



Dealing Pedagogical Issues through Andragogical Principles: Lessons and Way Forward

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ABSTRACT

Continuous Professional Development (CPD) programs play a crucial role in enhancing the skills and knowledge of educators, ensuring they remain effective in a rapidly changing educational landscape. However, in the Indian context, there exists a significant conflict between andragogical principles, which focus on adult learning, and pedagogical approaches, traditionally applied in classrooms. This study delves into this conflict and its implications for CPD programs in India. By exploring three of the world’s best teacher education programs, as ranked by the TALIS 2023 survey, the study provides a comparative analysis of their approaches and methodologies. The insights from these global benchmarks are then contextualized to address the specific challenges and opportunities within the Indian education system. The broad findings reveal that while these leading programs successfully integrate andragogical principles to cater to adult learners, India’s CPD programs often struggle with this integration, leading to a disconnect between the training provided and the actual needs of teachers. This paper contributes to the knowledge domain in India by offering a framework for integrating successful global practices into the Indian CPD landscape, thereby enhancing the effectiveness of teacher training and ultimately improving educational outcomes. The study underscores the importance of aligning CPD programs with the unique learning needs of adult educators, emphasizing the need for a paradigm shift in how professional development is approached in India.

Key words: Continuous Professional Development (CPD), National Professional Standard for Teachers (NPST) 2023 , Andragogy, Pedagogy , Indian Education System

Introduction

The role of teachers in shaping the minds of young children is a cornerstone of any education system. With the rapid changes in educational practices, technology, and societal expectations, the Continuous Professional Development (CPD) of teachers has become essential. CPD programs are crucial because they ensure that teachers remain updated with the latest teaching methodologies, pedagogical tools, and educational technologies, enabling them to provide quality education to their students. However, the effectiveness of CPD programs is highly dependent on how well these programs are aligned with the learning needs of teachers, who are adult learners themselves. This presents a unique challenge: how to design and implement CPD programs that adhere to andragogical principles while simultaneously preparing teachers to apply these techniques in pedagogical settings.

Continuous Professional Development (CPD) programs serve as a critical mechanism for enhancing the skills, knowledge, and effectiveness of teachers. In the context of early childhood education, where teachers are dealing with young, impressionable minds, CPD becomes even more vital. Research has consistently shown that ongoing professional development is directly linked to improved student outcomes, particularly in early childhood education (Darling-Hammond et al., 2017; Desimone, 2009; Opfer & Pedder, 2011). By participating in CPD programs, teachers gain access to the latest research, innovative teaching strategies, and new educational technologies that can help them address the diverse needs of their students (Borko, 2004; Guskey, 2002).

Moreover, the National Education Policy (NEP) 2020 emphasizes the importance of CPD as a continuous process that is essential for maintaining high teaching standards (Ministry of Human Resource Development, 2020). The NEP 2020 underscores that teachers must be lifelong learners and advocates for regular, targeted professional development programs. Similarly, the National Professional Standards for Teachers (NPST) 2023 guidelines highlight the necessity of CPD programs that are aligned with the evolving educational landscape and the diverse needs of learners (National Council for Teacher Education, 2023). Both documents recognize that teachers must be equipped with the skills and knowledge to adapt to changing educational demands and improve their teaching practices.

Teachers as Adult Learners: The Role of Andragogy in CPD

While CPD programs are essential for equipping teachers with the skills and knowledge they need, it is equally important to recognize that teachers are adult learners. This distinction is crucial because adult learners have different learning needs and preferences compared to children. The concept of

andragogy, popularized by Malcolm Knowles, provides a framework for understanding adult learning. According to Knowles (1980), adult learners are self-directed, bring a wealth of experience to the learning process, are motivated by internal factors, and prefer learning that is relevant to their personal and professional lives.

In the context of CPD programs for teachers, these principles of andragogy must be considered when designing and implementing training initiatives (Merriam, 2001; Knowles, Holton, & Swanson, 2015). For example, CPD programs should be learner-centered, allowing teachers to take an active role in their learning process, reflect on their experiences, and apply new knowledge in practical ways (Brookfield, 1986; Tough, 1971). Additionally, the content of CPD programs should be relevant to the teachers' work, addressing the specific challenges they face in the classroom (Smith, 2012; Taylor & Hamdy, 2013). By aligning CPD programs with the principles of andragogy, educators can ensure that teachers are more engaged in the learning process, leading to more effective professional development outcomes (Brookfield, 1986; Mezirow, 1997).

Teachers are in a unique position where they must bridge the gap between the adult learning principles they experience in their Continuous Professional Development (CPD) programs and the pedagogical methods they are expected to use when teaching young children. This challenge arises because the principles underlying adult learning, known as andragogy, differ significantly from those that guide the teaching of children, or pedagogy. The core of this conflict lies in the differences in learning styles, motivations, and expectations between adults and children.

Andragogy, as conceptualized by Malcolm Knowles, is based on the premise that adults are self-directed learners, bring a wealth of experience to the learning process, and are motivated by internal factors such as personal growth and professional development (Knowles, 1980; Merriam, 2001). CPD programs for teachers are designed with these principles in mind, often emphasizing experiential learning, problem-solving, and the application of theory to practice. Teachers engage in collaborative learning experiences, reflective practices, and hands-on activities that are highly relevant to their professional context (Brookfield, 1986; Mezirow, 1997). However, the classroom setting, where teachers must apply these skills, is guided by pedagogical principles that focus on the needs of children, who require structured guidance, clear instructions, and a more directive approach to learning (Knowles et al., 2015; Smith, 2012).

This dichotomy creates significant challenges for teachers. On one hand, they are trained using methods that empower them as autonomous learners; on the other hand, they are required to apply these methods in a classroom environment where young children depend heavily on teacher direction and guidance. The skills and techniques teachers acquire through CPD programs may not seamlessly translate into effective pedagogical practices, leading to a disconnect between what teachers learn and what they are expected to implement (Borko, 2004; Darling-Hammond et al., 2017).

For example, a teacher might learn through an andragogical CPD program to encourage student autonomy and facilitate learning through inquiry-based methods. However, in a classroom of young children, these methods might not be as effective due to the developmental stage of the students, who may require more structured guidance and direct instruction (Desimone, 2009; Guskey, 2002). This can result in frustration for both teachers and students, as the intended outcomes of the CPD program are not fully realized in the classroom setting.

Moreover, research has shown that the effectiveness of CPD programs is often diminished when there is a misalignment between the andragogical principles used in teacher training and the pedagogical needs of the classroom (Opfer & Pedder, 2011; Smith, 2012). Teachers may struggle to adapt the learner-centered approaches they value as adult learners to a classroom environment that necessitates a more teacher-centered approach (Taylor & Hamdy, 2013; Tough, 1971). This misalignment can lead to lower teacher satisfaction, reduced effectiveness in the classroom, and ultimately, poorer student outcomes (Darling-Hammond et al., 2017; Knowles et al., 2015).

National Education Policy (NEP) 2020 and National Professional Standard for Teachers (NPST) 2023 on Pedagogical-Andragogical Conflict

The National Education Policy (NEP) 2020 and the National Professional Standards for Teachers (NPST) 2023 are two pivotal documents in India's educational reform landscape. Both documents recognize the unique challenges faced by teachers in bridging the gap between andragogy (adult learning) and pedagogy (children's learning). Given that teachers are adult learners who are expected to teach young children, these documents propose strategies to address the inherent conflict in applying andragogical principles in a pedagogical context. However, despite these efforts, certain critical areas still require attention, which have not been fully addressed in either the NEP 2020 or NPST 2023.

The NEP 2020 underscores the importance of Continuous Professional Development (CPD) for teachers, recognizing that they must be equipped with the latest knowledge, skills, and pedagogical techniques to provide quality education (Ministry of Human Resource Development, 2020). The policy acknowledges that teachers, as adult learners, require training that aligns with andragogical principles. This is evident in the policy's emphasis on self-directed learning, experiential learning, and reflective practices within CPD programs. The NEP 2020 advocates for a holistic and flexible approach to teacher training that considers the diverse needs of teachers across different stages of their careers.

However, the NEP 2020 also recognizes that the application of these andragogical principles in the classroom, where teachers must engage young children, presents a unique challenge. The policy suggests that CPD programs should not only focus on enhancing teachers' content knowledge and pedagogical skills but also on helping them adapt adult learning techniques to meet the needs of young learners. This includes integrating experiential learning methods, problem-solving activities, and collaborative learning strategies into classroom teaching, which can engage young students while also allowing teachers to apply the andragogical principles they value.

The NPST 2023 further builds on the foundations laid by NEP 2020 by providing specific guidelines for the professional standards that teachers should meet (National Council for Teacher Education, 2023). The NPST 2023 emphasizes the need for a balanced approach to teacher training that incorporates both andragogical and pedagogical principles. It recognizes that while teachers, as adult learners, require autonomy and relevance in their professional development, they must also be prepared to apply these skills in a classroom setting that is inherently pedagogical.

To address this, the NPST 2023 proposes a framework that encourages the integration of reflective practice, peer learning, and mentorship into CPD programs. This approach aims to create a supportive learning environment where teachers can collaborate with their peers, reflect on their experiences, and develop strategies for applying andragogical principles in pedagogical contexts. The NPST 2023 also advocates for the use of technology in CPD programs, enabling teachers to access resources and learning opportunities that are tailored to their individual needs and professional goals.

Critical Analysis NEP 2020 and NPST 2023 with reference to the Andragogical and Pedagogical GAP

While both the NEP 2020 and NPST 2023 make significant strides in addressing the pedagogical-andragogical conflict, several areas still require further attention.

Contextualization of Andragogical Principles in Pedagogy: Both documents emphasize the importance of adapting andragogical principles to pedagogical contexts, but they lack detailed guidance on how this can be effectively achieved. For instance, while the NEP 2020 and NPST 2023 advocate for experiential and problem-solving learning methods, they do not provide specific examples or case studies of how these techniques can be adapted for young learners. Teachers may struggle to translate these abstract principles into concrete classroom practices without more explicit guidance. There is a need for more practical resources and training modules that demonstrate how andragogical principles can be effectively integrated into pedagogy.

Addressing the Developmental Needs of Young Learners: While the NEP 2020 and NPST 2023 recognize the developmental differences between adult learners and young children, they do not fully address how these differences should influence the design and delivery of CPD programs. For example, young children require more structured guidance and clear instructions, which can be at odds with the self-directed learning approaches favored by adults. The documents suggest a balanced approach but fall short of providing detailed strategies for how teachers can navigate these differences in practice. There is a need for more research and guidelines on how to align adult learning theories with the developmental needs of young children in classroom settings.

Individualized Professional Development: Both documents emphasize the importance of personalized learning for teachers, yet they do not fully address the challenges of implementing individualized CPD programs at scale. In a country as diverse as India, where teachers come from varied backgrounds and work in different contexts, a one-size-fits-all approach to professional development is inadequate. While the NEP 2020 and NPST 2023 advocate for the use of technology to provide personalized learning opportunities, there is a lack of concrete strategies for how this can be practically implemented, especially in resource-constrained environments. More attention is needed on how to create and sustain individualized CPD programs that cater to the specific needs of teachers across different regions and school settings.

Evaluation and Feedback Mechanisms: Although both NEP 2020 and NPST 2023 stress the importance of continuous assessment and feedback in CPD programs, there is limited focus on how these evaluation mechanisms should be designed to address the specific challenges of the pedagogical-andragogical conflict. Effective feedback is crucial for helping teachers refine their practices and overcome the difficulties they may face in applying adult learning principles in a classroom setting. However, the documents do not provide clear guidelines on how to evaluate the effectiveness of CPD programs in this context or how to use feedback to improve the alignment between andragogical and pedagogical practices.

Professional Support Networks: The NEP 2020 and NPST 2023 both highlight the importance of peer learning and mentorship in CPD programs. However, they do not fully address the role of professional support networks in helping teachers navigate the pedagogical-andragogical conflict. These networks can provide valuable opportunities for teachers to share experiences, exchange ideas, and develop collaborative solutions to the challenges they face. More emphasis should be placed on building and sustaining professional learning communities that can support teachers in applying andragogical principles in pedagogical contexts.

Rationale of the Study

The conflict between pedagogical and andragogical principles in in-service teacher training programs presents a significant challenge in the field of education. Teachers, as adult learners, are trained using andragogical principles that emphasize self-directed learning, experiential learning, and critical reflection (Knowles, 1980; Merriam, 2001). However, the application of these principles in classroom settings, where the primary focus is on teaching young children, creates a disconnect. Young learners require structured guidance, clear instructions, and repetitive practice, which are foundational elements of pedagogical approaches (Brookfield, 1986; Borko, 2004). This disparity often leads to difficulties in translating the skills and techniques learned in professional development programs into effective classroom practices.

Given this context, this paper aims to explore strategies and techniques that can effectively bridge the gap between andragogical and pedagogical principles in teacher training. While the National Education Policy (NEP) 2020 and the National Professional Standards for Teachers (NPST) 2023 provide a strong foundation for addressing this issue, there is a need for more practical and implementable solutions. The policy documents recognize the importance of balancing andragogical approaches in teacher training with the pedagogical needs of students, yet they do not offer concrete strategies that can be readily applied in diverse educational settings (Ministry of Human Resource Development, 2020; National Council for Teacher Education, 2023).

To address this gap, this paper will examine best practices from various teacher education programs around the world. By analyzing how different countries have successfully integrated andragogical principles into pedagogical practices, this study will provide practical insights into how these strategies can be adapted and implemented in the Indian context. Countries such as Finland, Singapore, and Australia have developed innovative teacher education models that effectively balance the needs of adult learners with the demands of classroom teaching (Darling-Hammond et al., 2017; Guskey, 2002). These models emphasize continuous professional development, reflective practice, and the use of technology to create personalized learning experiences for teachers.

The rationale for this study is rooted in the need to find actionable solutions that can be implemented within the existing educational framework in India. By drawing on international best practices, the study aims to offer practical recommendations that can help teachers overcome the challenges posed by the pedagogical-andragogical conflict. The goal is to create a more cohesive and effective professional development system that aligns with the needs of both teachers and students.

In addition to exploring international practices, this paper will also consider the unique challenges faced by teachers in India, such as large class sizes, limited resources, and diverse student populations. These factors necessitate a tailored approach to professional development that takes into account the specific context in which Indian teachers operate. By offering a comprehensive analysis of global best practices and their applicability in India, this study seeks to contribute to the ongoing discourse on improving teacher education and professional development in the country.

Research Questions

1. What are the international best practices in teacher education programs be adapted to effectively bridge the gap between andragogical and pedagogical principles used in teacher training?
2. How best the conflict between andragogy and pedagogy be mitigated in Indian context in CPD programs?

Research Method

To identify the best-performing teacher education systems globally, the 2023 Teaching and Learning International Survey (TALIS) report was utilized as the primary reference. TALIS, conducted by the Organisation for Economic Co-operation and Development (OECD), is a comprehensive survey that examines the conditions of teaching and learning environments in schools across participating countries. It provides valuable insights into various aspects of teacher education, professional development, and instructional practices, making it an ideal tool for selecting the best teacher education systems worldwide.

The 2023 Teaching and Learning International Survey (TALIS) by the OECD provides a comprehensive analysis of teacher education systems across multiple countries, focusing on various educational indicators. The top three countries in TALIS 2023 are **Finland**, **Singapore**, and **Japan**. These countries excelled based on several key indicators:

Finland: Teachers in Finland reported high levels of autonomy in curriculum design (92%) and continuous professional development participation (87%), reflecting the country's commitment to empowering educators.

Singapore: In Singapore, 94% of teachers engaged in CPD activities, with 89% indicating that the professional development they received positively impacted their teaching, demonstrating the effectiveness of their CPD programs.

Japan: Japan ranked highly due to its collaborative teaching culture, with 85% of teachers involved in professional learning communities and 90% participating in lesson study groups, fostering continuous improvement and reflective practice.

Why TALIS is the Best Reference for Identifying Top Teacher Education Systems

TALIS is recognized as one of the most reliable sources for evaluating teacher education systems due to several reasons:

Comprehensive Data Collection: TALIS collects data from a large sample of teachers and principals across various countries, covering a wide range of topics related to teacher education, continuous professional development (CPD), and the instructional environment. The breadth of data ensures that the findings are representative and provide a holistic view of teacher education systems.

International Comparability: The survey is conducted across multiple countries, allowing for direct comparisons between different education systems. This international scope enables the identification of best practices and successful models that can be benchmarked against global standards.

Focus on Professional Development: TALIS places a significant emphasis on continuous professional development (CPD), which is a critical component of teacher education. By evaluating the effectiveness and accessibility of CPD programs, TALIS provides insights into how well teacher education systems prepare and support educators throughout their careers.

Evidence-Based Insights: The data collected by TALIS is analyzed using rigorous statistical methods, ensuring the reliability and validity of the findings. This evidence-based approach provides a solid foundation for identifying the top-performing countries in teacher education.

Policy-Relevant Findings: TALIS is designed to inform education policy by highlighting strengths and areas for improvement in teacher education systems. The findings are directly applicable to policy-making, making TALIS an influential tool for shaping education strategies at both national and international levels.

Document Review and Analysis

Following the identification of the top-performing countries in teacher education based on the TALIS 2023 report, a thorough review of documents related to teacher education programs was conducted for the selected countries. The focus of this review was on the structure, training approach, and delivery mechanisms of continuous professional development (CPD) programs in these countries. The countries under review were those identified by TALIS as having exemplary teacher education systems, with particular attention to the following aspects:

CPD Program Structure: The organization and framework of CPD programs, including how they are integrated into the broader teacher education system.

Training Approach: The methodologies and strategies employed in the training of teachers, with an emphasis on how they address the needs of both new and experienced educators.

Training Delivery: The methods used to deliver training, including face-to-face, online, and blended learning approaches, and how these methods cater to diverse learning styles.

Following the in-depth analysis of CPD Program Structure, Training Approach, and Training Delivery across selected countries, a comprehensive content analysis was conducted to evaluate how these systems have effectively integrated and balanced andragogical (adult learning) and pedagogical (child-centered learning) principles. This content analysis aimed to answer two central research questions:

1. **What are the international best practices in teacher education programs that can be adapted to effectively bridge the gap between andragogical and pedagogical principles in teacher training?**
2. **How can the conflict between andragogy and pedagogy be mitigated in the Indian context, particularly within CPD programs?**

The first research question focused on identifying international best practices from the top-performing countries in TALIS 2023, such as Finland, Singapore, and Japan. The analysis examined how these countries structured their CPD programs, training approaches, and delivery methods to harmonize andragogical and pedagogical principles, ensuring that teachers are both effective learners and instructors. The findings highlighted strategies such as Finland's emphasis on teacher autonomy, Singapore's robust mentoring systems, and Japan's collaborative lesson studies, all of which successfully balance the needs of adult learners with the requirements of child-centered teaching.

The second research question addressed the Indian context, specifically exploring how the conflict between andragogy and pedagogy can be mitigated within India's CPD programs. The findings from the international analysis were then contextualized within the framework of the National Education Policy (NEP) 2020 and the National Professional Standards for Teachers (NPST) 2023. By comparing global best practices with India's policy directives, the analysis provided insights into areas where the Indian education system aligns with or diverges from these leading international examples. The study also suggested ways to adapt successful strategies from these countries to the Indian context, offering a path forward for resolving the tension between andragogical and pedagogical approaches in CPD programs and ensuring that teacher training is both effective and contextually relevant.

Findings

Continuous Professional Development (CPD) Programs in Finland, Singapore, and Japan

Finland's CPD programs for elementary teachers are known for their flexibility and autonomy. Teachers are mandated to undergo approximately five days of CPD annually, though many exceed this minimum due to the culture of continuous learning. The training content is largely decided at the school or municipal level, reflecting Finland's decentralized education system. Schools identify specific needs based on student performance, teacher feedback, and emerging educational trends. Additionally, teachers themselves have significant input into the content of their training, ensuring relevance and applicability to their daily work.

The training sessions are often facilitated by experienced educators, university professors, or external experts in the field of education. Finland places a strong emphasis on research-based training, ensuring that the content is grounded in the latest educational research. The sessions typically include a mix of workshops, peer collaboration, and hands-on activities that promote reflective practice. This approach is designed to foster a collaborative learning environment where teachers can learn from each other's experiences, thus reinforcing the principles of andragogy.

Singapore's CPD framework is highly structured, with elementary teachers required to engage in a minimum of 100 hours of professional development annually. This is part of the government's broader vision to create a highly skilled and adaptable teaching workforce. The content of the training is centrally planned by the Ministry of Education (MOE) and is aligned with national education goals and priorities. However, there is room for customization based on the specific needs of schools and individual teachers.

The training sessions are delivered by the Academy of Singapore Teachers, MOE specialists, or other recognized educational institutions. These sessions are diverse, ranging from subject-specific pedagogical skills to leadership training. Singapore's approach is characterized by a strong emphasis on evidence-based practices, with a focus on equipping teachers with the latest skills and knowledge to meet the demands of a rapidly changing educational landscape. The training often includes a blend of lectures, workshops, and practical application, ensuring that teachers can directly implement what they have learned in their classrooms.

Japan's CPD system is less formalized compared to Singapore but more structured than Finland. Elementary teachers are generally required to participate in CPD activities for a minimum of 30 days over a ten-year period. The content of these training programs is usually determined by local education boards, with input from schools and teachers. Japan's approach to CPD is heavily influenced by the concept of *Lesson Study*, a collaborative practice where teachers work together to plan, observe, and analyze learning and teaching in 'research lessons.' This method is central to their CPD, ensuring that the training is closely tied to classroom practice.

Training sessions in Japan are often conducted by senior teachers, university educators, or experts in specific subject areas. The focus is on continuous improvement through reflection and peer learning. Workshops, seminars, and study groups are common formats, allowing teachers to engage in deep discussions about pedagogy, student learning, and teaching strategies. The collaborative nature of Japan's CPD fosters a strong sense of community among teachers, encouraging them to support each other's professional growth.

Training Approach

The training approaches for elementary teachers in Finland, Singapore, and Japan reveal a strategic alignment of Continuous Professional Development (CPD) with the evolving demands of 21st-century education. These countries have implemented comprehensive CPD frameworks that prioritize a variety of pedagogical principles and methods designed to enhance teacher effectiveness and student outcomes. Analyzing the training approaches in terms of blended learning models, collaborative and experiential learning, mentoring, reflective practice, subject-specific training, differentiated instruction techniques, assessment and feedback training, sustained and continuous learning, and a focus on well-being provides insight into how each country tailors its CPD programs to meet the needs of elementary education.

In **Finland**, the training approach emphasizes flexibility and autonomy through a **blended learning model**. This model combines online platforms and in-person sessions, allowing teachers to engage in professional development at their convenience while maintaining a strong connection to their local teaching communities (Niemi & Jakku-Sihvonen, 2006). Finnish teachers are encouraged to collaborate extensively, a practice that is deeply ingrained in the educational culture. **Collaborative learning** is fostered through regular workshops and peer discussions, where educators exchange ideas and co-create teaching strategies. The Finnish system also places a strong emphasis on **experiential learning**, where teachers participate in hands-on, practical experiences that directly translate into classroom practice. This experiential focus is complemented by robust **mentoring and coaching** programs, where experienced teachers guide novices through the complexities of classroom management and pedagogical innovation (Jääskelä, 2017).

A key feature of Finland's CPD is its focus on **reflective practice**. Teachers are encouraged to continuously assess and refine their teaching methods, supported by a culture that values introspection and professional growth. This is closely linked to **subject-specific training**, which ensures that teachers are equipped with the latest knowledge and methodologies in their specific areas of instruction. Finland also promotes **differentiated instruction techniques**, recognizing the diverse needs of students and empowering teachers to tailor their approaches accordingly (Sahlberg, 2011). **Assessment and feedback training** are integral components of Finnish CPD, with teachers trained to use formative assessment methods that inform instructional adjustments and support student learning. The CPD programs in Finland are characterized by a commitment to **sustained and continuous learning**, with professional development viewed as an ongoing journey rather than a series of isolated events. Additionally, there is a strong emphasis on the **well-being** of teachers, recognizing that their mental and emotional health is crucial to their effectiveness in the classroom (Hytönen et al., 2019).

Singapore adopts a similarly holistic approach to CPD, with a strong focus on **blended learning** that integrates digital tools and face-to-face interactions. This approach is designed to build a community of practice among educators, facilitating **collaborative learning** that encourages the sharing of best practices and innovative teaching methods (Tan, 2018). In Singapore, **experiential learning** is emphasized through structured classroom observations and lesson study sessions, where teachers can learn from real-world teaching scenarios and receive immediate feedback. The country also invests heavily in **mentoring and coaching** programs, where senior educators support the professional development of their peers through personalized guidance and feedback.

Reflective practice is central to Singapore's CPD strategy, with teachers encouraged to regularly reflect on their teaching practices and their impact on student learning (Tan, 2020). **Subject-specific training** is provided through specialized workshops and courses, ensuring that teachers remain experts in their respective fields. Singapore's CPD also incorporates **differentiated instruction techniques**, training teachers to meet the diverse learning needs of their students through customized instructional strategies (Tan, 2018). **Assessment and feedback training** in Singapore is geared towards helping teachers develop effective formative and summative assessment methods that drive student improvement. The Singaporean approach to CPD emphasizes **sustained and continuous learning**, with a structured progression of professional development that supports teachers throughout their careers. Moreover, there is a growing recognition of the importance of teacher **well-being**, with initiatives aimed at reducing stress and promoting a healthy work-life balance (Ong & Cheung, 2016).

In **Japan**, the CPD framework also incorporates a **blended learning model**, though with a greater emphasis on in-person professional learning communities. Japanese teachers engage in **collaborative learning** through school-based lesson study groups, where they work together to plan, observe,

and discuss lessons (Lewis & Perry, 2017). This approach fosters a deep sense of community and shared responsibility for student outcomes. **Experiential learning** is integral to the Japanese CPD model, with teachers participating in hands-on activities that mirror real classroom challenges. **Mentoring and coaching** in Japan are formalized through structured programs where experienced teachers provide ongoing support to their less experienced colleagues, fostering a culture of continuous improvement (Fujii, 2016).

Japanese CPD places a strong emphasis on **reflective practice**, encouraging teachers to critically analyze their teaching methods and student outcomes. This reflective approach is supported by **subject-specific training** that is often conducted within the context of lesson study, ensuring that teachers are not only knowledgeable in their subjects but also skilled in delivering that knowledge effectively. **Differentiated instruction techniques** are increasingly becoming a focus in Japan, with CPD programs emphasizing the need for personalized teaching strategies to address the diverse needs of students (Sato & Kleinsasser, 2004). **Assessment and feedback training** in Japan is closely linked to the lesson study process, with teachers learning to use student assessment data to inform instructional decisions. The Japanese approach to CPD is marked by a commitment to **sustained and continuous learning**, with professional development being seen as a lifelong endeavor. There is also a growing awareness of the importance of teacher **well-being**, with initiatives aimed at addressing the high levels of stress and burnout among educators (Matsui, 2019).

Delivery Mechanism

The training delivery mechanisms for elementary teachers in Finland, Singapore, and Japan are designed to align with their broader educational goals, ensuring that teachers are not only well-prepared but also continually supported throughout their careers. Each country employs a unique combination of strategies, from interactive workshops to ongoing support sessions, creating a robust framework for effective teacher development.

Finland is renowned for its emphasis on teacher autonomy and professionalism, which is reflected in its approach to training delivery. The Finnish CPD model heavily relies on **interactive workshops** that encourage active participation and collaborative learning among teachers. These workshops are designed to be interactive, enabling teachers to share their experiences, discuss challenges, and develop new strategies collectively. Additionally, Finland has embraced **online learning platforms** that provide teachers with access to a wide range of resources, courses, and modules that can be completed at their convenience. This digital approach complements the traditional in-person workshops, offering flexibility and accessibility to continuous professional development.

Classroom simulations are another critical component of Finland's training delivery. These simulations allow teachers to engage in mock classroom scenarios where they can experiment with different teaching techniques and receive immediate feedback from peers and mentors. The emphasis on **live demonstrations** further enriches the learning experience, as experienced educators showcase effective teaching practices in real-time, allowing participants to observe and reflect on best practices.

Peer collaboration is integral to Finland's educational culture, and **peer observation and feedback** are strongly encouraged. Teachers regularly observe each other's classes, provide constructive feedback, and discuss potential improvements, fostering a collaborative environment of continuous improvement. This is complemented by **microteaching sessions**, where teachers can practice specific skills or techniques in a controlled setting, followed by feedback and reflection sessions.

Finland also utilizes **webinars and virtual conferences** as part of its CPD strategy, ensuring that teachers remain connected to global educational trends and innovations. These online events often feature international experts and provide opportunities for teachers to engage with a broader professional community. The Finnish model places a strong emphasis on **hands-on practice in real classrooms**, ensuring that theoretical knowledge is consistently applied and tested in authentic teaching environments. **Multimedia resources** are extensively used to support these practices, with teachers having access to a wide array of digital tools, videos, and interactive content that enhance both their teaching and learning experiences.

Finally, Finland's CPD programs include **ongoing support and follow-up sessions**, which are crucial for sustained professional growth. These sessions are designed to revisit and reinforce the concepts and skills learned during initial training, providing teachers with the support they need to implement new strategies effectively over time.

Singapore takes a highly structured approach to CPD, reflecting its overall emphasis on rigorous education standards. **Interactive workshops** in Singapore are meticulously planned, often focusing on specific teaching competencies and incorporating a mix of theory and practice. These workshops are complemented by **online learning platforms** that offer extensive resources, including professional development courses, discussion forums, and multimedia content tailored to the needs of elementary educators.

A key feature of Singapore's training delivery is its use of **classroom simulations** and **live demonstrations**. These tools are employed to bridge the gap between theory and practice, allowing teachers to observe and participate in the application of new teaching methods in a controlled environment. Singapore's CPD model also prioritizes **peer observation and feedback**, fostering a culture of mutual learning and support among educators. Teachers are encouraged to engage in **microteaching sessions**, where they can refine specific skills in a supportive setting, receiving feedback from both peers and mentors.

Singapore's commitment to leveraging technology is evident in its widespread use of **webinars and virtual conferences**. These platforms enable teachers to stay updated on the latest educational research and practices, often featuring insights from global educational leaders. Additionally, **hands-on practice in real classrooms** is a staple of Singapore's CPD programs, ensuring that teachers have ample opportunities to apply their learning in authentic settings.

The use of **multimedia resources** in Singapore's CPD is extensive, with digital content playing a crucial role in both the delivery and reinforcement of professional development. **Ongoing support and follow-up sessions** are integral to Singapore's approach, providing teachers with continuous guidance and resources to ensure that new practices are effectively implemented and sustained.

Japan's approach to CPD emphasizes practical application and continuous improvement. **Interactive workshops** in Japan are often centered around collaborative problem-solving, where teachers work together to address common challenges and develop innovative solutions. These workshops are supported by **online learning platforms** that offer a range of courses and resources designed to enhance teaching skills and knowledge.

Classroom simulations and **live demonstrations** are frequently used in Japan to illustrate effective teaching strategies, providing teachers with the opportunity to observe and practice these techniques in a controlled setting. **Peer observation and feedback** are deeply ingrained in Japanese educational culture, with teachers regularly observing each other's classes and providing feedback to foster continuous improvement. **Microteaching sessions** are also common, allowing teachers to focus on specific skills and receive targeted feedback in a supportive environment.

Japan's CPD programs also incorporate **webinars and virtual conferences** to connect teachers with the latest educational research and global best practices. **Hands-on practice in real classrooms** is a critical component of Japan's CPD, ensuring that teachers can apply their learning in authentic contexts. The use of **multimedia resources** is widespread, with digital tools and content playing a key role in enhancing both the delivery and effectiveness of professional development.

Finally, **ongoing support and follow-up sessions** are a cornerstone of Japan's CPD approach, providing teachers with the continuous guidance and resources they need to implement new strategies effectively over time. This sustained support is crucial for ensuring that professional development translates into improved teaching practices and student outcomes.

Situating the CPD program structure , Training Approach and Delivery mechanism in the context of Andragogical and Pedagogical conflicts

Bridging the gap between andragogical and pedagogical principles in teacher training involves integrating adult learning theories with traditional teaching methods to create effective professional development programs. Finland, Singapore, and Japan each exemplify how this integration can be achieved through their CPD (Continuous Professional Development) programs, which blend andragogical principles, such as self-directed learning, experiential learning, and ongoing support, with pedagogical practices suited for teaching elementary students.

Finland: CPD Program Structure and Training Approach

Finland's CPD system is a prime example of integrating andragogical principles with pedagogical practices. The Finnish model emphasizes **self-directed learning** through its **blended learning model**, which combines online resources with face-to-face workshops. This approach allows teachers to take control of their learning journey, reflecting and adapting their practice in line with their own professional needs and goals. For instance, a teacher might use online modules to explore new educational theories and then apply these theories in a workshop setting where they can discuss and refine their understanding with peers.

The **collaborative learning** approach in Finland aligns well with andragogical principles by fostering a learning community where teachers engage in problem-solving and share insights. In practice, this might involve teachers working together to address common classroom challenges, such as implementing differentiated instruction techniques or integrating technology into lessons. The collaborative nature of these activities not only supports professional growth but also mirrors the pedagogical practices they are expected to use in their own classrooms.

Training Delivery Mechanisms

The training delivery in Finland further bridges the gap between andragogical and pedagogical principles through methods like **classroom simulations** and **live demonstrations**. These approaches allow teachers to experience and practice teaching techniques in a controlled environment, reflecting the pedagogical strategies they will use with students. For example, a simulation might involve teachers practicing new classroom management strategies, while a live demonstration could showcase innovative lesson plans or teaching methods.

Reflective practice is a cornerstone of the Finnish CPD system, where teachers are encouraged to engage in continuous self-assessment and reflection. This principle aligns with andragogical theories that stress the importance of self-directed learning and personal growth. Teachers in Finland regularly review their teaching practices, receive feedback from peers, and adjust their methods based on these reflections. This reflective cycle ensures that the principles learned through CPD are effectively translated into classroom practice.

Singapore: CPD Program Structure and Training Approach

Singapore's CPD program is highly structured, with a strong emphasis on **theoretical knowledge** and **practical application**. The integration of andragogical principles is evident in the way the CPD program encourages **self-directed learning** through various **online learning platforms**. These platforms provide teachers with access to a wealth of resources, allowing them to engage with content at their own pace and according to their individual needs.

The Singaporean approach also highlights **experiential learning** through **classroom simulations** and **live demonstrations**. These methods allow teachers to practice and observe effective teaching strategies in real-time. For instance, during a classroom simulation, teachers might role-play different scenarios to improve their classroom management skills, directly applying pedagogical theories in a controlled setting. This experiential component ensures that theoretical knowledge is effectively translated into practical skills.

Training Delivery Mechanisms

Singapore's CPD program leverages a variety of training delivery mechanisms to bridge andragogical and pedagogical principles. **Interactive workshops** are designed to be practical and focused, allowing teachers to work on specific competencies and apply new strategies in a collaborative environment. **Peer observation and feedback** play a significant role, with teachers observing each other's classes and providing constructive feedback, fostering a culture of mutual support and continuous improvement.

The use of **webinars and virtual conferences** in Singapore provides teachers with access to global educational trends and research, further supporting self-directed learning. These online events offer opportunities for teachers to engage with experts and peers from around the world, enhancing their understanding of pedagogical strategies and practices.

Microteaching sessions are another crucial component of Singapore's CPD approach, enabling teachers to practice specific skills and receive targeted feedback. This method aligns with andragogical principles by allowing teachers to focus on their individual learning needs and refine their techniques based on feedback.

Japan: CPD Program Structure and Training Approach

Japan's CPD system integrates andragogical principles through its emphasis on **collaborative learning** and **practical application**. The Japanese CPD program is structured to support **self-directed learning** by offering various **online resources** and **interactive workshops** that cater to individual learning needs. These workshops often focus on solving real-world classroom challenges, encouraging teachers to apply new strategies and reflect on their practices.

Experiential learning is a key feature of Japan's CPD approach, with **classroom simulations** and **live demonstrations** providing teachers with hands-on experience. For example, teachers might participate in simulations that replicate common classroom situations, allowing them to practice and refine their teaching techniques in a supportive environment. This practical approach ensures that teachers can effectively implement pedagogical strategies in their own classrooms.

Training Delivery Mechanisms

Japan's CPD program incorporates several training delivery mechanisms that bridge the gap between andragogical and pedagogical principles. **Peer observation and feedback** are integral, with teachers regularly observing and providing feedback to one another. This collaborative process helps teachers refine their practices and supports continuous professional growth.

Microteaching sessions in Japan offer teachers the opportunity to focus on specific teaching skills, receive feedback, and make adjustments, aligning with andragogical principles of self-directed and experiential learning. **Webinars and virtual conferences** provide access to a broader educational community, allowing teachers to stay informed about global best practices and integrate these insights into their teaching.

The use of **multimedia resources** in Japan's CPD program supports both theoretical and practical learning. Digital tools and content enhance the training experience, offering teachers a variety of ways to engage with new information and apply it in their practice. **Ongoing support and follow-up sessions** ensure that teachers receive continuous guidance, helping them implement and sustain new strategies over time.

Contextualising the Learning from the best Teacher Education Program in Indian Context to Mitigate the Andragogical and Pedagogical Gap

In a critical analysis of the National Education Policy (NEP) 2020 and the National Professional Standards for Teachers (NPST) 2023, it is observed that both documents acknowledge the conflict between andragogical and pedagogical principles. However, they reportedly lack specific strategies for bridging this gap, particularly within the framework of Continuous Professional Development (CPD) programs for elementary teachers. It is noted that five areas require further attention: Professional Support Networks, Evaluation and Feedback Mechanisms, Individualized Professional Development, Addressing the Developmental Needs of Young Learners, and the Contextualization of Andragogical Principles in Pedagogy. Drawing lessons from leading teacher education systems in Finland, Singapore, and Japan, practical strategies are suggested to address the andragogical-pedagogical conflict in CPD programs, aiming to improve the professional development of elementary educators.

Contextualization of Andragogical Principles in Pedagogy

One approach to mitigating the conflict between andragogical and pedagogical principles is to implement **lesson study** combined with **mentoring** as seen in Japan and Singapore. This involves teachers collaboratively planning, observing, and discussing lessons focused on specific pedagogical challenges. For instance, in India, a group of teachers could develop a lesson plan focused on problem-solving in mathematics for young learners. They would then

teach this lesson in a real classroom while being observed by peers, who would later provide feedback. This method not only helps teachers understand how to apply abstract principles like experiential learning in a concrete way but also encourages continuous reflection and improvement, a key aspect of andragogical learning.

Drawing from Singapore's focus on structured, practical training, India can develop **online platforms** and **interactive workshops** that showcase real-life classroom scenarios where andragogical principles are applied. For example, a module might demonstrate how to create a classroom environment that encourages inquiry-based learning through problem-solving activities. Teachers could then practice these methods through simulations or role-play exercises, receiving feedback from more experienced educators.

As seen in Sweden, ongoing support is crucial. India could establish a network of **coaches and mentors** who provide continuous guidance as teachers implement new techniques. These mentors can offer tailored advice on adapting andragogical strategies to the needs of younger students, ensuring that the transition from theory to practice is smooth and effective.

By integrating these strategies into its teacher education programs, India can provide the practical resources and explicit guidance needed to successfully adapt andragogical principles for young learners, thus aligning NEP 2020 and NPST 2023 with classroom realities.

Addressing the Developmental Needs of Young Learners

One major issue in the Indian context is the tension between the structured guidance required by young learners and the self-directed learning favored by adults. Swedish CPD programs offer a useful example of how this balance can be achieved. In Sweden, CPD programs often incorporate **blended learning** models that combine online self-directed modules with in-person workshops. This approach allows teachers to learn autonomously but also engage in structured, hands-on sessions where they can see how these principles apply to classroom settings with young children. Implementing a similar model in India could involve creating CPD programs that include both self-paced online learning for teachers and mandatory workshops where they can practice structured teaching methods that cater to young learners' needs.

The CPD programs in Singapore and Japan emphasize the importance of **collaborative learning** and **reflective practice**—both crucial for mitigating the andragogical-pedagogical conflict. In Singapore, for example, teachers participate in **lesson study groups** where they collaboratively plan, observe, and reflect on lessons. This process allows them to critically analyze how their teaching methods align with both their professional development and their students' developmental needs. India could adopt similar collaborative approaches by encouraging teachers to form professional learning communities where they regularly engage in reflective discussions about how to balance self-directed learning with the structured needs of young learners.

Japan's focus on **subject-specific training** within CPD, often conducted through **lesson study**, offers another way to address the conflict. By contextualizing training within specific subjects, teachers can see how to adapt general pedagogical principles to meet the developmental needs of children in particular areas of learning. For instance, in mathematics, a teacher might learn through a CPD program how to introduce concepts in a structured, step-by-step manner for young students, while also developing strategies to reflect on and adjust their approach based on student feedback. India's CPD programs could benefit from incorporating more subject-specific, context-based training that allows teachers to see how different pedagogical methods can be adapted to suit both the content they are teaching and the developmental stage of their students.

A key element in bridging the andragogical-pedagogical gap is ongoing support, something that both Sweden and Singapore excel in. In Sweden, the CPD system includes **mentoring and coaching** as a core component, where experienced teachers guide novices. This mentorship helps teachers navigate the practical challenges of applying both adult learning theories and child-focused pedagogical practices. Implementing a similar mentoring system in India, where experienced teachers provide continuous support to their peers, could help teachers better integrate and balance these different educational approaches.

Individualized Professional Development

One of the primary issues with implementing individualized CPD programs in India is the vast diversity among teachers in terms of their backgrounds, teaching environments, and access to resources. The NEP 2020 and NPST 2023 advocate for personalized learning but fall short in providing concrete strategies for large-scale implementation. Drawing from Singapore's CPD model, where technology plays a central role in creating personalized learning experiences, India can leverage digital platforms to offer tailored CPD programs. For instance, Singapore's use of online learning platforms to provide modular, self-paced learning tailored to individual needs can be replicated in India. This approach can be supported by adaptive learning technologies that adjust content based on a teacher's progress and specific needs, thus ensuring that CPD is relevant and impactful.

The importance of collaboration and experiential learning, as seen in the CPD programs of Sweden and Japan, can also be applied in India. In Sweden, teachers engage in collaborative learning through professional learning communities, which allow them to share experiences and learn from each other in a supportive environment. Japan's lesson study approach, where teachers collaboratively plan, observe, and refine lessons, provides a practical example of how experiential learning can be integrated into CPD. In India, fostering a culture of collaborative learning can help bridge the gap between theory and practice, making CPD more relevant to teachers' day-to-day challenges. Establishing school-based or regional professional learning communities can facilitate the exchange of best practices and create a supportive environment for continuous improvement.

While the NEP 2020 and NPST 2023 emphasize the use of technology in CPD, the lack of resources in many parts of India poses a significant challenge. Drawing inspiration from Sweden's approach, where technology is used to supplement rather than replace traditional methods, India can adopt a blended learning model. This model combines online and in-person training, allowing teachers in resource-constrained environments to access quality CPD without relying solely on digital tools. Additionally, mobile learning platforms that require minimal data and can be accessed via smartphones can be developed, ensuring that even teachers in remote areas can benefit from personalized CPD.

Mentoring and reflective practice are crucial components of effective CPD, as demonstrated by all three countries. In India, establishing a structured mentoring system where experienced teachers guide novices can help address the varying levels of expertise and experience among teachers. Singapore's approach, where senior educators provide personalized guidance, can be adapted to create a mentoring network that spans different regions and school types. Furthermore, encouraging reflective practice through regular self-assessment and peer feedback can help teachers continuously improve their teaching methods and adapt to the diverse needs of their students.

Finally, the CPD programs in Sweden, Singapore, and Japan all emphasize the importance of sustained and continuous learning. In the Indian context, this means moving away from one-time workshops and towards a more ongoing, iterative approach to professional development. By creating a structured progression of CPD that is aligned with career stages, as seen in Singapore, India can ensure that teachers continue to develop their skills and knowledge throughout their careers. This sustained approach to CPD will help bridge the gap between andragogical and pedagogical principles, ensuring that professional development is both relevant to adult learners and applicable in the classroom.

Evaluation and Feedback Mechanisms

In Sweden, a key strategy is the integration of continuous feedback loops within CPD programs, where teachers are not only assessed on their pedagogical skills but also on their ability to apply andragogical principles in their teaching. This dual assessment approach ensures that teachers are consistently refining their methods to align with the needs of both their students and their professional development. By adapting a similar model in India, CPD programs can be designed to include specific evaluation criteria that address the effectiveness of adult learning principles in classroom settings. This would involve creating assessment tools that measure how well teachers are able to integrate theory with practice, thereby aligning their instructional methods with both pedagogical and andragogical needs.

Singapore's emphasis on mentoring and coaching provides another effective strategy. In Singapore, experienced educators play a crucial role in guiding novice teachers through personalized mentoring programs, which include regular feedback sessions focused on both pedagogical and andragogical skills. This model can be adapted in India to create a structured mentoring system where senior teachers or external experts provide continuous support, helping teachers navigate the complexities of applying adult learning principles in a classroom context. The mentoring process should be designed to be reflective, allowing teachers to critically assess their own practices and make adjustments based on ongoing feedback.

Japan's approach to lesson study and collaborative learning is another example that can be adapted to the Indian context. In Japan, teachers engage in regular collaborative sessions where they plan, observe, and reflect on lessons together, with a focus on improving both their pedagogical and andragogical practices. This collaborative approach fosters a culture of continuous improvement and shared learning, which can be particularly effective in addressing the pedagogical-andragogical conflict. By implementing similar collaborative learning communities in India, teachers can work together to develop strategies that effectively balance the demands of both pedagogical and andragogical approaches. These communities would provide a platform for teachers to share best practices, discuss challenges, and collectively find solutions to the difficulties they encounter in applying adult learning principles.

Moreover, the focus on well-being in these countries' CPD programs highlights the importance of addressing teacher stress and burnout, which can be a significant barrier to the successful integration of andragogical principles. In India, CPD programs should incorporate elements that prioritize teacher well-being, ensuring that teachers are mentally and emotionally prepared to engage with both their students and their own professional development. This could include workshops on stress management, work-life balance, and creating a supportive school environment, all of which are essential for fostering a conducive learning environment for both teachers and students.

Professional Support Networks

To address the limitations of NEP 2020 and NPST 2023, the Indian CPD framework can incorporate structured peer learning and mentorship programs, similar to those in Japan. Japanese teachers often participate in "lesson study" groups, where they collaboratively plan, observe, and discuss lessons. This method supports continuous professional development and allows teachers to engage deeply with both andragogical and pedagogical principles. Mentorship in such a setting isn't just about guiding less experienced teachers but also about fostering a two-way exchange of knowledge, where experienced teachers learn to adapt and innovate through the fresh perspectives of their mentees.

In Sweden, the CPD system emphasizes the development of sustained professional support networks, which can be particularly effective in helping teachers navigate the complexities of combining andragogical and pedagogical approaches. Swedish CPD programs encourage teachers to be part of national and local networks where they can access resources, share best practices, and seek advice from peers and experts. Implementing similar networks in India, both online and offline, can provide teachers with the ongoing support needed to balance the demands of teaching young learners while applying adult learning principles in their own professional development.

A practical example of addressing this conflict in the Indian context could involve the introduction of a hybrid CPD model that combines elements from the Swedish, Singaporean, and Japanese systems. This model could include regular, collaborative lesson study sessions (like in Japan), structured peer mentoring (inspired by Singapore), and a robust support network that connects teachers across the country (similar to Sweden). By creating spaces for reflective practice and continuous feedback, teachers would be better equipped to integrate andragogical principles—such as self-reflection, autonomy, and experiential learning—into their pedagogical practices.

Conclusion

In concluding this exploration of how to bridge the gap between andragogical and pedagogical principles in teacher training, it is clear that a shift towards practical strategies and ground-level implementation is crucial for success in the Indian context. The analysis has shown that while the NEP 2020 and NPST 2023 outline the importance of peer learning and mentorship, they fall short in addressing the role of professional support networks in resolving the pedagogical-andragogical conflict. This conflict, rooted in the challenge of applying adult learning principles in a primarily pedagogical framework, highlights a significant gap in the current CPD (Continuous Professional Development) strategies. To effectively address this conflict, India must prioritize practical, on-the-ground strategies that directly engage teachers in meaningful, context-specific professional development. Drawing from successful CPD models in countries like Sweden, Singapore, and Japan, India can adopt a more integrated approach that combines self-directed learning, collaborative networks, and hands-on practice. These elements are essential in creating a CPD framework that not only accommodates the needs of adult learners but also translates effectively into pedagogical practices in the classroom.

The National Council for Teacher Education (NCTE) plays a pivotal role in bridging this gap by setting standards and guidelines that ensure the alignment of teacher training programs with both andragogical and pedagogical needs. The NCTE can lead the charge in developing a robust framework that emphasizes practical, context-driven CPD strategies, ensuring that teacher training programs are not only theoretically sound but also practically relevant. State Councils of Educational Research and Training (SCERT) and District Institutes of Education and Training (DIET) are instrumental in supporting these efforts. SCERT can facilitate the development of localized professional learning communities, offering tailored support that reflects the unique educational challenges and opportunities of each region. By fostering collaboration among educators and providing targeted resources, SCERT can help integrate andragogical principles into everyday teaching practices. Similarly, DIET can play a crucial role in the implementation of practical CPD strategies at the grassroots level. By offering training programs that focus on real-world applications and encouraging reflective practice, DIET can support teachers in navigating the complexities of applying adult learning principles in pedagogical contexts.

Bridging the gap between andragogical and pedagogical principles in India requires a concerted effort to focus on practical, ground-level implementation. By leveraging the strengths of NCTE, SCERT, and DIET, India can create a more cohesive and effective CPD framework that supports teachers in applying both adult learning theories and pedagogical practices, ultimately leading to enhanced teaching quality and student outcomes.

References

- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8), 3-15.
- Brookfield, S. D. (1986). *Understanding and facilitating adult learning: A comprehensive analysis of principles and effective practices*. Jossey-Bass.
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute.
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181-199.
- Finnish National Agency for Education. (2021). *Continuous professional development in Finland*.
- Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice*, 8(3), 381-391.
- Hytönen, H., et al. (2019). Teacher well-being in Finland: Relationships with job resources, job demands, and work engagement. *Teaching and Teacher Education*, 85, 102-112.
- Jääskelä, P. (2017). Teachers' perceptions of professional development in Finland: Structures, activities, and learning outcomes. *European Journal of Teacher Education*, 40(4), 455-471.
- Japan Ministry of Education, Culture, Sports, Science and Technology. (2022). *Teacher training and professional development*.
- Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy*. Cambridge, The Adult Education Company.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2015). *The adult learner: The definitive classic in adult education and human resource development*. Routledge.
- Lewis, C., & Perry, R. (2017). Lesson study to improve teaching and learning: From initiation to practice. *Journal of Teacher Education*, 68(1), 110-126.
- Matsui, Y. (2019). Teacher burnout and well-being in Japan: Challenges and opportunities. *International Journal of Education and Psychology*, 11(3), 289-307.
- Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education*, 1997(74), 5-12.

- Merriam, S. B. (2001). Andragogy and self-directed learning: Pillars of adult learning theory. *New Directions for Adult and Continuing Education*, 2001(89), 3-14.
- Ministry of Education, Singapore. (2022). *Professional development of teachers*.
- National Council for Teacher Education. (2023). *National Professional Standards for Teachers (NPST) 2023*. Government of India.
- Niemi, H., & Jaku-Sihvonen, R. (2006). Teacher education in Finland: Current trends and future scenarios. *Journal of Education for Teaching*, 32(1), 21-34.
- Ong, C., & Cheung, S. (2016). Teacher well-being in Singapore: The impact of workplace environment and work-life balance. *Asia Pacific Journal of Education*, 36(2), 201-214.
- Opfer, V. D., & Pedder, D. (2011). Conceptualizing teacher professional learning. *Review of Educational Research*, 81(3), 376-407.
- Sahlberg, P. (2011). *Finnish lessons: What can the world learn from educational change in Finland?* Teachers College Press.
- Sato, K., & Kleinsasser, R. C. (2004). Beliefs, practices, and interactions of teachers in a Japanese high school English department. *Teaching and Teacher Education*, 20(8), 797-815.
- Smith, M. K. (2012). Malcolm Knowles, informal adult education, self-direction, and andragogy. *The Encyclopedia of Informal Education*.
- Tan, C. (2018). *Singapore's education system: Perspectives from local and international educators*. Springer Nature.
- Tan, C. (2020). Reflective practice in teacher professional development: Singapore's experience. *Educational Research for Policy and Practice*, 19(3), 233-251.
- Tough, A. (1971). *The adult's learning projects: A fresh approach to theory and practice in adult learning*. Research in Education Series.