The evaluation of "equity" within TPD@Scale

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2022

Executive Summary

- Any evaluation of "equity" within teacher professional development (TPD) must ensure that it permeates all layers of a complex, situated, and fluid social practice within which teacher agency and control are critical.

- Evaluation must recognize the need to respect context and the local manifestation of not only the presence of both equity and inequity, but also the fact that participants will be at different stages in development, move at different speeds, and have different aims.

- This diversity can be celebrated and challenged within a common evaluation framework grounded in the three "planes" suggested by Rogoff (1995): questions emerging from self-reflection within context can be asked relating to the institutional, interpersonal, and intrapersonal planes.

Recommended citation
Soler, J., & Fletcher-Campbell, F. (2022). *TPD@Scale briefing note: The evaluation of "equity" within TPD@Scale.* Foundation for Information Technology Education and Development.

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Acronyms

IEA	International Association for Evaluation of Educational Achievement
PIRLS	Progress in International Reading Literacy Study
TPD	teacher professional development
TPD@Scale	teacher professional development at scale
SDG	Sustainable Development Goal

Introduction

This briefing note starts with the recognition that any teacher professional development at scale (TPD@Scale) program is complex, involving many actors operating at a multitude of levels and contexts. Each actor has a different starting point and vision regarding the outputs, outcomes, and impact of the respective TPD offer. Therefore, "equity" within TPD in all its forms needs to be understood, applied, and evaluated across all of these contexts. Given this, TPD can be perceived as emanating from the layered environment and involving learning that is job-embedded, system-embedded, and organizationally embedded (Fullan, 2009).

Evaluation is variously interpreted both within and among countries and jurisdictions. In this briefing note, evaluation is recognized as a means of:

- ascertaining if the aims of the program were met;
- establishing if these aims were valued by and valuable for the participants to whom they were directed; and
- challenging the original aims, e.g., by considering who did not participate and why they did not do so.

The complexity and ecology of TPD@Scale initiatives suggest a need for a common evaluation procedure or methodology that can be used to identify, describe, analyze, and reflect on infrastructure, practices, processes, and their outcomes in relation to equity in a particular context. This "context" is malleable, and its parameters are determined by the relevant actors at the national, local, institutional or classroom level.

The evaluation procedure offered in this briefing note introduces a range of questions in different dimensions. These questions are designed to enable those involved in TPD (both as "providers"/facilitators and as "receivers"/participants) to interrogate the equity in their practice in relation to their particular context. The questions do not necessarily pertain to all contexts nor should they all be asked at the same time. They do not constitute a definitive list and are merely prompts. They are designed as a non-linear, multi-faceted resource. Each TPD@Scale program will need to select a range of methods to produce data to address the questions appropriate to their program.

Professional development should itself demonstrate equity: it should be participative, with agency accorded to teachers themselves (Cordingley et al., 2005; Rodesiler, 2017). Therefore, it is important that the way that teachers are regarded also reflects the way in which their own students should be regarded. Rather than confining professional development to an "expert-led" program that is in danger of perpetuating power hierarchies and established practices (Torrance et al., 2021), teachers should have the opportunity to identify and respond to their own needs (Timperley & Alton-Lee, 2008). They should also be able to challenge assumed practices (Torrance et al., 2021) albeit bringing in specialist support and mentoring as needed (Cordingley et al., 2005).

From this, it follows that professional development should include not only formal opportunities but also, and importantly, informal opportunities such as reading groups, teacher-led discussions (Carpenter, 2016) or "affinity spaces" (Gee, 2004) where teachers can work together around a shared interest and take charge of their own agenda. Such spaces, bearing rich professional development opportunities for teachers, are increasingly possible via the internet (Booth, 2012; Kelly & Antonio, 2016; Rodesiler, 2017). However, the lack of an infrastructure guaranteeing power and/or stable internet connections can exacerbate existing inequities in teachers' access to professional development outside their own particular school and the consequent impact on students' experiences. There is evidence (Rogoff, 1993) that "learning by participation" rather than didactic instruction leads to greater cooperation and collaboration on actual tasks – here, teacher practice – among those who participate in this way and that people learn to do things in more than one way. This is essential if effective practice is to be implemented in varying circumstances, some of which may not offer ideal learning environments.

This briefing note will delineate an operational definition of "equity," introduce a procedure for evaluation, and suggest how equity in TPD might be interrogated. The framing of this can be applied to any situation where TPD occurs, regardless of varying economic or political factors, as it is merely a frame and leaves the specification and focus of the professional development related activity to be determined by those involved in the practice.

The concept of "equity" in education

The definition of equity by the OECD (2008) is acknowledged:

> Equity in education has two dimensions. The first is fairness, which implies ensuring that personal and social circumstances – for example gender, socio-economic status, or ethnic origin – should not be an obstacle to achieving educational potential. The second is inclusion, which implies ensuring a basic minimum standard of education for all – example that everyone should be able to read, write, and do simple arithmetic.

This can be complemented by the two global goals which state that countries should:

> "ensure that all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes" (SDG4, target 4.1)

and

> "eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous people, and children in vulnerable situations" (SDG4, target 4.5)

These clauses refer to "necessary conditions" for teachers qua professionals to work with young learners and depend on national and local legislation, policy, and resourcing (material resources and human resources). Legislation, policy, and practice interact and influence each other.

Recent Global Education Monitoring Report data[1] suggest that while progress has been made, there are persistent education inequalities on account of social structures. For example, in Sub-Saharan Africa, only seven young women compared to ten young men attend tertiary education. However, the gender gap is not as great as that between young people in rural locations as compared to urban locations and between those from rich and those from poor backgrounds, especially in low- and middle-income countries. Young people with disabilities are over-represented in groups out of school (UNESCO Institute of Statistics, 2017). Of course, such basic data do need interpretation: many data sets interact, so young people can fall into multiple categories of inequity. Furthermore, the data themselves do not signal a specific response or teacher development activity, as causes may vary: non-attendance may be due to lack of access, poor motivation, or lack of aspiration, for example, and any one of these will be generated by different circumstances. But the significance for the evaluation of TPD is two-fold. First, that the teaching workforce may itself reflect inequities in that certain subsets of the population may be under-represented on account of inequities in access to education in previous decades. Second, that the composition of present school rolls may not match that of the local population (e.g., in terms of gender or disability). Furthermore, the data show that present learning provision is not serving the needs of all students, and future provision may be only partially effective, especially when communities are mobile. Both serving teachers and those who are designing TPD need to be cognizant of these factors.

While external structures establish the culture and context within which teachers work (Biesta, Priestley, & Robinson, 2017), teacher agency can offer a powerful response. National infrastructure and legislation are responsible for considering metrics relating to equity in education (SCOPE, 2021). Fair treatment across all social groups and at the level of individuals has greater potential to be supported through the pedagogical planning, actions, and social awareness of individual educational institutions or organizations and program designers. "Fair practice" will be influenced by cultural values, practices, and hierarchies of the wider society wherein educational institutions and programs are situated. Achieving fairness in relation to achieving educational potential for all groups also depends on an understanding of the local context, the participants in learning communities, and their lived experiences. This suggests a dialogical rather than didactic approach to TPD, as teachers have to respond to the specific needs of their students, including the students' conception of "the good life." Simultaneously, they must be attuned to the national situation regarding opportunities for their students' future employment, mobility, and progression to other contexts.

Formal statements of educational goals refer to general outcomes (e.g., OECD's "relevant effective learning outcomes"). While they may be amenable to assessment by metrics, they are limited as they do not situate TPD in society or acknowledge that TPD has to make reference to what teachers are trying to do and achieve in their particular classrooms over and above merely "delivering the curriculum." To allow evaluation, any professional development activity that prepares teachers to develop their students' learning needs to have criteria that are both transparent and agreed in context; these criteria will depend on the values embedded within the local context.

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[1] https://www.education-progress.org/en/

A framework for evaluation

If the purpose of education is agreed upon and openly encompasses a willingness to promote equal access and equity across all social groups, then it is possible to consider what policymakers/planners and teachers need to understand, effect, or be able to do to bring about equality of access and equity for educational achievement across the diversity of learners at school. This then shapes the TPD programs. The programs themselves need to be positioned within an understanding of teacher learning; in turn, teachers need to understand student learning. Policymakers need to provide the infrastructure and opportunities for both.

Rogoff (1995) proposed a framework whereby the influence being exerted on learning within any "activity" (here, teacher professional development) can be analyzed by considering three planes: the intrapersonal – the individual's learning; the interpersonal – interactions between participants in the learning activity; and the institutional – values, beliefs, and requirements stemming from the wider context but influencing the activity in the other planes. "Institutional" can be regarded as a national, regional, cluster or school-derived plane; similarly, the "interpersonal" can be at the level of the school, the professional learning community or a small group of teachers. "Intrapersonal" can be applied to the learning of both teachers and students.

All participants in professional development can use the framework – it is not merely for administrators, leaders or managers. Different specificities will arise in different contexts and on these different planes; these will lead to different priorities and ways of working. Two science teachers may both take control of their own learning and have similar long-term aims, but one may be working in a rural school with few science teacher colleagues to talk to on a daily basis while another may be in a large urban school with significant opportunities for professional in-person exchange. While technology can reduce some of these challenges, it will offer the isolated teacher a different experience from one where they have a colleague with whom they can exchange ideas and comments during everyday practice. Designers of TPD need to recognize this. Again, a practitioner at the start of their career will have different needs from one at the end of their career; there will be a difference in the way they approach a new curriculum initiative for which professional development is being offered. Thus, the intrapersonal depends on the interpersonal plane, which itself will be influenced by the institutional plane (e.g., resourcing of education, expectations of teachers). The planes interact, and a shift in one will affect the activity in another; any change has to bear this in mind and communicate with and understand the needs of participants and activity in related planes.

The planes offer a description of the situation according to questions posed, so the values and beliefs of TPD can be embedded in the questions and will reflect the priorities and concerns of the particular context and their relationship with practices in the other planes. The identification of the questions may be a professional development opportunity in its own right. While some teacher educators, or even teachers, may be accustomed to working this way, others may experience a new degree of agency that will enhance their own self-efficacy and self-belief as professionals and act as a motivating factor to engage in developmental activities (Canrinus et al., 2011). Given the interconnectivity of the framework, intra- and inter-plane collaborative teamworking is critical.

THE INSTITUTIONAL PLANE

The institutional plane (e.g., infrastructure, general requirements, and resources) deals with equity as it establishes the conditions within which teachers can develop their practice. It also ensures that high-quality pedagogy thus developed is equally available to all students regardless of their location or background characteristics.

Examples of relevant questions:

- Have the diverse student needs that require responses from teachers been identified? If not, how could this be managed? If not, could groups of teachers from areas similar in relation to socio-economic indicators reflect on the specific needs of their school rolls (e.g., children from mobile or itinerant communities; children such as AIDS orphans who do not live with their families; children with disabilities or learning difficulties; children who are the principal carers for younger siblings) to inform TPD?
- Do teachers have similar workloads across schools (e.g., so that there are equal opportunities for the time and space for professional development)?
- Do schools have access to similar resources such as electricity, internet connection, and computers to gain access to extra-school TPD where this is needed? Are there discussions with policymakers and finance departments to ensure that a stable long-term strategy is in place?
- Is there a culture of respect that encourages and inspires teachers to develop their practice and normalizes collaborative teacher development? If not, can appropriate professionals work together to identify the barriers?
- Is there a clear teacher career progression route that supports professional development?
- Is there a common understanding of what characterizes effective TPD? If not, can key stakeholders and actors, including teachers, arrive at a shared delineation?
- Do teacher appraisal schemes consider individuals' professional development and how it relates to that of their peers to ensure a collective approach? If not, how could this be addressed?

In relation to this type of question, there is a set of overview questions:

- Have managers the ability to access data easily to address the above questions?
- What auditing systems are in place?
- How accurate and up-to-date are the data?
- How inclusive are the data? Are there data relating to all teachers, including those with disabilities or from other "vulnerable" minority or migrant groups?

THE INTERPERSONAL PLANE

The interpersonal plane deals with equity as it focuses on the management and facilitation of teachers' learning; it is framed within what happens at the school and classroom level. Here, it will be easiest to identify TPD needs.

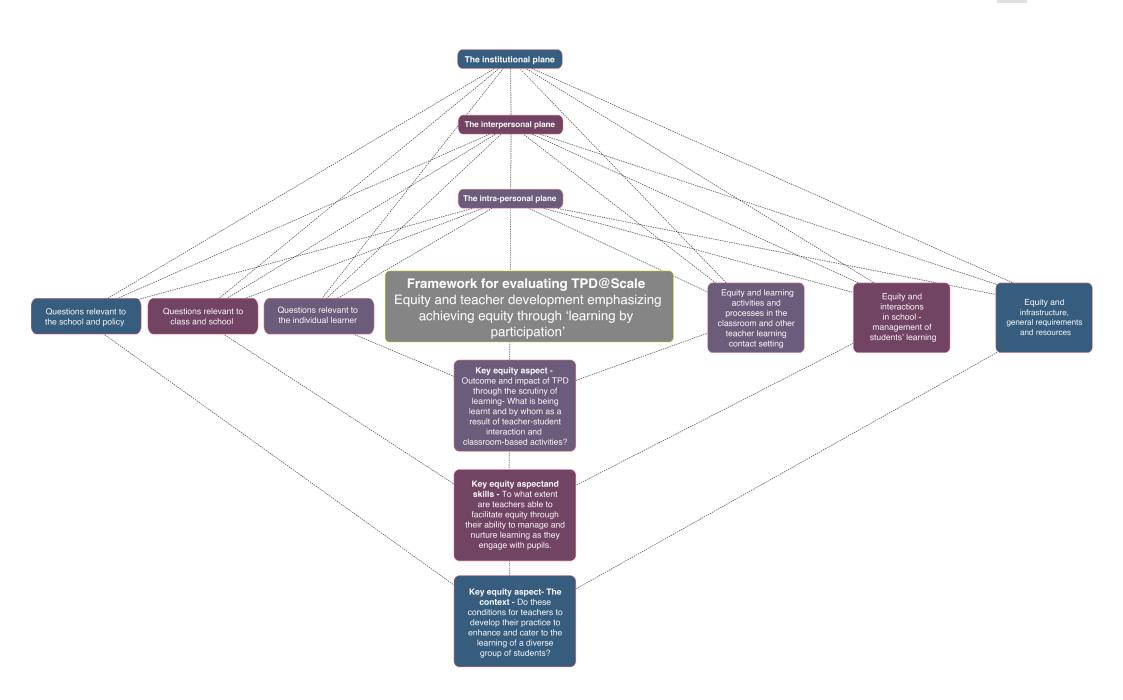Examples of relevant questions:

- Are teachers consulted about their own professional development needs? If they are not, why is this, and is there a means for their voices to be heard and acted on?
- Are TPD opportunities available to all teachers regardless of position/status/seniority? If there is unjustified discrimination, how can this be overcome?
- Is time available to teachers to engage in professional development? How could time be created? (e.g., by imaginative timetabling)
- Are teachers encouraged to participate in TPD activities?
- Are TPD opportunities represented by a range of formal and informal activities? What is missing in terms of such activities? What is the justification for a narrow range of activities?
- Is TPD related to the profile of students under the teachers' care? (e.g., students with disabilities, from minority groups, girls)?
- In what way does the TPD curriculum reflect the school curriculum? How does it equip teachers with the knowledge and skills to ensure that the curriculum and pedagogy relate to students' learning and lived experience in school to enable the participation of all?
- Does the TDP curriculum ensure that teachers have the agency and knowledge to position learning in the intra- and extra-school contexts so that it is relevant and meaningful to the learners, taking into account their background characteristics and home cultures?
- Is the TPD curriculum and pedagogy acceptable to the teachers so that they feel that they align with it as it equips them to own the school curriculum that, in turn, they offer to their students?
- How does the TPD curriculum enable school staff to relate to the community the school serves?
- Are teachers expected to identify the changes in their practice following development activities and to share their findings with colleagues? If not, is this because collaboration is not an expectation in the school? How could this be overcome?
- Do the teachers consider that learning from their students and reflecting on this is part of TPD?
- Does the development of teachers' practice enable students to feel valued within the school?
- Is the TPD curriculum informed by students' views as to what they value and find most helpful in their learning at school?

THE INTRAPERSONAL PLANE

The intrapersonal plane deals with equity in terms of scrutiny of the learning and what is taken by teachers from the activities. The outcome and impact of previous and ongoing TPD will be identifiable in this plane.

Examples of relevant questions:

- How does what the teachers learn from professional development manifest itself in their beliefs and actions?
- How do they evaluate their own practice? What criteria do they use?
- What learning do they take with, from, and to peers?

The institutional plane

The interpersonal plane

The intra-personal plane

Framework for evaluating TPD@Scale
Equity and teacher development emphasizing achieving equity through 'learning by participation'

Questions relevant to the school and policy

Questions relevant to class and school

Questions relevant to the individual learner

Equity and learning activities and processes in the classroom and other teacher learning contact setting

Equity and interactions in school - management of students' learning

Equity and infrastructure, general requirements and resources

Key equity aspect - Outcome and impact of TPD through the scrutiny of learning- What is being learnt and by whom as a result of teacher-student interaction and classroom-based activities?

Key equity aspectand skills - To what extent are teachers able to facilitate equity through their ability to manage and nurture learning as they engage with pupils.

Key equity aspect- The context - Do these conditions for teachers to develop their practice to enhance and cater to the learning of a diverse group of students?

Methods for data production and collection

A range of methods need to be used for producing the data necessary to address some of the questions delineated above. Variously, data will need to be created, may exist and be sufficient, or may exist but be insufficient.

QUANTITATIVE DATA

It is likely that quantitative data will already be available for a range of education-related areas at a national or international level, e.g., the data and associated databases generated by the International Association for the Evaluation of Educational Achievement (IEA), Progress in International Reading Literacy Study (PIRLS), and within national government reports and records. It will also exist at the institutional level where it will have emerged from standard record-keeping procedures.

The wider the scope of the database, the greater the danger of it having been established for purposes other than evaluating the reach of TPD or considering matters of equity. Thus, databases need to be interrogated for their efficacy in addressing questions of equity relevant to context. For example, are relevant data about specific minority or vulnerable groups separated? Do they give overall figures or show distribution? How much is relevant for TPD and teaching-related activities, or how much data has implications for equity regarding access to the curriculum, assessment outcomes, school achievement, and appropriate pedagogies and practices?

Databases at the classroom level are likely to be of more use to individual teachers and head teachers. However, they are often not used to the best effect, and the messages about issues of equity are not extracted. For example, such data might yield evidence that some teachers had raised standards of achievement by implementing a particular teaching technique whereas others had not because they had not implemented this technique. Staff need to have both the ability and time to interpret data, identify emergent questions, consider how these questions are best answered and by whom (i.e., at what level), and what subsequent action needs to be taken.

QUALITATIVE DATA

These will mostly deal with processes, perceptions, and lived experiences around professional development and engaging with learners. They will emerge in the interpersonal plane and depend on personal narratives offered in interviews, focus group discussions, feedback sessions, or any space wherein participants in professional development can comment on the way the initiatives have – or have not – changed their behavior or beliefs regarding their pedagogy. Data collection needs to include the voice of all those involved both in the TPD activity (teachers and facilitators) and those experiencing changes in teaching approach (e.g., students and other professional colleagues).

COMPLEMENTARITY OF QUALITATIVE AND QUANTITATIVE DATA

While there is some distinction between these two types of data, they can be regarded as complementary rather than producing discrete bases for decision-making. Any measurement (quantitative data) needs to be interpreted, and this interpretation will be influenced by context that will render interpretation complex. Any inference from quantitative data will be affected by psychometric, sociocultural, and situated approaches (Ercikan & Roth, 2006). Qualitative data can problematize quantitative data by interrogating it and seeking evidence of cause of consequence. Thus, it is critical that a collaborative approach is used in the evaluation of TPD so that policymakers, legislators, and practitioners can work together to identify strong practices and ameliorate weaker practices.

Outputs, outcomes, and impact

Any evaluation needs to consider three staging posts for any identification of "improvement" or change: outputs, outcomes, and impact.

Outputs are the "products" of TPD, the initiatives that can be accurately quantified and recorded, e.g., a specific number of teachers trained to teach a certain syllabus, participating in an online discussion forum, or attending a session about the education of refugee children. The outputs will be identifiable immediately after the initiative and will indicate the situation at the completion of the initiative. Outputs do not identify the quality or longer-term efficacy of the initiative.

Outcomes are the behavioral effects of the initiative and will relate to evidence of changed pedagogy, shifts in epistemological beliefs, reconsideration of some curriculum elements, etc. They will occur subsequent to the identification of outputs and may need a special focus to elicit the evidence. One example might be a school offering more practical work in science, with teachers working cooperatively to plan lessons with different groups of students. Another might be a teacher offering a greater range of differentiation strategies in order to meet the needs of a more diverse student cohort.

Impact is the longer-term effect – positive or negative – on the intended beneficiaries of the initiative. There may also be unexpected or unintended consequences that, again, may be positive or negative. Evidence will be within the intrapersonal plane. For example, the school implementing more differentiated approaches to meet more diverse needs may eventually see more disabled students progress to higher education or fewer students withdraw from education before the statutory leaving date. Another example might be teachers offering more practical science lessons may see an improvement in student performance and an increase in students wishing to study science subjects in their post-school destinations. However, it should be noted that the further away from the original initiative that impact is noted, the greater the possibility that other variables have intervened and may have been more powerful than the original initiative. Thus, impact is hardest to "prove;" output is unarguable.

Both qualitative and quantitative data collection and analysis will contribute to the identification of each of these three elements. The elements need to be referenced against not only the original purpose of the initiative but also the vision and values of those involved within a particular context. They can be applied at the institutional, interpersonal, and intrapersonal planes. An institution (e.g., national educational system, school, or unit within a school) may achieve its present goals for TPD but still need to move on from there to greater effectiveness. Greater knowledge, experience, and understanding should lead to more challenges of practice and more self-interrogation. For example, a school may have achieved a goal of all young people within its geographical area engaged and attending school regularly but it may not yet be able to equip some of these students to follow the journey to their preferred role in life or employment. Similarly, an individual teacher may have embraced a new pedagogical approach but it may yet be inadequate to reach all the students whom that teacher encounters.

If inclusivity is the overarching aim of TPD, then it must be remembered that inclusion is fluid and constantly being reimagined in response to other shifts in social and economic conditions. Each "achievement" or "success" in TPD should present an accompanying challenge for which another cycle of TPD will be necessary at some level. The TPD process itself is ever-developing, grounded in corporate and individual reflexivity within complex social practices. Evaluation should ensure that such takes place.

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