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SYNTHESIS NOTE OF KIX EAP LEARNING CYCLE 1 FEASIBILITY STUDIES ON SCALING INNOVATIONS

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The KIX EAP hub facilitates cross-country knowledge and innovation exchange and mobilisation, learning, synthesis, and collaboration among national education stakeholders in 21 GPE partner countries in the EAP region.. The hub also offers opportunities for peer learning and exchange by means of professional development and inter-country visits.

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ABOUT THE KIX EAP LEARNING CYCLES

The KIX EAP Learning Cycles are professional development courses offered to national education experts from 21 GPE partner countries in the Europe | Asia | Pacific (EAP) 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 EAP hub.

ABOUT THE LEARNING CYCLE FEASIBILITY STUDIES ON SCALING INNOVATION

This case study is a result of the KIX EAP Learning Cycle "Feasibility Studies on Scaling Innovation". Organised by NORRAG and the Nazarbayev University Graduate School of Education (NUGSE), this skills- and outcomes-oriented course ran from September 2020 to January 2021. Across 11 weeks, this professional course enabled national experts to publish evidence-based studies by examining the conditions whereby it is feasible to scale up an existing innovation or a pilot project in their country. Nine teams of educational sector experts from Georgia, Kyrgyzstan, Moldova, Tajikistan and Uzbekistan took part in this Learning Cycle.

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LIST OF ACRONYMS AND ABBREVIATIONS

CAD	Criteria-based Assessment through Descriptors
CADM	Criteria-based Assessment through Descriptors and Marks
CbKs	Community-based Kindergartens
CIS	Commonwealth of Independent States
CLASS	Classroom Assessment Scoring System
CSE	Comprehensive Sexuality Education
DEYS	Department of Education, Youth and Sports
ECE	Early Childhood Education
EDI	Early Development Instrument
GPE	Global Partnership for Education
ICT	Information and Communication Technology
IPS	Institute of Pedagogical Science
KIX	Knowledge and Innovation Exchange
KIX EAP	KIX Europe, Asia and the Pacific
MCAD	Methodology of Criteria-based Assessment through Descriptors
MCADM	Methodology of Criteria-based Assessment through Descriptors and Marks
MECR	Ministry of Education, Culture and Research
MoES	Ministry of Education and Science
NORRAG	Network for International Policies and Cooperation in Education and Training
NUGSE	Nazarbayev University Graduate School of Education
OECD	Organisation for Economic Cooperation and Development
PISA	Programme for International Student Assessment
RM	Republic of Moldova
RWM	Read With Me
SRH	Sexual and Reproductive Health
TLM	Teaching and Learning Material
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WB	World Bank

EXECUTIVE SUMMARY

Educational innovations may help facilitate an educational system's success, but research on scaling educational innovations remains scarce. Even less is known about multi-layered nationwide implementation of innovations targeting different or all levels of an education system.

Against this backdrop, NORRAG, as a learning partner of the Global Partnership for Education Knowledge and Innovation Exchange (KIX), set out to help facilitate evidence-based knowledge generation on the feasibility of scaling innovations. In the professional development course 'Feasibility Study on Scaling Innovation' – along with education sector experts from Georgia, Kyrgyzstan, Moldova, Tajikistan, Uzbekistan and Kazakhstan – nine national case studies were conducted.

The present paper synthesises six of the insightful cases studies related to successful education innovations, illustrating the complex interaction between innovations and context, as well as deriving universal recommendations for scaling beyond the national context. The following questions are addressed:

(1) What innovative elements were successful and which enabling factors contributed to the success?

(2) How can innovative elements be scaled according to depth, sustainability, spread and ownership?

In the following chapters, we first introduce the studies' background, including a definition of *innovation* and the conceptual framework for scaling educational innovations based on Coburn (2003). Second, we summarise the six case studies, demonstrating the innovation, context, successful elements and approaches for scaling. Finally, based on the case studies' results and the conceptual framework, we synthesise the general relevant factors regarding the feasibility of scaling successful innovations. The synthesis highlights the particular relevance of culture in continuous learning, teachers as agents of scaling, networks with a common vision and the research-practice link for sustainable scaling of educational innovations.

The present study was made possible by the International Development Research Centre and the Global Partnership for Education Knowledge and Innovation Exchange (KIX) initiative. NORRAG (Network for International Policies and Cooperation in Education and Training), as one of KIX's regional learning partners, offered a professional development opportunity to national education sector experts from 21 GPE partner countries in the Europe, Asia and Pacific (EAP) region on the topic of scaling innovation.

SCALING EDUCATIONAL INNOVATIONS

Over the past two decades, a significant number of educational development projects were implemented in low- and middle-income countries to improve education quality. Many of these projects aimed to bring innovative ideas and practice to educational systems, but the sustainability of innovations implemented in a complex education system remains a challenging endeavour. Introducing innovation, even if successful, rarely achieves widespread uptake. Frequently, the innovation and related practices fade after funding for a specific project ends (Strunk et al., 2016).

One reason for this is that the continuity of innovations beyond a particular project often is not ensured in the project design. Many projects are set up and managed as **stand-alone ventures** and do not incorporate factors critical for success at scale. Another reason is that taking new ideas and practices to scale requires **knowledge of the success of a project beyond project evaluation**. Project outcomes and outputs do not provide an assessment of sustainability and actual integration of specific practices in an education system. Unfortunately, research and knowledge on enabling factors and elements necessary for scaling in education remain scarce. Even less is known about scaling large multi-layered nationwide initiatives targeting different or all levels of an education system. Researchers interested in scaling innovations face two main challenges.

The first challenge concerns the definition of the term *innovation* itself. Innovation is a buzzword in education, creating strong expectations regarding adaptability of educational systems and institutions (Blömeke et al., 2021). It is important to acknowledge that innovations can vary depending on the context. For example, the use of a student-centred approach might be embedded in educational practice for decades in one educational system, but in other contexts, it might be a completely new approach. Teachers lack training, as well as teaching and learning materials; therefore, they are struggling to be innovative in this regard (OECD, 2019a).

The second challenge is the multidimensional nature of scaling in education. One of the most-cited works on scaling in education is the seminar work of Coburn (2003), who outlined four interrelated dimensions: **depth; sustainability; spread; and shift in reform ownership**. According to Coburn, educational reforms should reach not only across an educational system widely, but also deeply into schools and classrooms, to make a sustainable impact. Thus, depth, sustainability and spread depend on the interactions among policies, places and people. Recent implementation research has indicated that successful innovations are influenced through educators' expertise in the specific practices they need to apply, opportunities to collaborate with other programme implementers and the enabling conditions at the school and regional level (Honig, 2006).

A key element in ensuring sustainability, spread and depth of reform is ownership at the local and school levels. In low- and middle-income countries, international donor organisations most often promote certain reforms and, therefore, hold knowledge and authority over innovative practices. However, for innovative practices to be sustained a shift from external to internal reform is necessary. This encompasses changes at the classroom level, including norms, principles and beliefs. The shift in ownership is a significant requirement for reform to become self-generative (McLaughlin & Mitra, 2001).

The outlined considerations illustrate challenges for educational scaling research. Measuring the interaction between the context, a specific reform and enacted pedagogical principles is a complex, expensive and time-consuming endeavour, particularly compared with the evaluation of project outputs, such as the presence of specific materials and activities or the number of trained teachers and school principals. It is clear that more knowledge and evidence are needed to understand enabling elements of how innovations can be taken up to scale and sustained.

CASE STUDIES ON FEASIBILITY OF SCALING INNOVATIONS

The KIX EAP Hub conducted the KIX Learning Cycle 1 'Feasibility Study on Scaling Innovation' in 2020. In the context of the learning cycle, education sector experts from Georgia, Kyrgyzstan, Moldova, Tajikistan, Uzbekistan and Kazakhstan examined successful innovations and potential, as well as scaling constraints.

The examined innovations and programs ranged from comprehensive sexuality education, inclusive education, criteria-based assessment and multilingual education, to digital teaching and learning. *We examined* enabling contextual factors, and levers for scaling based on a series of document analyses, interviews, focus group discussions, surveys, and drawing on research on scaling successful elements. The studies take a novel approach to exploring scaling's feasibility beyond project evaluation. In doing so, the authors hope to expand the state of research on scaling innovations, particularly in regard to two main research questions:

(1) What innovative elements were successful and which enabling factors contributed to the success?

(2) How can innovative elements be scaled according to depth, sustainability, spread and ownership?

Below, we summarise six of the studies, including key findings in regard to the innovation, national context, successful elements and scaling recommendations.

Comprehensive Sexuality Education in Kazakhstan

School-based comprehensive sexuality education is a novelty for many educational systems embedded in conservative societies. Simultaneously, the implementation of comprehensive sexuality education (CSE) is emphasised in the 2030 Agenda for Sustainable Development, in which the links between education, health and well-being, gender equality and human rights are recognised. Comprehensive research across different educational systems clearly indicates that CSE is an important factor in promoting adolescent health and well-being (Boonstra, 2015). Moreover, evidence indicates that abstinence-only education is less effective at preventing pregnancy and sexually transmitted infections than comprehensive sexuality education (Hoefer & Hoefer, 2017). Although the importance of educating young people regarding sexual and reproductive health is recognised widely, public discussions remain controversial. Opposition against a school-based CSE from conservative and religious organizations remains strong. In particular, open discussion of sexual matters is taboo in conservative societies, and cultural and traditional beliefs can be a significant barrier to the successful implementation of CSE at the school level.

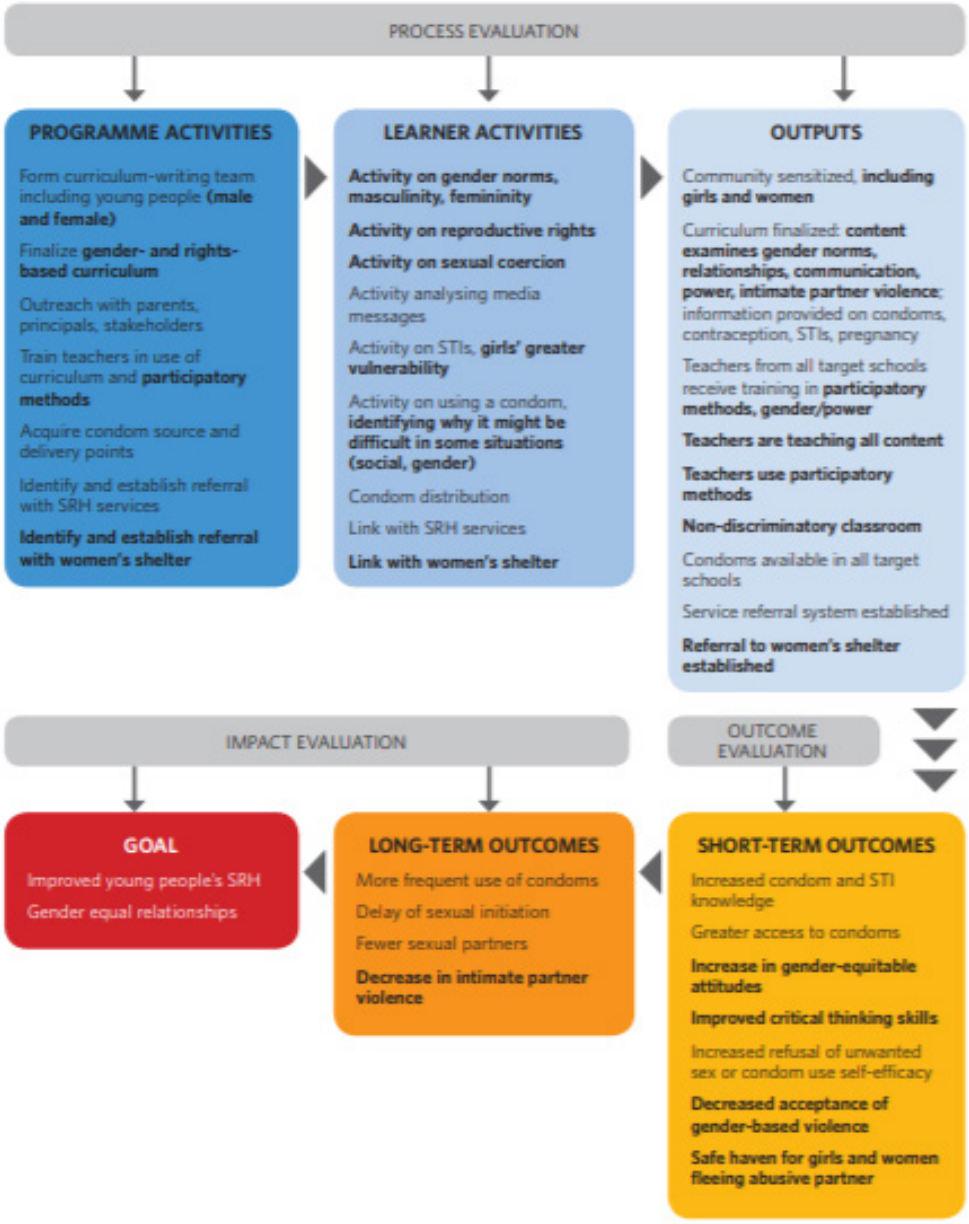
Context

Adolescent sexual and reproductive health is among the prioritised political commitments of the Republic of Kazakhstan (Ministry of Healthcare of the Republic of Kazakhstan & the United Nations Population Fund, 2018). A recent survey in 2018 that the Ministry of Healthcare of the Republic of Kazakhstan and the United Nations Population Fund (UNFPA) commissioned examined the status of youths' sexual and reproductive health, as well as their access to sexual and reproductive health services. The survey's overall results indicated a lack of knowledge on sexually transmitted diseases and risk behaviour regarding sexual and reproductive health among adolescents and youths. Moreover, the results revealed that approximately one-third of the surveyed adolescents initiated sex before age 18. The average age for initial sexual intercourse among sexually active adolescents was 16.5. Regarding gender, boys started their sexual activity earlier than girls on average. Of the sexually active adolescents, 44.1% stated that they had more than one sexual partner, and 19.6% indicated that they had not used a condom during their most recent participation in sexual intercourse. Overall, the researchers concluded that young people lack access to reliable information, which leads to risky behaviours, such as unprotected sex, leaving them vulnerable to sexually transmitted diseases and other sexual and reproductive health (SRH) issues.

The initiative

Acknowledging the barriers to sexuality education and reliable knowledge on SRH, while recognizing the need for sexuality education among Kazakh adolescents and drawing from international experience on CSE, UNFPA initiated a pilot project on a sexuality education course in colleges for students ages 15–19. The project's theory of change is depicted in Figure 1. *CSE* is defined as the curriculum-based process of teaching and learning about the cognitive, emotional, physical and social

Figure 1. **Theory of Change: Comprehensive Sexuality Education**



aspects of sexuality (UNESCO, 2010). CSE includes key concepts, topics and learning objectives comprising issues such as early pregnancy, unsafe abortion and gender-based violence, along with prevention methods.

Successful elements

The multi-agency partnership between UNFPA and two Kazakh sexual and reproductive health groups, KASRH and KMPA – comprising psychologists, health specialists and educators – led to successful implementation of the pilot project, particularly regarding sensitization of state officials, college administrators and parents. Moreover, due to the productive partnership, a curriculum, training course and TLMs were developed that considered didactical, psychological and health aspects. Furthermore, the trained educators were involved further in documenting and disseminating best-practice teaching approaches.

Insights on feasibility of scaling

Despite the recognition of sexuality education's importance, Kazakhstan is struggling with the implementation of school-based CSE. Based on international research and evidence on scaling CSE and other health innovations (Herat et al., 2018; UNESCO, 2010; Chau et al., 2016), the authors emphasised the following recommendations for future efforts to enhance the quality and coverage of reproductive health education in Kazakhstan and other countries with similar cultural and historical backgrounds. The strategic implementation of CSE requires considering vertical and horizontal scaling (UNESCO, 2010) approaches. **Vertical scaling** includes institutionalization of CSE through development of common policy and legal frameworks and standards for sexuality education. **Horizontal scaling** requires expansion of the developed curricula and teacher training across curricula and grades.

Enabling environment

A key prerequisite for a successful school-based CSE is high-level support of sexuality education, policy advocacy and favourable policy frameworks (UNESCO, 2010). Panchaud and her colleagues remind us that '[t]he successful implementation of comprehensive sexuality education (CSE) programmes in schools depends on the development and implementation of strong policy in support of CSE' (Panchaud et al., 2018, p. 1).

In 2020, amendments to the Health Code of the Republic of Kazakhstan were proposed, including a recommendation to introduce school-based CSE. However, the proposed recommendations were not included. To support vertical scaling, MoES and MHS could include the suggested amendments in the Health Code of the Republic of Kazakhstan. Moreover, a legal framework for CSE implementation, a strategic plan to guide the implementation of CSE and educational standards for CSE need to be developed.

Curriculum development

The developed, adapted and tested curriculum, including a guide for teachers and a textbook, could be used as a reliable foundation for future developments. Horizontal scaling could be achieved through adaptation of CSE elements and teaching and learning materials (TLMs) across the curricula and different grades.

Challenges regarding implementation of a specific subject for CSE reflect broader challenges within the education sector across different educational systems. Implementation of CSE in an already-overcrowded curriculum often leads to prioritization in favour of core subjects. Drawing on international experience and based on focus group results, the authors suggested implementing key CSE elements across the curriculum in primary, secondary and higher education. Furthermore, in the context of COVID-19 and worldwide school closures, innovative adaptation of an online course based on the developed curriculum and TLM could help scale CSE further. An online course also offers the advantage of providing reliable information to a broad audience anonymously.

Teacher training and support

Motivated and well-trained teachers can act as significant up-scalers of an innovation, but cultural and traditional beliefs might be a barrier to teachers addressing topics related to CSE. To enhance willingness to address these topics, clear guidance and support are needed. Culturally sensitive approaches are necessary, particularly in rural and conservative environments. The expertise from the pilot project can be used to develop new in-service and pre-service teacher trainings. Furthermore, to enhance the credibility of teaching CSE, developing and establishing CSE standards is necessary.

Active dialogue with parents

Considering cultural and societal factors, the study recommends involving parents when discussing sexuality education inside and outside schools. The school administration should initiate meetings with parents' associations and discuss the importance of sexuality education for young adolescents. Such meetings should include medical experts who can provide evidence-based information about youth sexual and reproductive health.

Inclusive Preschool Education in Kyrgyzstan

The expansion of inclusive education has been among the biggest innovative reform approaches over the past 20 years worldwide. Efforts to improve access to quality education particularly target children who largely are disadvantaged due to gender, language, poverty, disability, location and other characteristics. However, progress has been slow, considering that change at all levels of society is required. At the national level, governments must align laws and policies, as well as monitor access to quality education and social services. At the local and school levels, new practices on approaches and changes in norms and beliefs must be tackled.

International evidence suggests that early intervention aimed at developing cognitive, physical, behavioural and language skills can promote greater equality when children enter primary education (McCoy et al., 2017). It also suggests that targeted early childhood education (ECE) programmes particularly benefit the most disadvantaged children. Results from the Programme for International Student Assessment (PISA) for 2009 have reinforced this assumption further, emphasising that preschool education is related positively to cognitive abilities among students who are 15 years old (Umek et al., 2012).

Context

The Government of the Kyrgyz Republic recognised ECE's importance and identified it as one of the core areas of the country's education action plan (EAP) for 2012–2020. Within this context, the Ministry of Education and Science of the Kyrgyz Republic and the World Bank set out to implement a comprehensive preschool education project to put ECE at the forefront of government policy and action. The project 'Nariste' (Kyrgyz for *toddler*) was implemented as part of the Kyrgyz Global Partnership for Education (GPE) project from 2014 to 2018, the main objective of which was to increase equitable access to preschool education. This was expected to be achieved by maximising equal ECE coverage through offering school preparation classes at existing schools or newly established community-based kindergartens (CbKs). Through the targeted expansion of CbKs, focussing on poverty levels, the project sought to increase enrolment among society's disadvantaged socioeconomic groups. CbKs were provided with quality TLMs (in key languages of instruction), furniture, equipment and adequate sanitary facilities. Introduction of the shift-based approach in delivering preschool education ensured cost-effectiveness while increasing coverage and equity. The programme also promoted communication

and advocacy outreach activities to increase parental engagement. Furthermore, the project introduced and piloted a model for inclusive education to better serve children with SEN. The project's theory of change is outlined in Figure 2 below.

The study's authors set out to examine successful aspects and enabling factors for scaling elements of the Nariste project based on document analyses, semi-structured interviews, focus group discussions and findings by Slavin (2008), who highlighted several key factors for the successful scaling of educational innovations, namely the existence of comprehensive teaching materials, local facilitators, local commitment, funding, support networks and continuous research and development.

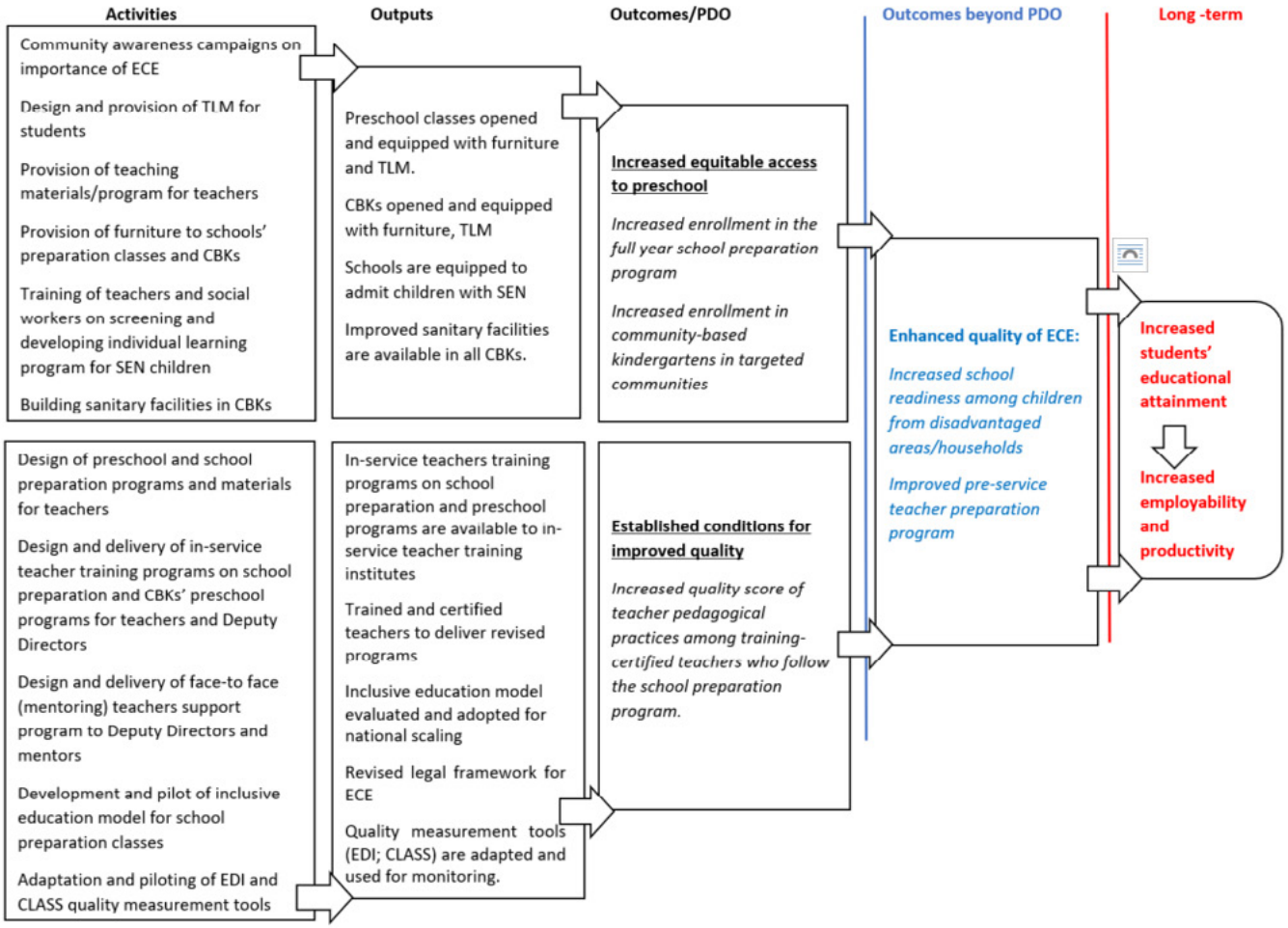
Successful elements

Generally, interlocutors felt that the Nariste project was remarkably successful and was able to reach most of its expected outputs and outcomes. The project generated impact across several specific activities, including high-quality TLMs; implementation of in-service professional development trainings for teachers, administrators and mentors; implementation of the Early Development Instrument (EDI) and Classroom Assessment Scoring System (CLASS) assessment tools; and development of an inclusive education pilot model.

Professional development and teaching and learning materials

One of the most successful elements of the project was the development of new comprehensive TLMs based on international research and practices, as well as their subsequent application through a localised multi-stakeholder approach. The project mobilised various local institutions and networks to embed newly developed TLMs more effectively. The early inclusion of training service providers and other stakeholders, most notably the Republican Teacher Training and Retraining Institute, allowed TLMs to be applied immediately to in-service training courses for preschool teachers, administrators and mentors. Through the institute's regional outlets, local stakeholders implemented the training courses further at the rayon (municipal) and city levels to enhance coverage of in-service teacher training. Using this localisation approach, the project trained more than 310 preschool teachers, with an emphasis on mixed-age groups: 8,140 teachers and administrators were trained to deliver a preparatory educational programme; 210 methodologists were trained to provide one-on-one mentorship to teachers; and 244 teachers and administrators were trained to deliver the new curriculum to children with SEN. This brought broad coverage to targeted areas and anchored trained individuals within a local support system.

Figure 2. Theory of Change: Kyrgyz Preschool Education Project



Mainstreaming of inclusive education in ECE

A comprehensive inclusive education model was developed within the context of the project and included in the National Concept for Inclusive Education. This was used as a framework for mainstreaming inclusive education throughout preschool education. The project enabled 33 schools to accept children with special education needs through provided teacher learning materials and trained educators. This was facilitated by ensuring that inclusive education was an integral part of all developed TLMs and training courses for preschool teachers, administrators and mentors.

Leveraging standardised assessment tools for monitoring and evaluation

The project used the CLASS and EDI assessment tools to evaluate improvements in teaching quality and student development over the course of the project. With the support of the Centre for Advanced Study of Teaching and Learning, educators in Kyrgyzstan rated classroom interactions in over 2,000 preschools at the baseline and at the end of the school year. The results indicated increased teacher instruction quality in the categories of emotional support, classroom organisation and instructional support (World Bank, 2019). Moreover, over the course of one school year, the cognitive and language abilities of all the children who attended preschool improved, and educational disparities based on socioeconomic inequities decreased significantly.

Implementation of cost-effectiveness strategies

Based on the World Bank's (2014) Public Expenditure Review of the Kyrgyz Republic, which indicated that preschool coverage could multiply four-fold without increasing costs, the project successfully applied a shift-based approach, which entailed delivering preschool education in several shifts with alternating groups of children per day, thereby increasing capacity without demanding more infrastructure (other than an increase in human resources). This approach reduced preschool education costs per hour and increased coverage.

Insights on feasibility of scaling

To scale successful elements of inclusive education, two different directions might be considered further. First, preschool education in Kyrgyzstan requires not only more coverage, but also sustainable changes in classrooms, whereby knowledge and ownership can be transferred from external forces to teachers and schools (Coburn, 2003). Second, inclusive preschool education needs to be scaled up. To scale inclusive preschool education, the following strategic choices need to be considered: (1) vertical scaling through institutionalisation, including policies and legal frameworks; and (2) horizontal scaling through the expansion or replication of innovations.

The implementation of large-scale initiatives in education depends on high-level government support (UNESCO, 2010). The MoES has such decision-making authority, so it has been suggested that MoES, along with its service system, take the lead on the scaling process. Two legal documents comprise the foundation for further horizontal scaling approaches: (1) Kyrgyzstan's inclusive education plan for 2019 to 2023, i.e., the legal foundation for scaling up inclusive education; and (2) the educational standards for preschool education and childcare, published in 2020.

To expand inclusive preschool education per a horizontal scaling strategy, several approaches should be considered, including information dissemination and advocacy, networking and resource mobilisation, continuous professional development, transfer of innovation ownership and extended research.

Based on the identified innovative features of this project, as well as the brief discussion of how these features potentially could be scaled, the authors highlight the following recommendations on how scaling goals can be achieved.

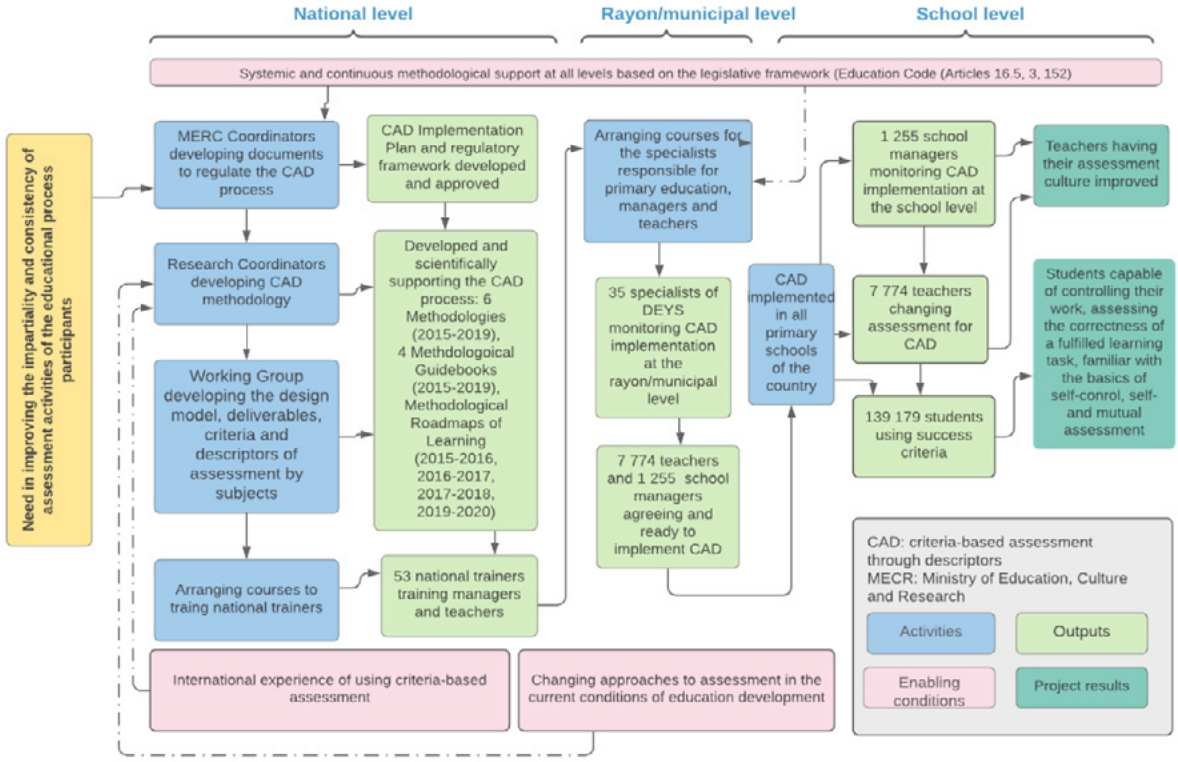
It is recommended that centralised and decentralised mechanisms for continuous learning, support and resource mobilisation be developed:

- Centralised support mechanisms at MoES include information dissemination and advocacy, coordination of the network and related activities, and alignment of assessment instruments, legal frameworks and long-term policies.
- Decentralised mechanisms at the local and school levels include resource mobilisation through knowledge hubs, professional development through teacher and didactic associations, and school-based research with EDI and CLASS tools.

Criteria-Based Assessment in Moldova

Extensive empirical research emphasises formative assessment's importance in improving teaching and learning (Hattie & Clarke, 2018). However, this approach is relatively new as an official school-based grading system. Many educational systems still use the traditional grading system, which is based on a summative assessment framework in which grading takes place at the end of a learning unit, and each student receives a grade according to a standard or benchmark. However, this form of assessment does not provide any information on student competencies or learning gaps, though formative assessment or teaching for learning is conducted concurrently with the learning process by providing teachers and students with feedback on how well learning goals were met and which practical skills were developed. Teachers can use the assessment results to tailor instruction according to each student's individual learning needs and stimulate self-directed learning by helping students reflect on their strengths and weaknesses (Hattie, 2015).

Figure 3. Theory of Change: Criteria-based assessment in the Republic of Moldova



Context

The Republic of Moldova (RM) is the first country in the Commonwealth of Independent States (CIS) to undertake reform to implement criteria-based assessment (CAD) on a national scale. The Ministry of Education, Culture and Research of the Republic of Moldova (MECR) introduced primary education system (grades 1-5) reforms during the 2015–2019 period, substituting the summative scoring assessment with a formative assessment approach.

The newly introduced assessment approach's objective was to strengthen students' competency levels and motivation for learning by tracking students' individual learning processes and providing individual support for learning based on descriptions of achievements. To change the assessment culture, various activities through a cascade system were conducted at the national, rayon (municipal) and school levels.

On the national level, research coordinators developed the methodological basis and conceptual framework of CAD, in which subject specialists identified deliverables and criteria for subjects based on curriculum content. Six methodologies (MECR, 2015–2019), four methodological guidebooks (Marin, 2016; Marin, 2017; Marin et al., 2018a, 2018b, 2018c, 2018d) and the Methodological Roadmaps of Learning (MECR, 2016–2020) were developed, approved and published on the MECR website, and 53 trainers were trained. On the rayon level, CAD was introduced in each of the 35 rayons in the RM, methodological unions were mobilised in 2015–2020 in five rayons to help facilitate implementation and 35 specialists were trained to monitor CAD implementation. Figure 3 illustrates the theory of change and the different activities.

Successful elements

The successful implementation of reforms was evident in the findings from the 'External Monitoring of the CAD Implementation in Primary Education' (MECR, 2017b).

The cascade system was efficient, from the national to school levels. A significant element was the methodological support ensured by the methodologies and guidebooks, which allowed teachers to adapt CAD in the teaching and learning process efficiently. In particular, the lessons learned through the pilot phase allowed for adaptation of CAD tools and made them more practical for teachers through simplified forms, tools to design long- and short-term plans, and a unification of the methodology for all primary schools.

The project activities' success at the rayon (municipal) level was ensured through independent initiatives of Department of Education, Youth and Sports (DEYS) specialists in developing plans for CAD implementation and monitoring. They conducted several methodological activities to explain CAD in accordance with teachers' needs in rayons (municipalities).

The study's authors validated these results further in 2020. According to the results from the questionnaire, all 126 teachers were using CAD. The **teachers named the methodological framework for CAD and the CAD implementation guidebook as particularly relevant** in the implementation process. Most of the teachers (73.02%) said students developed self- and mutual assessment competency.

Insights on feasibility of scaling

To ensure the assessment system's consistency for students at all levels of basic education, the study's authors set out to explore the feasibility of scaling CAD to secondary education in combining criteria-based assessment through descriptors and the traditional system of summative grading into Methodology of Criteria-based Assessment through Descriptors and Marks (MCADM).

The study's authors suggested using the successful overall approach from CAD implementation at primary schools for scaling. The study's results emphasised these main elements as particularly significant:

(1) systematic methodological support from the national to the rayon and school levels, including continuous professional development at the institutional, rayon and national levels that teacher-practitioners initiated. The professional development at all levels that teacher-practitioners initiated can inspire a new culture of assessment and ensure continuity at secondary schools.

(2) comprehensive methodological manuals and guidebooks to facilitate expansion and adaptation of new assessment strategies. Existing methodological support can help teachers at secondary schools introduce the new assessment strategies focussed on self-assessment, confidentiality, a positive attitude and success into their practices.

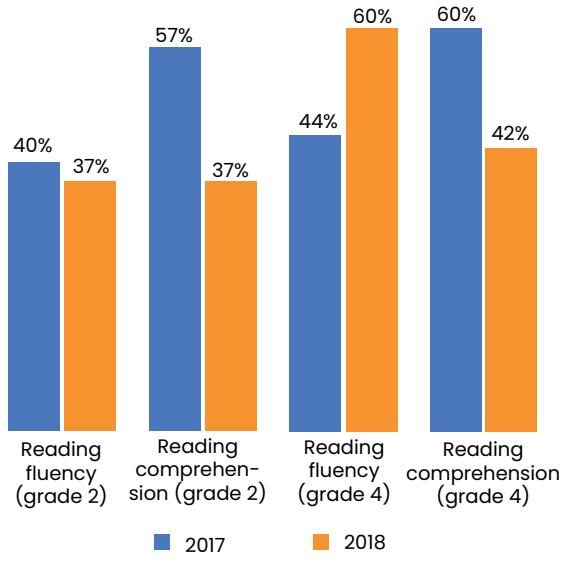
Development of Motivation to Read in Tajikistan

Education systems worldwide are attempting to implement 21st century education to help students develop cognitive and interpersonal competencies, values and attitudes through active, engaging and empowering pedagogies, including student-centred approaches to teaching and learning. Compared with traditional teacher-centred learning approaches, in which teachers control most classroom activities, innovative student-centred instruction places students at the core of the learning process. Students are empowered to personalise and create their own learning, learn through authentic experience and work collaboratively with peers and teachers. Previous research has demonstrated that student-centred instruction can promote the development of higher-order skills, such as critical thinking/problem-solving and students' intrinsic motivation (Hattie & Clarke, 2018).

Context

In recent decades, Tajikistan's educational system has experienced multiple challenges. Among organizational and institutional problems, students' low educational and motivational literacy outcomes have proved to be a significant challenge. In results from the Early Grade Reading Assessment (EGRA) in 2018 (Tvaruzkova & Shamatov, 2018), only 37% of students in grade 2 and 60% in grade 4 reached minimal levels of reading fluency. The results were similar for reading comprehension, with only 37% of students in grade 2 and 42% in grade 4 reaching minimum levels. Moreover, the study revealed a drop of 6–7% in reading skills compared with 2017. The study's results are presented in Figure 4. Considering Tajikistan's young population – 40.6% of the population is under age 18 – and the number of students enrolled in primary schools during the past decade growing by 37.7% (MoES, 2019), these results carry significant implications for the educational system.

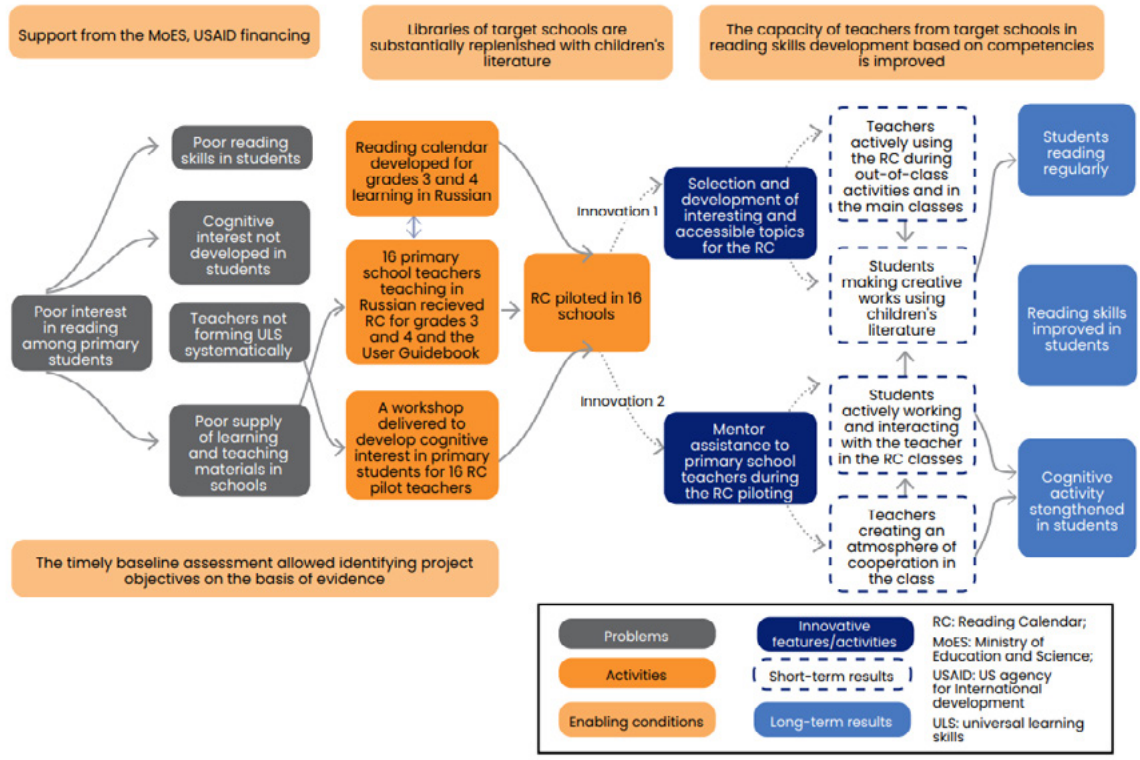
Figure 4. EGRA results in reading fluency and comprehension, grades 2 and 4, for classes taught in Russian and Tajik language (Source: EGRA, 2017 and EGRA, 201).



Against this backdrop, the Ministry of Education and Science of the Republic of Tajikistan (RT MoES) and the United States Agency for International Development (USAID) implemented the Read with Me (RWM) project during the 2016–2021 period, the main objective of which was to improve reading outcomes among primary students in classrooms using Russian as the language of instruction by (1) increasing the number of print publications for children, (2) supporting educators through training sessions and other means, and (3) developing and introducing innovative technologies to teach reading.

The project's theory of change (see Figure 5) explains how the usage of a specific educational tool a reading calendar, which is based on the principles of student-centred approaches to teaching and learning helps improve reading skills among students in grades 3 and 4.

Figure 5. **Theory of Change: Read With Me project**



Successful elements

The results indicated that the innovative student-centred teaching approach to reading proved to be successful overall.

The results indicated improvement in instruction quality, with teachers facilitating more dialogues between students (27% increase) and encouraging students to ask questions more often (12% increase) and express their opinions, as well as letting students choose from among learning activities. Figure 6 illustrates the results. Moreover, the reading tool helped facilitate efficient preparation and organization of classroom activities, with the results indicating an increase in well-prepared classes, correctly delivered information and recommended class duration. Figure 7 illustrates the results.

Students' motivation and interest were stimulated by the selection of reading material relevant to their authentic real-world contexts, such as relationships with peers and adults, school life, connecting with nature, historical events and holidays. Moreover, the calendar included suggestions for additional reading material and books for further reading.

The personalization of the learning process was facilitated through the creation of students' own reading calendars, in which students illustrated their achieved reading goals. See Figure 8.

Figure 5. **Theory of Change: Read With Me project**

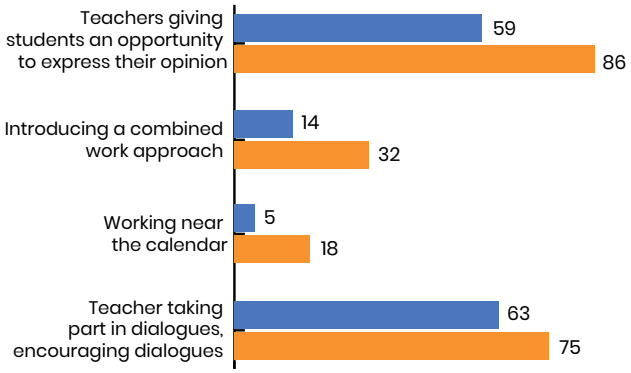


Figure 6. **Efficient organization of classes using the calendar**

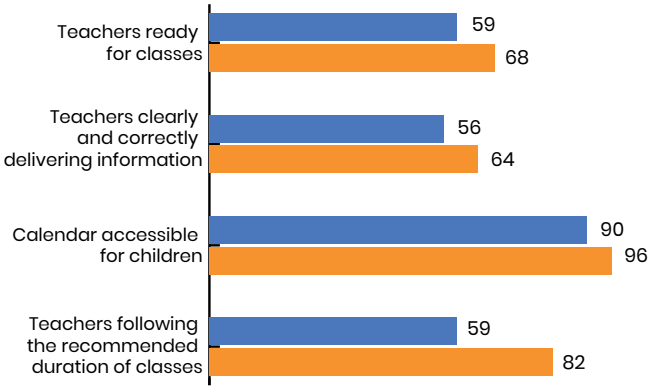
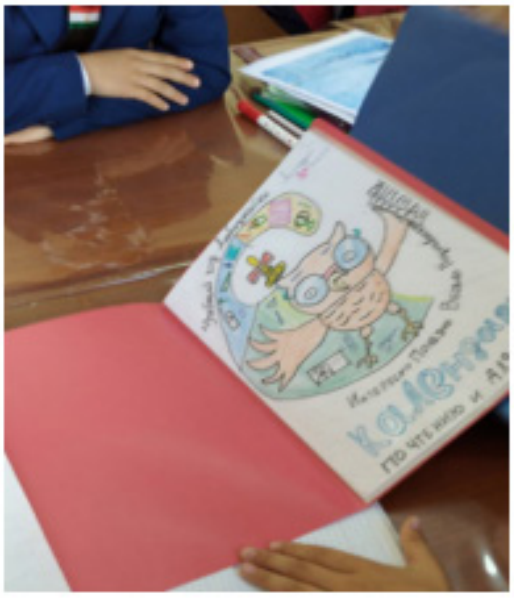


Figure 8. **Reading calendars that students made in grade 3**



Insights on feasibility of scaling

The authors explored the feasibility of scaling the reading calendar to classes that use Tajik as the language of instruction. One major challenge is the number of classes in Tajikistan using Tajik as the language of instruction vs. Russian, i.e., Tajik is the language of instruction in 91% of primary school classes, with just 4% using Russian (MoES, 2019). Due to the increase in the number of targeted beneficiaries, the authors proposed using a method of cascade training, entailing the transfer of knowledge and execution of control from top to bottom (i.e., from national trainers and mentors to regional ones). This comprises an element of innovation in the operational aspect of the scaling process.

For a successful scaling of the calendar to classes with Tajik as the language of instruction, the following aspects of different education system levels need to be considered:

On the country level, support of RT MoES is critical. Since 2020, the Government of the Republic of Tajikistan has been prioritizing attempts to foster interest in reading among schoolchildren (RT Government, 2019). In this context, the efficient scaling-up of the reading calendar innovation to improve reading commitment among students may help achieve the government's objective.

Financial support from USAID is an important element for sustainable scaling. The new reading tool's scaling can be integrated into the new five-year educational megaproject 'Learn Together Activity', which started in 2021 as a logical continuation of the RWM project.

Continuous professional development and teachers' support role are crucial in scaling and adapting innovative teaching practices; therefore, implementation of countrywide teacher and mentor training is suggested. Furthermore, to ensure high-quality implementation of the tool, a mentoring support system for teachers needs to be established.

At the regional level, local education authorities need to provide comprehensive assistance, including dissemination of educational material, support for teacher training and a mentor system among teachers and school managers.

At the school level, school libraries need to replenish children's literature offerings. Criteria for selecting new literature must consider Tajik culture and values as well. Moreover, the authors suggest introducing the project at schools that already participated in the pilot project to allow teachers to build on their experience.

Digital Teaching and Learning in Uzbekistan

Digitalization in teaching and learning is one of the most important educational innovations worldwide, and this holds true not only in the context of the COVID-19 pandemic. Recent research has indicated that use of digital devices for teaching and learning impacts educational success (Hillmayr et al., 2020). Despite new technologies' potential to enhance educational outcomes, only a few teachers have extensive experience using ICTs efficiently in the teaching and learning process (Drossel & Eickelmann, 2017). Continuous professional development supported by digital training courses may ensure teacher competencies necessary for efficient ICT integration at the school level.

Having entered the group of developed countries in terms of school enrolment, gender equality in education and other social spheres, Uzbekistan faces a new, global challenge: integration of ICTs into the education system. Recently, two innovative approaches have been piloted: (1) a national educational online platform, called the 'Edu Market', and (2) digital professional development courses for teachers.

Insights on feasibility of scaling of an educational online platform

The Uzbek Ministry of Public Education, with the World Bank's support, developed the Edu Market in 2020. The online platform offers educational games for primary school children covering core subjects such as the Uzbek language, mathematics and geography. The platform's main objectives are (1) to enhance students' performance and learning by making learning motivating and interactive, (2) support teachers' documentation of students' educational progress and (3) provide transparent feedback on educational results to parents, students and teachers.

To examine the Edu Market's successful elements, the study's authors conducted a survey study with students, parents and teachers. Moreover, to triangulate the results interviews' feasibility with relevant Ministry of Public Education representatives, two mobile companies and a representative from the World Bank's Uzbekistan office were conducted.

The results revealed several **successful elements** of the platform:

- Children could use the platform to learn independently.
- The educational games' content reflected the school program.
- The content was available in Russian and Uzbek versions.

However, the results also revealed some challenges regarding the platform's usability. Most parents and teachers did not receive any information about the platform through official Ministry of Public Education channels. Moreover, teachers reported a low level of familiarity with the platform, particularly a lack of knowledge about the different educational games' content and how to integrate the platform into the teaching-learning process.

Based on the results, the authors emphasised the following areas for scaling and improvement:

Creation of an efficient promotional campaign that provides information about the Edu Market to beneficiaries. The study's results revealed a low level of awareness of the platform and its features among teachers and parents.

Development of an offline version of the platform. The slow and expensive Internet service in Uzbekistan is a major challenge in implementing digital teaching and learning tools in Uzbekistan.

Alignment of the games and academic curricula. Primary school teachers could support the development of new content and educational games to enhance the link with the school curriculum.

Encouraging the private sector to invest in platform development. The government could provide support by creating an efficient incentive system.

Insights on feasibility of scaling in digital professional development

In 2017, the Ministry of Higher and Specialised Education initiated the 'Improving and Extending Teacher Education through Distance Education Project', which aimed to introduce many novel practices in teacher professional development, including digital education capacity development through an educational network, a new approach to educational material design and methodology, and a new approach to administration.

To examine successful elements of the project, the authors used a two-step, mixed-methods approach. First, primary data from 93 programme participants (senior subject area teachers from the local hubs of the Ministry of Public Education, also known as 'methodologists', who have undergone the distance learning course) and a representative of the programme administrators were collected. Second, to triangulate the results, a focus group discussion with 10 current course participants was conducted.

Overall, the project has engendered some significant results, such as promotion of a blended mode of learning, introduction of innovative technologies to support learning activities and increased awareness of alternative modes of education among the population of beneficiaries.

The study's findings indicated that the two most effective innovative elements were (1) an online mode of professional development delivery and (2) the use of Moodle as a learning-management system (LMS). The online mode of delivery

was described as convenient and flexible, while Moodle was described as being easy to use and efficient.

Based on the results, the authors explored scaling feasibility and suggested using the deep-scaling deep approach to expand successful elements and enhance the digital professional development course's quality. Therefore, the following elements were suggested for scaling:

1. Improvement of course content. The curriculum development process should be based on needs analysis and participants' preferences. The participants found the content to be overwhelming; thus, the content should be revisited and updated on a regular basis to reflect recent educational developments.
2. Improvement of course methodology to reflect a student-centred approach. This includes empowering participants to create their own learning and allowing for self-monitored professional development. Among other elements, the empirical results highlighted hands-on activities, master classes, video content and guest speakers as preferred ways of learning.
3. Improvements in course administration. Much emphasis is given to monitoring participants. Hard measures are placed on those who are registered to study, thereby often leading to fraudulent and fake participation. The study's authors suggested including freedom and self-regulation principles for the future administration of the course.

Introduction of pre-course training. Due to the novelty of innovative technologies, participants reported a need for an introduction to navigating the digital course. Therefore, a web-based skills development programme to equip beneficiaries with the skill set necessary to undergo professional development in online and blended modes is recommended.

SYNTHESIS FEASIBILITY OF SCALING EDUCATIONAL INNOVATIONS

Based on the findings and recommendations from the various specific projects above, this section attempts to distil several general relevant factors regarding the feasibility of scaling successful innovations, based on six case studies from Europe, Caucasus and Central Asia.

The innovations were selected regarding the relevant educational system and referred to comprehensive national reform of educational assessment (Moldova), a national-wide programme on inclusive education (Kyrgyzstan), new approaches to instruction in reading (Tajikistan), a pilot project on school-based comprehensive sexuality education (Kazakhstan) and digitalization in education (Uzbekistan).

To distil general conducive factors for scaling innovation from the case studies, we used the four interrelated dimensions – depth, sustainability, spread and shift in reform ownership – based on Coburn's (2003) theoretical framework. The results indicated how innovative features and practices can be integrated and sustained at the school level while simultaneously generating actionable knowledge for decision making and policy planning.

We would like to highlight the following recommendations that illustrate the complex interaction between innovations and context, as well as propose universal references for scaling beyond the national context.

Culture of continuous learning

A culture of continuous learning is a significant prerequisite for spreading, adapting and deepening innovations. A culture of learning and innovation depends on continuous professional development (Roesken-Winter et al., 2015), which entails opportunities for continuous learning opportunities, instead of one-off training courses.

More specifically, teacher associations could promote and strengthen best-practice approaches in innovative instruction. Traditional in-service courses might benefit from creating or expanding online courses, complemented by new approaches such as online study groups and action research. Furthermore, teacher associations should be involved actively in the professional development process to include teachers' needs and embed the learning process in job activities. Funding by national and local institutions (universities, teacher colleges, schools, etc.) could be used for this purpose.

All the studies concluded that teachers' opportunities to learn contributed to the success of innovation within the education system and emphasised its impact on scaling. Thus, teachers' opportunities to learn during professional development are crucial factors in adapting and disseminating innovations.

Teachers as agents of scaling innovation

Scaling's success in education depends highly on teachers functioning as 'upscalers' of innovative ideas and practices. Innovations coincide with new expectations towards teachers, educators and schools, and can create high demands and pressure. To cultivate a culture of innovation and help facilitate further development of effective practices, teachers and schools must get support to take ownership of an innovation.

As outlined above, one approach to helping teachers adopt and adapt to innovative practice is continuous on-the-job professional development. Further significant elements include supportive school leadership, collaboration, collaboration and exchange between teachers, as well as financial incentives. For example, in Moldova, the successful implementation of criteria-based assessment depended on continuous extensive professional development. Similarly, based on the results from the case study on inclusive education in Kyrgyzstan, the authors recommended enhancing teacher professional development and collaboration with the help of local teaching associations.

Establishing Networks

Ensuring long-term strategic collaboration among key stakeholders facilitates innovations' dissemination and sustainability. Therefore, strengthening networks with a common vision can be a significant factor for scaling (Cobb & Smith, 2008). Different organisations and stakeholders can be brought together to coordinate and support activities at various institutions, such as schools and teacher education and research institutions. For example, the promotion of inclusive education in Kyrgyzstan or CSE in Kazakhstan

both could benefit from networks among parents, NGOs, social services, health organisations and schools. Regular meetings, knowledge exchanges and events (e.g., roundtables, lectures and webinars) help develop human resources and infrastructure. Sharing lessons learned systematically and reflecting on successful elements can inform future policies and project design. Most importantly, networks also can enhance the advocacy and visibility of a specific innovation.

Strengthening the link between research and practice

Adaptation and development of innovations must be supported through accompanying scientific research. A mechanism that interlocks research and practice is particularly beneficial in this respect. For example, teacher training or similar institutions that play a role in creating a mechanism to modernise programme content also could monitor and evaluate programme implementation. This would ensure an evidence-based approach for policy and practice, contribute to the body of empirical evidence on what works best, and support a continuous learning process. Continuous reflection on practices and development also could help facilitate professional development further, thereby effectively linking didactical research, practices and professional development. Furthermore, research projects at the school level could contribute to quality development and assurance, e.g., in investigating teaching quality and student development using different assessment tools. For example, the 'Reading Together' project in Tajikistan used assessment tools to assess reading competencies among schoolchildren. Teachers could use the results to improve their instructional practice and provide feedback to students. Based on the case study results from the Edu Market project, colleagues from Uzbekistan concluded that systematic data collection of results from digital learning games could be used for continuous improvement of educational instruction.

CONCLUSIONS

Research on scaling innovations targeting change on different educational levels is a complex endeavour. This attempt to synthesise important outcomes from various case studies aimed to improve understanding on crucial factors for scaling innovations.

Based on the case studies reviewed in this document, several cross-cutting elements appear to play a crucial role in the successful scaling of innovations. The feasibility of successful innovations is associated with a culture of continuous learning, teacher and school support in the ownership of innovations, networks with a common vision and research and practice transfer.

However, it is important to emphasise the present case studies' methodological limits. The studies are cross-sectional and based on triangulated data sources, such as document analysis, semi-structured interviews and focus group discussions. Innovation research acknowledges that innovations tend to fade after a while (Strunk et al., 2016). Examining such potential changes and developments with respect to educational innovations requires long-term mixed-methods follow-up studies.

Future research could consider examining changes at the regional and school levels regarding the adaptation of innovations over a long-term period to examine factors relevant for sustainable change to inform future policies and project design. Finally, research on the link between innovations and educational success is needed to examine how innovations contribute to key outcomes at the school and teacher levels.

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ANNEX

LIST OF PARTICIPANTS AND THEIR INSTITUTIONAL AFFILIATION

Country	Name	Gender	Affiliation
Georgia	Ana Chorgolashvili	Female	Research/ Academia
	Ekaterine Dapkviashvili	Female	Government
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	Tamar Lominadze	Female	Research/ Academia
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