



PROMOTING TEACHER PROFESSIONAL DEVELOPMENT AT SCALE IN THE KYRGYZ REPUBLIC

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ABOUT TPD@SCALE COALITION

A collaborative effort of government agencies; international development agencies; non-governmental organizations; universities; research and policy centers; and other education and technology stakeholders engaged in teacher professional development (TPD), the TPD@Scale Coalition aims to contribute to the attainment of Sustainable Development Goal (SDG) 4—ensure inclusive and quality education and promote lifelong learning opportunities for all—by promoting quality, equitable, and sustainable large-scale, ICT-mediated TPD through collaboration, research, and implementation support.

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The KIX EMAP Learning Cycles are professional development courses offered to national education experts from 30+ GPE partner countries in the Europe, Middle East and North Africa, Asia and Pacific (EMAP) region. Teams of national experts analyse, contextualise, and produce new knowledge on policy analysis and innovations. These professional development courses allow participants to share experiences, exchange knowledge, and contribute to the strengthening of their national education systems. The Learning Cycles are also an opportunity for national experts to publish their studies and findings internationally, and disseminate them on diverse online platforms, with support from the KIX EMAP Hub.

ABOUT THE LEARNING CYCLE ON TEACHER PROFESSIONAL DEVELOPMENT AT SCALE (TPD@SCALE)

This case study is a result of the KIX EMAP Learning Cycle “Teacher Professional Development at Scale (TPD@Scale)”. Facilitated by the TPD@Scale Coalition for the Global South, through the Foundation for Information Technology Education and Development, Inc. (FIT-ED), this course ran from 23 September until 16 December 2022. Across 11 weeks, this Learning Cycle enabled participants to examine how Information and Communication Technologies (ICT)-mediated Teacher Professional Development (TPD) programmes can be scaled through adaptation/localization for a large number of teachers to improve students’ learning outcomes. 13 national teams took part in this Learning Cycle: Bangladesh, Bhutan, Georgia, Kyrgyz Republic, Maldives, Moldova, Mongolia, Nepal, Sudan, Tajikistan, Uzbekistan, Vietnam and Yemen.



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LIST OF ACRONYMS AND ABBREVIATIONS

ICT	Information and Communication Technologies
ISU	Issyk-Kul State University
NASEA	National Assessment of Student Educational Achievement
NSU	Naryn State University
RIATT	Republican Institute for Advanced Training and Retraining
STEM	Science, Technology, Engineering and Maths
TPD	Teacher Professional Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	US Agency for International Development

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At the sessions, we discussed problems in teachers' professional training and saw the examples of TPD in other countries, which gave us a new perspective and made us aware that our system should be significantly transformed. We thank the organisers for the opportunity to learn about TPD through adaptable models of large-scale TPD that employ information and communications technologies to achieve educational equity, quality and efficiency.

Our special thanks to Dr Wesley Teter, who facilitated the learning process of our group, which included teams from Kyrgyzstan, Moldova, Tajikistan and Uzbekistan, and who motivated and patiently pointed us to new ideas. His support

directed us and helped us achieve the established goals. Indeed, participating in the TPD@Scale course helped us to understand the principles and attitudes in TPD as well as make the first steps to big changes!

The TPD@Scale Learning Cycle included discussions, theoretical and practical elements and meeting with our colleagues from different countries. The knowledge gained during the learning cycle equipped us to produce a policy brief on the TPD system in Kyrgyzstan, which describes the challenges and priority areas for scaling up and provides recommendations to improve the quality and evaluation of TPD programmes as well as solutions to mitigate the challenges.

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EXECUTIVE SUMMARY

Part 1. Policy Brief

Research has consistently shown that high-quality teacher professional development (TPD) is a crucial element in enhancing teaching skills and improving student learning outcomes and achievement, and its importance in ensuring educational quality, equity and efficiency was further highlighted by the Covid-19 pandemic, which caused significant learning loss in Kyrgyzstan. This paper offers an analytical perspective on the current state of TPD programmes in the country.

The current TPD system in Kyrgyzstan faces challenges, including inadequate coverage, outdated curricula, gender inequity and lack of flexibility. This paper proposes solutions to mitigate those challenges, including reducing the dominant role of the Republican Institute for Advanced Training and Retraining of Pedagogical Workers and creating a unified TPD e-platform. The proposed e-platform will offer collaborative learning, user-friendly navigation, technical support and digital certificates, which will improve digital skills and support distance education.

The analysis also highlights priority areas for scaling up TPD, such as improving computer literacy among teachers and students, developing evaluation criteria for TPD programmes and providing gender-sensitive TPD.

In regard to improving computer literacy among teachers and students, the emergence of new technologies requires mastering the potential of information and communication technologies (ICT) and teaching digital skills. Thus, the education system will increasingly need to improve computer literacy among teachers and students, improve the educational infrastructure to accommodate digital technologies and strengthen distance and other forms of education through a changing technological environment.

Another priority area for scaling up TPD is improving the quality and evaluation of TPD programmes. The proposed criteria for evaluating TPD quality will ensure that programmes are effective and responsive to the needs of teachers and students. In addition, offering TPD courses in multiple formats, such as online, remote, offline, hybrid and courses of various durations, will make TPD more flexible and accessible to teachers with diverse levels of ICT skills and from various regions of the country.

The paper also highlights the importance of gender equity in TPD programmes. Women make up the majority of teachers in Kyrgyzstan, yet they often face gender-based discrimination and barriers to accessing TPD programmes. To address this problem, TPD programmes must adopt gender-sensitive designs, ensuring that they are accessible and responsive to the needs of female teachers.

In conclusion, the paper provides an advanced analytical perspective on the current state of TPD programmes in Kyrgyzstan and proposes solutions to mitigate the challenges facing the current TPD system. The proposed solutions will ensure that TPD programmes are more effective, responsive and equitable.

Part 2. Proposal for a Project to Scale Up Teacher Professional Development

The proposed project addresses the challenge of providing professional development opportunities to teachers who lack access to resources that could enhance their teaching skills. While many educational materials and resources are now available online, some teachers face technological and psychological barriers that prevent them from taking advantage of these opportunities. This is particularly true for teachers living in remote regions of Kyrgyzstan and for older teachers who may not be familiar with computers and other technological aids.

The project aims to enhance the quality of education and access to educational resources for vulnerable groups of teachers and students in remote areas of Kyrgyzstan. For this purpose, a Teacher + Student programme of professional enhancement will be developed to improve the ICT skills of teachers while increasing the motivation of students. This will be achieved through mutual trainings in which experienced teachers will mentor students and the students will train their mentors in the use of ICT for teaching and learning. To ensure the quality of the training module, accompanying evaluation research will be conducted.

The project's success will depend on the quality of mentoring relationships and the promotion of TPD at scale in underserved regions of Kyrgyzstan.

PART 1

POLICY BRIEF

Context and Background

More than 20 universities and vocational colleges are engaged in training future pedagogical professionals in Kyrgyzstan on the basis of approved educational programmes and standards (Ministry of Education and Science of the Kyrgyz Republic, 2015). The number of students in pedagogical specialties in vocational colleges significantly exceeds that in other specialties (Ministry of Education and Science of the Kyrgyz Republic, n.d.). The government of the Kyrgyz Republic has taken steps to improve the quality of teacher training and reduce the problem of teacher shortages in schools. In 2022, the government increased teacher salaries, and the threshold score of the nationwide testing for enrolment in pedagogical programmes was raised to attract more qualified students. Despite these efforts, concerns persist about the existing teacher professional development (TPD) programmes, which should ensure quality, equity and efficiency.

Currently working teachers have the opportunity to periodically attend TPD courses provided by public institutions, including the following:

- the Republican Institute for Advanced Training and Retraining (RIATT) under the Ministry of Education and Science
- regional institutes of education in Issyk-Kul and Osh
- regional methodological centres of education in the Batken, Jalal-Abad, Talas and Naryn regions
- educational-methodological departments in city/district departments of education
- methodological centres at educational institutions of higher and secondary vocational education, including Issyk-Kul State University Named after K. Tynystanov (ISU), Naryn State University Named after S. Naamatov (NSU), Osh State University and Osh Institute of Education

In 2017, RIATT was reorganised, ceasing to be a structural subdivision of the Kyrgyz Academy of Education under the Ministry of Education and Science and becoming an independent institution operating on the basis of the 'Regulations on the Procedure for Advanced Training of Pedagogical and Leading Education Workers of the

Kyrgyz Republic,' (*Polozheniye O Povyshenii Kvalifikatsii Pedagogicheskikh Rabotnikov Kyrgyzskoy Respubliki*, n.d.) which were developed in the same year to regulate procedures for professional development. Advanced training programmes are implemented by five departments as well as by the Centre for Innovative Technologies for Advanced Training of Language Teachers.

The professional development programmes offered by RIATT include courses for teachers of various subjects, out-of-school education specialists, managers, methodologists and librarians. The schedule for advanced training is approved annually by order of the Minister. All schools are required to familiarise themselves with the schedule and provide lists of teachers for training. School administrations keep track of the planned training schedule and send teachers to attend courses as needed, and the training expenses are covered in the government budget. To qualify for a Certificate of Completion of the Advanced Training Course, teachers must complete a 72-hour course. Nevertheless, the existing practices are not yielding evidence of tangible improvement in teaching practices that improve the academic performance of school students as seen in the National Assessment of Educational Achievement (*Natsional'noye Otsenivaniye Obrazovatel'nykh Dostizheniy Uchashchikhsya 4 Klassa (NOODU) 2017, 2018*).

Beginning in 2019, RIATT trainings were transitioned to an online format on the <https://ec.ripk.kg/> platform, which provides access to 66 courses. The introduction of online courses reduced the costs associated with teacher travel and doubled the number of attendees.

In addition to the state system of advanced training, private initiatives have recently begun offering TPD courses to teachers and have successfully attracted participants. These private courses distinguish themselves from existing ones by providing more practical skills, conducting training in an interactive format (Creative-Taalim private school) and offering online training (Mugalim online school) and hybrid training (Sanarip-Mugalim).

Teachers are also participating in various training programmes through the projects of local and international organisations. For example, over the past three years, over 200 teachers have

been trained in education for sustainable development. Although the number of participants in RIATT grew with the use of the online learning mode (increasing by 10,000 participants from 2016 to 2020), the proportion of teachers in advanced training courses remains below 20% of the total pool of working teachers as cited by the director of RIATT. Initiatives at the republican and local levels are not meeting the needs of all teachers, who number more than 80,000 (National Statistical Committee of the Kyrgyz Republic, n.d.). Challenges exist to scaling up current TPD initiatives in the country to produce a tangible impact on teaching and learning quality.

Existing Issues and Challenges of TPD

As the Kyrgyz Republic emerges from the Covid-19 pandemic, equitable, efficient and high-quality TPD is critical to recover from the associated learning loss. Key trends and challenges are described below:

- In the context of approved TPD, RIATT until recently played the main role in providing advanced training that led to an officially recognised certificate. Recently, regional methodological centres have assumed a more active role in providing TPD.
- Despite the increased participation in RIATT thanks to online learning, less than 20% of the total number of working teachers take advanced training courses.
- Although mandatory TPD has become more frequent (increasing from once every five years to once every three years) (Duisheeva, 2020), the training does not fully meet the needs of teachers in a dynamic information and technological environment.
- Although online TPDs are available, unstable internet connections and the lack of a technical base present obstacles to teachers in remote regions, where power outages are frequent.
- Most teachers have only smartphones as devices for accessing online learning.
- There is discomfort and reluctance to learn online, especially among older teachers who lack basic ICT skills. In this regard, preference is still given to traditional forms of education.
- Because 80.9% of teachers in Kyrgyzstan are women, teachers in rural areas often have to interrupt their studies to do household chores.

The need to reform the state system of advanced training and change its structure and content results from a number of factors, including the following:

- an imbalance between labour market demand and teacher training
- the use of outdated curricula and a lack of flexibility and rapid response to technological advances and current trends and updates in pedagogical science
- a lack of awareness of training needs and the prevalence

of lecture-based learning, in which theory prevails over practice

- a teaching load of instructors that is designed to train a certain number of teachers, which demonstrates prevailing of the quantitative indicator of effectiveness of the training
- changes in the requirements for the educational process, which should include the development of ICT skills, functional literacy, a focus on spiritual and moral education and other relevant competencies

Additional support is needed to ensure equal access to TPD, as not all teachers have equal access to courses for various reasons, including remoteness, lack of devices, poor ICT skills, and ethnic minority status. Currently, advanced trainings for teachers do not meet the requirement to ensure equity, quality and efficiency. That the quality of the courses offered does not meet the requirements is demonstrated by their low attendance and negative feedback from teachers (ERFOLG Consult et al., n.d.). The system is not effective due to limited financial resources that do not cover 100% of teachers, provide field trainings or develop innovative courses.

Proposed Solutions and Policies

Throughout the country, there is an understanding of the importance of moving from an approach of advanced training and retraining towards the concept of continual TPD. The process of reforming RIATT is underway, and RIATT intends to change its approach and focus on its role as a coordinating centre that advises which courses should be developed and designs qualification requirements for teacher competencies, thereby allowing other TPD providers to enter the market.

The following solutions are proposed to mitigate ongoing challenges:

- To reduce the dominant role of RIATT, licensing requirements should be streamlined so that different providers (private initiatives, international projects, educational institutions, etc.) can provide TPD services that offer accredited certificates to teachers throughout the country.
- A unified TPD e-platform based at RIATT should be developed that provides access to resources, an e-library and all the approved TPD courses of various providers. The platform can serve as an information hub for cooperation and collaboration among teachers across the country by soliciting feedback, providing technical support and issuing digital certificates.
- To solve problems related to the content of TPD courses, teachers must be enabled to choose relevant or on-demand courses (based on a needs study) from different providers (for example, courses on new subjects or that meet the requirements of the updated standard). It is also necessary to introduce an accumulative system

that allows taking short 12, 24 or 36-hour courses to accumulate 72 hours in 3 years according to regulations.

- Criteria should be developed for evaluating the quality of TPD, such as: a pre-test/post-test system; mentoring; teacher-to-teacher exchange of experience; regular surveys of students, parents and school administrators; systematic evaluation of teachers' learning outcomes using the Kirkpatrick model, a four-level model which evaluates the effectiveness of learning: Reaction (emotional level), Assimilation (level of knowledge) and Result.
- Using different formats and offering a flexible system for completing courses (including online, distance and hybrid/mixed formats) can solve the problem of poor internet connections and a lack of technical capabilities. Educational materials can be presented in the form of texts, infographics, multimedia (video, audio), etc.
- To popularise online learning and further address the problem of inadequate ICT skills among some teachers, simple, accessible video instructions/lessons should be developed, and ongoing technical support should be provided to users of the electronic platform.
- A voucher system could be introduced to finance TPD courses based on the experience of other countries.
- The state system and the functions of its lead agency, RIATT, should be reformed as described below:
 - **Consolidating.** RIATT becomes the Republican Innovative Educational Centre and develops and approves uniform requirements for TPD programmes.
 - **Teaching.** RIATT organises courses in response to request and needs.
 - **Educational.** RIATT organises scientific and methodological conferences, round tables, workshops, webinars, public lectures and discussions of innovations and global trends in pedagogical science.
 - **Organisational.** RIATT organises professional communities/associations of teachers for cooperation, mutual learning and the exchange of experience.

Prioritised Areas for Scaling Up TPD

The Programme of Education Development for 2021–2040 (“Programma Razvitiya Obrazovaniya v Kyrgyzskoy Respublike Na 2021–2040 Gody”, 2021) states that ‘the development of new technologies will require mastering the potential of ICT, teaching digital skills. In this regard, the education system will increasingly need to improve computer literacy among teachers and students, improve the educational infrastructure [in response to] digital technologies [and] strengthen distance and other forms of education through a changing technological environment.’ Among obstacles to the digitalisation of the learning process are inadequacies

in digital skills, in training programmes for teachers, in digital materials and distance learning platforms and in the provision of computers in schools (which still amounts to only 42.1% of the minimum requirement).

A priority area for scaling up TPD is the development of an online platform offering approved courses from various recognised providers to teachers.

1. The platform will host information on relevant, meaningful, needs-based courses from all the providers. Both asynchronous and synchronous courses will be offered with support from mentors and subject experts. The platform will collect feedback on teachers' needs and inform providers.
2. The platform will enable teachers' collaborative learning and advice from experts through fora and review sections for all courses. Teachers will be able to give feedback and share their experiences.
3. The platform will be user friendly and easy to navigate for both new and experienced teachers with diverse levels of ICT skills. Technical support will be provided along with video instructions for navigating the platform. The development of a mobile application will ensure equity for users in remote areas with limited internet access.
4. All certificates will be issued in digital format.
5. Course information will be regularly updated, and training will be offered in multiple languages and formats (online, remote, offline, hybrid) and for various durations (2, 4, 12, 24, 36 and 72 hours). Teachers can take several courses of various lengths to accumulate at least 72 hours in three years as prescribed by law.
6. All providers interested in providing information on their courses will ensure
 - the interactivity of courses and a diversity of materials (multimedia, interactive quizzes, self-assessment, reading materials, mini-projects, video fora, case studies, etc.) and
 - transparency in quality and assessment (rubrics for assessment, tests, badges and other verification tasks).
7. A mechanism based on an ‘educational check’ will be introduced, allowing teachers to select a course and learn on the platform for free.

Going forward, the proposed actions will be presented to RIATT, the government and private and international stakeholders to ensure the quality, equity and efficiency of TPD initiatives.

PART 2

PROPOSAL FOR A PROJECT TO SCALE UP TEACHER PROFESSIONAL DEVELOPMENT

Overview of the Proposed Project

1. Information about the Project

- (a) Name:** Piloting a Teacher + Student Model to Improve Quality and Effectiveness in Teaching Science at Schools in Remote Districts of Kyrgyzstan
- (b) Context:** Regional (mountainous areas in the Naryn and Issyk-Kul regions of Kyrgyzstan)
- (c) Target participants:** 100 school teachers; 100 university students
- (d) Duration:** Three years
- (e) Estimated costs:** ...

2. Members and Partners of the Project Group

- Department of School Education of the Ministry of Education and Science of the Kyrgyz Republic
- Methodological centres of NSU and ISU
- NSU Department of Education, Natural Science Education (chemistry, biology, geography)
- ISU Department of Natural and Technical Science, Natural Science Education (chemistry, biology, geography)
- Methodological committees on natural sciences in rural schools
- Experts and consultants on teaching science in schools
- Innovative school teachers

3. Brief Description of the Proposed Project

Kyrgyzstan's high mountain and remote areas suffer from low socioeconomic development, and schools in those regions achieve poor learning outcomes. Despite efforts to improve educational quality, this remains an acute problem in the country. The National Assessment of Student Educational Achievement (NASEA), conducted in 2007, 2009, 2014 and 2017, found that more than 50% of students in Kyrgyzstan do not reach basic levels in reading, mathematics and science. The quality gap between rural and urban schools is significant,

with NASEA reporting that, among fourth-grade students, the share who scored below the baseline ranged from 43% in Bishkek to 60% in regional centres and small towns to up to 70% in rural schools. In Kyrgyzstan, over 80% of the country's 2,236 schools are located in rural areas, where the lowest levels of achievement are observed in scientific and mathematical subjects.

The proposed project aims to improve the professional competencies of teachers and students of pedagogical specialties, deepening their knowledge and practical use of digital technologies in teaching by testing a new learning model that involves the joint work of school teachers and university students: the Teacher + Student Mentoring Programme. This collaborative programme will promote mutual learning in pedagogical practice in schools for university students. Together with the expert teachers, the students will engage in pedagogical activities while simultaneously training their mentoring teachers on how to use ICT in teaching and learning. In this collaboration, both groups will equally act as mentors by exchanging knowledge, and they will jointly develop and test innovative approaches to teaching natural sciences to improve students' knowledge and learning outcomes. The project will engage the most vulnerable groups of teachers from the country's mountainous rural areas and science students from two regional universities who are preparing to teach chemistry, biology and geography in schools. This model will usefully address the challenges of young educators adapting to a new school environment and engaging in interactive pedagogical activities. Additionally, by promoting communication and knowledge-sharing with students, it will provide support to teachers who lack opportunities for professional growth, feel uncomfortable using new educational technologies or are experiencing professional burnout.

Description of the Proposed Project

1. Main Goal, Objectives and Results in the Context of the Target Set of Problems and Challenges

The project's main goal is to improve the quality of education and improve access to educational resources and innovations

for vulnerable groups of teachers and university students from remote regions that are characterised by limited access to the internet and ICT as well as to strengthen schoolchildren's knowledge of natural science subjects. The context of this project embraces the area of professional development for teachers who cannot fully access resources that enhance their professional level. Educational materials and resources as well as support from competent instructors and experts can now be accessed online, but technological and psychological barriers prevent some teachers from taking advantage of these opportunities. Older teachers and teachers in the remote regions of the country barely use computers and technological aids in teaching, and they lack of knowledge in using the internet for useful information and self-education.

The Ministry of Education, with the support of donor organisations, plans to train thousands of teachers. In 2023, for example, with the support of the World Bank, it plans to equip 1,200 schools and eight teacher training colleges with computers, create an IT platform for natural sciences, physics and mathematics (STEM) subjects, train 36,000 teachers and strengthen the potential of teachers at the Republican Institute for Teachers' Training. Teacher training is also carried out in projects by the US Agency for International Development (USAID) (development skills in reading and mathematics at the elementary school level), UNESCO (ICT skills) and others.

The Covid-19 pandemic and the subsequent period of distance education led to increased demand for relevant TPD courses. Those provided by private initiatives with expert support via online platforms helped many teachers master the new skills needed for ICT-based teaching throughout the country. In June 2021, the Kyrgyz Republic approved the Qualification Requirements for ICT Competence of a Teacher of a General Education School, highlighting the importance of enhancing the ICT skills of teachers as part of the broader strategy of digital transformation in education. Consequently, improving teachers' ICT skills has emerged as one of the more pressing issues in the education sector.

The project establishes the following objectives:

1. Strengthening and improving pedagogical potential in teaching natural science subjects in remote regions by developing and piloting the Teacher + Student programme of professional development, which involves mutual learning and knowledge generation and ensures the ongoing inclusion of pedagogy students in practice at schools
2. Improving teachers' ICT skills through collaboration with university students and participation in a series of interactive training sessions conducted in a hybrid format (offline and online) and focusing on overcoming fear and psychological barriers, increasing motivation to use educational technologies in practical experience and learning innovative approaches to teaching natural science

Expected results:

1. An interactive training module for teaching ICT skills will be developed in the Kyrgyz language of instruction for teachers of natural science subjects who live in remote regions and are not covered by training under the programmes of the Ministry of Education and Science or projects of the World Bank, UNESCO or other donor organisations.
2. The Teacher + Student model of collaboration and mutual learning will be developed and piloted in two regions.
3. The pedagogical potential in the covered regions will increase, and the teaching quality in the natural science subjects cycle will improve.
4. Interest and motivation for the future profession of teaching at school will increase among the students of pedagogical faculties.
6. Teachers' capacity and competence in using ICT in teaching will increase.

2. Strategies to Achieve the Intended Goal, Objectives and Results

Within the framework of the project's implementation, the Teacher + Student model of mutual training of experienced teachers and students of pedagogical departments will be developed with the help of experts, consultants and experienced teachers. The approach to mutual training will enhance the quality of mentoring relationships and promote TPD at scale in underserved regions of Kyrgyzstan.

The model will be piloted with the participation of selected science teachers in the mountain villages of the Issyk-Kul and Naryn regions as well as the participation of pedagogical university students in the natural sciences departments of NSU and ISU.

For teachers of the natural sciences cycle, the project will develop a training module that meets the requirements for ICT competencies approved by the Ministry of Education of the Kyrgyz Republic, with a focus on overcoming psychological barriers in consideration of the needs of teachers who have no experience of using ICT in teaching.

The educational training will adopt the format of the joint training of teachers and students of pedagogical faculties, who will be united in mentoring pairs or groups. The selection of participants will be carried out on the basis of open competition and the candidates' meeting of the selection criteria.

To stimulate interaction and mutual learning in Teacher + Student pairs/groups, tasks will be identified that, among other results, inculcate the need to analyse the results of their professional activities; promote an interest in the methodology and organisation of an effective educational process; encourage educators to creatively use best practices

and innovations, including the use of ICTs; and instil in young specialists an interest in the pedagogical profession.

The success of the launch of the Teacher + Student model will depend on the provision of accurate information and identification of the needs of potential participants; clarification of role models and tasks in pairs/groups; support for school methodological committees and the methodological centres of the universities; interactions with the staff and school administration; expert support; and availability of material and technical base. The project leader and coordinator, together with experts and with the participation of teachers, will devise a strategy, develop a schedule for the main stages of work, plan meetings and a programme of training modules, conduct initial research and monitor and evaluate the project's impact.

To effectively organise work in Teacher + Student mentoring pairs/groups, tasks will be established with the main goal of ensuring harmonious, productive relationships that are as comfortable, stable and productive as possible for both parties. The work of each pair/group will include: meeting and becoming acquainted; planning meetings at which specific work goals are formulated and scheduled; follow-up meetings for mutual learning, including filling out feedback forms; and a final meeting to assess the knowledge gained and the level of competence of both teacher and student. The final reflection will include an open public event to familiarise a wide range of educators with the proven practice of mutual mentoring and rewarding the best pairs/groups.

The experience of the project implementation will be presented at various conferences, presentations and discussions as well as on the websites of the involved organisations and through educational media.

3. Suggested Partner Agencies and Organisations and their Roles

Management for School Education of the Ministry of Education: providing administrative support for the implementation of the project in the selected public schools

Methodological centres of the two regional universities: providing support in recruiting students to participate in the project, providing methodological support in developing a strategy for collaborative mentoring (and in the field of professional development in teaching science subjects), etc.

School methodological committees: conducting cross-sectional research to assess the level of knowledge and learning outcomes in natural science subjects among schoolchildren

Experts and consultants in education: developing criteria for the selection of potential participants, discussing and approving the implementation strategy and work schedule

and devising indicators for monitoring and evaluating the project

Innovative teachers: serving as trainers and developing the training module

4. Plan and Methods of Evaluation

Research by the Coalition for Teacher Professional Development at Scale (TPD@Scale) suggests that there is limited evidence on what constitutes effective or successful TPD in low-income contexts (Boateng & Wolfenden, 2022). In consultation with the project donor, local teachers and the research community, evaluation and monitoring methods will be developed based on the project's performance indicators, which include the number of Teacher + Student mentoring pairs, the number of engaged regions in Kyrgyzstan and measures of TPD quality, efficiency and equity. As described in the following section, monitoring will be conducted regularly to inform implementation practices over three years.

To measure the impact of the project and the achievement of its objectives, research will be conducted at the initial stage to assess schoolchildren's level of knowledge in natural science subjects, identify teachers' and university students' levels of ICT competencies and obtain other information according to the defined indicators. Similar research will be carried out at the end of the project to identify positive progress and determine the impact of the project, to measure improvements in the personal performance of teachers and progress in the quality of students' knowledge and to assess the viability of the piloted model for further scaling up in other regions.

5. Project Duration: Three Years

First year: Develop the methodology of the Teacher + Student Mentoring Programme; in cooperation with the Ministry of Education and Science of the Kyrgyz Republic, identify schools in mountain regions and remote areas of the country with poor access to the internet; establish close relationships with the universities' methodological centres and school methodological committees; develop criteria for selecting potential participants; select potential participants from among teachers and students; conduct a cross-sectional study in pilot schools of students' knowledge of chemistry, biology and geography; conduct a study to identify the selected teachers' knowledge proficiency in ICT skills; develop an interactive training module on ICT skills, focusing on teaching science subjects and taking into account the approved requirements for teachers' ICT competencies.

Second year: Conduct trainings; implement the Teacher + Student Mentoring Programme in selected schools.

Third year: Work with methodological associations to organise the continuation of the proven model and methods; conduct

cross-sectional surveys of knowledge among schoolchildren and teachers; organise a final event in a round table format; write an analytical report; popularise and promote the model in other regions.

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