SPARKS WORKING PAPER I

INVISIBLE PEDAGOGICAL MINDSETS

DEVELOPING A CONTEXTUAL UNDERSTANDING OF PEDAGOGIES

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Invisible Pedagogical Mindsets:
Developing a Contextual Understanding of Pedagogies

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Summary

Although global access to schooling has increased over the last several decades, Sustainable Development Goal 4 (SDG 4), which champions inclusive, equitable, quality education, is far from being achieved. Experts predict that if the global community continues to operate education systems in the same way, by 2030, only one in six countries will reach the universal secondary school completion targets, and approximately 300 million students in school will continue to lack basic numeracy and literacy skills (United Nations, 2023a). The 2022 United Nations Transforming Education Summit emphasized the urgent need for a complete overhaul of education systems to meet SDG 4 targets. One significant outcome of the summit was a **call to improve student learning by transforming teacher classroom practice** (United Nations, 2023b). Changes in classroom practice require changes in teachers' pedagogical approaches. However, the process of pedagogical reform is complex and multifaceted and requires a firm understanding of education policy, research, and local contexts.

This paper is the first in a series of three working papers meant to serve as references and conversation starters for policymakers and researchers as they navigate pedagogical reform for education system transformation in their local contexts. Together, the three working papers emphasize the need for more locally driven collaborative research on how the interaction of culture, local education ecosystems, and learning theories—collectively called **Invisible Pedagogical Mindsets** —influences teachers' pedagogical choices in the classroom.

1. **Working Paper I** explores **what** different definitions of "pedagogy" promote, emphasizes the importance of Invisible Pedagogical Mindsets for pedagogical reforms, and sets the stage for Working Papers II and III.
2. **Working Paper II** explains **why** it is important to examine Invisible Pedagogical Mindsets to inform local pedagogical reform agendas. Specifically, it outlines the challenges of a "best practices" approach, as seen with the generalized implementation of student-centered pedagogies.
3. **Working Paper III** details **how** collaborative research methodologies can help ensure pedagogical research considers Invisible Pedagogical Mindsets and responds to local contexts.

Working Paper I explores various definitions of pedagogies, the lack of consensus on what pedagogy means in practice, and the effects of Invisible Pedagogical Mindsets on pedagogical approaches. Policymakers and researchers can consider our recommendations when accounting for the role of Invisible Pedagogical Mindsets in pedagogical reform. **Appendix I** provides working definitions of key concepts from the three Working Papers.

A. Use a tailored definition of pedagogy in pedagogical research and reform.

Despite widespread use of the term "pedagogy," there is no consensus on what the term means in practice. Some see pedagogy as a purely technical activity and describe it as "the science of teaching." Others focus on how sociocultural elements such as culture, local education ecosystems, and learning theories influence pedagogical choices. And others propose some combination of these definitions (Alexander, 2009; Bremner, 2021). "Pedagogy" is ambiguous partly because the purposes of education vary and because ways of teaching and learning are contested topics (Burde, 2014; Qargha, 2022). This section explores how various individuals and entities define "pedagogy" and highlights the importance of considering Invisible Pedagogical Mindsets when defining "pedagogy" in local contexts.

1. Understand that there is no single definition for "pedagogy."

"Pedagogy" is a complex term, and its meaning varies based on political, historical, or social factors in local contexts. Although many cultures value good teaching practice, the modern use of the term "pedagogy" to describe teaching and learning is predominantly a Western phenomenon. Dating back to the 16th century, the term has been adopted by non-Western localities or transferred from the outside by international actors (Loughran, 1999; Rizvi, 2009; Schweisfurth, 2013; Steiner-Khamsi & Waldow, 2012). The term "pedagogy" is more common in French-, German-, Russian-, and Spanish-speaking communities than in English-speaking ones (Hamilton, 2009). "Pedagogy" has been used to describe various concepts, including the place, practice, system, science, art, and principles of education and teaching. For instance, the Oxford English Dictionary defines "pedagogy" as a place of instruction (such as a school, college, or university), a system of introductory training, and a means of guidance.

> **Linguistic Definitions of "Pedagogy"**
>
> ➢ "the science of teaching" (Oxford Shorter English Dictionary, 1993)
> ➢ "the art, science, or profession of teaching" (Merriam Webster Dictionary)
> ➢ "the function or work of a teacher" (dictionary.com)
> ➢ "the study of teaching methods" (Oxford Learners Dictionary, 2023)

In academic literature, the term "pedagogy" encompasses the *visible* aspects of teaching and learning, like teaching methods, interactions between teachers and students, the learning environment, and the curriculum, as well as the *invisible* theories, values, knowledge, attitudes, experiences, and research that influence classroom practice (Alexander, 2009; Moyles et al., 2002; Shah & Campus, 2020; Siraj-Blatchford et al., 2002). Academics also use the term "pedagogy" to describe interactions in diverse fields, such as health, fitness, gender, literature, management, cultural studies, and media studies (Loughran, 1999; Marton & Booth, 1997).

> **Academic Definitions of "Pedagogy"**
>
> ➢ "the observable act of teaching" and "the ideas that inform the act of teaching" (Tabulawa, 2013)
> ➢ "the dynamic relationship between learning, teaching, and culture" (Istance & Paniagua, 2019)
> ➢ "the act of teaching together with its attendant discourse of educational theories, values, evidence and justifications" (Alexander, 2009)

Ministries of education and international development organizations also have varied definitions of "pedagogy." For instance, the Victoria State Department of Education and Training in Australia focuses on instructional methods and sees "pedagogy" as the methods or principles of teaching (Department of Education and Training, 2018). A USAID report defines "pedagogy" as strategies and techniques supporting development and learning (Bub, 2022). Without explicitly defining "pedagogy," the World Bank emphasizes the importance of pedagogy for teachers' professional development and advocates for specific interventions, such as structured pedagogy (Global Education Evidence Advisory Panel, 2023). An OECD working paper defines "pedagogy" as repeated patterns or sets of teaching and learning practices that shape interactions between teachers and learners (Peterson et al., 2018).

The term "innovative pedagogies" emerged in the last two decades to refer to pedagogical approaches that aim to significantly improve learning outcomes by creating transformative shifts in teaching and learning, described as leapfrogging (Istance & Paniagua, 2019). According to recent literature, two main characteristics make a pedagogy innovative: a) intentionally planned practices to enhance student learning, and b) a departure from common pedagogical approaches in a specific context (Averill & Major, 2020; Kukulska-Hulme et al., 2020). Therefore, any intentional changes to classroom practice that aim to improve student learning in a local context can be considered an "innovative pedagogy." However, no single practice is universally "innovative." An "innovative" practice in one local context might be common practice in another. In **Working Paper II**, we discuss student-centered pedagogies as a leading example of innovative pedagogies in practice.

We recommend a working definition for pedagogy as a starting point for discussion in local contexts to overcome the lack of consensus on a universal definition for the term.

2. *Consider local culture, education ecosystems, and learning theories when defining pedagogy.*

In attempting to define pedagogy, we draw from work by education scholar Robin Alexander, who emphasized the impact of culture and local context on pedagogical choices. Alexander (2009) defines "pedagogy" as "the act of teaching together with its attendant discourse of educational theories, values, evidence and justifications" (p. 928). In other words, pedagogy is not only the teaching methods but also the theories, values, and experiences that influence a teacher's worldview, as well as the evidence and justification that impact a teacher's choices. We build on Alexander's definition, to arrive at a working

definition of pedagogy as the interaction of culture, local education ecosystems, and learning theories that shape how teachers teach and students learn.

> *"Pedagogy is the interaction of culture, local education ecosystems, and learning theories that shape how teachers teach and students learn."*

We encourage policymakers and researchers to build on our working definition to develop a definition most appropriate for their local context and aligned with their education reform agendas. In **Working Paper III**, we outline a collaborative research strategy that can help researchers and education actors – which can include policymakers, academics, teachers, students, donors, civil society organizations and other actors in the local education ecosystem - jointly define and explore pedagogies in their local context.

Our working definition of pedagogy aims to capture the multiple elements that make up pedagogy. In the following section, we refer to these elements as Invisible Pedagogical Mindsets.

B. Adapt pedagogical approaches to account for Invisible Pedagogical Mindsets.

The act of teaching is the visible part of pedagogy—the tip of the iceberg. But beneath the surface, elements such as **culture, local education ecosystems,** and **learning theories** inform teachers' choices and shape the teaching and learning experience. We use these three categories to encompass what we define as Invisible Pedagogical Mindsets: the multifaceted, interconnected, and unobservable elements that impact pedagogical approaches in the classroom.

UNESCO defines **culture** as "the set of distinctive spiritual, material, intellectual and emotional features of society or a social group that encompasses, not only art and literature, but lifestyles, ways of living together, values systems, traditions and beliefs" (UNESCO, 2001). Because knowledge is situated within a social context, an individual's learning is shaped by social processes and values within this cultural context (Kim & Davidson, 2019). Jones (1989) also underlines the importance of culture in the classroom, stating that "we cannot discuss what happens in the classroom and its significance for social change without at least an understanding of the structured, collective cultural interpretations of the pupils" (p. 22).

The term "**ecosystem**" is derived from the field of biology and describes the interdependence of multiple organisms and their natural environment (Hannon et al., 2023). In education, local ecosystems highlight the diversity of thought, knowledge, and expertise amongst actors and the importance of contextualization to address local challenges. **Local education ecosystems** include education policies, curriculum, assessments, allocated instruction time, and classroom sizes, as well as politics, technology, and the formal, informal, and non-formal education outlets. For example, fixed assessment protocols and curriculum policies can greatly impact how and if an innovative pedagogical approach will translate to the classroom. In cases where pedagogical reforms are not successfully implemented, Tabulawa (2013) describes this as "tissue rejection," where an innovation is not congruent with local education ecosystems.

The third category we use to define Invisible Pedagogical Mindsets is **learning theories**. From behaviorism to constructivism, many scholars have attempted to provide learning theories about how students should learn and how knowledge is created (See **Appendix II**). The different epistemologies— ways of knowing— that support various learning theories closely connect to the pedagogical approaches teachers employ in the classroom and can affect how knowledge is presented, created, and reflected upon.

As illustrated in the graphic below (See **Figure 1**), the three categories—culture, local education ecosystems, and learning theories, along with the elements that make up each category—together capture what we mean by Invisible Pedagogical Mindsets.

Figure 1: Invisible Pedagogical Mindsets
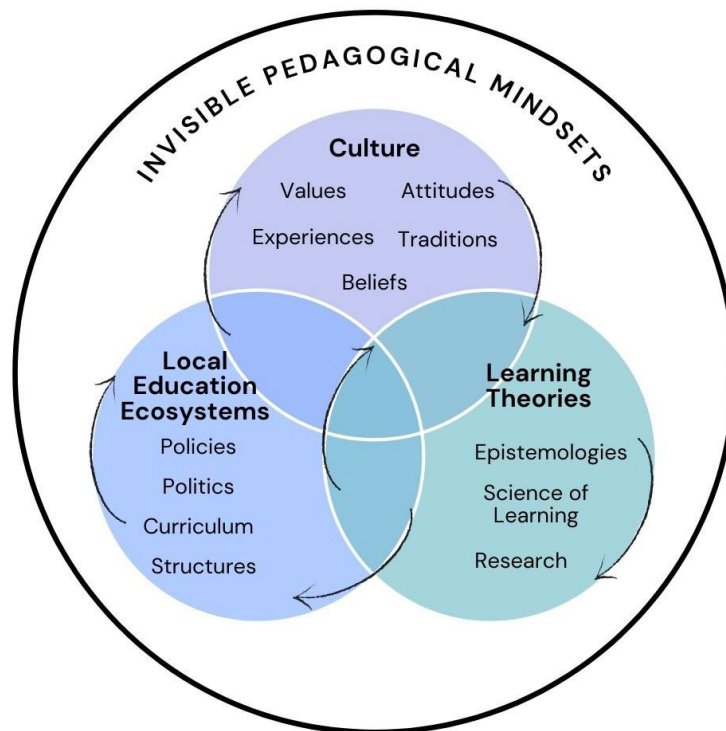
When we consider all the elements that make up the Invisible Pedagogical Mindsets, pedagogical reforms will be more effective and localized to a specific context, discussed further in this section.

1. *Account for the effects of culture, local education ecosystems, and learning theories on pedagogical choices in the classroom.*

Historically, many education systems around the world have practiced what is often labeled "teacher-centered pedagogy" by outside observers or "experts," often with a negative connotation and a call for

change (Sakata et al., 2023). With a teacher-centered pedagogical approach, the teacher is seen as the central source of knowledge in the classroom, and teachers primarily rely on lecture style classes. Changing teaching methods that are deeply engrained in the societal structure and valued as effective strategies by educators, students, and families is complex and can lead to resistance. A case study in Kenya demonstrated that existing values and practices play a more significant role than technical considerations, such as resources and training, in influencing how quickly and successfully schools adopt innovations (Kay, 1975). Often, pedagogical reforms advocate for a specific interpretation of student-centered teaching methods that challenge traditional beliefs about knowledge, learning, and teacher-student dynamics. These approaches often clash with established power structures and values about the role of the teacher and students (Alexander, 2008; Zhao, 2020). In **Working Paper II**, we discuss why generalized approaches to student-centered pedagogies have failed to bring about changes in classroom practice.

If new pedagogical approaches align with the culture, local education ecosystem, and learning theories related to education, there will be less resistance to implementation in classrooms (Alexander, 2008; Chafi & Elkahouzai, 2017; Tabulawa, 2013).

The Cultural Politics of Pedagogical Reform in Ethiopia

In 1994, student-centered pedagogy was part of the Ethiopian Education and Training Policy. The push for student-centered pedagogy came from a desire for more innovative teaching and learning approaches and a move away from more traditional approaches. However, many of the obstacles of reform arose due to the cultural mismatch between the proposed reform and the existing values, resources, and training approaches. Students struggled to adapt to a new pedagogical approach that stressed more active participation. Teachers lacked support, materials, and expertise in the new approaches. As a result, most teachers continued to rely on teacher-centered, lecture-based lesson models that were more suitable for the context. It is important to consider how culture, the local education ecosystem, and learning theories affect implementation of innovative pedagogical approaches (Serbessa, 2006).

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2. *Acknowledge that teachers are professionals with different backgrounds and experiences that inform their pedagogical approaches.*

Teachers have formed conscious and subconscious opinions about good teaching based on their professional experience, cultural environments, system constraints, and prior education experiences. Therefore, when teachers are asked to implement new pedagogical reforms, they are forced to reconcile their professional identity, experiences, and lived realities with the latest pedagogical approaches (Denscombe, 1982; Olsen, 2014). Experienced teachers, like other professionals (Shryock, 2018; Strebel, 1996), are often comfortable with their toolkit of typical classroom practices and feel like they are doing the best job given the limitations of their work.

However, teachers face pressures both from higher authorities for mandated reforms and from the day-to-day challenges in their classrooms (Jones, 1989; Olsen, 2014). In many classrooms, teachers work with students from diverse social, racial, and cultural backgrounds. The teacher is responsible for managing the dynamic interactions among students effectively, within the time, curricular, structural, and systematic limitations of the local education system (Burridge, 2018). These pressures and constraints might lead teachers to reject proposed reforms and adopt alternative, context-appropriate pedagogical approaches more suitable for their classrooms (Horn, 2018). A study on pedagogical reform in Vietnam highlighted that policymakers and other education actors often blame teachers for the lack of changes in classroom practices. However, the study concluded that the burden of reform at the classroom level goes beyond the teacher. For classroom practice to change, teachers need effective systems, supporting materials, ongoing training, and clear guidance (Ho & Dimmock, 2019)

While policymakers might see changes in classroom practice as an opportunity to improve the education system, for many teachers, changing classroom practice is neither sought nor welcomed. Changing classroom practice can be disruptive and intrusive and imply they are not doing a good job in their classrooms (Tabulawa, 2013). This resistance isn't a personal flaw. It is a natural inclination to assess the burden and risks of changing practice versus the perceived rewards. Changing classroom practice becomes more of a challenge when the changes do not align with what the teacher values as good teaching and the reality of their lived experiences. Without acknowledging teacher differences, their expertise, and how the proposed reforms affect teachers' workload, we risk miscalculating the feasibility of reforms and assuming that a "one-size- fits-all" approach will change classroom practice.

Teachers are active agents and not mere passive receivers of reform. For pedagogical reforms to become part of classroom practice, policymakers need to see local teachers as professionals with deep understanding of the challenges and constraints of the local context. Because if local teachers see the proposed pedagogical reforms as misaligned with the culture, local education ecosystems, and preferred learning theories, the reform is unlikely to become part of classroom practice.

California Case Study: How Teachers Influence School Reform

A study by Olsen and Kirtman (2002) in California identified individual and school-wide influences on how reforms are implemented. The study aimed to address how teachers can be active agents for reform and highlight the "mediating influences" that can carry over to the classroom from teachers' personal identities and beliefs. The individual influences can include experience, expertise, assumptions about learning, and other personal factors. The interviews revealed that teachers often referred to personal experiences when discussing their work. The findings also revealed that many teachers' opinions and attitudes about the school's restructuring efforts were directly or indirectly linked to school staff development efforts. This study showcases the importance of considering how teacher identity can affect the uptake of school reform.

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3. *Align pedagogical reforms to the local education ecosystem.*

In education, an ecosystem includes different actors like policymakers, principals, teachers, students, and others, as well as curriculum, assessment requirements, professional development ladders, and other education policies that foster certain norms and practices. Historically, education ecosystems were based on a "bureaucratic regimentation of knowledge and classrooms" (Fuller & Kim, 2022). However, because different ecosystems have different goals and different actors have different perspectives, education ecosystems have evolved to create organizational structures that align with the purpose of education in the local context. For example, in Australia, despite attempts to introduce innovative language programs, the existing ecosystem and curricular structure prioritized other core subjects that were more aligned with the overall purpose of education (Liddicoat et al., 2018). See **Working Paper II** for a discussion of the different purposes of education. Ecosystems are either designed with specific purposes and outcomes in mind or unintentionally promote already engrained values. Rather than examining isolated elements that affect education and make up an ecosystem, an ecosystem approach allows us to think about all the interactions of elements that take place within a local context and how these interactions affect pedagogical choices in the classroom.

Implementing pedagogical reforms that do not fit within an existing education ecosystem is complicated. A Brookings report defined "strengthening education systems" as "aligning their governance, management of schools, teachers, financing rules, and incentive mechanisms" (Fuller & Kim, 2022). It is similar to maintaining a garden, where the growth and health of each flower or plant depends on factors such as the soil, sunlight, and other plants around them. Changes to any of these factors may affect the growth and vitality of the garden. Similarly, changes to one element in a local education ecosystem can affect the other elements that are part of the larger ecosystem.

We must consider how different elements of a local education ecosystem interact, especially when attempting to change the way one of the elements functions through pedagogical reform. An ecosystem perspective helps us see the bigger picture and address the dynamic interplay of Invisible Pedagogical Mindsets within the overall education ecosystem.

Effects of Colonialism on the Indian Education System

In India, studies show that the remnants of British colonialism have greatly impacted education reforms. Many previous reforms did not address lingering discrimination and the impact of colonization on mindsets and structures within the Indian education system. The Indian education system first must be decolonized before it can provide equitable access to a holistic education for all Indian children. In 2018, India's Ministry of Human Resource Development created the Samagra Shiksha framework to house previous educational programs and initiatives with hopes to encourage a more integrated approach to education (Qargha et al., 2023).

C. Combine international research with collaborative, locally driven research to gain a full understanding of how Invisible Pedagogical Mindsets influence pedagogical choices.

Most of the international research on pedagogy focuses on the relationship between pedagogical choices and teacher professional development, curriculum reform, and education technology (EdTech) (Hassler et al., 2018; Yakavets et al., 2021; Yelenevych, 2022). For a more detailed overview of these three mechanisms for pedagogical reform, refer to **Working Paper II**. However, we need pedagogical research that focuses on Invisible Pedagogical Mindsets in local contexts to understand why classroom practice remains unchanged and how we can promote reforms that are more likely to positively change classroom practice.

The following section demonstrates the need for more focused research on Invisible Pedagogical Mindsets using a collaborative, process-oriented research approach. In **Working Paper III**, we delve further into how collaborative research approaches have been used in international education development and the opportunities collaborative research provides for researching pedagogies.

1. *Focus more pedagogical research on Invisible Pedagogical Mindsets.*

To gain a deeper understanding of how pedagogical reform can lead to positive changes in education experiences for students in local contexts, we need further research on how Invisible Pedagogical Mindsets impact the decisions of teachers and other education actors as they imagine and implement pedagogical approaches. Currently, there is a growing emphasis on understanding the connection between teacher agency and pedagogy (Yakavets et al., 2022) with exploratory studies delving into how teachers make pedagogical choices in their classrooms (Burridge, 2018; Ambusaidi & Al-Maqbali, 2022). Additionally, some research explores how the interplay between teacher beliefs and cultural norms affects this dynamic (OECD, 2009). However, few studies systematically explore how the different elements of pedagogical practice—culture, local education ecosystems, and learning theories—interact within local contexts. There is almost no research on the relationship of pedagogical reform to the education system transformation, and there are even fewer cross-country case studies. It is critical that there are more country case studies that explore how Invisible Pedagogical Mindsets impact classroom practice to better understand how to make pedagogical reforms more responsive to local contexts.

2. *Use a process-oriented research approach to understand the effects of Invisible Pedagogical Mindsets on pedagogies.*

Even though much of the research on pedagogies tends to use qualitative approaches, most research does not focus on understanding which pedagogical approaches teachers prefer and why. Rather, most researchers tend to evaluate whether teachers are applying a specific type of student-centered approach—often designed outside the specific context—in their classrooms and measure student

outcomes as determined by exams. Westbrook and colleagues (2013) conducted a rigorous review of 54 studies that examined pedagogy, curriculum, and teaching practices in developing countries. Most studies used a combination of qualitative methods: 40 observed classroom activities, 37 used interviews and focus group discussions, 20 employed document analysis, 13 used questionnaires and surveys, 15 reviewed exam scores, three used action research, and two used quasi-experimental methods. Their review is in line with other work in this area, which used qualitative approaches and focused on smaller interventions rather than the broader education ecosystem. Only a handful of studies have looked at pedagogical approaches across multiple country contexts (Akyeampong et al., 2013; Alexander, 2001). There is a need for more studies that explore how pedagogical reforms interact with the national education ecosystems and more cross-country case-studies to shed light on the differences and similarities between country contexts.

Although policymakers and researchers often prefer an evaluative approach to study pedagogical choices, a process-oriented approach can develop a deeper understanding of the relationships between different variables. A process-oriented research approach focuses on the processes underlying a certain result and explores the questions of "how" and "why" certain outcomes are observed (Ramos et al., 2021). Although evaluative approaches appear to offer a practical way to measure the progress of education against internationally recognized benchmarks (Kay, 1975; Rehman & Alharthi, 2016; Tabulawa, 2013), these approaches do not develop a deep understanding of the subject (Royse et al., 2010) and often treat pedagogical choices as prescribed medicine teachers must take (Sharples et al., 2016, p. 7).

The standard evaluation lens usually attributes the lack of change in classroom practices to resource shortages, inadequate teacher training, and unskilled teachers. This mindset drives interventions that inject more training, resources, EdTech, and assessments to improve classroom practice (Čamber Tambolaš et al., 2023; Vavrus, 2009). While these interventions are necessary to provide technical inputs to local education ecosystems in certain local contexts, we must also consider non-observable elements, the Invisible Pedagogical Mindsets, that affect pedagogical choices and, in turn, the overall quality of education.

A collaborative process-oriented research approach will provide information to policymakers about how Invisible Pedagogical Mindsets affect pedagogical choices, how teachers make decisions about pedagogical choices, how they combine pedagogies, and the challenges that teachers, students, and other education actors see with proposed pedagogical reforms. The insights from process-oriented research approaches will allow policymakers to make locally informed decisions about which pedagogical approaches are most relevant and appropriate for their local contexts.

3. *Draw from localized and collaborative research approaches for researching pedagogical reforms.*

Policymakers should prioritize understanding how pedagogical reform fits within their local context, including how new and innovative pedagogical approaches align with local values and aspirations within the education ecosystem. This involves integrating multiple perspectives with a collaborative approach and conducting locally led research that considers Invisible Pedagogical Mindsets and aligns with the

specific goals and values of the communities served. **Working Paper III** outlines how collaborative research methodologies can ensure pedagogical research responds to local needs.

Conclusion

This working paper highlights the importance of considering Invisible Pedagogical Mindsets when defining pedagogy in local contexts. Understanding these mindsets is crucial for grasping how they influence pedagogical choices. Culture, local education ecosystems, and prevailing learning theories – the three core elements of Invisible Pedagogical Mindsets – play a key role in shaping classroom practices and guiding pedagogical reforms.

In **Working Paper II**, we turn our attention to why it is important for policymakers to move away from best practices, specifically to avoid generalized implementation of student-centered pedagogies. We highlight the challenges in implementation of student-centered pedagogies, especially when transferred to new countries and contexts, and the importance of approaching pedagogical reform from a localized perspective that considers Invisible Pedagogical Mindsets and tailors pedagogical approaches to local contexts.

Appendix I: Working Definitions of Key Concepts

Approach: This term refers to the way teachers implement pedagogies in the classroom. A pedagogical approach is how they impart a certain pedagogy in practice. This term can also refer to the way in which someone conducts research.

Behaviorism: Behaviorism is a learning theory based on the premise that behaviors are learned or acquired through positive or negative reinforcement or different types of conditioning in their environment.

Breadth of Skills: A breadth of skills includes not just foundational literacy and numeracy but also socioemotional skills and other skills, attitudes, characteristics, and knowledge children need to thrive.

Chalk and Talk: "Chalk and talk" approaches generally refer to traditional teacher-centered pedagogical approaches where teachers rely on a chalkboard and lecture-style classes.

Community Collaborators: This term encompasses the multiple actors from the community involved in the SPARKS Research Policy Collaboratives that assist the local Facilitating Partner in the research process.

Competency-Based: In contrast to an objective-based education system, a competency-based system generally has a curriculum where success is measured based on whether students master certain competencies or skills. Generally, competency-based education systems utilize formative assessments to evaluate student progress and encourage individualized learning progressions for students.

Constructivism: Constructivism is an educational theory that emphasizes the active role of learners in constructing their understanding and knowledge of the world. In a constructivist framework, learners are seen as active participants in the learning process rather than passive recipients of information. They construct knowledge through experiences, reflection, and interaction with others.

Education Actors: This term encompasses the multiple actors involved in the local education ecosystem including policymakers, academics, teachers, students, journalists, donors, civil society organizations and other relevant community members.

Education Ecosystem: This term refers to education policies, curriculum, assessments, allocated instruction time, classroom sizes, and formal, informal, and non-formal local education outlets.

Education Technology (EdTech): This term refers to the intersection between technology and education and the practice of using technology to facilitate learning.

Education System Transformation: This term refers to the fundamental transformation of education systems which encourages reflection and reassessment of the goals and purposes of education in specific contexts to ensure alignment in a constantly changing and modernizing world.

Evidence-based decision-making: This term refers to an approach to decision-making where policymakers primarily base decisions on available evidence derived from rigorous, empirical research methods.

Evidence-informed decision-making: This term refers to an approach to decision-making where policymakers' decisions are informed by but not solely based on research evidence.

Innovative Pedagogies: This term refers to pedagogical approaches that are new to teachers and aim to significantly improve learning outcomes by creating transformative shifts in teaching and learning.

Invisible Pedagogical Mindsets: This term refers to the complex and multifaceted non-observable elements that influence pedagogical approaches and in turn are influenced by culture, local education ecosystems, and learning theories.

Leapfrogging: This term refers to the creation of transformative rather than incremental shifts to harness the power of innovation and improve learning.

Mechanism: This term refers to a way of doing something or achieving a goal. In this sense, a mechanism for implementing innovative pedagogies is the vehicle or process through which a pedagogical reform is implemented.

Objective-Based: Also referred to as "outcome-based," an objective-based education system has a curriculum or approach organized around achieving specific learning outcomes.

Pedagogical Reform: This term refers to policies or efforts that change existing pedagogical approaches in the classroom.

Pedagogy: We define "pedagogy" as the interaction of culture, local education ecosystems, and learning theories that shape how teachers teach and students learn.

Relevant: This term refers to pedagogical approaches applicable to a specific context.

Scripted Lesson Plans (SLPs): Scripted lesson plans are an instructional approach in which teachers follow pre-written scripts or detailed lesson plans during teaching sessions.

Structured Pedagogy: This term refers to pedagogical approaches that are organized, systematic, and planned. Structured pedagogy emphasizes the importance of clear instruction, explicit teaching methods, and the use of instructional materials. Examples include breaking down learning objectives into smaller, manageable steps, sequencing learning activities in a logical order, and providing scaffolding and support to learners as they progress.

Student-Centered Pedagogy: Despite varying definitions of student-centered pedagogies, most scholars agree on four central themes: active participation, relevant content, respectful classroom environments, and formative assessment. The student is central in the learning process.

Teacher-Centered Pedagogy: This term refers to an instructional approach in which the teacher plays a central role in the learning process. In this approach, the teacher serves as the primary source of knowledge and directs the flow of instruction.

Traveling Policies: These policies originated in the West and have been adopted by education actors in other localities.

21st Century Skills: This term refers to skills identified as required for success in the 21st century, including critical thinking and problem solving, creativity, and collaboration.

Appendix II: Prominent Learning Theories

Theory	Main Theorists	Explanation
Constructivist	Swiss Psychologist, Jean Piaget (1896–1980) Russian Psychologist, Lev Vygotsky (1896–1934) American Psychologist, Jerome Bruner (1915 –2016) American Education Psychologist, Benjamin Bloom (1913–1999)	The Constructivist Approach is a relativist and subjectivist theory that explains the nature of knowledge and how human beings learn. It emphasizes that there is no objective reality and learners create their own knowledge by interacting with their existing beliefs and the ideas, events, and activities around them. The teacher serves as a guide and facilitator to help students formulate their ideas and conclusions. This approach counters a realist and objectivist approach in which there is an objective reality that is then taught by the teacher to students (Caduceus, 2023; O Relleve, 2010; Ültanir, 2012). Constructivist teaching and learning strategies include research projects, field trips, and class discussions.
Collaborative	American Professor, Kenneth Bruffee (1934–2019) Russian Psychologist, Lev Vygotsky (1896–1934)	The Collaborative Approach focuses on the joint efforts of students and teachers to achieve a learning objective. The approach focuses less on traditional repetition of facts and more on the exploration and application of content as well as dialogue. Collaborative teaching and learning strategies include peer teaching, online collaboration platforms, and pair- and groupwork (O Relleve, 2010).
Integrative	American Philosopher and Psychologist, John Dewey (1859–1952) American Psychologist, Jerome Bruner (1915–2016) British Educationalist, Lawrence Stenhouse (1926–1982)	The Integrative Approach focuses on making connections across content and curricula. In this way, the approach aims to prepare students for real life situations. This approach has four main objectives: make sense of the learning process, differentiate matters by relevance, apply the learning to practical situations, and associate the learned elements (O Relleve, 2010). Integrative strategies include mapping connections between content, drawing connections between prior experience and the material, and regularly reflecting on the application of what students have learned.
Reflective	American Philosopher and Psychologist, John Dewey (1859–1952)	The Reflective Approach promotes self-reflection and evaluation as integral parts of the learning experience. Teachers that use this approach frequently think about how successful a lesson

	American Philosopher and Professor, Donald Schön (1930–1997)	was, why they used certain strategies, and what strategies to use moving forward (O Relleve, 2010). Methods to promote reflection in the classroom include journaling, self-assessment, and peer review.
Inquiry-Based Learning	Swiss Psychologist, Jean Piaget (1896–1980) Russian Psychologist, Lev Vygotsky (1896–1934) American Philosopher and Psychologist, John Dewey (1859–1952) Brazilian Educator and Philosopher, Paolo Freire (1921–1997)	Based on constructivist theories, the Inquiry-Based Learning Approach encourages questions, research, and investigation. With this approach, students develop critical thinking skills and think more deeply about the inquiry process (Caduceus, 2023). A teacher's role in this approach is to challenge assumptions and prompt students to question ideas and test new strategies. Inquiry-Based Learning strategies include field study, simulations, and experiments.

References

Akyeampong, K., Lussier, K., Pryor, J., & Westbrook, J. (2013). Improving teaching and learning of basic maths and reading in Africa: Does teacher preparation count? *International journal of educational development*, *33*(3), 272-282.

Alexander, R. J. (2001). *Culture and pedagogy: international comparisons in primary education*. Blackwell Pub.

Alexander, R. J. (2008). *Education for all, the quality imperative and the problem of pedagogy*. CREATE, University of Sussex.

Alexander, R. (2009). Toward a Comparative Pedagogy. In *International Handbook of Comparative Education* (pp. 923–941). Springer Science.

Ambusaidi, A. K., & Al-Maqbali, F. Y. (2022). Exploring pedagogical decision making from the lens of science teachers in response to different pedagogical issues. *Social Sciences & Humanities Open*, *5*(1), 100236.

Averill, R. M., & Major, J. (2020). What motivates higher education educators to innovate? Exploring competence, autonomy, and relatedness–and connections with wellbeing. Educational Research, 62(2), 146-161.

Bremner, N. (2021). What is Learner-Centered Education? A Quantitative Study of English Language Teachers' Perspectives. *The Electronic Journal for English as a Second Language*, *25*(2).

Bub, K. L. (2022). *What Works in Pre-Primary Education Pedagogical Practices* [Data and Evidence for Education Programs (DEEP)]. USAID.

Burde, D. (2014). *Schools for conflict or for peace in Afghanistan*. Columbia University Press.

Burridge, P. (2018). Teacher Pedagogical Choice. In O. B. Cavero & N. Llevot-Calvet (Eds.), *New Pedagogical Challenges in the 21st Century - Contributions of Research in Education*. InTech. https://doi.org/10.5772/intechopen.73201

Čamber Tambolaš, A., Vujičić, L., & Jančec, L. (2023). Relationship between structural and social dimensions of school culture. *Frontiers in Education*, *7*, 1057706. https://doi.org/10.3389/feduc.2022.1057706

Chafi, E., & Elkhouzai, E. (2017). Reculturing Pedagogical Practice: Probing Teachers' Cultural Models of Pedagogy. *International Journal of Education and Literacy Studies*, *5*(1), 78. https://doi.org/10.7575/aiac.ijels.v.5n.1p.78

Denscombe, M. (1982). The "Hidden Pedagogy" and Its Implications for Teacher Training. *British Journal of Sociology of Education*, *3*(3), 249–265. https://www.jstor.org/stable/1392748

Fuller, B., & Kim, H. (2022, September 12). *Systems thinking to transform schools: Identifying levers that lift educational quality*. Brookings. https://www.brookings.edu/articles/systems-thinking-to-transform-schools-identifying-levers-that-lift-educational-quality/

Global Education Evidence Advisory Panel. (2023). *Cost-Effective Approaches to Improve Global Learning* (182811). https://documents1.worldbank.org/curated/en/099420106132331608/pdf/IDU0977f73d7022b1047770980c0c5a14598eef8.pdf

Hamilton, D. (2009). Blurred in translation: Reflections on pedagogy in public education. *Pedagogy, Culture & Society*, *17*(1), 5-16.

Hannon, V., Clayton, R., Stevenson, M., & Talreja, V. (2023). *Exploring Local Learning Ecosystems in the Global South Report final* (Global Education Leaders Partnership). Learning Planet Alliance. Local Learning Ecosystems in the Global South Report final.pdf - Google Drive

Hassler, B., Hennessy, S., & Hofmann, R. (2018). *Sustaining and Scaling Pedagogic Innovation in Sub-Saharan Africa: Grounded Insights for Teacher Professional Development*. https://doi.org/10.17863/CAM.22370

Ho, L., & Dimmock, C. (2023). Changing teachers' beliefs and practices towards learner-centred education: experiences and lessons from Vietnam's education system reforms. *PRACTICE*, 1–20. https://doi.org/10.1080/25783858.2023.2177191

Horn, M. B. (2018, June 12). Putting School Budgets in Teachers' Hands. *Education Next*. https://www.educationnext.org/putting-school-budgets-in-teachers-hands-end-users-classroom-purchasing-decisions/

Istance, D., & Paniagua, A. (2019). *Learning to Leapfrog: Innovative Pedagogies to Transform Education*. Center for Universal Education at The Brookings Institution. https://eric.ed.gov/?id=ED602937

Jones, A. (1989). The Cultural Production of Classroom Practice. *British Journal of Sociology of Education*, *10*(1), 19–31. https://www.jstor.org/stable/1393007

Kay, S. (1975). Curriculum Innovations and Traditional Culture: A Case History of Kenya. *Comparative Education*, *11*(3), 183–191. https://www.jstor.org/stable/3098583

Kim, Y.-S. G., & Davidson, M. (2019). *Promoting Successful Literacy Acquisition through Structured Pedagogy* (Global Reading Network Critical Topic Series). USAID.

Kukulska-Hulme, A., Beirne, E., Conole, G., Costello, E., Coughlan, T., Ferguson, R., ... & Whitelock, D. (2020). Innovating pedagogy 2020: Open university innovation report 8.

Liddicoat, A. J., Scarino, A., & Kohler, M. (2018). The impact of school structures and cultures on change in teaching and learning: the case of languages. *Curriculum Perspectives*, *38*(1), 3–13. https://doi.org/10.1007/s41297-017-0021-y

Loughran, J. (Ed.). (1999). *Researching Teaching* (0 ed.). Routledge. https://doi.org/10.4324/9780203487365

Marton, F., & Booth, S. A. (1997). *Learning and awareness.* Lawrence Erlbaum Associates Publishers.

Merriam Webster Dictionary. (2023, October 19). *Definition of PEDAGOGY*. https://www.merriam-webster.com/dictionary/pedagogy

Moyles, J. R., Adams, S., Musgrove, A., & Great Britain. (2002). *SPEEL: Study of pedagogical effectiveness in early learning*. DfES Publications.

OECD (Ed.). (2009). *Creating effective teaching and learning environments: first results from TALIS*. OECD.

Olsen, B., & Kirtman, L. (2002). Teacher as Mediator of School Reform: An Examination of Teacher Practice in 36 California Restructuring Schools. *Teachers College Record: The Voice of Scholarship in Education*, *104*(2), 301–324. https://doi.org/10.1111/1467-9620.00164

Olsen, B. (2014). Learning from experience: A teacher-identity perspective. In *Learning Teaching from Experience: Multiple Perspectives and International Contexts* (pp. 79–92). Bloomsbury.

O. Relleve, C. C. (2010). *Values Education Pedagogy for Z Learners*. https://www.dlsud.edu.ph/coed/ncvre/docs/2019/DrChesterRelleve-PEDAGOGYGENZ.pdf

Pedagogical approaches to teaching in higher education. (2023, April 20). *Caduceus International Publishing*. https://www.cipcourses.com/blog/pedagogical-approaches-to-teaching-in-higher-education/

PEDAGOGY Definition & Usage Examples. (n.d.). Dictionary.Com. Retrieved November 6, 2023, from https://www.dictionary.com/browse/pedagogy

pedagogy, n. meanings, etymology and more | Oxford English Dictionary. (n.d.). Retrieved November 6, 2023, from https://www.oed.com/dictionary/pedagogy_n?tl=true

pedagogy noun - Definition, pictures, pronunciation and usage notes | Oxford Advanced Learner's Dictionary at OxfordLearnersDictionaries.com. (n.d.). Oxford Learner's Dictionaries. Retrieved November 6, 2023, from https://www.oxfordlearnersdictionaries.com/us/definition/english/pedagogy#:~:text=%E2%80%8Bthe%20study%20of%20teaching%20methods

Peterson, A., Dumont, H., Lafuente, M., & Law, N. (2018). *Understanding Innovative Pedagogies: Key Themes to Analyse New Approaches to Teaching and Learning* (Working Paper No. 172; OECD Education Working Paper Series). Organization for Economic Co-operation and Development.

Qargha, O., Chopra, C., Dyl, R., & Lakshmanan, S. (2023, December 15). *A call for contextualized pedagogy*. Brookings. https://www.brookings.edu/articles/a-call-for-contextualized-pedagogy/

Qargha, G. O. (2022). *Privatization of Primary and Secondary Schools in Afghanistan* (Doctoral dissertation, University of Maryland, College Park).

Ramos, A., Coutinho, P., Davids, K., & Mesquita, I. (2021). How could process-oriented research approaches capture the interplay between training and competition in athlete performance preparation? The contribution of ecological dynamics. *Psychology of Sport and Exercise*, *57*, 102019. https://doi.org/10.1016/j.psychsport.2021.102019.

Rehman, A. A., & Alharthi, K. (2016). An introduction to research paradigms. International Journal of Educational Investigations, 3(8), 51-59.

Rizvi, F. (2009). Global Mobility and the Challenges of Educational Research and Policy. *Yearbook of the National Society for the Study of Education*, *108*(2), 268–289. https://doi.org/10.1111/j.1744 7984.2009.01172.x

Royse, D. D., Thyer, B. A., Padgett, D., & Logan, T. K. (2010). *Program evaluation: An introduction* (p. 401). Belmont, CA: Wadsworth Cengage Learning.

Sakata, N., Yates, C., Edjah, H., & Okrah, A. K. (2023). Exploring postcolonial relationships within policy transfer: the case of learner-centred pedagogy in Ghana. *Comparative Education*, 1-18.

Sengeh, D., & Winthrop, R. (2022). *Transforming Education Systems Why, What, and How* https://www.brookings.edu/wp-content/uploads/2022/06/Brooking_2-Pager_FINAL.pdf

Serbessa, D. D. (2006). Tension between traditional and modern teaching-learning approaches in Ethiopian primary schools'. *Journal of International Cooperation in Education*, *9*(1), 123–140.

Schweisfurth, M. (2013). *Learner-centred Education in International Perspective* (0 ed.). Routledge.

https://doi.org/10.4324/9780203817438

Shah, R. K., & Campus, S. (2021). Conceptualizing and Defining Pedagogy. *IOSR Journal of Research & aMethod in Education*, *11*(1), 6–29. https://doi.org/10.9790/7388-1101020629

Sharples, M., Roock, R. de, Ferguson, R., Gaved, M., Herodotou, C., Koh, E., Kukulska-Hulme, A., Looi, C.-K., McAndrew, P., Rienties, B., Weller, M., & Wong, L. H. (2016). *Innovating Pedagogy 2016* (pp. 1–47). The Open University. https://www.learntechlib.org/p/195462/

Shryock, T. (2018, May 24). *Why it's so hard for doctors to change*. Medical Economics. https://www.medicaleconomics.com/view/why-its-so-hard-doctors-change

Siraj-Blatchford, I., Sylva, K., Muttock, S., Gilden, R., & Bell, D. (2002). *Researching effective pedagogy in the early years*. Department of Educational Studies.

Steiner-Khamsi, G. & Waldow, F. (2012). Understanding policy borrowing and lending: Building comparative policy studies. In *World yearbook of education 2012* (pp. 3-17). Routledge.

Strebel, P. (1996, May). *Why Do Employees Resist Change*? Harvard Business Review. https://hbr.org/1996/05/why-do-employees-resist-change.

Tabulawa, R. (2013). *Teaching and learning in context: why pedagogical reforms fail in sub-Saharan Africa*. CODESRIA, Council for the Development of Social Science Research in Africa.

The Pedagogical Model. (2018). Victoria State Government: Department of Education and Training. https://www.education.vic.gov.au/Documents/school/teachers/teachingresources/practice/pedagogicalmodel.pdf

Ültanir, E. (2012). An Epistemological Glance at the Constructivist Approach: Constructivist Learning in Dewey, Piaget, and Montessori. *International Journal of Instruction*, *5*(2).

UNESCO (2001). *UNESCO Universal Declaration on Cultural Diversity*. Paris: UNESCO. Retrieved from: http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/pdf/5_Cultural_Diversity_EN.pdf

United Nations. (2023a). *SDG Progress Report 2023 | Department of Economic and Social Affairs*. Retrieved August 31, 2023, from https://sdgs.un.org/documents/sdg-progress-report-2023-52208

United Nations. (2023b). *Report on the 2022 Transforming Education Summit*. https://www.un.org/sites/un2.un.org/files/report_on_the_2022_transforming_education_summit.pdf

Vavrus, F. (2009). The cultural politics of constructivist pedagogies: Teacher education reform in the United Republic of Tanzania. *International Journal of Educational Development*, *29*(3), 303–311. https://doi.org/10.1016/j.ijedudev.2008.05.002

Westbrook, J., Durrani, N., Brown, R., Orr, D., Pryor, J., Boddy, J., & Salvi, F. (2013). *Pedagogy, Curriculum, Teaching Practices and Teacher Education in Developing Countries* (Education Rigorous Literature Review) [Final Report]. Department for International Development.

Winthrop, R., & Sengeh, D. (2022, June 23). *Transforming education systems: Why, what, and how*. Brookings. https://www.brookings.edu/articles/transforming-education-systems-why-what-and-how/

Yakavets, N., Winter, L., Malone, K., Zhontayeva, Z., & Khamidulina, Z. (2022). Educational reform and teachers' agency in reconstructing pedagogical practices in Kazakhstan. *Journal of Educational Change*. https://doi.org/10.1007/s10833-022-09463-5

Yelenevych, A. (n.d.). *Council Post: The Future of EdTech*. Forbes. Retrieved October 31, 2023, from
https://www.forbes.com/sites/forbesbusinesscouncil/2022/12/26/the-future-of-edtech/

Zhao, W. (2020). Epistemological flashpoint in China's classroom reform: (How) can a 'Confucian do-
after-me pedagogy' cultivate critical thinking? *Journal of Curriculum Studies*, *52*(1), 101–117.
https://doi.org/10.1080/00220272.2019.1641844

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