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Principled Practical Knowledge (PPK) in Education: A Probe into NEP 2020 and Present Applicability

Dr. Anasuya Adhikari

Former Doctoral Fellow, Department of Education, Sidho-Kanho-Birsha University, West Bengal, India

ABSTRACT :

The much-lamented gap between theory and practice in education cannot be filled by practical knowledge alone or by explanatory knowledge alone. Principled Practical Knowledge (PPK) is a type of knowledge that has characteristics of both practical know-how and scientific theory. Like basic scientific theory, Principled Practical Knowledge meets standards of explanatory coherence. However, its main function is not explanation or prediction but practical guidance. Principled Practical Knowledge grows out of efforts to solve practical problems, but it requires additional effort invested in producing knowledge that goes beyond what is required for the task at hand yet not so far beyond as to be unusable by practitioners. This article delves into how Principled Practical Knowledge (PPK) combines theory with real-world application, helping students develop critical thinking, problem-solving, and adaptability. The National Education Policy (NEP) 2020 emphasizes Principled Practical Knowledge by shifting focus from rote learning to conceptual understanding and practical use. Through experiential learning, internships, and integration of academic and vocational streams, NEP promotes a multidisciplinary approach aimed at preparing students for the 21st-century workforce.

Keywords: Principled Practical Knowledge, PPK, NEP 2020, Education, Present Applicability, 21st Century

Introduction

Results, efficiency, and real-world applicability are given top priority in practicality. Carl Bereiter in 2014 penned, *"Principled practical knowledge: Not a bridge but a ladder."* He notes that design research, which starts as an attempt to address an actual educational issue, has essentially supplanted the theory-first and practice-second approaches used by learning science researchers. He points out that there are numerous real-world educational obstacles that *"theoretical knowledge is too shallow to support the generation of new and improved learning activities"* (p. 9). He does, however, advocate for the creation of Principled Practical Knowledge (PPK), which is principled since it should also adhere to the requirements of explanatory coherence and practical in that it provides generalized knowledge about how to accomplish certain learning objectives. Although such systematic, verifiable information—also known as '*principled know-how and know-why*'—provides explanation, its primary goal is practical direction rather than explanation or prediction, in contrast to formal theoretical knowledge (p. 6).

Bereiter acknowledges this to some degree when he says that learning scientists "*produce ideal strategies that work under the optimal conditions found in experimental classrooms*" (p. 13). He continues by arguing that usability engineering is necessary in addition to Principled Practical Knowledge created by the learning sciences to facilitate the adoption of designs in conventional classrooms with conventional teachers (Bereiter, 2014). We both agree that in order to make new ideas useful for instructors, usability engineering, or what we like to refer to as "*practicality studies*" is required. Nevertheless, by using the word '*practical*' in Principled Practical Knowledge and asserting that it effectively bridges the theory-practice divide (Abbas, 2005). Like many researchers, Bereiter suggests that a large portion of the usability issue is resolved if researchers test designs in actual classrooms, include teachers in the Principled Practical Knowledge development process, and create not only Principled Practical Knowledge but also teacher manuals and exemplary teaching materials. It is recognized that educators still have to modify resources and concepts locally to suit their needs (Barab & Luehmann, 2003).

Sense of Practicality in Education

To better understand why educators often reject innovation proposals or modify them in ways that lose the invention's essence, practicality theory was established. According to practicality theory, whether or not an innovation suggestion is practical from a teacher's point of view determines its likelihood of being adopted (Abbas et al., 2024). According to the theory, practicality has three interconnected dimensions: cost, congruence, and instrumentality.

After providing a quick overview of the three dimensions, we go on to discuss why Principled Practical Knowledge, even when enhanced and supplemented with excellent resources and teacher guides, is typically not regarded as useful by ordinary teachers in ordinary classrooms.

The degree to which an innovative proposal is accompanied by well-known classroom practices is referred to as instrumentality. In order to identify learning settings that possess the desired qualities, educators require concepts and standards. These are insufficient, though, because in order to create learning environments with the appropriate qualities, teachers also require processes (Corno, 2008). However, pragmatism requires more than instrumentality. Additionally, innovations must be congruent—that is, appropriate for the conditions in which teachers operate. The structures and behaviors of everyday life are defined and maintained by the histories, relationships, and cultures of classrooms, which are intricate ecologies (Doyle, 2006). Additionally, educators must accomplish multiple objectives at the same time. Teachers must meet demands such covering material on time, maintaining student participation, keeping lessons moving forward, encouraging classroom etiquette, and holding students accountable in addition to maximizing learning (Corno & Snow, 1986). The innovation is likely to be viewed as lacking congruence if a teacher believes that a specific instructional design will make it difficult to cover the course material, require a lot of individualized attention in a group setting, strain the already-existing relationships between teachers and students, or make it more difficult to evaluate each student's performance individually (Dam et al., 2013). Lastly, it makes sense that educators would be concerned about the expense of implementing an instructional design. Here, '*cost*' refers to the resources, time, and expertise needed to implement the innovation in comparison to the practice's alleged advantages. These commodities are scarce in the majority of real-world circumstances. Teachers do more than just instruct pupils in the classroom, too. They also speak with parents, work with colleagues, attend meetings, and meet one-on-one with students who need extra assistance.

All things considered, teachers will only view a change proposal as feasible if it is supported by economical design and implementation processes that also help them achieve other significant objectives. For three interconnected reasons, Principled Practical Knowledge fails to achieve these practicality requirements, even when it is based on an intermediate degree of generality and includes excellent teaching resources and guidelines (Doyle & Ponder, 1977). First of all, it is more of an exception than a rule that example resources match the subject and grade level that a teacher must teach; therefore, a teacher must typically create new lessons using the standards outlined in Principled Practical Knowledge. Second, even while Principled Practical Knowledge is defined at an intermediate degree of generality, it frequently merely outlines the requirements that a learning environment must fulfill without outlining practical, affordable methods for creating learning environments that have the required qualities. Lastly, Principled Practical Knowledge primarily concentrates on improving student learning and does not specifically consider the other objectives that educators must concurrently accomplish. This suggests that knowledge derived from practicality studies should be added to the results of mastering the sciences (Abbas et al., 2024). Therefore, the duties of establishing ecologically sound practices, connecting an alternative design to current conditions, and calculating the time and resources required to design and implement an innovation define the space of practicality studies.

Principled Practical Knowledge in Educational Philosophy

Principled Practical Knowledge is defined as declarative and procedural practical knowledge. It entails comprehending the fundamental ideas and motivations behind a task in addition to knowing how to perform it. It combines '*know-how'* and '*know-why*,' enabling adaptability, flexibility, and rational behavior. Principled Practical Knowledge is a type of knowledge that can be discussed, reasoned about, and applied to create more comprehensive understanding frameworks. It is not just a list of guidelines or a description of practice. Educationalists in various era have talked about the importance of practicality in education (Adhikari & Saha, 2021a).

Mary Wollstonecraft promoted education for women that was based on reason and experience in order to help them become self-sufficient and moral citizens (Adhikari, 2024), her work is intimately associated with the idea of Principled Practical Knowledge (PPK). She maintained that women could think rationally and act morally if they were given the chance to receive an education and be involved in society, challenging the widely held belief that they were less intelligent than males (Adhikari & Saha, 2022a). Because Wollstonecraft emphasizes the value of both knowing the principles underlying actions (know-why) and having the practical abilities to carry them out (know-how), her thoughts are consistent with Principled Practical Knowledge (Adhikari & Saha, 2022b). She believed that women should receive an education that would help them think critically, make wise decisions, and contribute to society in addition to imparting knowledge. The notion that women were innately less intelligent or logical than men was contested by Wollstonecraft. She maintained that women's perceived inferiority was mostly caused by their lack of education and that education was essential to their moral and intellectual growth (Adhikari & Saha, 2022c; 2022d). Wollstonecraft maintained that women should be trained to think critically and to draw lessons from their own experiences, emphasizing the value of both reason and experience in education. The goal of Wollstonecraft's educational philosophy was to produce moral individuals who could advance society (Adhikari & Saha, 2022e). Her views on education went beyond only imparting theoretical knowledge; she also highlighted the value of practical skills and training for women, particularly in fields like business and medical. Principled Practical Knowledge is essentially in line with Wollstonecraft's vision for women's education, which emphasizes the necessity of a rational and useful approach

to education that enables women to become self-reliant, moral, and contributing members of society (Adhikari & Saha, 2023a).

Since the Montessori method is based on principles that direct experiential learning, it is intimately tied to principled practical knowledge (Adhikari & Saha, 2021c). Pouring, sorting, and dressing are examples of practical life tasks in Montessori that are intended to promote independence, coordination, and focus—all of which are essential elements of principled practical knowledge. These exercises aim to help participants get a deeper comprehension of how things operate and how to use that understanding in practical settings, in addition to helping them acquire new skills (Saha & Adhikari, 2023a; 2023d). Montessori practical life activities include things like buttoning, zipping, and cleaning that kids do on a regular basis. As they learn to take care of themselves, these activities aid in the development of children's coordination, fine and gross motor skills, and sense of independence (Adhikari & Saha, 2021d). Montessori felt that by fostering focus, organization, and the capacity to follow instructions, real-world activities set the stage for more abstract academic learning. The development of fundamental practical knowledge is given a tangible framework via Montessori's practical life activities. Children acquire both the '*how*' and the '*why*' of their behavior, which is crucial for morally sound practical knowledge (Saha & Adhikari, 2023c). A Montessori classroom's controlled atmosphere and well-selected resources foster the growth of both practical abilities and the fundamental ideas that underpin them (Saha & Adhikari, 2023b). Children who participate in practical life activities not only learn how to complete tasks but also develop the ability to comprehend, modify, and enhance their actions based on underlying principles, a crucial component of principled practical knowledge (Saha & Adhikari, 2023e).

Nel Noddings challenges the conventional focus on abstract, rule-based ethics in favor of a more contextual, relational approach oriented on caring, her philosophy of care is closely tied to principled practical knowledge (Adhikari & Saha, 2021b). In contrast to the emphasis on universal principles and logical reasoning typically associated with principled ethics, Noddings' *Ethics of Care* places a strong emphasis on the value of connections, empathy, and responsiveness in making moral decisions. Noddings' ethics of care places more emphasis on the significance of context, relationships, and emotions than traditional ethics, which frequently depends on universal principles and rules to govern moral action. According to Noddings, making decisions that are unjust or insensitive may arise from depending only on principles and ignoring the unique needs and circumstances of each individual (Adhikari & Saha, 2023b). According to Noddings, morality is based on loving connections, and moral behavior is motivated by a desire to meet the needs of others. The practical consequences of Noddings' ethics of care for education include the recommendation that educators place a high priority on developing compassionate relationships with pupils, encouraging empathy, and establishing a nurturing learning environment (Adhikari & Saha, 2024). According to Noddings, acting morally involves more than just being able to defend one's actions on the basis of moral principles; it also involves feeling satisfied and fulfilled when one attends to the needs of others (Adhikari et al., 2023).

Practical knowledge is becoming more and more significant in Indian education since it is thought to be crucial for both employment and overall growth. Although theoretical learning has frequently been prioritized in the traditional Indian educational system, there is a growing understanding that in order to close the knowledge gap, practical skills and real-world applications must be incorporated. The traditional Indian educational system has frequently come under fire for ignoring the development of practical skills in favor of rote memorization and theoretical information. A move toward experiential and practical learning is emphasized in the National Education Policy (NEP) 2020, which encourages students to apply their knowledge in real-world situations. Integrating Practical Knowledge in Indian Education:

• Curriculum Reform: Academic institutions are urged to incorporate more hands-on activities, like lab work, workshops, and field excursions, into their curricula (Athavale & Bansal, 2021).
• Teacher Training: In order to effectively incorporate practical knowledge into their teaching approaches and give students hands-on learning experiences, teachers must receive training (Barab & Luehmann, 2003).
• Assessment Reform: Rather than concentrating just on theoretical knowledge, assessment techniques should also change to evaluate students' capacity to apply their knowledge in real-world contexts.

Principled Practical Knowledge to Deal with Anxiety, Depression and Stress arising in Higher Education

Developing healthy coping strategies, confronting negative thought patterns, and placing a high priority on self-care are all examples of principled practical knowledge for managing stress, anxiety, and depression. This entails consistent exercise, getting enough sleep, practicing mindfulness, and creating a solid support system (Adhikari et al., 2023). It's also critical to have a problem-solving stance and, when necessary, seek professional assistance. Reactivity to unpleasant emotions can be decreased by engaging in mindfulness and meditation practices, which can help people become more objectively aware of their thoughts and feelings. Cognitive Behavioral Therapy (CBT) replaces negative thought patterns that lead to anxiety and depression with more realistic and balanced cognitive patterns (Mondal & Mahato, 2025). Engaging in physical activity helps control stress hormones and releases endorphins, which improve mood. A balanced diet that nourishes the body has a favorable effect on mental health. Sleep deprivation can worsen anxiety and despair, so making sleep a priority is essential for both physical and mental health (Sutradhar et al., 2023). Stress and feelings of overburden can be

lessened by developing good time management and work prioritization skills. Stress can be decreased and burnout can be avoided by learning to say '*no*' and putting boundaries on obligations (Sen et al., 2023). Making connections with loved ones, friends, or support groups can offer a feeling of community and emotional support. It is crucial to get professional assistance from a therapist or psychiatrist if anxiety or depression are having a major influence on day-to-day functioning.

Principled Practical Knowledge Approach for Anxiety, Depression and Stress and NEP 2020

The National Education Policy (NEP) 2020 emphasizes a holistic approach to education, integrating mental health and well-being alongside academic learning. It aims to reduce anxiety and stress by promoting experiential, flexible, and joyful learning environments (Abbas & Bhattacharya, 2025). The policy aims to reduce stress and anxiety associated with rote memorization and high-stakes assessments by promoting a more flexible and engaging curriculum (Abdul, 2022). NEP 2020 encourages the integration of mental health support systems in schools, including counseling services and awareness programs. The policy emphasizes the importance of training teachers to identify early signs of mental health issues and provide appropriate psychosocial support. NEP 2020 promotes peer support groups and the development of life skills, such as emotional regulation and coping mechanisms. *Manodarpan Initiative* psychosocial support to students, teachers, and families, particularly during and after the COVID-19 pandemic. *Pariksha Pe Charcha* program allows Prime Minister Narendra Modi to interact with students, addressing exam-related stress and promoting a positive attitude towards exams.

Conclusion

Beyond explanation, Principled Practical Knowledge's primary goal is to give instructors and professional designers useful advice for creating creative learning experiences. In education, Principled Practical Knowledge (PPK) is a kind of knowledge that blends scientific theory with practical expertise, allowing students to comprehend ideas and use them successfully in real-world contexts. In order to prepare pupils for a dynamic world outside of the classroom, it is essential for developing critical thinking, problem-solving, and adaptability. By reorienting the emphasis from rote memorization to conceptual understanding and application of information, the National Education Policy (NEP) 2020 highlights Principled Practical Knowledge. Principled Practical Knowledge also helps reducing depression, anxiety and stress caused by the academic pressure. By combining academic and vocational streams and fostering experiential learning through initiatives like internships and real-world projects, it supports an all-encompassing and multidisciplinary approach to education. This change attempts to develop critical thinking and problem-solving skills in addition to giving pupils the information and skills required for the workforce of the twenty-first century.

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