been shown that the intensity of documentation is a barrier to their development as it is too time-consuming (Baran-Kaya, 2019; Dag & Sarı, 2017; İlyas et al., 2017; Kozikoglu & Soyalp, 2018; Nayır & Cetin, 2017; Ulubey, 2018; Yanık et al., 2016). Another obstacle standing in the way of a correct assessment in Türkiye is the lack of mentors from the same field as the novice who are competent enough to evaluate teaching, even if observations are made for assessment. This makes an effective assessment nearly impossible. Furthermore, the fact that no one is eliminated from the Turkish induction program indicates that it is merely a formality without any specific criteria (Baran-Kaya, 2019).

The assessment in Germany is much stricter than those in New Zealand and Türkiye. Novices are observed 10 times at the School Practices Training Centre and graded. Then, long-term performance evaluations are made (Landesprüfungsamt, 2011). After the end of the induction training, novices must pass the State Examination-II. Exam topics include educational theory,

education and civil service legislation, school administration, and sometimes sociological aspects of education. A written exam covers educational theory, pedagogical psychology, teaching knowledge specific to the discipline being taught, as well as evaluating teaching skills in a specific subject (KMK, 2017). Those who fail the State Examination-II may extend their induction period by another 6 months. In the event that they are unable to pass the exams at the end of this extended period, they will not be allowed to teach (Baki & Bektaş-Baki, 2016). The practice in Germany is similar to that in New Zealand in that it does not only aim to make an assessment. Rather, it emphasizes the field of action and the professional development of the teacher personality (Brinkmann & Kropp, 2012; Wehrhöfer, 2013). The Induction Removal Exam [IRE] in Türkiye is similar to the Second State Exam in Germany. Those who pass performance evaluations are eligible to take this exam. It consists of 100 multiple-choice tests, covering topics such as laws numbered 657 and 4483 (15%), the Ministry's organization, duties and legislation (30%), teaching practices (50%) and the History of Revolution and Kemalism (5%). In order to qualify, novices must achieve 60 out of 100 points (MoNE, 2018). The exam consists of 5% information about Revolution and Kemalism, and 45% information about legislation and laws. Teaching practices are given 50% weight. In this part, however, pedagogical content knowledge is not directly questioned. The test assesses novices' knowledge of classroom management, teaching methods and techniques, and planning education and training. Furthermore, there is no evaluation of teaching practices included in the course presentation, as in Germany. China, on the other hand, places great importance on the delivery of courses. Open course applications, such as report courses, are the courses in which novices can teach. Some states do not hire novice teachers who fail report courses. Some Chinese regions require novice teachers to teach at least one reporting course per semester, while others require four reporting courses per semester (Miao, 2009). Furthermore, all Chinese teachers must renew their teaching licenses every five years as part of the teacher education system. Therefore, assessment does not only apply to novice teachers. Through various internal and external evaluations, teachers reach different levels (Tan, 2013). Moreover, all teachers are required to receive 360 hours of training during their five-year tenure (X. Huang, 2018). However, Germany is criticized for not making professional development mandatory for novices to renew their education licenses after induction (Avenarius & Heckel, 2000), because once teachers are assigned to schools, there will be little support for teacher development or in-service training. This is one of the major concerns of the German teacher education system (Organisation for Economic Co-operation and Development [OECD], 2004). The absence of compulsory training or evaluations for renewals of teachers' teaching licenses in the following years of their career can also be viewed as a peril for the Turkish teacher education system. As a result, teachers are not obligated to refresh their knowledge and skills.

The teacher induction systems in Türkiye as well as in Germany, China, and New Zealand were discussed above. Despite the fact that induction systems in those three countries have become more prominent with their professional development programs, several studies have found some shortcomings. The implementation of induction programs is not a simple plug-and-play operation (Moir, 2009) and is not guaranteed to be trouble-free.

Lastly, Table 6 compares the induction process and novice teacher evaluation in four countries.

4. Conclusion

Compared to Türkiye, all countries that offer professional development opportunities during the induction process use examinations for teacher assignments, except for New Zealand. Master's degree holders in Germany are not required to take an exam to be appointed. All four countries require teachers to attend induction programs after being assigned as teachers. The duration of these programs varies, however. Chinese novices are paired with a mentor for 2-3 years beyond the one-year induction period in addition to a 2 year induction program in New Zealand, 12-24 months in Germany (depending on the state). An induction process lasts one year in Türkiye.

Table 6

Evaluation of novice teachers in induction programs

<i>Countries</i>	<i>Evaluation</i>
Türkiye	The evaluation involves the completion of all forms and documents from the induction period. The IRE exam, which focuses on more general topics, is also held. There is no clear definition of the evaluation criteria. Also, the progress of the novices is not tracked. In the context of teaching in the specialized area, there are no formative assessments. After their induction, no one is eliminated from the profession. Therefore, evaluations are tokenistic.
Germany	A major objective of induction training is to evaluate field-specific performance. Compared to the other three countries, the assessment is quite strict. As well as the scores that they receive from the observations, novices are also evaluated on their teaching practices on a subject of their choice. Additionally, they must pass a second state examination. It is possible for novices to take this exam twice. If they fail the second time too, they cannot teach.
China	By contributing to the development of pedagogical content knowledge, the induction program is at the forefront. In addition, education and professional ethics contribute to the development of personal characteristics.
New Zealand	A professional assessment is based on professional knowledge, practice, relationships, and leadership, and it relies on standards. Principals, especially mentors, play an active role in evaluation. For novices to move from temporary registration to full registration, official information is collected throughout their induction processes. Assessments are essential for continuing the profession.

According to the literature, induction programs of less than one year are considered limited, while those of one year or more are considered comprehensive. Hence, the Turkish program is limited in terms of its duration compared to the other three.

The three countries compared have mentoring practices similar to those in Türkiye. Due to the fact that mentors cannot be appointed from the same field, as well as their various negative characteristics and insufficient support for the novices, the mentoring practice in Türkiye does not work as effectively as it does in the other three countries. Despite some studies in the other three countries suggesting exceptions, it is known mentors assigned to novices come from the same fields as novices. In New Zealand, novices are assigned mentors who are not only from the same field working in the same school but also from the same field working in the same region. All countries engage in induction activities other than mentoring, such as observations and seminars. The Chinese induction system provides the most distinctive and diverse activities. Activities include TRGs, open courses, report courses, research courses, sample courses, and teaching competitions. The practice indicates that Chinese teachers' classrooms are always open to each other. Through observation of other teachers' classes and reflection meetings, this method aims to facilitate professional development. Notwithstanding the open courses that novices must deliver, they have the opportunity to observe other open courses and teaching competitions to see how different teaching practices are done. Chinese novice teachers also benefit from these after-class meetings related to teaching the specialized content. On the other hand, TRGs directly support novices in terms of teaching knowledge, since they usually consist of teachers who teach the same field and year level and involve continuous collaboration and planning. This has also been confirmed by studies examining novice teachers' professional development. In order to provide support to novice teachers, collaboration activities are also carried out in New Zealand. A mentor or fellow teacher from the same field and region, as well as an induction program coordinator, provide assistance to novice teachers. Moreover, school administrators hold regular meetings with novice teachers to keep them in touch. However, collaboration activities in New Zealand are not directly related to teaching of the specialized area, as they are in China. German teacher training institutions called *Studienseminare* provide novices with seminars in terms of pedagogical content

knowledge and pedagogical knowledge. There have been observations that these seminars are transfer-oriented seminars in which novices participate actively at times and remain as listeners at others. Several studies in Germany have demonstrated the effectiveness of seminars that involve active participation and reflection. In Türkiye, however, the teacher induction system emphasizes transfer rather than branch-specific topics, and the seminars include some liberal education topics as well. Additionally, most of the instructors delivering these seminars are not experts in the field at a university, but rather officials from the Ministry of National Education's regional directorates, and novice teachers have stated in various studies that these officials are not sufficiently competent to offer such training. Most seminars and workshops are field-related and given by university faculty members in China, Germany, and New Zealand. The program in Türkiye also includes seminars on general topics.

Based on the workload and free time of novices in these four countries, it would not be misleading to say that Türkiye lags behind. In other countries, there is a reduction in teaching loads and time allocated for induction activities, but in Türkiye, there is no improvement in the work load of novice and mentor teachers. The only concern novices in Türkiye have is not about the course load or the lack of free time. Additionally, they are concerned about the administrative tasks assigned to them by their schools, which are not in line with their professional development. In some cases, the hourly contract even subjected novices to pressure and intimidation. Therefore, novice teachers' professional development is not prioritized by the teacher induction system in practice. The studies focusing on novices' professional development in the other three countries have found that induction activities have a positive effect on novice teachers' knowledge of field teaching, especially in China. Additionally, researchers have noted that New Zealand and Germany offer professional development opportunities to novice teachers. The quality of opportunities, however, may vary depending on the school context. Despite some exceptions, it can be said that induction activities are generally successful in all investigated countries other than Türkiye.

When viewed in the context of evaluation criteria, it can be said that novice teachers in Türkiye are not evaluated based on their content-specific teaching practices, because mentors and novices are not matched well and there is no time allocated for observation and interviewing. Therefore, neither the evaluation process nor the criteria are effective and criterion-based. The other three countries have assessment standards that specifically address novices' knowledge and skills in their specialized area.

Acknowledgements. The manuscript was produced from the PhD dissertation of the first author completed at the Karadeniz Technical University under the supervision of the second author.

Author contributions: All authors are agreed with the results and conclusions.

Funding: No funding source is reported for this study.

Declaration of interest: No conflict of interest is declared by author.

References

- Aitken, H., Ferguson, B. P., McGrath, F., Piggot-Irvine, E. & Ritchie, J. (2008). *Learning to teach: Success case studies of teacher induction in Aotearoa New Zealand*. New Zealand Teachers Council.
- Aktekin, S. (2016). *Öğretmen yetiştirme ve geliştirme genel müdürü Doç. Dr. Semih Aktekin ile aday öğretmen yetiştirme süreci üzerine* [Candidate teacher training process with Assoc. Dr. Semih Aktekin, general manager of teacher training and development]. Retrieved June 22, 2021 from <https://tedmem.org/dosya-konusu/ogretmen-yetistirme-ve-gelistirme-genel-mudurudoc-dr-semih-aktekin-ile-aday-ogretmen-yetistirme-sureci-uzerine>
- Altıntaş, S. & Görgeç, İ. (2017). Preservice teachers' reviews on preservice teacher training system. *Turkish Studies*, 12(6), 15-30. <http://doi.org/10.7827/TurkishStudies.11559>
- Avenarius, H. & Heckel, H. (2000). *Schulrechtskunde: ein Handbuch für Praxis, Rechtsprechung und Wissenschaft* [School law: a handbook for practice, jurisprudence and science]. Luchterhand.

- Ayvaz-Düzyol, M. (2012). *The effectiveness of induction program for candidate teachers* [Unpublished master's thesis]. Middle East Technical University, Ankara.
- Baki, A. & Bektaş-Baki, B. (2016). Türkiye ve Almanya'nın ortaokul matematik öğretmeni yetiştirme programlarının karşılaştırması [Comparison of secondary school mathematics teacher training programs in Turkey and Germany]. *Turkish Journal of Computer and Mathematics Education*, 7(1), 229-258.
- Baran-Kaya, T. (2019). *Evaluation of novice elementary mathematics teachers' experiences in the induction program* [Unpublished doctoral dissertation]. Trabzon University, Trabzon.
- Beijaard, D., Buitink, J. & Kessels, C. (2010). Teacher induction. In P. Peterson, E. Baker, and B. McGraw (Eds.), *International Encyclopedia of education* (pp. 563- 568). Elsevier.
- Benade, L. (2017). *Being a teacher in the 21st century: A critical New Zealand research study*. Springer.
- Bereday, G. (1964). *Comparative method in education*. Rinehart & Winston.
- Bleach, K. (2012). *Induction and mentoring of newly qualified teachers: A new deal for teachers*. David Fulton Publishers.
- Blömeke, S. & Klein, P. (2013). When is a school environment perceived as supportive by beginning mathematics teachers? Effects of leadership, trust, autonomy and appraisal on teaching quality. *International Journal of Science and Mathematics Education*, 11(4), 1029-1048. <https://doi.org/10.1007/s10763-013-9424-x>
- Blömeke, S., Hoth, J., Döhrmann, M., Busse, A., Kaiser, G. & König, J. (2015). Teacher change during induction: Development of beginning primary teachers' knowledge, beliefs and performance. *International Journal of Science and Mathematics Education*, 13(2), 287-308. <https://doi.org/10.1007/s10763-015-9619-4>
- Bond, S. (2012). *Perceptions of support, induction, and intentions by secondary science and mathematics teachers on job retention* [Unpublished doctoral dissertation]. The University of North Carolina, Chapel Hill.
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27-40. <https://doi.org/10.3316/QRJ0902027>
- Bray, M. (2005). Methodology and focus in comparative education. In M. Bray and R. Koo (Eds.), *Education and society in Hong Kong and Macao* (pp. 239-252). Springer.
- Brinkmann, H. & Kropp, U. (2012). Der reformierte Vorbereitungsdienst: Die neue Staatsprüfung [The Reformed Preparatory Service. The new state exam]. *Schule NRW*, 63(3), 126-128.
- Britton, E. D. (2006). Mentoring in the induction systems of five countries: A sum greater than its parts. In C. Cullingford (Ed.), *Mentoring in education: An international perspective* (pp. 107-120). Ashgate Publishing.
- Britton, E. D., Paine, L., Pimm, D. & Raizen, S. (2003a). Introduction. In E. Britton, L. Paine, D. Pimm & S. Raizen (Eds.), *Comprehensive teacher induction* (pp. 20-82). Kluwer Academic Publishers.
- Britton, E., Raizen, S. & Huntley, M. A. (2003b). Help in every direction: Supporting beginning science teachers in New Zealand. In E. Britton, L. Paine, D. Pimm and S. Raizen (Eds.), *Comprehensive teacher induction* (pp. 141-193). Kluwer Academic Publishers.
- Britton, T. & Paine, L. (2005). Applying ideas from other countries. In H. Portner (Ed.), *Teacher mentoring and induction* (pp. 225-239). Corwin Press.
- Broadley G. & Broadley K. M. (2004). The employment styles of school principals recruiting beginning teachers. *Educational Research*, 46(3), 259-268. <https://doi.org/10.1080/0013188042000277322>
- Brundrett, M., Fitzgerald, T. & Sommefeldt, D. (2006). The creation of national programmes of school leadership development in England and New Zealand: A comparative study. *International Studies in Educational Administration*, 34(1), 89-105.
- Cai, J. & Wang, T. (2006). U.S. and Chinese teachers' conceptions and constructions of representations: A case of teaching ratio concept. *International Journal of Science and Mathematics Education*, 4, 145-186. <https://doi.org/10.1007/s10763-005-9006-7>
- Cai, J. & Wang, T. (2010). Conceptions of effective mathematics teaching within a cultural context: perspectives of teachers from China and the United States. *Journal of Mathematics Teacher Education*, 13, 265 - 287. <https://doi.org/10.1007/s10857-009-9132-1>
- Cakmak, M., Gunduz, M., & Emstad, A. B. (2019). Challenging moments of novice teachers: Survival strategies developed through experiences. *Cambridge Journal of Education*, 49(2), 147-162. <https://doi.org/10.1080/0305764X.2018.1476465>
- Cameron, M. (2007). *Learning to teach. A literature review of induction theory and practice*. New Zealand Teachers Council.
- Cameron, M., Baker, R. & Lovett, S. (2006). *Teachers of promise: Getting started in teaching*. New Zealand Council for Educational Research.

- Cameron, M., Dingle, R. & Brooking, K. (2007). *Learning to teach: A survey of provisionally registered teachers in Aotearoa New Zealand*. New Zealand Teachers Council.
- Carver, C. L. & Feiman-Nemser, S. (2009). Using policy to improve teacher induction: Critical elements and missing pieces. *Educational Policy*, 23(2), 295-328. <https://doi.org/10.1177/0895904807310036>
- Clement, M.C. (2000). Making time for teacher induction: A lesson from the New Zealand model. *The Clearing House*, 73(6), 329-330. <https://doi.org/10.1080/00098650009599437>
- Collinson, V. & Ono, Y. (2001). The professional development of teachers in the United States and Japan. *European Journal of Teacher Education*, 24(2), 223-248. <https://doi.org/10.1080/02619760120095615>
- Çepni, S. (2012). *Araştırma ve proje çalışmalarına giriş* [Introduction to research and project studies]. Celepler Matbaacılık.
- Çubukçu, Z., Yılmaz, B. Y. & İnci, T. (2016). Determination of comparative curriculum research trends - a content analysis. *International Journal of Turkish Literature Culture Education*, 5(1), 446-468.
- Dağ, N. & Sarı, M. H. (2017). Areas of mentoring needs of novice and preservice teachers. *International Electronic Journal of Elementary Education*, 10(1), 115-129. <https://doi.org/10.26822/iejee.2017131892>
- Decker, A. T., Kunter, M. & Voss, T. (2015). The relationship between quality of discourse during teacher induction classes and beginning teachers' beliefs. *European Journal of Psychology of Education*, 30(1), 41-61. <https://doi.org/10.1007/s10212-014-0227-4>
- Dewar, S., Kennedy, S., Staig, C. & Cox, L. (2003). *Recruitment and retention in New Zealand secondary schools: Information from a series of interviews, with a focus on beginning teachers, returning teachers, and heads of departments*. New Zealand Ministry of Education.
- Dias-Lacy, S. L. & Guirguis, R. V. (2017). Challenges for new teachers and ways of coping with them. *Journal of Education and Learning*, 6(3), 265-272.
- Erdemir, N. (2007). The problems and complaints faced by science teachers who are new in their profession. *Electronic Journal of Social Sciences*, 6(22), 135-149.
- European Commission. (2004). *The teaching profession in Europe: Profile, trends and concerns Report IV: Keeping teaching attractive for the 21st century*. Eurydice.
- Feiman-Nemser, S. (2001). From preparation to practice: Designing a continuum to strengthen and sustain teaching. *Teachers College Record*, 6(103), 1013-1055. <https://doi.org/10.1111/0161-4681.00141>
- Fresko, B., & Nasser-Abu Alhija, F. (2015). Induction seminars as professional learning communities for beginning teachers. *Asia-Pacific Journal of Teacher Education*, 43(1), 36-48. <https://doi.org/10.1080/1359866X.2014.928267>
- Friedrichsen, P., Chval, K. B. & Teuscher, D. (2007). Strategies and sources of support for beginning teachers of science and mathematics. *School Science and Mathematics*, 107(5), 169-181. <https://doi.org/10.1111/j.1949-8594.2007.tb17781.x>
- Fulton, K., Yoon, I. & Lee, C. (2005). *Induction into learning communities*. National Commission on Teaching and America's Future.
- Gellert, U. (2008). Routines and collective orientations in mathematics teachers' professional development. *Educational Studies in Mathematics*, 67(2), 93-110. <https://doi.org/10.1007/s10649-007-9089-x>
- Gerdes, R. & Annas-Sieler, D. (2011). *Der reformierte Vorbereitungsdienst. Neue Lehrerausbildung in NRW* [The Reformed Induction Program. New teacher training in NRW]. *Schule NRW*, 9, 454-457.
- Gordon, S. P. (1991). *How to help beginning teachers succeed*. Association for Supervision and Curriculum Development.
- Gökulu, A. (2017). Prospective teachers' views about the prospective teacher training process in Turkey. *International Journal of Social Sciences and Education Research*, 3(1), 111-123.
- Grudnoff, L. (2012). All's well? New Zealand beginning teachers' experience of induction provision in their first six months in school. *Professional Development in Education*, 38(3), 471-485. <https://doi.org/10.1080/19415257.2011.636894>
- Guo, S. & Pungur, L. (2008). Exploring teacher education in the context of Canada and China: A cross-cultural dialogue. *Frontiers of Education in China*, 3(2), 246-269. <https://doi.org/10.1007/s11516-008-0016-4>
- Gülay, A. & Altun, T. (2017). Determining perceptions of newly qualified teachers about their professional competencies and challenges. *Dicle University Ziya Gökalp Journal of Faculty of Education*, 31, 738-749.
- Güler, M. (2019). *A model proposal for developing teaching knowledge of novice middle-school mathematics teachers: mentoring practice program* [Unpublished doctoral dissertation]. Trabzon University, Trabzon.
- Güler, M., & Çelik, D. (2022). Supporting novice mathematics teachers: The impact of e-mentoring on lesson analysis skills. *Teaching and Teacher Education*, 113, 1-13. <https://doi.org/10.1016/j.tate.2022.103658>

- Haigh, M. A. & Anthony, G. J. (2012). Induction and efficacy: A case study of New Zealand newly qualified secondary science teachers. *Journal of Science Teacher Education*, 23(6), 651-671. <https://doi.org/10.1007/s10972-012-9285-0>
- Hamad, A. R. (2013). Comparative education on the map of teacher preparation programme in Kuwait. *College Student Journal*, 47(2), 292-305.
- Han, X. (2012). Big moves to improve the quality of teacher education in China. *On the Horizon*, 20(4), 324-335. <https://doi.org/10.1108/10748121211272461>
- Han, X. (2013). Improving classroom instruction with apprenticeship practices and public lesson development as contexts. In Y. Li and R. Huang (Eds.), *How Chinese teach mathematics and improve teaching* (pp. 171-185). Routledge.
- Han, X. & Paine, L. (2010). Teaching math as deliberate practice through public lessons. *Elementary School Journal*, 110(4), 519 - 541. <https://doi.org/10.1086/651194>
- Hangül, Ş. (2017). An evaluation of the new teacher induction program in Turkey through the eyes of beginning teachers. *Journal of Education and Practice*, 8(10), 191-201.
- Higgins, J., & Parsons, R. (2009). A successful professional development model in mathematics: A system-wide New Zealand case. *Journal of Teacher Education*, 60(3), 231-242. <https://doi.org/10.1177/0022487109336894>
- Howe, E. R. (2006). Exemplary teacher induction: An international review. *Educational Philosophy and Theory*, 38(3), 287-297. <https://doi.org/10.1111/j.1469-5812.2006.00195.x>
- Huang, J. (2018). *Pre-Service teacher education and induction in Southwest China*. Palgrave Macmillan.
- Huang, R., Li Y. & He, X. (2010) What constitutes effective mathematics instruction: A comparison of Chinese expert and novice teachers' views. *Canadian Journal of Science, Mathematics and Technology Education*, 10(4), 293-306. <https://doi.org/10.1080/14926156.2010.524965>
- Huang, R., Ye, L. & Prince, K. (2017). Professional development of secondary mathematics teachers in Mainland China. In B. Kaur et al. (Eds.), *Professional development of mathematics teachers* (pp. 17-31). Springer.
- Huang, X. (2018). *Teacher education in professional learning communities: Lessons from the reciprocal learning project*. Palgrave Macmillan.
- Ingersoll, R. M. (2007). *A comparative study of teacher preparation and qualifications in six nations*. University of Pennsylvania, Consortium for Policy Research in Education.
- Ingersoll, R. M., & Smith, T. (2003). The wrong solution to the teacher shortage. *Educational Leadership*, 60, 30-33.
- İlyas, İ. E., Coşkun, İ. & Toklucu, D. (2017). *Türkiye'de aday öğretmen yetiştirme modeli: İzleme ve değerlendirme* [Novice teacher training model in Turkey: Monitoring and evaluation]. SETA Pub.
- Jensen, B., Sandoval-Hernández, A., Knoll, S., & Gonzalez, E. J. (2012). *The experience of new teachers: Results from TALIS 2008*. OECD.
- Kaur, B., Kwon, O. & Leong, Y. (2017). *Professional development of mathematics teachers. Mathematics education: An Asian perspective*. Springer
- Kaygusuz, H. N. (2020). *Mentorship applications in professional development of prospective classroom teachers: A case study* [Unpublished master's thesis]. Alanya Alaaddin Keykubat University, Antalya.
- Keleş, F. (2019). *An investigation of the knowledge of mathematics teachers of primary school teachers* [Unpublished master's thesis]. Trabzon University, Trabzon.
- Kılıç, D., Babayiğit, Ö. & Erkuş, B. (2016). The views of teacher candidates about candidacy training. *Ekev Journal of Academy*, 20(68), 81-91.
- KMK. (2017). *The education system in the federal Republic of Germany 2015/2016*. Retrieved February 20, 2022 from https://www.kmk.org/fileadmin/Dateien/pdf/Eurydice/Bildungswesen-engl.pdfs/dossier_en_ebook.pdf
- Kocadağ, Y. (2001). *Training problems of trainee teachers on service* [Unpublished master's thesis]. Ankara University, Ankara.
- Kozikoğlu, İ. & Senemoğlu, N. (2018). Challenges faced by novice teachers: a qualitative analysis. *Journal of Qualitative Research in Education*, 6(3), 341-371.
- Kozikoğlu, İ. & Soyalp, H. (2018). Investigation of beginning teachers', mentor teachers' and school administrators' opinions about teacher induction program. *Hacettepe University Journal of Faculty of Education*, 33(4), 934-952. <http://doi.org/10.16986/huje.2018037027>
- König, J., Blömeke, S. & Kaiser, G. (2015). Early career mathematics teachers' general pedagogical knowledge and skills: do teacher education, teaching experience, and working conditions make a difference?.

International Journal of Science and Mathematics Education, 13(2), 331-350. <https://doi.org/10.1007/s10763-015-9618-5>

- Köse, A. (2016). Assessment of the candidate teachers training process according to the opinions of school administrators. *Abant İzzet Baysal University Journal of Faculty of Education*, 16(3), 924-944.
- Krüger, J. (2014). *Perspektiven pädagogischer professionalisierung: Lehrerbildner/-innen im vorbereitungsdienst für das lehramt an beruflichen schulen* [Perspectives of pedagogical professionalisation: teacher trainers in the preparatory service for teaching at vocational schools]. Springer.
- Kuhlee, D., van Buer, J. & Winch, C. (Eds.). (2015). *Governance in der lehrerausbildung: Analysen aus England und Deutschland / governance in initial teacher education: Perspectives on England and Germany* [Governance in Teacher Education: Analyzes from England and Germany / Governance in Initial Teacher Education: Perspectives on England and Germany.]. Springer.
- Kutlu, D. (2018). *Examination of the pedagogical content knowledge levels of novice secondary school mathematics teachers* [Unpublished master's thesis]. Karadeniz Technical University, Trabzon.
- Landesprüfungsamt. (2011). *Staatsprüfung für Lehrämter an Schulen. Ordnung des Vorbereitungsdienstes und der Staatsprüfung für Lehrämter an Schulen (OVP) from* <https://www.schulministerium.nrw.de/docs/Recht/LAusbildung/Vorbereitungsdienst/OVP.pdf>
- Langdon, F. (2011). Shifting perception and practice: *New Zealand beginning teacher induction and mentoring as a pathway to expertise. Professional Development in Education*, 37(2), 241-258. <https://doi.org/10.1080/19415257.2010.509658>
- Langdon, F. J., Alexander, P. A., Ryde, A. & Baggetta, P. (2014). A national survey of induction and mentoring: How it is perceived within communities of practice. *Teaching and Teacher Education*, 44, 92-105. <https://doi.org/10.1016/j.tate.2014.08.004>
- Lee, J. C. & Feng, S. (2007). Mentoring support and the professional development of beginning teachers: a Chinese perspective. *Mentoring & Tutoring*, 15(3), 243-262. <https://doi.org/10.1080/13611260701201760>
- Li, Y., & Huang, R. (2013). *How Chinese teach mathematics and improve teaching*. Routledge.
- Li, J. & Li, Y. (2013). The teaching contest as a professional development activity to promote classroom instruction excellence in China. In Y. Li and R. Huang (Eds.), *How Chinese teach mathematics and improve teaching* (pp.204-220). Routledge.
- Liang, S., Glaz, S., DeFranco, T., Vinsonhaler, C., Grenier, R. & Cardetti, F. (2013). An examination of the preparation and practice of grades 7-12 mathematics teachers from the Shandong Province in China. *Journal of Mathematics Teacher Education*, 16(2), 149-160. <https://doi.org/10.1007/s10857-012-9228-x>
- Lind, P. (2007). Preface. In M. Cameron (Ed.), *Learning to teach: A literature review of induction theory and practice* (p. i-ii). New Zealand Teachers Council.
- Long, J. S., McKenzie-Robblee, S., Schaefer, L., Steeves, P., Wnuk, S., Pinnegar, E., & Clandinin, D. J. (2012). Literature review on induction and mentoring related to early career teacher attrition and retention. *Mentoring and Tutoring: Partnership in Learning*, 20(1), 7-26. <https://doi.org/10.1080/13611267.2012.645598>
- Lovett, S. & Davey, R. (2009). Being a secondary English teacher in New Zealand: Complex realities in the first 18 months. *Professional Development in Education*, 35(4), 547-566. <https://doi.org/10.1080/19415250902879600>
- Ma, L. (1992). *Discussing teacher induction in China and relevant debates in the United States with a Chinese teacher: A conversation with Yu Yi (research report No: Craft Paper 92-2)*. The National Center for Research on Teacher Learning.
- Ma, L. (1999). *Knowing and teaching elementary mathematics: Teachers' understanding of fundamental mathematics in China and the United States*. Erlbaum.
- Mansell, R. (1996). *Professional development of beginning teachers. How does it work?* [Paper presentation]. New Zealand Association for Research in Education conference, Nelson, New Zealand.
- McBride, C. P. (2012). *Components of effective teacher induction programs and the impact of experienced mentors* [Unpublished doctoral dissertation]. University of Arkansas USA.
- Meschede, N., Fiebranz, A., Möller, K. & Steffensky, M. (2017). Teachers' professional vision, pedagogical content knowledge and beliefs: On its relation and differences between pre-service and in-service teachers. *Teaching and Teacher Education*, 66, 158-170. <https://doi.org/10.1016/j.tate.2017.04.010>
- Miao, J. (2009). *Beginning teacher induction at three elementary schools in China: A case study* [Unpublished doctoral dissertation]. Seton Hall University, USA.
- Ministry of Education [MoE] (2019). *Statistical report on China's vocational education in 2018*. Retrieved July, 15, 2019 from http://en.moe.gov.cn/documents/reports/201906/t20190605_384566.html
- Ministry of National Education [MoNE]. (1995). *Milli eğitim bakanlığı aday memurların yetiştirilmelerine ilişkin*

- yönetmelik [Ministry of National Education regulation on the training of candidate civil servants]. Retrieved July, 15, 2019 from <https://kms.kaysis.gov.tr/Home/Goster/45068?>
- Ministry of National Education [MoNE]. (2016a). Aday öğretmen yetiştirme sürecine ilişkin yönerge [Instruction on the induction process]. *Journal of Notifications*, 2456947.
- Ministry of National Education [MoNE]. (2016b). *Aday öğretmen yetiştirme programı* [Induction program]. Retrieved July, 15, 2019 from https://kirikkale.meb.gov.tr/meb_iys_dosyalar/2016_10/18125853_aday_ogretmen_yetistirme_program_i
- Ministry of National Education [MoNE]. (2018). *Adaylık kaldırma sınavı (AKS) e-kılavuzu* [E-guide for Candidate Removal Exam]. Retrieved July, 15, 2019 from http://oygm.meb.gov.tr/meb_iys_dosyalar/2018_11/06104059_9_ARALIK_2018_AKS_E-KILAVUZU.pdf
- Moir, E. (2009). Accelerating teacher effectiveness: Lessons learned from two decades of new teacher induction. *Phi Delta Kappan*, 91(2), 15-21. <https://doi.org/10.1177/003172170909100204>
- Moore, W. (2014). *Experiences of first-time mentor teachers in New Zealand primary schools* [Unpublished doctoral dissertation]. Auckland University of Technology, Auckland.
- Naillioğlu-Kaymak, M., & Sezgin, F. (2021). Advisor mentoring roles: Opinions of candidate and advisor teachers in the candidate teacher training process. *Gazi University Journal of Faculty of Education*, 41(1), 307-345.
- Nayır, F. & Çetin, S. K. (2017). Opinions of teacher candidates on mentor teacher program (example of Muğla). *Journal of Education and Future*, 12, 137-155.
- New Zealand Education Council. (2015). *Graduating teacher standards: Aotearoa New Zealand*. Ministry of Education.
- New Zealand Education Council. (2018). *Moving on with code of professional responsibility and standards for the teaching profession. Workshop resource book 2017-2018*. New Zealand Education Council.
- New Zealand Teachers Council. (2011). *Guidelines for induction and mentoring and mentor teachers*. New Zealand Education Council.
- Organisation for Economic Co-operation and Development [OECD]. (2004). *Attracting, Developing and Retaining Effective Teachers*. Country Report.
- Özan, M. B. & Nanto, Z. (2018). Views of school principals about the candidate teachers training process. *Kırıkkale University Journal of Social Sciences*, 8(1), 187-202.
- Özen, H., Kiliçoğlu, G., & Kiliçoğlu, D. Y. (2019). Pre-service teachers' views on pre-service teacher training program: a qualitative research. *Marmara University Atatürk Education Faculty Journal of Educational Sciences*, 49(49), 99-120.
- Özonay, İ. Z. (2004). *Evaluation of teachers' induction training program* [Paper presentation]. 13th Annual National Educational Sciences Congress, İnönü University.
- Paine, L. W. (1990). The teacher as virtuoso: A Chinese model for teaching. *Teachers College Record*, 92(1), 49-81. <https://doi.org/10.1177/016146819009200105>
- Paine, L. W., Pimm, D., Britton, E., Raizen, S. & Wilson S. (2003a). Rethinking induction: Examples from around the world. In M. Scherer (Ed.), *Keeping good teachers* (pp. 67-80). Association for Supervision and Curriculum Development.
- Paine, L. W., Fang, Y. & Wilson, S. (2003b). Entering a culture of teaching: Teacher induction in Shanghai. In E. Britton, L. W. Paine, D. Pimm, and S. Raizen (Eds.), *Comprehensive teacher induction: Systems for early career learning* (pp. 20-82). Kluwer Academic Publishing.
- Paine, L. W. & Schwille, J. R. (2010). Teacher induction in international contexts. In J. Wang, S. J. Odell, & R. T. Clift (Eds.), *Past, present and future research on teacher induction: An anthology for researcher, policy makers and practitioners* (pp. 31-44). Rowman and Littlefield.
- Piggot-Irvine, E., Aitken, H., Ritchie, J., Ferguson, P. B. & McGrath, F. (2009). Induction of newly qualified teachers in New Zealand. *Asia-Pacific Journal of Teacher Education*, 37(2), 175-198. <https://doi.org/10.1080/13598660902804030>
- Polat, Ş., & Bakan, S. (2018). *Counselor teacher opinions on the candidate teacher training process* [Paper presentation]. Turkey Graduate Studies Congress, Burdur.
- Preus, B. (2007). Educational trends in China and the United States: proverbial pendulum or potential for balance?. *Phi Delta Kappan*, 89(2), 115-118. <https://doi.org/10.1177/003172170708900207>
- Renwick, M. (2001). *Support for beginning teachers*. Ministry of Education.
- Richter, D., Kunter, M., Klusmann, U., Lüdtke, O. & Baumert, J. (2011). Professional development across the

- teaching career: Teachers' uptake of formal and informal learning opportunities. *Teaching and Teacher Education*, 27(1), 116-126. <https://doi.org/10.1016/j.tate.2010.07.008>
- Richter, D., Kunter, M., Lüdtke, O., Klusmann, U., Anders, Y. & Baumert, J. (2013). How different mentoring approaches affect beginning teachers' development in the first years of practice. *Teaching and Teacher Education*, 36, 166-177. <https://doi.org/10.1016/j.tate.2013.07.012>
- Robinson, G. W. (1998, October). *New teacher induction: A study of selected new teacher induction models and common practices* [Paper presentation]. Annual Meeting of the Midwestern Educational Research Association, Chicago.
- Salleh, H. & Tan, C. (2013). Novice teachers learning from others: Mentoring in Shanghai schools. *Australian Journal of Teacher Education*, 38(3), 10.
- Sarı, M. H. & Altun, Y. (2015). Problems faced by beginning primary education teachers. *Hacettepe University Journal of Faculty of Education*, 30(1), 213-226.
- Scherer, M. (1999). *A better beginning: Supporting and mentoring new teachers*. Association for Supervision and Curriculum Development.
- Schleppenbach, M., Flevaras, L., Sims, L. & Perry, M. (2007). Teachers' responses to student mistakes in Chinese and U.S. mathematics classrooms. *The Elementary School Journal*, 108(2), 131-147. <https://doi.org/10.1086/525551>
- Schwille, J., Dembélé, M. & Schubert, J. G. (2007). *Global perspectives on teacher learning: Improving policy and practice*. UNESCO, International Institute for Educational Planning.
- Solak, İ. (1999). *Aday öğretmenlerin yetiştirilmelerine ilişkin yönetmelikte öngörülen uygulamalı eğitimin değerlendirilmesi* [Evaluation of the applied training stipulated in the regulation on the training of novice teachers] [Unpublished master's thesis]. İnönü University, Malatya.
- Stephens, M., and J. Moskowitz. (1997). Teacher induction policy and practice among APEC members: Results of the exploratory survey. In J. Moskowitz and M. Stephens (Eds.), *From students of teaching to teachers of students: Teacher induction around the Pacific Rim* (pp. 169-183). Department of Education.
- Tan, C. (2013). *Learning from Shanghai: Lessons on achieving educational success*. Springer.
- Tavukçuoğlu, E. (2021). Opinions of prospective teachers on out-of-school activities and in-service trainings within the prospective candidate teacher training course. *World Journal of Multidisciplinary Research*, 4(1-2), 75-86.
- Terhart, E. (2007). Teacher induction in Germany: traditions and perspectives. In M. V. Zuljan and J. Vogrinč (Eds.), *Professional inductions of teachers in Europe and elsewhere* (pp. 154-166). University of Ljubljana.
- Topsakal, C. & Duysak, A. (2017). Opinions of candidate teachers and other stakeholders related to the candidate teacher training process. *Sakarya University Journal of Education*, 7(3), 625-638.
- Tunçbilek, M. M. & Tünay, T. (2017). Percieve of relevant parties to candidate teacher training process of ministry of national education in Turkey. *Electronic Journal of Social Sciences*, 16(61), 412-427.
- Ulubey, Ö. (2018). Evaluation of novice teacher training program. *Hacettepe University Journal of Faculty of Education*, 33(2), 480-502.
- Wang, C. (2018). Analysing teachers' expertise, resources and collective work throughout Chinese and french windows. *Ensino da Matemática em Debate*, 5(3), 367-382.
- Wang, J. (2001). Contexts of mentoring and opportunities for learning to teach: A comparative study of mentoring practice. *Teaching and Teacher Education*, 17(1), 51-73. [https://doi.org/10.1016/S0742-051X\(00\)00038-X](https://doi.org/10.1016/S0742-051X(00)00038-X)
- Wang, J. & Paine, L. (2001). Mentoring as assisted performance: A Pair of Chinese teachers working together. *The Elementary School Journal*, 102(2), 157 - 181. <https://doi.org/10.1086/499698>
- Wang, J., Strong, M. & Odell, S. J. (2004) Mentor-novice conversations about teaching: a comparison of two U.S. and two Chinese cases. *Teachers College Record*, 106(4), 775-813.
- Wehrhöfer, U. (2013). Lehrerausbildungsreform in Nordrhein-Westfalen gut gestartet! Zwischenbilanz und Perspektive [Teacher training reform in North Rhine-Westphalia started well! Interim result and perspective]. *Schule NRW*, 11, 6-9.
- Weiss, E. M. & Weiss, S. G. (1999). *Beginning teacher induction*. ERIC Clearinghouse on Teaching and Teacher Education.
- Wong, H. K. (2002). Induction: The best form of professional development. *Educational Leadership*, 59(6), 52-55.
- Wong, H. K. (2005). *New teacher induction: The foundation for comprehensive, coherent, and sustained professional development*. Corwin Press.
- Wong, H. K., Britton, T. & Ganser, T. (2005). What the world can teach us about new teacher induction. *Phi*

- Delta Kappan, 86(5), 379-384. <https://doi.org/10.1177/003172170508600509>
- Wood, A. L. & Stanulis, R. N. (2009). Quality teacher induction: "Fourth-wave" (1997- 2006) induction programs. *The New Educator*, 5(1), 1-23. <https://doi.org/10.1080/1547688X.2009.10399561>
- World Bank. (2009). *Induction programs for newly trained teachers*. Author.
- Yanık, H. B., Bağdat, O., Gelici, Ö. & Taştepe, M. (2016). The challenges facing beginning middle school mathematics teachers. *Mustafa Kemal University Journal of Institute of Social Sciences*, 13(36), 130-152.
- Yang, Y. (2009). How a Chinese teacher improved classroom teaching in teaching research group: A case study on Pythagoras theorem teaching in Shanghai. *ZDM*, 41(3), 279-296. <https://doi.org/10.1007/s11858-009-0171-y>
- Yetkiner, A. & Bıkmaz, F. (2019). Novice teachers' views on induction practices in Turkey. *International Journal of Curriculum and Instructional Studies*, 9(1), 73-104. <https://doi.org/10.31704/ijocis.2019.005>
- Yıldırım, M. (1997). *Aday öğretmenleri yetiştirme programının uygulanmasında karşılaşılan sorunlar* [Problems encountered in the implementation of the candidate teacher training program] [Unpublished master's thesis]. İnönü University, Malatya.
- Yılmaz, M. (2017). Problems encountered during candidate teacher training and suggested solutions. *Education and Society in the 21st Century: Journal of Educational Sciences and Social Research*, 6(16), 135-155.
- Zhang, M., Ding, X., & Xu, J. (2016). Developing Shanghai's teachers: Teacher quality systems in top performing countries. National Center on Education and the Economy.
- Zhou, Z., Peverly, S. T. & Xin, T. (2006). Knowing and teaching fractions: A cross-cultural study of American and Chinese mathematics teachers. *Contemporary Educational Psychology*, 31(4), 438-457. <https://doi.org/10.1016/j.cedpsych.2006.02.001>