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PROFESSIONAL DEVELOPMENT OF NOVICE TEACHERS: A REVIEW OF INTERNATIONAL EXPERIENCE

Abstract

The professional development of novice teachers plays a crucial role in shaping educational quality and student outcomes. This study examines teacher preparation and professional development systems in high-performing education systems, focusing on mentoring, structured induction, and career progression. Using a comparative approach, the research analyzes the distinct strategies employed in different national contexts and identifies key elements that contribute to teacher effectiveness and retention. The study highlights the importance of combining academic training with practical experience, ensuring rigorous selection criteria, and providing sustained professional support for novice teachers. The findings offer insights into best practices that can be adapted to improve teacher development policies, particularly in education systems undergoing reform. By contextualizing international models, this study contributes to the broader discourse on teacher education and provides evidence-based recommendations for strengthening teacher professional development. The research underscores the need for systematic and sustainable approaches to enhance teacher preparedness, ultimately supporting long-term improvements in teaching quality and educational outcomes.

Keywords: novice teachers, professional development, induction programs, mentoring, teacher education, pre-service.

Introduction. The professional development of novice teachers is a cornerstone of global educational excellence. As the quality of teaching directly influences student outcomes, effective strategies for supporting novice educators are essential for building robust educational systems (Darling-Hammond et al., 2017). High-performing nations such as Singapore, Japan, and Canada provide compelling examples of how systematic approaches to teacher development can enhance teaching efficacy and long-term professional growth. This study explores their practices, which are shaped by distinct cultural, historical, and socio-economic contexts, yet share common elements like mentoring programs, collaborative learning environments, and reflective practices (Ingersoll & Strong, 2011). Japan exemplifies a structured approach to novice teacher support through robust mentoring programs and consistent supervision. Research highlights the role of personalized digital tools and continuous guidance in facilitating the professional growth of Japanese teachers (Doig & Groves, 2011). Similarly, Singapore is renowned for its comprehensive teacher development system, which integrates mentorship with a culture of lifelong learning. Canada, on the other hand, emphasizes research-based teacher education programs. Comparative studies reveal that Canadian teacher educators adopt specialized knowledge frameworks and prioritize research-based pedagogy, further underscoring the diversity in teacher development strategies globally (Clandinin et al., 2018). Amid these international benchmarks, Kazakhstan emerges as a unique case study, undergoing transformative educational reforms aimed at addressing critical challenges such as teacher

shortages and disparities in teaching quality. Despite substantial efforts, the professional development system for novice teachers in Kazakhstan remains underexplored, making this research particularly timely. By examining global best practices, this study seeks to identify actionable strategies to enhance novice teacher support in Kazakhstan, contributing to the country's broader educational reform agenda.

A key focus of this research is bridging the gap in understanding how mentorship and reflective practices can be tailored to Kazakhstan's specific socio-economic and cultural context. While successful teacher development systems share universal elements, this study highlights the need for localized adaptations to achieve sustainable improvements. Furthermore, the absence of a unified theoretical framework for mentoring, coupled with variations in its implementation and evaluation, underscores the challenges novice teachers face as they transition into professional practice (Hobson et al., 2009). The present research aims to analyze and compare professional development systems for novice teachers in Singapore, Japan, and Canada, offering evidence-based recommendations for Kazakhstan. By drawing from international examples and addressing research gaps, this study seeks to develop a systematic approach for enhancing teacher adaptation processes in Kazakhstan. This research underscores the novelty of incorporating global best practices into Kazakhstan's educational landscape and emphasizes its potential to contribute to global discourse on effective teacher development.

Materials and Methods. The present study undertakes a comparative education research project using Bereday's (1964) juxtaposition method, a widely acknowledged approach in the field of comparative education. This model offers a structured and systematic framework for analyzing the complexities of educational systems in diverse contexts. What sets Bereday's model apart is its ability to bridge disciplines, drawing on insights from anthropology, history, sociology, and political science (Adick, 2018). This interdisciplinary perspective enriches the analysis by situating educational practices within broader societal frameworks, often uncovering deeper principles and patterns that might otherwise go unnoticed. For example, historical trends and cultural values significantly shape teacher development systems, influencing both the structure of training programs and the professional expectations placed on educators. In this study, the juxtaposition method enables a parallel examination of teacher development systems in Singapore, Japan and Canada, three countries renowned for their distinctive and highly effective approaches to education. By aligning key aspects across these systems, the method allows for a detailed exploration of shared characteristics as well as unique strategies. The study organizes data into comparable categories, such as pre-service teacher training requirements, admission criteria for teacher education programs, induction practices for newly trained educators, and ongoing professional development initiatives (Bingham et al., 2019). This classification respects the unique contexts of each country while enabling meaningful comparison.

For data collection, the study employed qualitative document analysis, a method that involves examining written records to gain insights into specific facts and phenomena (Bayar, 2014). Following Bereday's (1964) comparative framework, the literature was classified into three types: primary, secondary, and auxiliary sources. Primary sources included official reports from governmental and public institutions, legislative records, conference proceedings, public opinion publications, and other key documents. For this research, great care was taken to identify and review primary sources, which included materials from the official websites of the Ministries of Education in the selected countries, data from the OECD portal, peer-reviewed journal articles, and related academic studies. A structured four-step process was used to collect and review documents, as outlined in Figure 1:

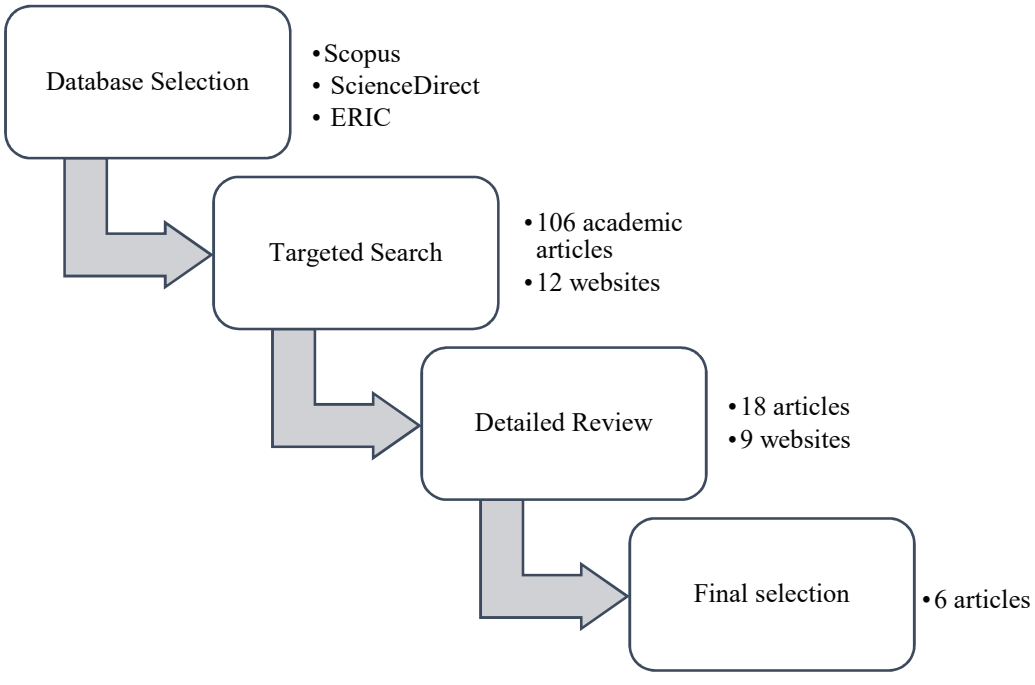

Figure 1: Data selection process

The first step involved selecting suitable databases, such as Scopus, ScienceDirect, and ERIC. Searches also included reputable websites from non-governmental organizations, verified information platforms, and official national resources related to educational systems and policies. Pre-determined keywords were used to perform targeted searches within these databases (Table 1).

Table 1. *Keywords and databases*

Keywords		Professional Development of teachers in Japan/Singapore/Canada, Teacher Training in Japan/Singapore/Canada
Database	Academic	Scopus, Science direct, ERIC
	Websites	European Commission, United Nations Educational, Scientific and Cultural Organization (UNESCO), Encyclopaedia Britannica, Ministry of educations, The Organisation for Economic Co-operation and Development (OECD), United Nations Development Programme (UNDP), United Nations (UN), National Center on Education and the Economy (NCEE European Commission, United Nations Educational, Scientific and Cultural Organization (UNESCO), Ministry of Educations (MoE), The Organization for Economic Co-operation and Development (OECD), United Nations Development Programme (UNDP), United Nations (UN), National Centre for Entrepreneurship in Education (NCEE)

The initial search yielded 106 academic articles and 12 websites with potentially relevant information. The next step was to filter the articles and documents based on criteria such as open access availability, relevance to the social sciences, year of publication (from 2005 onward), and access to full-text versions. After this process, 18 articles and 9 websites were shortlisted for further evaluation. A detailed review of the shortlisted materials resulted in the final selection of six journal articles that provided comprehensive insights into teacher

professional development in Singapore, Japan and Canada. The analysis of these documents involved a systematic content review, with findings carefully organized using content analysis methods. Internationally recognized data sources, such as those from the OECD and PISA, were also incorporated to ensure reliability and a broader perspective.

Results. Pre-service teacher training systems vary significantly across countries, each with unique pathways for individuals aspiring to become teachers. However, there are several commonalities in the training processes in countries like Singapore, Japan and Canada in Table 2 below.

Table 2. *Pre-service teacher training systems*

Country	Pre-Service Teacher Training	Degree/Certification	Institutions
Singapore	Centralized (NIE)	University degree, specialized	National Institute of Education (NIE)
Japan	Open System/University Degree (Bachelor's degree, Master degree)	Bachelor's/Master's, certified	Universities, training institutions
Canada	Bachelor's degree + B.Ed.	Bachelor's + B.Ed., certification	Universities, provincial regulators

In Canada, pre-service teacher training typically begins after a candidate has completed a Bachelor's degree in a relevant field, such as arts or science. Candidates then pursue a Bachelor of Education (B.Ed.) degree, which is a mandatory one- to two-year program that prepares them for teaching at the primary or secondary school level (Nuland, 2011). This program includes both academic coursework and practical teaching experience through practicum placements. Upon graduation, teacher candidates must obtain certification from the provincial or territorial regulatory body, which may involve additional requirements like passing exams or a background check. Japan, in contrast, offers more flexibility in the pathways to teaching. While individuals can pursue a university degree in education to work as teachers, there is also an alternative route through certified training programs. These programs are available through various institutions and are aimed at individuals from diverse fields who wish to become early childhood or primary school teachers. Additionally, graduates from university faculties of education can qualify to teach at the primary and secondary school levels. Japan's open system allows people from a range of academic backgrounds to transition into teaching careers through certification programs (National Institute for Educational Policy Research [NIER], 2013). In Singapore, all teachers are required to obtain a university degree, specifically through the National Institute of Education (NIE, 2013), which is part of Nanyang Technological University. The NIE offers a variety of teacher training programs for early childhood, primary, and secondary school teachers, ensuring that all teachers meet the same high standards of education and training (Bautista, 2015; NIE, 2013).

The induction processes for graduates from teacher training programs in Singapore, Japan, and Canada show notable differences. In Japan, teacher candidates must pass a series of rigorous examinations that evaluate their language proficiency, writing skills, classroom management abilities, and understanding of psychology, pedagogy, and teaching methods (NIER 2013; Orakçı 2015). The assessment systems in Japan and Singapore share similarities as they both target skills like language, teaching, and classroom management. However, Japan takes an additional step by placing novice teachers under a one-year probationary period, during which their performance is carefully evaluated (Tonga et al., 2022). Table 3 below provides a comparative overview of the induction processes in these countries.

Table 3. *The induction processes for novice teachers in Singapore, Japan, and Canada*

Aspect	Japan	Singapore	Canada
Entrance Exams	Exams (language, classroom management, psychology, pedagogy, teaching methods).	No exams	No exams
Induction Duration	One-year probation, evaluation	No probation, direct MOE hire	1–2 years, mentorship focus
Support for Novice Teachers	Evaluation in probation	Scholarships, salaries for pre-service	Structured induction, resources, learning, partnerships

In contrast to Japan, both Singapore and Canada implement quota systems to regulate the number of individuals admitted to teacher training programs. This approach ensures a balance between the number of teachers entering the profession and the actual demand for their services. Unlike Japan, where aspiring teachers must pass additional examinations before commencing their careers, Singapore and Canada adopt less exam-focused pathways into teaching (Tonga et al., 2022; Orakçı, 2015). In Singapore, the Ministry of Education (MoE, 2014) plays a central role by offering scholarships and competitive salaries to pre-service teachers during their training. Novice teachers are directly employed by the MOE without the need for induction exams, streamlining their transition into the workforce (Orakçı, 2015). Canada's approach emphasizes professional growth and career development for new teachers, with comprehensive support systems designed to help them adjust to school environments and refine their teaching skills. Provincial induction programs, such as Ontario's New Teacher Induction Program (NTIP), last one to two years and focus on integration into the school culture, effective classroom management, and the improvement of teaching strategies. These programs combine mentorship, professional learning opportunities, and access to resources, ensuring that new teachers receive structured support for a smoother transition into their roles. This collaborative approach, involving universities, schools, and educational authorities, promotes continuous professional development and enhances the quality of education through teacher growth.

A key distinction among these countries lies in the duration and design of their induction periods. Japan's system requires teacher candidates to pass multiple examinations to secure employment, reflecting its emphasis on rigorous entry requirements. In contrast, Singapore and Canada focus on managing teacher supply and demand, opting for flexible and supportive induction systems that avoid additional exam requirements. This strategy allows for a broader and more diverse applicant pool for teacher training programs, enabling the selection of highly skilled and motivated candidates. Ultimately, this enhances the quality of teacher training and elevates the status of the teaching profession in both countries. When comparing the professional development systems for novice teachers in Singapore, Japan, and Canada, both similarities and differences emerge (Zhang, 2024). Each country underscores the value of structured in-service education, mentorship, and opportunities for professional growth. Table 4 summarizes key aspects of the professional development systems across these three countries:

Table 4. *The key aspects of the professional development (PD) systems for novice teachers in Singapore, Japan, and Canada*

Aspect	Japan	Singapore	Canada
In-service Education	Mentoring, In- service Training	In- service Training, Higher Education	Mentoring, In- service Training

Mentoring System	Assigned mentor, collaboration	Part of training, mentorship options	Experienced mentors (1–2 years)
Mentoring Duration	1 year (60 days in-school, 30 out-of-school)	Variable, program-based	1–2 years (province/district-based)
In-school Training	Schools + additional NIE courses	60 days with mentor	Provided by school mentors

Both Japan and Canada implement mentoring systems for novice teachers, although their approaches differ significantly in structure and emphasis. In Canada, new teachers are paired with experienced mentors, often within the same subject area, for a period that varies from one to two years depending on the province or district. These mentors provide support in lesson observation, feedback, teaching strategies, and assessment practices (Kutsyuruba, 2024). The mentoring process is closely monitored by school principals, who ensure that both mentors and novice teachers achieve their objectives (NTIP, 2022). By contrast, Japan integrates mentoring into a mandatory, comprehensive one-year in-service education program. This program includes 60 days of in-school training under a mentor teacher and 30 days of out-of-school education. Emphasizing collaboration, lesson planning, and mutual observation, Japan's system fosters a hands-on and integrative learning environment for novice teachers (OECD, 2016). Singapore takes a slightly different approach by offering extensive in-service education opportunities for novice teachers through its National Institute of Education (NIE, 2013). These resources include courses, conferences, forums, and seminars organized by the Ministry of Education through its Network of Teachers. Additionally, the NIE collaborates with the Ministry to provide scholarships that enable teachers to pursue advanced education, either locally or abroad. Singapore's career step system, as described by Vázquez et.al. (2024), offers teachers a choice of three distinct career paths—teaching, leadership, or expertise. Each path comes with opportunities for promotion and salary increases based on professional evaluations that consider practice, leadership capabilities, and qualifications (NIE, 2013). In Japan, out-of-school education complements in-school training with programs provided by universities and non-governmental organizations, enriching the professional growth of novice teachers (Admiraal et.al, 2024). Singapore, however, provides teachers with unparalleled opportunities to pursue advanced degrees, such as master's and doctoral programs, while continuing to receive their salaries. This is a unique feature not typically available in Japan or Canada, where in-service training focuses more on skill enhancement than on pursuing higher education qualifications (Tonga et.al, 2022).

Discussion. The comparative analysis of pre-service teacher training and professional development systems in Singapore, Japan, and Canada reveals both common priorities and distinct differences in preparing and supporting educators. While each country operates within unique socio-political and educational contexts, their shared commitment to high-quality teacher training and continuous professional growth aligns with existing research on effective teacher development (Darling-Hammond, 2017; Ingersoll & Strong, 2011). However, the specific strategies used to implement these objectives differ based on national priorities, educational philosophies, and systemic needs.

A key similarity across the three countries is the integration of academic preparation with practical training. Research indicates that combining theoretical coursework with hands-on experience significantly enhances teacher competence and classroom readiness (Bautista et al., 2015). Singapore achieves this through its centralized National Institute of Education (NIE, 2013), ensuring consistent training quality aligned with national educational goals. Japan adopts a more flexible system, offering teacher training through both university degrees and alternative certification pathways, which reflects broader trends in teacher education that emphasize diverse entry routes (NIER, 2013). Canada follows a sequential model, where

candidates complete a general bachelor's degree before entering a Bachelor of Education (B.Ed.) program. This sequential structure is in line with studies that highlight the benefits of staged professional training, allowing candidates to develop subject-matter expertise before focusing on pedagogical skills (Kutsyuruba & Walker, 2024). Significant differences emerge in the induction processes for novice teachers. Japan enforces a rigorous selection process that includes multiple exams in pedagogy, language proficiency, and classroom management, followed by a one-year probationary period with structured mentoring (Tonga et al., 2022). This approach aligns with research on teacher quality assurance, which emphasizes structured evaluations—including standardized assessments, classroom observations, and performance appraisals—as key mechanisms for maintaining high professional standards (OECD, 2016). Japan's model, which incorporates multiple subject-matter and pedagogical exams, followed by a one-year probationary period with structured mentorship, exemplifies this framework by ensuring that only candidates who meet rigorous competency benchmarks enter the profession. Studies have shown that countries with high-stakes teacher certification exams often experience a correlation between stringent selection processes and improved instructional quality (Han et al., 2020). In contrast, Singapore places less emphasis on examinations and more on financial incentives, scholarships, and direct employment by the Ministry of Education. Singapore leverages financial incentives and career pathways to attract and retain high-quality teachers, a strategy supported by research indicating that well-structured financial incentives can improve teacher motivation and long-term commitment to the profession (OECD, 2018; Orakçı, 2015). Studies have shown that financial incentives, when combined with clear career progression opportunities, lead to higher job satisfaction and reduced attrition rates (Podolsky et al., 2019). This contrasts with Japan's model, which prioritizes rigorous selection and structured mentorship, aligning with research that emphasizes professional support over monetary incentives as a driver of teacher effectiveness (Tonga et al., 2022). Canada, with its decentralized model, balances financial and non-financial incentives, underscoring findings that flexible support systems tailored to regional needs can enhance professional development outcomes (Zhang, 2024). Canada prioritizes mentorship and gradual professional integration through structured induction programs, such as Ontario's New Teacher Induction Program (NTIP), which provides targeted mentorship and support (NTIP, 2022). This approach is consistent with research suggesting that sustained mentorship improves teacher retention and job satisfaction (Admiraal et al., 2024).

Regarding ongoing professional development, all three countries recognize the importance of mentoring and in-service training, but their approaches differ in scope and structure. Japan mandates a structured mentoring program within a compulsory one-year in-service education framework, emphasizing collaboration through lesson planning, observation, and feedback (OECD, 2016). This aligns with studies that highlight the benefits of structured mentoring in enhancing teaching efficacy (Kutsyuruba & Walker, 2024). Singapore, on the other hand, integrates professional development with career progression, allowing teachers to pursue advanced degrees while receiving financial support. This incentive-driven model reflects research findings on the effectiveness of career-ladder frameworks in improving teacher motivation and performance (Vázquez et al., 2024). Canada fosters collaboration among schools, universities, and regulatory bodies, providing professional learning opportunities at the provincial level. This decentralized approach aligns with studies that advocate for flexible, regionally tailored professional development systems (Zhang, 2024).

These findings contribute to the broader discourse on teacher development by demonstrating how distinct policy mechanisms influence teacher effectiveness, retention, and professional growth. Unlike previous studies that analyze teacher training and induction in isolation, this research provides a comprehensive cross-national comparison, revealing how

systemic differences shape professional outcomes. The study offers novel insights into the balance between centralized and decentralized teacher development approaches, showing that while structured mentorship (Japan), financial incentives (Singapore), and decentralized professional learning (Canada) each enhance teacher preparedness, their long-term impact varies based on national policy frameworks. These findings are particularly valuable for emerging education systems, such as Kazakhstan, where policymakers can draw on international best practices to design contextually relevant teacher development models. Future research could further examine the long-term impact of these models on teacher retention and student learning outcomes, particularly by investigating how sustained mentorship, financial incentives, and structured evaluation systems contribute to professional growth and job satisfaction. Specifically, longitudinal studies could explore how mentorship duration and intensity affect teacher effectiveness over time, whether financial incentives retain educators beyond the initial years, and how structured evaluation systems improve instructional quality (Liu & Johnson, 2021). Comparative longitudinal studies could provide deeper insights into which elements of these frameworks are most effective in enhancing teacher effectiveness and reducing attrition rates.

Conclusion. The study contributes to the literature by identifying key similarities and differences in teacher preparation and professional development systems in Singapore, Japan and Canada. It provides evidence on how rigorous selection, integration of academic and practical training, and structured mentoring and professional development programs impact the quality of teachers. The findings can be used to adapt international best practices to the education systems of other countries, including Kazakhstan, to improve the effectiveness of teacher preparation and professional development in the context of contemporary educational challenges.

Recommendations for Improving Teacher Professional Development in Kazakhstan:

1. Establish Comprehensive Induction Programs: Drawing inspiration from countries like Japan, where new teachers undergo a year-long compulsory in-service education program, Kazakhstan could implement structured induction programs.

2. Extend Mentorship Duration: Extending the mentoring period for new teachers to two years, as practiced in Canada, would allow for a more thorough and holistic professional development process. A longer mentorship period ensures that teachers gain deeper practical skills under the guidance of experienced mentors, addressing key areas of their professional growth and building a strong foundation for their careers.

3. Enhance Continuous Professional Development and Career Pathways: Singapore offers an exemplary model with its clear pathways for teacher career progression. These pathways provide opportunities for leadership roles, expertise development, and professional growth, all closely linked to continued education and training. Kazakhstan could benefit from adopting a similar model by establishing structured career ladders that align with ongoing professional development.

By adopting these practices from Japan, Singapore, and Canada, Kazakhstan can build a more effective and robust system for teacher professional development. These measures would empower teachers to achieve their full potential and contribute to improved educational outcomes nationwide. Implementing these recommendations would enable Kazakhstan to align its teacher preparation and development strategies with the best practices of high-performing nations, enhancing the quality of its teaching workforce and fostering long-term educational success.

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