EVALUATION

© UNICEF/UNI485628/Vladimir Zivojinovic

Good practice note and policy reflections

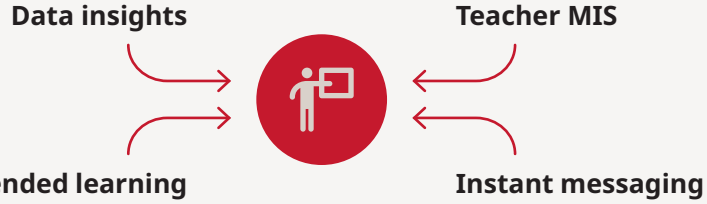
October 2025

Evaluation of UNICEF Contribution to Teacher Development and Improved Learning Outcomes

Good Practice Note 3: Utilize digital technology as accelerators for teacher development initiatives

By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.

How digital tools support teachers



Shared exemplary practices

- **Collaboration:** Digital solutions for insights and government, teacher, education partners' collaborative decision making.
- **Open source digital solutions:** Continuous training, digital skills, and peer-to-peer mentoring.
- **Connectivity:** Digital management systems connect teachers and school managers with regional and national leaders to drive change.


© UNICEF/UNI539880/Seyba Keita

Introduction

Teachers are essential to achieving Sustainable Development Goal 4, which commits to ensuring inclusive and equitable quality education for all by 2030. SDG Target 4.c calls for a substantial increase in the supply of qualified teachers, recognising that teachers are key to improving children's learning outcomes. While there has been progress in the last decade, the supply of qualified teachers remains a pressing concern worldwide fuelled by a range of issues that include the working conditions and status of teaching as a profession as well as issues around teacher capabilities, qualifications, and motivations.

This document is one in a series of three good practice notes featuring good practices for designing and implementing programmes to support teacher development for improved learning outcomes. The topics presented in these good practice notes are:

- Working collaboratively with middle-tier actors on systems strengthening efforts and engaging school leaders and communities.
- Advocating for teacher rights and welfare to support education for all.
- Utilising digital tools to accelerate teacher development initiatives so every child learns.

Background

The adoption of digital technology has resulted in many changes in education, including in teacher development. A synthesis of 170 studies[1] showed that use of technology can make a major contribution to teacher professional development and that it can be leveraged to overcome constraints operating, particularly in low- and middle-income countries..

Good Practices: Digital Technology and Teacher Development

The examples of UNICEF work presented below illustrate how uses of digital technology can effectively foster various aspects of teacher development:

- **Analyzing and visualizing formative assessment** data to provide teachers with data-informed insights of students' strengths and weaknesses.
- **Using blended learning** as an opportunity to facilitate teachers' changes in pedagogical practices.
- **Using instant messaging applications** to facilitate peer learning and support among teachers.
- **Developing and using teacher management information system** to improve management efficiency.

Although each example is notably unique, they collectively exhibit several shared exemplary practices:

- **Use a collaborative approach** in development and implementation of digital solutions, with governments, education authorities, teachers and development partners actively involved.
- **Offer regular training and technical support** to teachers, headteachers and stakeholders, as these are essential for adopting digital solutions. Peer support and collaborative learning also play a crucial role in integrating digital technology into teaching.
- **Leverage digital tools and communication platforms** to bring together teachers and other stakeholders, such as teacher supervisors, for initiating and sustaining changes.

1 Hennessy, S., D'Angelo, S., McIntyre, N., Koomar, S., Kreimeia, A., Cao, L., Brugha, M., & Zubari, A. (2022). Technology Use for Teacher Professional Development in Low- and Middle-Income Countries: A systematic review. Computers and Education Open, 3. https://doi.org/10.1016/j.caeo.2022.100080

The example in Ghana illustrates how digital technology can provide teachers with data-informed insights to improve their teaching.

COUNTRY: GHANA

Use of Dashboard to Provide Data-Informed Insights for Teachers and Other Stakeholders in Education

Context

UNICEF Ghana has been working with the Government of Ghana to implement the Differentiated Learning Plus (DL+) programme in primary schools. The programme adopts the evidence-based Teaching at the Right Level (TaRL) approach, tailoring instruction to each student's ability level (in English and Mathematics) rather than age. Formative assessments are regularly conducted, and the collected assessment data are recorded in a digital system. Training to teachers, as well as supervision and mentoring, are provided as part of the programme.

Roles[2] of digital technology in teacher development

The formative assessment data recorded in the digital system are visualized on the DL+ Dashboard, which uses colour codes and has easy-to-use analytical tools. Teachers, headteachers, education professionals at the subnational and national levels and other stakeholders, can see on the Dashboard up-to-date information on student progress and teacher performance.

For teachers, the DL+ Dashboard helps them gain data-driven insights about students' strengths and weaknesses, provide their students with timely feedback, and tailor their teaching. For headteachers and teacher supervisors, it allows them to better understand how teachers are performing and offer data-informed support and guidance. For district directors and national authorities, the Dashboard facilitates the measuring of progress in improving foundational learning outcomes and in addressing the learning crisis. It also helps them identify schools that require additional support on teaching and learning.

Good practices

- **Data-driven solutions require a collaborative approach.** The development and implementation of DL+ is a close collaboration between UNICEF Ghana, the Government of Ghana, and other stakeholders. The benefits of introducing and using DL+ are made clear to teachers, headteachers, district-level authorities and other stakeholders to facilitate the collaboration.
- **Regular training and ongoing support are needed for adoption of digital solutions.** Teachers and middle-tier actors, such as district directors and teacher supervisors, are given training and technical support to use DL+.
- **Digital solutions as tools can enhance existing interventions.** The DL+ Dashboard was developed based on its preceding successful intervention and plays supportive roles in implementation of the new DL programme.

In the Ghana example above, training, and technical support were provided to teachers and stakeholders to facilitate changes in pedagogical practices and the use of digital solutions. This approach is similar to the Jordan example, which focusses on the use of blended learning. The Jordan example further demonstrates that adopting blended learning, which was novel to the context, required the assistance of 'champions' or change leaders, who communicated through a digital communication platform.

2 In addition to the DL+ Dashboard, the National Teacher Council (NTC), supported by UNICEF, piloted the use of digital technology to support teacher self-reflection and supervision as part of the DL+ programme. Teachers were asked to record their lessons using techniques learned in the DL+ training. These recordings were then viewed by teachers themselves and reviewed by supervisors, who could assess whether teachers had mastered the techniques and provide further support if necessary. This approach, according to a NTC representative, reduced the costs of supervision and the time teachers needed to leave the classrooms and attend regional training centres.

COUNTRY: JORDAN

Provision of Online Training and Clear Guidance to Teachers to Support Blended Learning

Context

In Jordan, the Ministry of Education, with UNICEF support, launched the Learning Bridges programme in September 2020. It is a national blended learning programme to help students from Grades 4 to 9 accelerate their learning. Every child receives an A3-printed activity pack weekly with guidance on how parents can support. Every activity pack has its own QR code linking to additional online resources. Audio files are embedded to provide accessibility for children who are with visual impairments or have difficulties reading.

Roles of digital technology in teacher development

Teachers are supported to implement the blended learning programme. The Ministry of Education and UNICEF developed an online training programme to strengthen teachers' pedagogical understanding of blended learning and to provide them with practical ways to utilize the resources of the programme. The training programme is hosted on the MOE's teacher training portal.

For every activity pack, teachers receive a guidance sheet on how to introduce the activity, support students' learning and give feedback to students. Also, Learning Bridges Champions were selected from among teachers to encourage their peers to take part in the programme and to share good practices; WhatsApp chat groups were created to facilitate communication among these champion teachers. The programme – and the support that it provided to teachers – has introduced teachers to new ways of teaching and learning.

Good practice

- **Appropriate training to and clear guidance for teachers are key** to adoption of blended learning and associated changes in pedagogical practices.

Teachers' changes in pedagogical practices and their adoption of digital solutions, requires more than training, guidance and supporting teacher and learning materials. As highlighted in a report published by the World Bank[3] (2018, pp.131-136), mentoring and coaching are key to achieving success in teachers' learning and changes in their teaching practices. Below are a few examples of how digital technology – instant messaging in this case – can assist provision of mentoring and coaching as well as peer support and learning.

3 World Bank. (2018). Learning to Realize Education's Promise (World Development Report).

COUNTRIES: ARGENTINA, COTE D'IVOIRE, GHANA, JAMAICA, JORDAN, MALI, SERBIA

Use of Instant Messaging to Facilitate Teacher Development

Context

Instant messaging applications (WhatsApp in these cases) are used in various UNICEF-supported teacher development activities. While instant messaging is not a formal learning management system, it is fast for communication, flexible in its uses, and deeply embedded in teachers' daily routines. Its use by UNICEF-supported programme reflects an adaptive and context-aware approach to teacher development.

Roles of digital technology in teacher development:

- **Ghana:** WhatsApp chat groups were created to extend training in STEM and gender-responsive teaching, helping teachers share ideas and troubleshoot challenges.
- **Cote d'Ivoire**, the *Dictée du Jour* Initiative relies on WhatsApp for daily coordination, guidance, and monitoring, turning the messaging application into an instructional delivery tool.
- **Jamaica:** WhatsApp is used to support nationwide online teacher training by connecting educators in real time and fostering peer support networks.
- **Jordan:** WhatsApp groups were created to support the implementation of the Learning Bridges (LB) programme, with LB Champions communicating with each other to promote the adopting of blended learning.
- **Mali:** WhatsApp was used to sustain teacher communities of practice and provide emotional support through peer groups addressing stress and burnout.
- **Argentina:** WhatsApp was used to facilitate reflective practice and mentoring exchanges.
- **Serbia:** The first National Education Platform (preschool) was established using the Learning Passport platform to provide on-line trainings, a repository of teaching resources, and information on activities or opportunities for blended professional development.

Good practice:

- **The utilization of freely available digital communication platforms** (in this case, instant messaging applications) enables teachers to collaborate for peer support and professional development in a cost-effective manner; these platforms mitigate the challenges posed by distance and time.

The Global Education Monitoring report published by UNESCO in 2023[4] presents several examples of WhatsApp usage in teacher development initiatives. In Indonesia, over five million teachers utilized WhatsApp groups for dissemination of official information across all levels of education, from pre-primary to tertiary (p.32). In the Caribbean, approximately 80 per cent of more than 1,500 surveyed teachers participated in professional WhatsApp groups, with 44 per cent engaging in collaborative activities via instant messaging at least weekly (p.172). Furthermore, the report notes that virtual coaching demonstrates equivalent effectiveness to in-person coaching, while providing significant cost-benefits (p.173).

Apart from teacher professional development, digital technology can also be used to increase efficiency of teacher management. The Rwanda example below demonstrates how the UNICEF-supported teacher management system (TMIS) accomplished this improvement. Another example comes from Bangladesh, where UNICEF has provided significant support to the development of an integrated education management information system. The system facilitates teacher transfer and deployment as well as authorities' data-driven decision-making.

4 UNESCO. (2023). Global Education Monitoring Report 2023: Technology in education – A tool on whose terms?

COUNTRY: RWANDA

Use of Teacher Management Information System for More Efficient Management and Development of Teaching Workforce

Context

The Rwanda Basic Education Board started implementing the Teacher Management Information System (TMIS) in 2022. The development of the TMIS took more than 10 years and was supported by UNICEF Rwanda and the Mastercard Foundation. The system replaced the old manual system, the use of which was time-consuming and labour-intensive.

Roles of digital technology in teacher development

The TMIS has multiple functions on its digital platform; they include teacher licensing, appointments, placements, transfers, evaluations, promotions, and terminations. The use of TMIS has improved management efficiency of headteachers and the education authorities at district and national levels.

For headteachers, TMIS reduces the time needed to manage administrative paperwork, which was prone to errors and had longer turnarounds, freeing their time for supervising staff and improving quality of education. For teachers, TMIS offers a more efficient way to find out about vacancies and request for transferral to other schools; they can also use the system to apply for maternity leaves and scholarships. The more accurate data on TMIS also help with paying teachers the right amounts and on time.

For national authorities, the TMIS enables more efficient identification of teacher shortages, facilitating strategic recruitment planning. Also, TMIS has enhanced teacher deployment by providing a comprehensive list of available candidates to fill vacancies. Additionally, it addresses the issue of 'ghost teachers' – individuals listed on payroll but not actively teaching – thereby reducing unnecessary expenditure of public resources. The education authorities and UNICEF Rwanda are planning to introduce to the TMIS a module on teacher continuous professional development (CPD) to record CPD activities.

Good practices

- **Digital solutions require a collaborative approach.** UNICEF Rwanda and the Rwanda Basic Education Board worked collaboratively to ensure that the TMIS meets the needs of various stakeholders. Technical assistance was provided into the implementation phases to ensure a smooth transition from manual system to the digital system.
- **Regular training and ongoing support to headteachers are crucial for adoption of digital solutions.** Headteachers are provided with training on how to enter data correctly and use the various functions on the system. There is also a team that provides headteachers and teachers with demand-driven support.

In sum, the four examples of UNICEF work in above demonstrate how use of technology can make a major contribution to teacher professional development and management in low- and middle-income countries.

Policy Reflections

These examples describe how technology can be a powerful accelerator of teacher development when designed to strengthen, but not to replace, the professional teacher workforce. Digitalization can help improve teacher training, reduce administrative workload, and improve teachers' working conditions by making data more usable and management more efficient.

Below are some key policy reflections:

- **Digital tools as accelerators of professional learning.** Platforms for blended learning and peer support show how technology can embed continuous learning and collaboration into teachers' everyday practice, especially as to complement online training.
- **Data-driven efficiency for better conditions.** The DL+ Dashboard in Ghana and Rwanda's TMIS illustrate how digital systems can generate real-time insights, reduce paperwork, minimise inefficiencies (e.g. ghost teachers) and support equitable deployment. By easing administrative pressures, such systems allow teachers and school leaders to focus more on pedagogy and professional growth.

- **Collaboration and support as prerequisites.** Successful adoption of digital solutions requires engaging teachers, headteachers and middle-tier actors from the outset, supported by training, mentoring, and peer-learning mechanisms.
- **Guarding against exclusion.** Digital initiatives must address disparities in access, connectivity, and skills. Without inclusive design, technology risks reinforcing inequalities instead of supporting equity in teacher development.

Implication for UNICEF and partners

Technology should be positioned as an enabler and accelerator of teacher development, not as a substitute for teachers. This principle aligns closely with the *UNICEF Digital Education Strategy 2025–2030*, which emphasises the central role of educators in shaping meaningful learning experiences. Strategic investments in digital systems are most effective when they:

- Reduce administrative burdens on teachers, freeing up time for direct student engagement.
- Amplify professional learning by providing access to high-quality, continuous, and context-relevant training opportunities.
- Strengthen working conditions, ensuring that technology enhances job satisfaction and professional dignity.

Technology must contribute to an improved teaching and learning environment, empowering teachers, enriching student outcomes, and advancing inclusive and equitable education systems for learning.

Policy Takeaways on Digital Technology for Teacher Development

- **Teachers are irreplaceable.** Digital tools must be designed to support, not substitute, teachers empowering them to focus on pedagogy and student learning.
- **Integration with systems.** Integrate platforms into national teacher management and professional development systems to ensure sustainability and ownership.
- **Using digital for efficiency and equity.** Harness the power of dashboards and TMIS to reduce administrative workload, improve deployment, and maximise resources fairly.
- **Building capacity for adoption.** Provide regular training, mentoring and peer-support to ensure confident and effective use of digital tools.
- **Designing for inclusion.** Ensure accessibility across gender, geography, and connectivity levels, so that no teacher is left behind.

A Point Worth Considering

Digitalization carries risks when introduced as a quick fix or isolated pilot. For teachers, poorly designed tools can become another burden rather than a source of support. The challenge is not simply to digitise teacher development; it is also to humanise digital solutions to make teachers' work lighter, their training faster, and their classrooms more effective. The rapid rise of artificial intelligence adds new risks and uncertainties, underscoring that teachers' professional judgment and human connection remain irreplaceable in guiding how these technologies are used. Only then can digitalization truly strengthen teachers' role and ensure every child's right to learn.

About the note

The discussion and policy reflections included in this note are the product of further analyses of the thematic experts and the evidence collected that informed the "Evaluation of UNICEF Contribution to Teacher Development and Improved Learning Outcomes" which took place between September 2024 and July 2025. This evaluation, commissioned by UNICEF Evaluation Office, was conducted by a team of external evaluators (Alvin Leung, Andrea L. Esser, Magali Ramos Jarrin, and Paola Vela). Tami Aritomi was the evaluation manager.

The opinions expressed on the policy reflections are those of the author(s) and do not reflect UNICEF official position.

For every child,
trusted evidence driving impact

For further information, please contact:

UNICEF
Evaluation Office
3 United Nations Plaza
New York, NY, 10017 USA

www.unicef.org/evaluation
UNICEF Evaluation
@unicef-evaluation.bsky.social
@UNICEFEval
Evaluation YouTube channel
evalhelp@unicef.org

unicef
for every child