
[Teacher education and learning outcomes](#)

[Teachers and teacher education](#)

This brief examines the impact of teacher education on the quality of education. It provides suggestions of how educational planners and decision makers can improve the effectiveness of initial teacher education programmes and continuing professional development (CPD) to improve teaching quality.

Many countries are unable to recruit and train enough teachers to provide universal access to both primary and secondary education (Education International and Oxfam Novbib, 2011; UNESCO IICBA et al., 2017). Some countries hire unqualified and/or untrained teachers to fill the gap. (ADEA, 2016). Globally, 85 per cent of primary teachers were trained in 2018, whereas in sub-Saharan Africa, only 64 per cent of primary and 50 per cent of secondary teachers were trained in 2018–17 (UIS, TTF, and GEMR, 2019).

Sustainable Development Goal target 4.c seeks to increase the supply of qualified teachers (Education 2030, 2016). Five of the seven indicators relate to teacher training or qualifications. However, teacher education programmes vary between countries regarding length, content, modality (school or institution based), and entry requirements (OECD, 2018; UIS, 2017). Countries define the status of a ‘qualified teacher’ differently, making data comparisons difficult (UIS, 2017). Furthermore, ‘qualified’ does not necessarily equate to being trained to teach (target 4.c.1, 4.c.3) (Bengtsson et al., 2020).

What we know

Quality teachers a key role improve learning outcomes (Cosentino and Sridharan, 2017).

Analysis from sub-Saharan Africa found that teacher content and pedagogical knowledge significantly improve student achievement (Bold et al., 2017).

Research on the direct impact of pre-service teacher education and CPD is inconclusive. Initial training is not always adapted to the challenges teachers face (Best, Tournier, and Chimier, 2018), and the effectiveness of the few evaluated in-service CPD programmes is mixed (Popova et al., 2019).

Research is inconclusive about the minimum academic level required for teaching, especially at primary level. Some studies show that beyond a certain threshold, academic level has moderate or no effects on primary level learning outcomes (Best, Tournier, and Chimier, 2018). Conversely, a study in sub-Saharan African countries demonstrated that teachers with upper secondary education affect learners more positively than those with lower secondary education (Bernard, Tiyab, and Vianou, 2004). However, ‘in India, pre-service teacher training and holding a Master’s level qualification were found to have a significant positive correlation to learner outcomes’ (UNESCO,

Pre-service education can improve effectiveness. Practice must be linked to theory for recruits to apply their knowledge and skills in a classroom setting before teaching full-time (OECD, 2018; UNESCO, 2019). ‘The most effective teacher training courses involve active, experiential, practice-based learning focusing on outcomes rather than inputs. These courses consider trainee teachers as “reflective practitioners”, who learn both by doing and reflecting on their practice’ (UNESCO, 2019: 48).

Instruction type and quality matter more than participation (Martin, 2018; OECD, 2018; Taylor and Robinson, 2019). Effective training includes a specific subject focus, initial face-to-face aspect, follow-up, and participatory practices for everyday teaching activities. CPD opportunities linked to career progression, salary increases, or other incentives are more likely to be successful (Martin, 2018; Popova et al., 2019).

Classroom management and pedagogical skills help develop more effective teachers. Classroom management, providing feedback, learner-centred practices, and flipped classrooms appear to have a positive impact on learner performance. Pre- and in-service teacher education programmes could develop these skills (Best, Tournier, and Chimier, 2018). CPD programmes focusing on subject-specific pedagogy could enhance learning significantly (Popova et al., 2019).

Teacher education best functions as part of a continuum, that includes pre-service training, induction and mentoring of new teachers, and CPD (Education Commission, 2019; Martin, 2018; OECD, 2019; Popova et al., 2019; Taylor, Deacon, and Robinson, 2019; UNESCO, 2019; UNESCO IICBA et al., 2017; VVOB, 2019). Ministries of education, schools, and teacher training institutions should coordinate their training efforts and opportunities (UNESCO, 2019), and embed CPD into career structures (Tournier et al., 2019: 68) for teachers to continuously gain new skills.

Collaborative practices are important. Activities that combine CPD and colleague collaboration facilitate both the teachers’ need for competence and relatedness (Tournier et al., 2019). Some countries have established professional learning communities to support collaborative learning and mentor new teachers and senior staff (Jensen et al., 2016).

Challenges

Lack of capacity and coordination. Many countries lack the resources to provide pre-service training to enough new teachers due to limited training facilities; too few well-trained, qualified educators; and the inability to provide supervised school placements (Taylor and Robinson, 2019). Some programmes do not align with national curricula or national education policies and do not prepare teachers for the real world (Westbrook et al., 2013). Other issues include planning pre-service training alongside recruitment strategies and existing teacher needs (UNESCO, 2019).

There is a gap between research-supported CPD and that provided by many government-funded, at-scale programmes (Popova et al., 2019: 2). In-service training, especially in low- and middle-income countries (LMICs) is often ineffective and does not meet teachers’ needs (Popova et al., 2019; UNESCO IICBA et al., 2017; World Bank, 2018). Follow-up training, and monitoring and evaluation of effectiveness are often non-existent (Taylor and Robinson, 2019; UNESCO IICBA et al., 2017; World Bank, 2018).

Difficulties in balancing pre-service professional development programmes. Teacher education

programmes often struggle to balance theory and practice, content knowledge, pedagogical content knowledge, and pedagogy (Taylor and Robinson, 2019). Some programmes rely too much on theoretical teaching teach theory rather than giving students classroom experience (Popova et al., 2019; UNESCO, 2019). High-performing systems typically incorporate more practical training into their pre-service programmes (OECD, 2018). Many teachers in LMICs lack the minimum subject matter knowledge to teach (Popova et al., 2019; Taylor, Deacon, and Robinson, 2019). This typically stems from low entry requirements to pre-service training or shorter programmes.

Lack of qualified motivated candidates entering teacher education programmes.

Underperforming education systems produce too few quality candidates to create a new cohort of quality teachers (Taylor, Deacon, and Robinson, 2019; Taylor and Robinson, 2019). Minimum entry requirements should attract candidates with a sufficiently high level of education while still guaranteeing sufficient candidates to meet needs (UNESCO, 2019). In some contexts, it is already difficult to attract candidates, and raising entry standards could reduce numbers further.

Cost, sustainability and coherence. Central challenges include cost and sustainability. Resources are required to build more training facilities; hire, train, and support teacher educators; and offer higher salaries to attract better candidates. Some LMICs use assistance from NGOs or other international organizations to mitigate this issue, but most of these programmes are unsustainable (Martin, 2018; Taylor and Robinson, 2019). This raises coordination and consistency issues for programmes provided by different NGOs and other organizations, especially in crisis-affected contexts (Richardson, MacEwen, and Naylor, 2018).

Equity and inclusion

A lack of proper training leaves teachers unprepared to treat vulnerable populations (girls, students with disabilities, ethnic minorities, or displaced students) fairly and equitably. Training helps teachers to understand exclusion and discrimination and to adapt inclusive teaching methods to suit students with different learning needs (Education Commission, 2019; UNESCO, 2019). Especially in crisis and refugee settings, teachers are often not prepared to offer specialized psychosocial support; do not have pedagogical skills for multigrade classrooms; and are unable to deal with potentially dangerous classroom situations, special needs learners, and/or learners who have missed a significant amount of school (Richardson, MacEwen, and Naylor, 2018). Research is focusing more on the importance of training teachers to enhance their own social-emotional learning, manage stress, build resilience, and better support learners (Schonert-Reichl, 2017).

Entry standards for teacher education programmes do not always address equity across gender, ethnic backgrounds, or candidates with disabilities, which may affect learning outcomes (Education Commission, 2019; UNESCO, 2014, 2019). Teachers who closely identify with their students through culture, language, or ethnicity can impact learning positively (UNESCO, 2014).

Policy and planning

- **Establish recruitment and selection strategies that attract quality and diverse candidates.** Targeting selected groups (based on gender, ethnicity, or geographical location) and offering merit scholarships can make teaching more attractive (Education Commission, 2019; UNESCO, 2019). Selection practices should consider basic academic achievement level, overall capabilities, motivation, and attitude (Education Commission, 2019; UNESCO, 2019).

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- **Improve access and quality of pre-service teacher education and prepare teacher educators.** Policy design often overlooks appropriate qualifications for teacher educators and their access to professional development (UNESCO, 2019). They should understand active learning methods and pedagogy; support training; apply various active teaching methods, techniques and processes; have practical classroom experience; and be involved or at least informed of research in their area of expertise (UNESCO, 2019: 48–49).
 - **Obtain teacher input when designing training programmes.** To ensure that in-service training meets the needs of teachers, input from the teachers themselves should be sought (Cosentino and Sridharan, 2017; Tournier et al., 2019; VVOB, 2019). This also provides teachers with a sense of empowerment and can help improve their motivation (Tournier et al., 2019; Cosentino and Sridharan, 2017), especially in crisis and displacement settings, where teachers are rarely trained to face complex situations and have few opportunities to learn from others (Chase et al., 2019).
 - **Balance theoretical and practical aspects of teacher training.** Training should provide practical guidance and avoid overly theoretical content (OECD, 2018; UNESCO, 2019). School-led training conducted by principals or senior teachers can be effective and save costs (Martin, 2018). Partnership guidelines between teacher training institutions and schools can validate training and give candidates practical experience (Education Commission, 2019 UNESCO, 2019; World Bank, 2018).
 - **Include the development of social-emotional competencies during pre- and in-service teacher training.** These influence teaching effectiveness, mental and emotional well-being, and willingness to continue teaching (Jennings, Frank, and Montgomery, 2020; Zakrzewski, 2013), and improve students' academic learning and mental health (Bayley et al., 2021, Duraiappah and Sethi, 2020). Understanding how behaviour and emotion affect teaching and learning helps teachers confidently create a positive learning environment (Schonert-Reichl, 2017 as cited in Jennings, Frank, and Montgomery, 2020). CPD that deepens knowledge of social-emotional theories, concepts, and activities for teachers to improve their own social-emotional competencies can provide a model for students and create a positive learning environment (Jennings, Frank, and Montgomery, 2020).
 - **Integrate information and communications technology (ICT) and digital literacy skills.** Most creative solutions during COVID-19 closures relied on technology-based education (Vincent-Lancrin, Cobo Romani, and Reimers, 2022), underscoring the importance of ICT skills and digital literacy in classrooms. Teachers need to understand digital technologies to support their pedagogy and content knowledge, student learning, and assessment and collaboration with peers (Unwin et al., 2020). Pre-service training and CPD in ICT skills should include competency assessment, hardware and software familiarization, ongoing training, hands-on instruction, and examples of pedagogical ICT use (UNESCO, 2018). Providing teachers with support and training to use different technologies improve teachers' pedagogy whether schools are open or closed (UNICEF, 2021).
 - **Continuously build additional teacher skills and expertise.** Probationary periods and mentorship can support new teachers and provide additional training while settling in the classroom (OECD, 2018; UNESCO, 2019; World Bank, 2012). Individual CPD plans can address specific career needs and help teachers take responsibility for their CPD (UNESCO, 2019).
 - **Provide ongoing support and post-training monitoring to sustain school-based training.** Effective, practical follow-up and actionable feedback help translate the knowledge teachers gain into practice. A supportive environment, peer-to-peer exchanges, communities of practice, and interschool collaboration also help build sustainable training. 'In-person, on-site coaching is an effective way to deliver advice on classroom practice, and coaching should be the core of any good professional development programme' (UNESCO, 2019: 52). Peer

mentoring, observation, and lesson preparation meetings can also be used to support school-based CPD (UNESCO, 2019).

- **Integrate inclusive education into all CPD programmes.** Specific courses and inclusive pedagogy can be mainstreamed into all professional pre- and in-service courses (Lewis and Bagree, 2013). Teacher development should take place primarily in classrooms; connect to and build on in-school expertise; create cooperative spaces; and engage teachers in developing a common language of practice (UNESCO, 2017).
- **Plan financial resources for CPD in advance.** Include training expenses in education budgets: 'An annual CPD allocation per teacher, adjusted for purchasing power parity, including the cost of paying to supply teachers where necessary, may be a strategy to finance CPD' (UNESCO, 2019: 53).

Plans and policies

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Tools

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