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DISTANCE PROFESSIONAL TRAINING FOR TEACHERS OF SMALL RURAL SCHOOLS

Textbook

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The textbook deals with the theoretical problems of professional development of teachers of SRS, specific features of teaching in distance learning based on a review of world literature, and reveals methods and techniques for studying the difficulties of professional development, approaches, classification and their characteristics, a modular training program, proposes a model for organizing the process of distance learning training.

The textbook is addressed to teachers of SRS, students of pedagogical universities and colleges.

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INTRODUCTION

In the contemporary world, education is pivotal in societal development. This underscores the importance of training skilled educators capable of delivering high-quality education to students, including those in the small rural schools (SRS) of Kazakhstan. Given the limited access to traditional professional development forms, online learning emerges as a promising avenue for the professional advancement of SRS teachers.

Online education for teachers in SRS offers several **benefits**:

1) *Accessibility*, as teachers can engage in learning at their convenience and from any location with internet access;

2) *Personalized approach*, as learning proceeds at an individual pace, tailored to each teacher's needs and capabilities;

3) *Variety*, as a broad selection of educational programs enables teachers to enhance their knowledge and skills across various subject areas;

4) *Interactivity*, as modern online education technologies facilitate interactive learning, allowing teachers to communicate with instructors (trainers) and peers;

5) *Cost-effectiveness*, as online learning is more economical compared to traditional professional development forms, eliminating the need for teacher travel and accommodation.

Therefore, in developing and implementing online learning programs for teachers in small rural schools (SRS), it is essential to consider a range of specific factors:

- *Limited internet access*, as not all SRS teachers have access to high-speed internet, which can restrict the use of video materials and interactive elements in the learning process;
- *Insufficient technical equipment*, as SRS often lack an adequate number of computers and other technical resources necessary for online learning;
- *Low level of computer literacy*, as not all SRS teachers are proficient in using computers and the internet, which can create difficulties in utilizing online educational technologies;
- *Isolation of SRS*, as they are frequently located in remote areas, limiting opportunities for communication and exchange of experiences among

teachers.

In light of these considerations, the proposed guide **addresses**:

- *Theoretical issues* related to organizing the distance education process for teachers in small rural schools (SRS), based on a state-of-the-art review of modern international literature on professional development for rural SRS teachers, with specific attention to the unique teaching features in SRS considering both international and domestic experiences.
- *Research methods and methodology* involving quantitative and qualitative analysis of the challenges in professional development, as well as approaches, classifications, and characteristics of these challenges. This research informs a modular training program for SRS teachers, which has been tested in professional development courses at the "Profi" Professional Development Center in schools within the Akmola and Atyrau regions.
- *A model for organizing the distance education process*, constructed based on scientific and experimental data, characteristics of video lessons on the YouTube platform, and results from testing the modular distance learning program.

This textbook is designed to assist SRS teachers in mastering the basics of distance learning and effectively utilizing it to enhance their qualifications.

1. THEORETICAL ISSUES IN ORGANIZING THE DISTANCE LEARNING PROCESS FOR TEACHERS IN SMALL RURAL SCHOOLS (SRS)

1.1 Professional Development of Teachers in Rural SRS: State-of-the-Art Literature Review

To explore research and experience in the professional development of teachers in Small Rural Schools (SRS), we conducted an analytical review of publications in leading international journals, selecting those most relevant to our research theme.

For instance, the article "How to Enhance Teacher Professional Development Through Technology: Takeaways from Innovations Across the Globe" examines the use of technology to improve continuous professional development (CPD) for teachers. It analyses innovative approaches to CPD using technology implemented worldwide and offers recommendations for their adoption.

What are the possibilities of technology in CPD?

From the study of the article, the possibilities of technology in continuous professional development (CPD) are extensive. Technology enhances accessibility by removing geographical and time constraints, ensuring that learning opportunities are available to all educators. It enables personalization, allowing teachers to access resources and programs tailored to their individual needs, which improves the relevance and impact of their professional development. Additionally, technology facilitates efficient learning, enabling teachers to progress at their own pace while receiving immediate feedback. It also supports global collaboration and the exchange of experiences among teachers, enriching the educational environment. Furthermore, technology plays a crucial role in data collection and impact assessment, providing tools to evaluate the effectiveness of CPD programs and their impact on student learning, thereby fostering continuous improvement in teaching practices.

The article outlines innovative approaches to CPD using technology from various countries, **including**:

- Many countries are using *online courses and platforms* to give teachers access to diverse educational materials, which greatly enrich the resources available for their CPD.

- The *establishment of online communities* that enable teachers to interact, share experiences, and support each other, creating a collaborative environment that enhances CPD.
- *Mobile applications* that allow teachers the convenience of learning at any time and from any place, ensuring that even those in remote areas can participate in CPD activities.
- The *application of AI* to develop adaptive learning programs, which tailor the learning experience to the specific needs of each teacher, thereby optimizing educational outcomes based on individual performance and preferences.

In light of the discussed aspects, the article's authors recommend ensuring that teachers have access to necessary technological resources and opportunities; allowing teachers to develop the technical skills they need; selecting suitable technologies based on specific needs and the context of the education system; developing high-quality and interactive online materials for CPD; providing necessary support to teachers using technology in CPD; and evaluating the effectiveness of CPD programs using technology to understand their impact on student learning.

Thus, the article emphasizes the importance of using technology to enhance the quality of teacher CPD. It demonstrates the potential of innovative approaches being implemented worldwide and offers recommendations for their successful integration. Implementing technology in CPD requires a comprehensive approach that includes ensuring access to technology, developing teachers' technical skills, choosing quality solutions, and providing necessary support.

The article "Scaling Up Classroom Coaching for Impactful Technology Use" addresses the issue of scaling teacher support in using technology in the classroom. The authors emphasize the importance of methodological coaching for the effective integration of technology into the educational process. The article focuses on strategies to expand the reach and increase the effectiveness of coaching programs for teachers.

The authors acknowledge that integrating technology into education often faces the challenge of a lack of support for teachers. Many teachers need help to master new tools and integrate them effectively into teaching to truly enhance learning.

The article proposes solving this problem by scaling coaching programs for

teachers. Coaching involves providing individual support to teachers by experienced pedagogical mentors. It is very important to identify teacher leaders in your school or district and develop their role in supporting other teachers. These teachers should include those who are part of the leadership team, as well as others who can help establish appropriate goals and expectations in learning, identify resources and tools to support digital learning, and help other teachers plan and organize effective digital learning opportunities for students. Teacher leaders often act as mentors and provide support to their colleagues.

One option is to give teacher leaders the opportunity to propose a project they want to work on over the year, such as identifying ways to use digital technologies to improve students' public speaking skills. Once the leading teachers have determined how to do this in their class, let them share their knowledge and train their peers. When considering the issue of teacher leaders, ensure that leadership is identified not only in each class group (K–2, 3–5, 6–8, 9–12) but also in other student areas (e.g., special education, bilingual educators, assistive technology specialists).

The authors suggest conducting Edcamps - collaborative professional development events organized by volunteer teachers, where educators share their own teaching experiences. It uses the "unconference" model, where sessions are organized, structured, and conducted by people attending the event. Edcamps give teachers "voice and choice" in their professional learning, leading to personalization of the professional development experience with sessions based on the teachers attending the Edcamp.

What are the benefits of scaling coaching programs? Firstly, coaching helps teachers master new technologies and apply them effectively in practice to improve student learning. Secondly, by receiving support from coaches, teachers feel more confident using technology in the classroom and promote their professional development. Thirdly, effective use of technology in teaching can lead to improved student learning outcomes.

The authors propose a number of strategies to expand the reach and enhance the effectiveness of coaching programs:

1. Utilizing *online platforms* that can provide coaching remotely, thus reaching a larger number of teachers;
2. *Training* more qualified coaches to expand the scale of the programs;
3. Creating *communities of teachers* who use technology, which can serve as a source of support and exchange of experience;
4. Implementing *blended learning*, i.e., combining online courses with face-

to-face coaching to provide a flexible and effective approach to training;

5. Employing various *coaching models*, such as peer coaching and virtual coaching, to cover a greater number of teachers;
6. Focusing on *school leadership*, i.e., school management should support the coaching program and ensure its sustainability.

Thus, the article emphasizes the importance of methodological support for teachers for the successful integration of technology into education. Scaling coaching programs using online platforms, training coaches, and creating communities of teachers can help reach more educators and enhance the effectiveness of technology use in the classroom. The proposed range of strategies can be used to overcome scaling-related challenges and ensure that all teachers have access to quality coaching.

In the context of our research, a particular article of interest is from Chinese scholars titled "Assessing quality of online learning platforms for in-service teachers' professional development: The development and application of an instrument". This study focuses on the creation of a tool for evaluating the quality of online learning platforms designed for the professional development of active teachers. The tool is based on the Information Systems (IS) success model and assesses teachers' perceptions of platform quality from three aspects: content quality, technical quality, and service quality. This framework allows for a comprehensive evaluation of the platforms, ensuring they meet the educational and technological needs of teachers effectively (Figure 1).

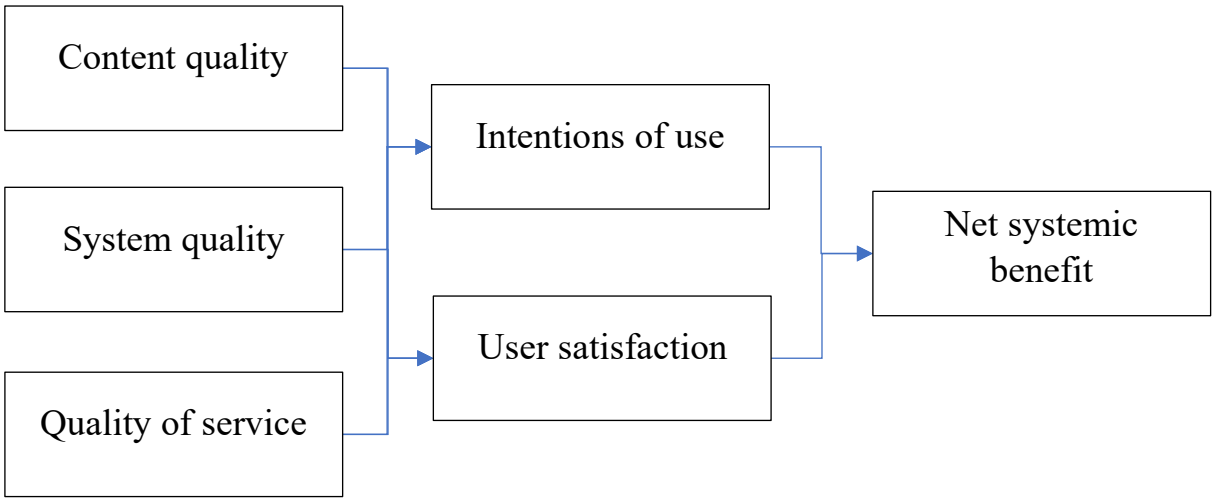

Figure 1. Model of successful online platform

In this study, an attempt was made to identify key indicators of technical

quality, content quality, and service quality to measure the effectiveness of online learning platforms for teachers' professional development based on teachers' experiences. Methodological features include:

- The authors developed an instrument consisting of 27 items based on the Information Systems (IS) success model;
- The instrument was tested for reliability and validity using expert evaluation and statistical methods;
- Researchers applied the instrument to analyse the effectiveness of China's National Teacher Professional Development Platform during the COVID-19 outbreak.

The results of the study include:

1. The developed instrument has good reliability and validity;
2. Teachers positively assess the content quality, technical characteristics, and service of the National Teacher Professional Development Platform;
3. Improvements in platform design, tool functionality, operational efficiency, and teaching methods could increase teacher satisfaction with online learning.

Thus, the developed instrument is an effective tool for assessing the quality of online learning platforms for teacher qualification enhancement, which is important for optimizing learning and enhancing teacher satisfaction in terms of content, technical characteristics, and service. The proposed tool can be used to analyse and improve online platforms, thereby enhancing the effectiveness of professional development for educators.

It should be noted that the study was conducted in China, focused on teachers' perceptions rather than actual learning outcomes, and its results may not fully apply to other countries.

Overall, the article represents a valuable contribution to the field of developing and evaluating online platforms for teacher professional development. The developed tool can be a useful resource for researchers, developers, and educational program administrators striving to create effective online learning platforms.

The next article "Technology and professional development: trends, challenges and empowerment" on the Teachstone website is devoted to the use of technology in professional development (CPD) of teachers and discusses current trends, challenges, and opportunities associated with the use of technology

in CPD, as well as provides recommendations for their effective implementation.

The paper highlights several key trends in the use of technology in CPD:

1. Online courses, webinars, and other forms of online learning are becoming increasingly popular for CPD, as they allow teachers to learn at their convenient time and place.
2. Social networks are used to create CPD communities where teachers can share experiences, exchange ideas, and support each other.
3. Technology is used to personalize learning, allowing teachers to access resources and programs that meet their individual needs.
4. Gaming elements such as points, badges, and competitions are used to increase motivation and engagement of teachers in CPD.
5. Artificial intelligence is used to create adaptive learning systems that can adjust to the individual needs of each teacher.

The article also discusses some problems associated with the use of technology in CPD, which are also present in the Kazakhstani segment. For example, it notes that not all teachers have access to the necessary technological resources and opportunities; some teachers lack the technical skills needed for effective use of technology; not all CPD technologies meet the needs and interests of teachers; there is not always sufficient support for teachers using technology in CPD; teachers can be overwhelmed by the information available online, making it difficult to find quality and relevant resources.

At the same time, the authors emphasize the potential of technology for expanding CPD opportunities, which include:

- Increasing accessibility, i.e., technology can make CPD more accessible to teachers, regardless of their geographical location or work time;
- Personalization of learning, i.e., technology can help personalize learning, allowing teachers to access resources and programs that meet their individual needs;
- Collaboration and experience exchange, i.e., technology can facilitate collaboration and experience exchange among teachers.
- Increasing motivation, i.e., technology can make CPD more motivating and engaging for teachers;
- Assessing effectiveness, i.e., technology can help in assessing the effectiveness of CPD.

The article offers several recommendations for effective use of technology

in CPD, for example:

- All teachers should have access to the necessary technological resources and opportunities;
- Teachers should be given the opportunity to develop the necessary technical skills;
- Social networks and other online platforms can be used to create CPD communities where teachers can share experiences, exchange ideas, and support each other;
- Teachers using technology in CPD should be provided with the necessary support;
- Technology should be used purposefully to meet the needs and interests of teachers.

Thus, the article presents a valuable overview of current trends, challenges, and opportunities related to the use of technology in teachers' professional development, emphasizing the potential of technology to enhance the effectiveness and reach of professional training, and acknowledges problems that need to be addressed. The article's recommendations offer practical guidance for educators and policymakers interested in using technology to support the growth and development of teachers.

The article "Teacher Continuous Professional Development" on the EdTech Hub site is dedicated to the topic of teachers' CPD, discussing its importance, benefits, various models, and factors that influence its effectiveness. The Tanzanian government has implemented a National Framework for Teacher CPD, transitioning from disjointed seminars to a cost-effective, ongoing professional development model based at schools.

The article emphasizes that CPD is a vital part of a teacher's professional life. In today's world, where knowledge and technology are constantly changing, teachers need to continually enhance their skills and knowledge to remain effective educators.

The article highlights several key benefits of CPD for teachers, including:

1. CPD helps teachers learn new teaching methods, use modern technologies in education, and effectively assess student performance.
2. CPD provides teachers the opportunity to deepen their knowledge in their subject area, enabling them to teach their subjects more fully and engagingly.
3. CPD helps teachers acquire new skills, such as the use of educational

technologies, classroom management, and differentiated instruction.

4. CPD encourages teachers to analyze their teaching practices, identify areas for improvement, and make changes to their work.
5. CPD promotes professional growth in teachers, increasing their confidence, motivation, and job satisfaction.

The article also discusses various models of CPD that can be used to support teachers' professional development.

Table 1. CPD Models

Formal training	Structured courses offered by universities, professional organizations, or school districts provide deep knowledge and skills in a specific area.
Masterclasses and workshops	Intensive short-term classes dedicated to a particular topic or skill offer practical learning opportunities.
Conferences and presentations	Participation in educational conferences and presenting research or best practices allow for networking and exposure to new ideas.
Online training	The use of online courses, webinars, and educational programs enables access to learning materials at a convenient pace and mode.
Mentorship and coaching	Receiving guidance and support from experienced colleagues or mentors helps improve pedagogical practice and address specific challenges.
Mutual supervision and co-operation	Observing the teaching of experienced colleagues and collaborating with other teachers to exchange ideas and learn from each other.
Research activity	Conducting research projects to study pedagogical practices, analyze student performance data, and implement evidence-based strategies.

The article also discusses factors influencing the effectiveness of CPD, which should:

- meet the specific needs of teachers and their students;
- be relevant to the teaching context of teachers, the school environment,

and the demographic characteristics of students;
- offer various types of activities and approaches to accommodate diverse learning styles and preferences;
- encourage collaboration among teachers, creating a supportive and learning-oriented community;
- be integrated into the school culture and supported with sufficient time, resources, and support.

Thus, the article provides a comprehensive overview of the importance, benefits, models, and factors affecting the effectiveness of professional development for teachers. It highlights the critical role of continuous professional learning in improving teachers' skills, knowledge, and practices, leading to better student performance and a more enriching teaching experience.

Additionally, the same site also features the article "Life-long learning processes in professional development for online teachers during the Covid era", written by Iris Reychav, Nitzan Elyakim, and Roger McHaney. This article analyzes a general model that tested whether learning foci predict performance evaluation indicators using remote learning technology. The analysis included four performance evaluation indicators, overall use of remote online learning technologies, four learning foci, and two professional development variables. The model shows high correlation values, indicating good model data fit. All four performance evaluation indicators are predicted on a 'teacher alone' basis, as is the use of remote online learning technology. The evaluation metric 'lifelong learning and professionalization' was also predicted by learning foci: teacher and peers, teacher and student. Similarly, variable, autonomous learning predicted three performance evaluation indicators: content competence and substantive teaching; management of learning and education; and lifelong learning and professionalization. Additionally, the use of remote online learning technology was predicted by three learning foci: teacher and peers; teacher and student; and teacher and lesson plan. Finally, the use of remote online learning technology mediated the relationship between learning foci – teacher and peers; teacher and students; and teacher and lesson plan, as well as the four performance evaluation indicators. Higher values of the learning foci 'teacher and peers' and 'teacher and lesson plan' predict higher values in the use of remote online learning technology and the use of remote online learning technologies, as well as higher values for the four performance evaluation indicators.

For the current research, the authors specifically developed the UTAUT research model, which included the use of remote online learning technology as a general measure. During the analysis, the relationships between expected performance, expected effort, social influences, facilitating conditions, intention to use, and actual use were studied, as well as the relationship between intention and actual use, linked to the preparation of pedagogical tasks and student training. High correlation values indicate a good fit of the model data. Three variables: expected performance, expected effort, and facilitating conditions predicted the intention to use learning technologies. Intention predicted actual use. Expected performance and facilitating conditions predicted actual use of learning technologies.

Notably, the article under review and the previous article "Teacher Continuous Professional Development" complement each other, illuminating the topic of CPD for teachers, in this case focusing on online teachers during the COVID period.

The EdTech Hub article mentions, firstly, that CPD improves knowledge, skills, and practice. The research confirms this, showing how online teachers who participated in CPD improved their pedagogical effectiveness and confidence in using technology. Secondly, learning communities (CoLs) are mentioned as a form of CPD. This aligns with the idea of using online courses and professional communities by online teachers for CPD.

Overall, all the reviewed and analyzed publications emphasize the importance of supporting online teachers in their pursuit of continuous learning, highlight the challenges faced by online teachers in continuous learning, such as lack of time and resources, and offer recommendations for improving CPD.

1.2 Specific Features of Teaching in Small Rural Schools (SRS): International and Domestic Experience

Small rural schools in **Austria**, also known as 'schools with a small number of students' (*Kleinschulen*), are part of the country's educational system. These schools are located in sparsely populated or remote areas and serve a small number of students. In Austria, there is legislation that requires the government to ensure access to education in all regions of the country, including rural and mountainous areas. Small rural schools play an important role in this process,

providing education to children who live in remote locations where building large schools is impractical due to the small number of students.

In rural Austria, there are many small primary schools. For example, in Vorarlberg, the westernmost province of Austria, more than 40% of primary schools are small rural schools. An important characteristic of these small schools is that they have multi-level classes due to the small number of students. At the same time, they also provide unique educational opportunities.

On average, Kleinschulen can have from a few to dozens of students. For example, in some rural areas or remote villages, the number of students can be very limited due to the small population in the surrounding region. In such cases, Kleinschulen may be the only educational institution in the area. Due to the small number of students, classes in Kleinschulen often combine students of different ages and levels of education. This practice helps to ensure effective use of resources and organization of education for small groups of students.

The school system in Austria provides quality education at all levels and plays an important role in shaping the future of the country. School education in Austria is characterized by early selective transitions, a large vocational sector covering more than half of the students at age 15, and a high degree of differentiation, especially at the upper secondary level. Children go to school at the age of six, and primary education lasts only four years in Austria. This structural difference affects the composition of multi-level classes in the two countries.

From an international perspective, one of the most characteristic features of school education in Austria is the very small average school and class size. These features are especially pronounced in rural areas, particularly in many mountainous regions. Large mountainous areas, especially in central and western parts of Austria, complicate the optimization of school offerings, as they require students to travel long distances to school.

In general, in Austria, there is little freedom of school choice. For administrative planning reasons, families must send their children to a school within the service zone (*Schulsprengel*) in which they live. Each public general education school (*Allgemeine Pflichtschule, APS*) is assigned a specific school service zone, which is determined by provincial authorities. If the service zone includes several schools, provincial law regulates the distribution of children to these schools. In Vienna, for example, the municipality, in agreement with the school council, allocates children to schools based on criteria such as the

distance from home to school and the number of enrolled siblings.

In Vienna, coverage zones are quite large and include the municipality where the school is located as well as neighboring districts. In Linz, the capital of Upper Austria, the service zone principle has been completely abolished. Families can freely enroll their children in a school of their choice, and only if there are too many applicants for a particular school do factors such as distance from home and the presence of siblings in the chosen school become admission criteria. The relaxation of the service zone principle is a response to family demands. Enrollment in a school in another region or municipality is generally possible, but this requires permission from the relevant authorities, as municipalities must transfer compensation payments for the respective students to the receiving municipality. Schools with specialized educational programs, such as music or sports, are exempt from the territorial coverage principle.

When enrolling in academic secondary schools (*Allgemeinbildende Höhere Schule, AHS*), families can freely decide which school they want their child to attend within the province. In schools where demand exceeds supply, students may be transferred to another academic secondary school based on distance to the school, the number of enrolled siblings, and abilities. Depending on provincial regulations, parents can indicate their preferences by listing alternatives to the school they prefer. The introduction of a certain degree of school autonomy in the 1990s, which included partial autonomy in curriculum development, encouraged schools to develop educational priorities and specific profile subjects to become more attractive to (high-achieving) students and their parents. As a result, increasing competition between schools could be observed, accompanied by certain selection effects.

Small rural schools are a pressing but sensitive issue in national and regional policy. As a result of current governance mechanisms in Austria, there is a fragmented system of school planning and network planning. Depending on the type of school, various levels of government are involved in the decision-making process about opening, closing, and maintaining schools, sometimes simultaneously. While the federal level is responsible for planning and organizing school facilities for general education schools at the initial stage of secondary school, the provincial and municipal levels are responsible for organizing the school offer for compulsory general education.

Closing a small rural school requires a complex administrative process in-

volving the municipality, provincial government, and federal level, represented by the provincial school council – and all may have potentially different interests. This requires intensive political dialogue with stakeholders, and responsible bodies sometimes even offer financial or other incentives to municipalities to gain their consent for closure. In some cases, when consensus was not reached, the process of closing a small rural school stretched over several years due to administrative legal proceedings initiated by the relevant municipality.

The closure of a small rural school in one municipality may also require new investments in infrastructure in a neighbouring municipality to adapt the school location to accommodate a larger number of incoming students. School transportation is usually provided free of charge to students (except for a small contribution) by the Federal Ministry for Families and Youth (*Bundesministerium für Familien und Jugend*) through the Family Compensation Fund (*Familienlastenausleichsfonds*).

In the municipality where a school was closed, it is usually required to transfer compensation on a per-student basis to the absorbing municipality to proportionally cover the infrastructure costs. Despite the transfer of compensation, the sending municipality has no say in decisions regarding the school in the receiving municipality. Another problem for small localities is that there often is no clear concept for the use of redundant school buildings, while the costs for basic technical maintenance to prevent the buildings from deteriorating can continue to burden the municipality's budget. For example, the government of Upper Austria discussed potential uses with the relevant municipalities, and decisions included using the infrastructure by other schools, childcare facilities, associations, or churches, while in other cases school buildings had to be sold or demolished.

The Federal Law on the Maintenance of Compulsory Schools (*Pflichtschulerhaltungs Gesetz*) states that the provinces are responsible for all compulsory schools (also called provincial schools, *Landesschulen*). This federal law only sets general framework criteria for the creation, maintenance, and closure of schools, as well as for school infrastructure and covering costs. All detailed provisions, including criteria for the minimum size of schools and their geographic distribution (i.e., the distance between the place of residence and the nearest school), are laid out in the provincial executive legislation and vary significantly from province to province.

According to federal law, provinces may transfer responsibility for school infrastructure and its maintenance to municipalities, and all provinces have chosen this option. On the other hand, academic secondary schools (also called federal schools, Bundesschulen) are under federal jurisdiction. There are no legislative acts that provide for coordination and the creation of synergies between the infrastructure of provincial and federal schools within a single locality.

According to 2016 studies, there are no significant differences in performance between students in urban and rural schools in Austria. This was achieved through initiatives to implement multimedia and internet technologies to build capacity. Also, in terms of education quality, there is little data on the impact of small rural schools and on whether such size schools significantly improve teaching and learning, including compared to larger schools, which are more cost-effective to operate. It is important, of course, to consider broader regional and local development goals and recognize that investments in these small schools may yield a broader return for the communities and villages where these schools are located.

In regions of Austria where transportation infrastructure is weak, students are transported to school for free. Teachers in rural areas earn more than their counterparts working in cities. Most teachers in rural areas are satisfied with their working conditions. Researchers from the 'Schools in Alpine Regions' and 'Small Schools in Rural Areas' projects showed that the majority of participating Austrian teachers enjoy working at their small rural school.

Although studies show that in Austria the student-to-teacher ratio in urban and rural areas varies much less than class sizes, the student-to-teacher ratio must be very low in very small schools, counting only ten students, as is the minimum in Burgenland. Maintaining such small schools is relatively expensive since maintaining and investing in infrastructure (e.g., IT resources and equipment) in many small schools costs more than in larger ones. But small schools have not only financial implications. Small schools and small buildings complicate the realization of other policy goals, such as creating universal school education and providing all-day services.

Although in all provinces of Austria a minimum number of students is defined for opening a school, schools continue to operate even if the number of students falls below this threshold. Additionally, in some provinces, the existing minimum numbers are very low: for example, ten students per school in

Burgenland. Secondly, existing governance mechanisms and the division of responsibility for funding and expenses between the federal government and the provinces can create problematic incentives. Since the costs of teachers, who are the largest expense factor for school operations, are covered at the federal level, provinces and municipalities have little incentive for rational planning of their compulsory school networks in rural areas.

According to a literature review on small rural schools (SRS) in Austria, we can note three potential positive effects of SRS on small villages:

- impact on social capital,
- impact through other services provided by schools,
- impact on the local economy.

From the perspective of social capital, small rural schools can act as meeting places and venues for interaction and strengthening community bonds, playing a role in maintaining community cohesion and facilitating the preservation and transmission of local history and culture. By providing a space for interaction and unity, as well as promoting community identity, schools increase the amount of social capital within the community, thereby facilitating cooperation and coordination for mutual benefit among community members.

It is expected that the social capital promoted by the school will have a positive impact on community life, and this is particularly relevant when the community supports and participates in school activities.

In rural and remote areas, small rural schools often provide additional services beyond education. These activities may be related to education, for example as a learning center for youth and adults or a daycare, but they can also be used for other types of activities, such as an information center for municipal services, a workplace for very small businesses, a space for organizing local cultural events, or a polling station.

Finally, small rural schools in small villages can impact the local economy, as economically active young parents are less likely to move to cities. Moreover, it has been argued that consolidation could lead to lower taxes, a drop in property values, and business closures.

A study of rural communities in New York State showed that housing costs are higher and municipal structures are more developed in small villages with schools than in those without them. However, these results do not show a causal relationship: the decline in housing prices could have been caused by other factors, not the presence of a school.

Additionally, focus group interviews with students show that most students like their school and speak very positively about it. For example, students appreciate the benefits of having extra space due to the small number of students and explain that they like the 'quiet' at school, noting that 'there is no crowd on the playground' and 'there are enough toys for everyone'. Children also note that they like that 'everyone really knows everyone'.

Over the past decades, due to demographic changes and political decisions, hundreds of small rural schools have been closed or merged in Finland. In 1990, the number of small general education schools with fewer than 50 students still accounted for more than 60% of general education schools; in 2000, they accounted for about 38%; but by 2020, they constituted only 16% of general education schools.

In a press release dated September 29, 2021, the Finnish Education Evaluation Centre (FINEEC), together with the Ombudsman for Children in Finland and the Rural Policy Council, announced that they would begin an independent and comprehensive assessment of the consequences of the closure of small rural schools (SRS) for children and local communities. The assessment will focus on children's rights to equal basic education and healthy personal growth in accordance with the UN Declaration on the Rights of the Child.

However, Finland is still considered a small school country on the international stage. On average, a general education school in Finland educates no more than 200 children. Relatively small rural primary schools, which educate 50-100 children and have three to four teachers, constitute more than 30% of general education institutions.

Initially, the issue of small rural schools was encountered in Lapland in northern Finland, where the indigenous Sami population lives. A large number of SRS are located in Lapland. The government of Lapland is very careful about small rural schools and preserving the Sami language and culture. Special taxis are hired to transport children, and the municipality covers these costs.

The term "small rural schools" in Finnish is denoted as 'pienet koulut' or 'pienryhmäkoulut'. 'Pienet' translates as 'small', and 'koulut' means 'schools'. Sometimes the term 'pienluokkainen koulu', meaning 'school with small classes', is also used. Depending on the context and specific characteristics of the school, various terms may be used to denote SRS in Finland. In

history, '*pienet koulut*' reflect the country's general tendency to create an educational system that considers the individual needs of students and supports the unique contexts of various regions, including rural and sparsely populated areas. This fact also dictates the need to study, know, and take into account the special needs of the country's general education system, as it already confirms the importance and significance of these schools in accordance with their widespread nature.

The history of SRS in Finland is linked to the development of the educational system in the country. In Finland, educational institutions, including small rural schools, play an important role in supporting education in rural and remote areas. In the early 19th century, before Finland gained independence from the Russian Empire in 1917, education in the country was limited and accessible only to a certain class of society. Schools were often located in cities and small settlements.

In the mid-19th century, changes began in the Finnish educational system, and an expansion of education into rural areas began. This was associated with reforms aimed at expanding access to education and strengthening the educational system. In 1866, the Lantern Committee (*Lanternaattikomitea*) was created, which developed a program to expand education in rural areas. During this period, the country was under the influence of the Russian Empire, and reforms were conducted aimed at strengthening Finnish identity and language. One of the key areas was the educational system. This step contributed to the creation of many SRS.

Small rural schools played an important role in Finnish education. The goal of creating a school in every village was established after the decree on the division of districts in 1898. According to the decree, provinces were to divide areas into school districts so that no student had to travel more than 5 km to attend school. The number of schools in Finland increased, and soon almost every village had its own school.

In 1921, Finland enacted a compulsory education law that established mandatory schooling for children aged 7 to 14. This law gave an additional impetus to expand education across various regions of the country, including rural areas. After World War II, Finland aspired to further improve its educational system. Many new schools were needed, and there was an unprecedented increase in the number of rural schools. The number of schools continued to rise until the mid-1950s. In the 1970s and 1980s, the country undertook extensive

reforms aimed at strengthening general education and improving teaching quality.

Regional development of the Finnish state after World War II, a period called the ‘decentralized welfare state’, continued until the late 1980s. The perceived social responsibility of the state extended across the country, and social cohesion was considered necessary to maintain independence. However, by the late 1960s, small schools began closing due to declining birth rates and structural changes in rural areas, including the rise of emigration and the development of rural infrastructure. The closure of small rural schools significantly increased not only in Finland but also in other Scandinavian countries and the UK. Preference was given to large, well-resourced single-class schools, and the goal was to transport children from small villages to these larger schools.

In Finland, the situation for small rural schools improved in the late 1970s when the current general education system was established, and equality in education was intended to ensure equal educational opportunities for all citizens. However, the political situation in the country in the 1980s led to a redefinition of the core of Finnish educational policy in 1987. Instead of equal opportunities for education regardless of residence and socio-economic status, ‘equality meant the right of each student to receive an education that suits his or her preconditions and expectations’.

Economic growth in the 1980s allowed the Finnish state to support a network of small schools for a significant period of time, adjusting the exceptionally low minimum number of students depending on the amount of state aid received. State aid can be interpreted as socio-political support for the preservation of small schools.

A new wave of closure of small rural schools began during the recession of the 1990s as part of a strict municipal cost-saving policy that continues today. Since then, school closures have been primarily explained and justified by economic considerations. In a political environment that favoured institutional decentralization, municipalities were given more decision-making powers. The Finnish state ceased additional funding for small rural schools in 2006, which in turn led to local municipalities closing local schools to solve financial problems. The effect was evident in the 2006 school closure data: a record 186 schools were reported closed.

Legislative changes ratified in the early 2010s led to an increase in the

number of independent municipal decisions on educational matters. Previously, the state provided separate compensation for the maintenance of small rural schools, but the funding provided by the state to municipalities was no longer earmarked. Currently, the state pays municipalities operating costs associated with organizing educational services, according to legally established calculation bases. If a municipality organizes primary education services cheaper than the basic unit price, the state funding received by the municipality does not decrease. However, if education expenses exceed the level set by the basic price, the municipality must cover all additional costs.

An important aspect of the history of education in Finland has been the continual strive to ensure equality in education. This includes the distribution of educational resources across various regions.

Ultimately, small rural schools in Finland have become an important element of the educational system, especially in rural areas. They have facilitated expanded access to education and supported education in localities where larger schools might be inefficient due to the small number of students. Small rural schools in Finland may possess some unique features that distinguish them from larger educational institutions (however, it should be noted that the country overall strives to maintain a high standard of education regardless of the size of the school).

Strong connection to the local community. Small rural schools (SRS) often closely interact with the local population. They become centers of educational and social activity in rural areas, helping to strengthen the community. A strong connection to the local community is one of the characteristic features of SRS in Finland. This connection plays a crucial role in creating a unique educational environment and ensures support and involvement of local residents in the life of the school. SRS often become the hub of a rural or small settlement. They not only provide education but also serve as venues for various cultural, community, and sports events. In SRS, parents often actively participate in the educational process. They may be members of the school committee, participate in organizing events, and even offer their skills as volunteers. Schools often organize educational events in which not just students, but also parents and other community members can participate. These may include lectures, workshops, thematic projects, and other activities. Additionally, SRS actively engage with local traditions and culture. They may organize festivals, celebrations, and events that reflect the unique features of the local community.

Schools may collaborate with local businesses, organizations, and communities to conduct joint events. This not only facilitates the educational process but also the economic and social development of the area. In some cases, local residents may take an active part in managing the school through councils or committees. This provides direct community influence on the educational process and decision-making. As a result of these and other practices, a close integration of SRS into local communities is formed, which promotes more effective learning, meets the needs of students, and enriches the educational experience through interaction with close and caring local environments.

Small classes and combined classes. These schools often maintain small classes, allowing teachers to provide more personalized instruction. Additionally, due to the smaller number of students, combined classes with students of different ages may be used. In Finland, small classes and combined classes provide a more personalized approach to learning and help create a more supportive educational environment. Here's more detailed information about small classes and combined classes.

Small classes and combined classes have several features that are part of the country's educational philosophy aimed at creating a supportive and personalized educational environment. Some of the features of small classes in the Finnish education system include:

1. The small class size allows teachers to give more individual attention to each student, which helps in better understanding individual needs and learning styles.
2. Due to the small number of students, teachers know their students better. Close relationships between teachers and students facilitate more effective communication and understanding.
3. Teachers in small classes have more freedom in developing and implementing their curricula, allowing them to more flexibly respond to the needs of specific students and adapt teaching methods.
4. Small classes contribute to creating a warm and supportive educational environment. Teachers can better monitor the emotional state of students and provide support when needed.
5. Parents often participate more actively in their children's education in small classes and can be more involved in school activities, parent councils, and other school initiatives.
6. Managing small classes can be more effective in terms of organization

and administration, which may reduce bureaucratic burden and make decision-making processes more flexible.

In small classes, teachers and students can spend more time on in-depth discussions, research work, and collaborative projects, which fosters the development of critical thinking and a creative approach to learning.

It is important to note that both these approaches are based on the principles of the Finnish educational system, which emphasizes personalized learning, the development of critical thinking, and the creation of a supportive educational environment. It is also important to note that decisions about class size and their organization may vary depending on specific conditions in each school and region.

Close relationships between teachers and students. In small rural schools (SRS), teachers often know their students personally, which facilitates closer relationships and the opportunity to provide individualized support. Close relationships between teachers and students are an important aspect of education in SRS in Finland. This trait becomes a key element in creating a supportive and personalized educational environment. With a small number of students in the class, teachers can devote more individual attention to each student. This allows for identifying individual needs, characteristics, and learning styles, which contributes to effective teaching. Close relationships between teachers and students are built on mutual trust, understanding, and support. Teachers can better understand the personal interests, character, and needs of each student.

Close relationships also facilitate the exchange of information between teachers and parents. Teachers can more easily communicate with parents about the progress, achievements, and needs of the student. Close relationships allow teachers to provide more personalized support to students, especially in case of difficulties or the need for additional help. Teachers in SRS can more effectively support the emotional well-being of students, ensuring psychological safety in the educational environment. It is important to note that close relationships between teachers and students allow for more flexible adaptation of teaching methods and programs to the individual needs, learning style, and pace of each student. In such classes, teachers can actively involve parents in the educational process, creating partnerships between home and school.

These relationships contribute to the creation of an educational space where

students feel supported and can develop as individuals. They also facilitate effective communication and information exchange, which is important for achieving the common goal of successful student learning.

Local adaptation of the curriculum. Teachers in such schools may have more flexibility in adapting the curriculum to local needs and student characteristics. This direction is connected with the general Finnish educational philosophy aimed at individualized learning and creating a favorable educational environment. Teachers and school administration closely interact with the local community, parents, and students to identify key needs and interests. The school curriculum is adapted in a way that takes into account the unique features and values of the local community. Teachers in SRS strive to individualize the approach to learning, considering differences in knowledge levels, interests, and needs of each student. The program in schools is developed with this individualization in mind, allowing it to more accurately match the level and pace of each student's learning. SRS may have certain flexibility in choosing educational materials and methods to adapt the program in line with current themes, events, or student interests. This may include using local resources and environmental aspects.

The school curriculum emphasizes the development of key skills such as critical thinking, communication, collaboration, and autonomy. Teachers strive to incorporate such elements into the teaching process to prepare students for successful adaptation in modern society. The integration of local resources, experts, and experiences into the teaching process for practical learning and the creation of more specific and meaningful educational contexts. Such methods of local program adaptation help create an educational space that best meets the unique needs and context of SRS in a particular region of Finland.

Focus on unique educational experiences. In Finland's small rural schools (SRS), the emphasis is on creating unique educational experiences for students, which includes an individualized approach, interaction with the local community, and the use of various teaching methods. Due to more limited resources, SRS can focus on unique educational experiences, including broader access to various types of learning, extracurricular activities, and project work.

The individualized approach may include adapting teaching materials, assessment methods, and class schedules. Schools actively interact with the local

community to integrate resources, expertise, and experience into the educational process. Educational projects can be oriented towards local issues, research, or themes, making the educational experience more relevant to students. Schools focus not only on imparting knowledge but also on developing key skills and competencies such as critical thinking, communication, collaboration, and creativity. Educational experiences aim to shape not only academic outcomes but also the personal development of students.

Many SRS are located in rural areas, which allows for active use of natural resources for educational purposes. Curricula may include natural sciences, environmental education, and outdoor activities. Schools actively incorporate project activities into the educational process, allowing students to solve real problems, work in teams, and develop practical skills. Projects may be connected with local traditions, history, or challenges, making them more meaningful to students.

Educational experiences may include exploring local traditions, culture, and history, helping to preserve the unique identity of the community. The flexibility in organizing the educational process allows schools to quickly respond to changes in the needs of students and the local community. SRS can more effectively adapt to the unique conditions and opportunities. Such approaches to education contribute to creating unique and meaningful educational experiences for students in SRS, emphasizing the value of local contexts and individualized learning.

It is important to note that each small school is unique, and its features may vary depending on location, resources, and local initiatives.

SRS may face challenges in providing a variety of subjects, specialized teachers, and access to advanced technologies. At the same time, they may have more opportunities for innovation and close interaction with local community involvement.

Small rural schools may face limited resources, including funding and specialized staff. Nonetheless, in advanced countries, the difference in education quality between urban and rural areas is minimized—for example, Finnish students show impressive results regardless of the location of the school, as efforts are made in the country's education system to ensure equal opportunities for students in all regions. The experience of reforming the Finnish school shows that the quality of education does not depend on whether it is received in an urban or rural school.

In remote areas, students may need a long time to reach school. Efforts are made to address transportation issues to ensure access to education without undue difficulty. As noted earlier, in Lapland, special taxis are hired to transport children, and the municipality pays these expenses. While the Finnish education system is generally well-regarded, it is important to note that the experience of small rural schools may vary depending on location, community involvement, and local initiatives.

In Northern Ireland, as in other regions, small schools, also known as 'small schools' or 'small rural schools', play a vital role in providing education in rural and remote areas. These schools typically have a small number of students and often become the centres of educational, cultural, and social life for the local community.

More than a third of Northern Ireland's population lives in rural areas, and over 80% of the land is classified as rural. Against this backdrop, according to data from the Department of Education for the 2020/2021 school year, more than half (55%) of all 803 primary schools are rural. These schools are located in settlements with populations of less than 5000 people and in open rural areas.

In the 2021/22 school year, 55% of all 796 primary schools in Northern Ireland were classified as rural schools, and 39% of these rural schools had fewer than 100 students (170 out of 435). Like society, the school system in Northern Ireland is divided along ethno-religious lines. The two dominant types of primary schools are predominantly attended by either Protestant (controlled schools) or Catholic (maintained schools) students.

The 'Strategic Plan for Special Education 2022-2027' in Northern Ireland aims to develop a network of sustainable schools of the appropriate type and size, with an emphasis on raising standards. Regarding student numbers, the ministry's policy states that primary schools should have no fewer than 140 students in urban areas and 105 in rural areas. According to the strategic plan, about 230 of Northern Ireland's 800 primary schools have fewer students than recommended. Most of these are in rural areas: 193 out of 440 rural schools have fewer than 105 students.

Northern Ireland is a society that can broadly be divided along ethno-religious lines into two main groups:

1. One exhibits an Irish political/cultural identity and Catholic religious affiliation, which tend to support the single island project of Ireland;

2. The other, with a British political/cultural identity and Protestant religious background, supports and defends the status quo of Northern Ireland as part of the United Kingdom.

Consequently, a study dedicated to the relationships and interactions between small rural schools and their communities in Northern Ireland is important and long overdue.

The context of small rural schools in Northern Ireland is specific to this region, which has always had a significant number of these schools. In fact, in 1964, there were over 450 schools with student numbers ranging from 26 to 50, though this number quickly decreased, and by the early 1990s, there were fewer than 150 schools with such student counts [30]. In the 2020/21 school year, fewer than 100 students were enrolled in 40% of all rural primary schools in Northern Ireland. The abundance of small schools can be partially explained by the rural nature of the region, a multi-sectoral school system, a selective education system, and a period of demographic decline. Indeed, a significant number of small rural schools are located side by side (often just a few yards apart), serving two communities, with a substantial portion having fewer than 105 students.

The reasons for the large number of small schools in Northern Ireland are related to historical heritage, population density, and geographical factors, and to a lesser extent, language reasons for minority and confessional minorities. The ongoing policy of transforming small schools into larger units was significantly refined over a long period until 1977.

Globally, education systems and educational policies are often created and conceptualized using an urban model of school education. Rural schools are often viewed negatively due to the problems they face due to their geographical isolation and small size (with a reduction in the number of students and staff). On the contrary, it has been found that rural schools are capable of creating identity; developing and maintaining social capital, playing a crucial role in the economic life of the community, and increasing the involvement of residents in public life; serving as a meeting place and basis for building a network that cements the local community.

However, despite their significance, small rural schools in Northern Ireland have historically been considered less desirable than their larger urban counterparts and have been viewed less favorably on the political arena, as they continue to face the risk of closure or merger. Despite the lack of evidence in

this regard, small rural schools are considered more costly and have worse academic outcomes than larger schools, and mixed classes are seen as contributing to lower standards and outcomes. For example, in 2016, the Minister of Education stated that by the end of the planning period, he expects measures to be taken to address "the problem of teaching students in primary classes in composite classes consisting of more than two-year groups".

Like in other countries, rural schools in Northern Ireland apparently face recruitment, financial, and educational problems more frequently than their urban counterparts at both primary and secondary levels. The issues affecting rural schools include providing a broad curriculum in secondary schools, opportunities for staff professional development, difficulties in recruiting teachers and principals, and the threat of closure due to financial stability. To save money and avoid duplication, small schools (which would be located near other schools) were encouraged to merge and become integrated.

On the other hand, it was found that students in rural schools perform significantly better (according to the Progress in International Reading Literacy Study (PIRLS) 2016) than their urban peers. Additionally, several potential benefits of small rural schools were identified, including improved pedagogical activity due to fewer staff and improved relations between the school and the community.

Potential consequences of closing rural schools for finances, transportation, and society were also identified. Indeed, it was found that young people living in remote areas, where there is no local school, are at a disadvantage in terms of education (unable to get to school when ice and snow are present) and are more socially isolated, for example, unable to access extracurricular activities (since there is no bus to take them home after classes).

Table 2. Primary schools in Northern Ireland (academic year 2020-2021)

Type of school management	Number of schools	Catholics	Protestants	Other/No religion
Controlled primary schools	355	6,120	45,569	26,206
Catholic	355	73,209	650	4,157
Integrated	47	3,756	3,485	3,926
Others	39	3,335	810	1,102

As shown in Table 2, in the 2021/22 academic year, less than one percent of students in Catholic primary schools were of Protestant origin, and only eight percent of students in controlled primary schools were of Catholic origin. There is also a small number of integrated schools attended by students of both religious denominations, other religions, or none.

The main difference in the management of Protestant and Roman Catholic schools lies in the composition of their governing committees. Specifically, Protestant governing committees are more representative of non-clerical influences. Very few schools in Northern Ireland have teachers on their governing committees, but those that do are almost always Protestants.

The same is true for parents: it is true that controlled Protestant schools are legally required to have parent representatives on their committees, but it is also true that very few Roman Catholic schools have specific parent representatives. To some extent, this pattern is repeated in the broader issue of school-family relationships. In Northern Ireland as a whole, Protestant schools much more frequently had parent associations or parent-teacher associations. Such formal relationships were not as popular in Catholic schools, although Catholic principals often emphasized the relatively greater value of informal contacts with parents outside of church on Sundays or during preparation of children for the sacraments. Indeed, such contacts may be easier to establish in mono-confessional Roman Catholic schools than in Protestant schools, where there may be three major confessional groupings.

Today, the school system largely remains religiously self-segmented, with students from the two main groups primarily ‘choosing’ two different types of schools. The types of schools differ in management mechanisms, ownership, and funding. Most students from the Protestant community attend controlled (de facto state) schools (in which Protestant churches play a formal role), and most students from the Catholic community attend schools that are voluntarily maintained and owned by the Catholic Church. Both controlled and maintained schools are managed by a board of governors, part of whose members are recruited from the local Protestant or Catholic clergy or their representatives.

Despite their diversity and in accordance with some international study results, small rural schools in Northern Ireland face similar problems, the most common of which are financial pressure and a high workload for staff (including the dual/multiple roles of the principal). For many of these schools, particularly those with fewer students, declining student numbers and the threat of

closure are especially significant and negatively impact principals' job satisfaction. Partly due to the political context of territorial planning, small schools seem particularly susceptible to rumours and speculation, especially around closure, with local parents less likely to enrol their children, believing they will not be able to continue studying at the same school.

The main problems or difficulties faced by small schools were similar to those found in various European countries as indicated in Figure 2.

It is believed that small rural schools also have similar strengths, the most common of which are their strong ties to the community, a low student-to-teacher ratio (ideal for meeting the individual needs of children), and a family-like atmosphere where everyone knows and supports each other.

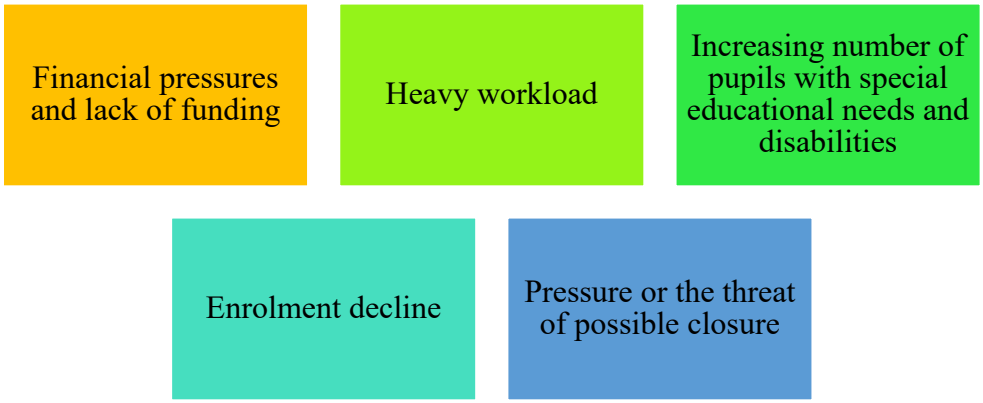

Figure 2: Challenges of Small Rural Schools

Small rural schools make up a significant part of rural communities. Some are considered the 'heart of the community'. Depending on the school, this can mean different things, but often they serve as a 'meeting place' where people gather together. Schools organize community events, share resources with various groups, and contribute to the regional economy, among other things.

In conclusion, it should be noted that small rural schools in Northern Ireland face the same problems as other small rural schools in Europe, but their situation is primarily distinguished by the segregated environment in which they are located. Moreover, small rural schools in Northern Ireland are not a homogeneous group. Some schools seem to face more problems than others, have more resources than others, or are significantly larger/smaller, etc., and the context of their communities also varies.

2. METHODS AND RESEARCH METHODOLOGY

2.1. Challenges in the Professional Development of SRS Teachers: Quantitative and Qualitative Data Analysis

Small rural schools are an integral part of Kazakhstan's national education system. A large proportion of these schools are located in rural areas. The number of these schools varies due to the territorial-demographic characteristics of the regions in Kazakhstan. According to the National Report on the State and Development of the Education System of the Republic of Kazakhstan, in 2022, the network of small schools included 468 primary, 786 basic secondary, and 1,468 general secondary schools.

The highest concentration of small schools is observed in regions with low population density: North Kazakhstan (78%), Akmola (68%), Kostanay (65%), and Pavlodar (60%) regions; in 2022, compared to 2020, the network of small schools decreased the most in the Kostanay (-30 units), Akmola (-15 units), and Kyzylorda (-7 units) regions. In densely populated areas, such as Turkistan, Mangistau, Atyrau, and Kyzylorda regions, the proportion of small schools has a consistent downward trend.

However, in the Zhambyl (+9 units), Aktobe (+9 units), and Atyrau (+1 unit) regions, the proportion of small schools slightly increased.

The effectiveness of small schools heavily depends on the level of culture, intellect, creative potential, and professional development of educators. Therefore, enhancing teacher qualifications in such conditions requires a special approach related to the unique organization and content of the educational process. The state of small schools significantly impacts the socio-economic development of rural areas, the cultural-educational level of residents, and the solution of demographic problems.

Currently, enhancing teacher qualifications is one of the main challenges in the development of small schools in Kazakhstan. Small schools today require a new type of creatively thinking pedagogical staff, working in specific conditions, capable of ensuring the development of the school as an innovative process amid the renewal of educational content. The goal of professional development is for teachers to use their knowledge as a tool to solve real problems and tasks in education. Therefore, educators and new-generation leaders

must be able not only to solve complex tasks at a certain level but also to recognize and understand trends in the education system, and apply new knowledge and technologies within these trends.

Pedagogical literature and research often pay little attention to practical approaches to the professional development of teachers in small schools. In this regard, it is necessary to study the aspects of professional development of teachers in small schools and determine effective methods of development in professional development systems.

Some researchers have considered the issues of training and qualification enhancement for teachers to modernize education in small schools from various perspectives. One of the interesting studies on enhancing professional training of teachers is the work of Y.A. Savinkov. His work presents the key aspects of pedagogical competence that need to be developed during qualification enhancement. The author emphasizes that teachers in small schools face unique pedagogical challenges that require specific skills and knowledge. Given their work in the regional education system, teachers need to possess a wide range of pedagogical competencies common to all educators in the field, as well as specialized skills to address unique pedagogical situations arising in small schools.

The developers of the Concept for the Development of Small Schools in the Republic of Kazakhstan for 2010-2020 proposed additional professional competencies for teachers working in small schools:

- Choose, adapt, and develop the most suitable teaching methods according to the classroom situation.
- Manage various groups of students.
- Manage student activities in the classroom when teaching one subject or topic.
- Design personal educational trajectories for student development.
- Develop a package of managerial and assessment procedures for monitoring individual student progress.
- Engage students in the socio-cultural and economic processes of society.

Y.A. Savinkov suggests pedagogical competencies such as:

- Ability to organize the educational process in small study groups.
- Ability to adapt the taught subject material to specific challenges arising from the contemporary social demand in small schools.
- Implementation of pedagogical conditions to maximize students' desire

to acquire specific rural social experience.

- Ability to select educational materials that meet the specific conditions of the educational environment and use them in their pedagogical practice.

The system of continuing professional development plays a leading role in the process of continuous preparation of teaching staff in small rural schools in Kazakhstan, addressing organizational-pedagogical and scientific-methodological issues related to the content and methods of education. Teachers must be psychologically prepared for changes and additional professional demands required by the profession in the digital age. The new professional context in educational institutions requires additional efforts to adapt to changing conditions.

In this regard, A.K. Akisheva notes the need to ensure continuous support for teachers in small rural schools. Continuous support includes course support, scientific-methodological support, research support, and psychological-pedagogical support.

The quality of professional development and the success of modernizing the education system largely depend on the teaching staff's readiness for change. Readiness for change is a key indicator of the modern teacher model.

In 2023, by order of the Head of State, the Ministry of Enlightenment of the Republic of Kazakhstan and the Akim of the Aktobe region launched the pilot project "Developing the potential of small rural schools in the Aktobe region using digital technologies". As part of this, professional development courses for directors and teachers of small schools were initiated in six regions of Kazakhstan. Under this pilot project, over 2,000 teachers underwent training in the digitalization of the educational process in small schools. The professional development courses are conducted under two educational programs: "Digital Solutions in Managing a Small School" and "Using Digital Resources in Teaching", developed by the National Center for Professional Development 'Өрлеу'. It is important to note that a wide range of courses aimed at enhancing pedagogical qualifications are provided and conducted by the National Center for Professional Development 'Өрлеu', the National Academy of Education named after Y. Altynsarin, as well as the Center for Pedagogical Mastery JSC 'NIS' and their regional branches.

It is expected that after the training, teachers will learn to plan lessons using strategies and methods such as digital and blended learning, synchronous and

asynchronous communication, differentiation and personalization, as well as online services providing feedback. School directors will master the regulatory and theoretical foundations of digitalizing the education system, and will be able to adapt the educational environment of the school to update approaches in teaching subjects in the context of digital changes. In total, more than 5,000 educators from the Akmola, Aktobe, West Kazakhstan, Kostanay, Pavlodar, and North Kazakhstan regions are receiving training in the digitalization of the educational process in small rural schools.

To date, research results indicate the persistence of a gap in the quality of education between urban and rural schools.

Among teachers in Kazakhstan, there are predominantly teachers with less than 5 years of experience and more than 20 years of experience. At the same time, teachers with mid-level experience (from 6 to 20 years) make up 40 percent of the total number of teachers. Meanwhile, the number of teachers with less than three years of experience is almost twice the number of teachers with three to five years of experience. This ratio has remained stable over the past few years, indicating significant migration of young professionals.

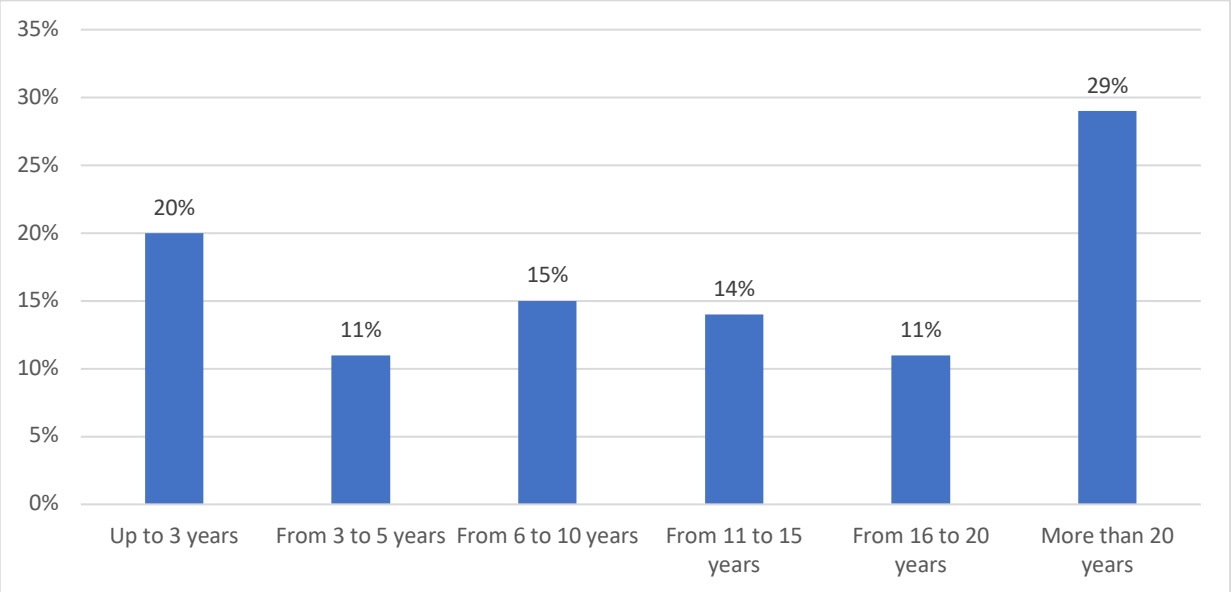

Figure 3. Distribution of Teachers in Public Schools by Teaching Experience, 2022, %

It is well known that in the country, school teachers receive categories under a new system as a result of certification. This system involves assessing a teacher's professional activity based on specific criteria and standards. In the

country, more than 90% of educators have transitioned to the new certification system.

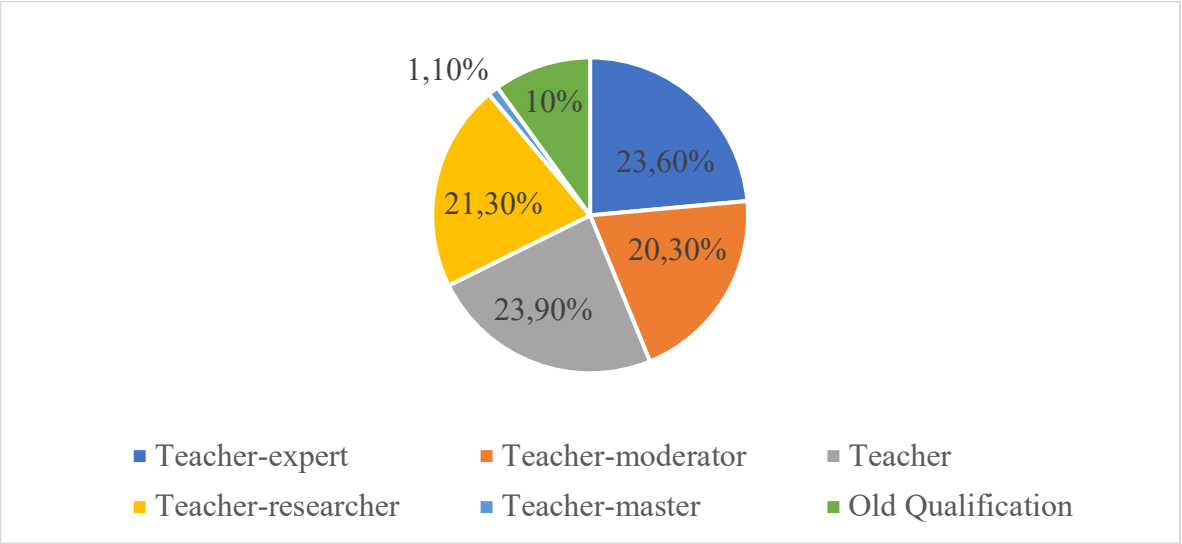

Figure 4. Distribution of Teachers by Qualification Requirements

In the country, over 90 percent of teachers have transitioned to the new system, with the highest number in the 'teacher' category (about 24 percent) and the fewest 'master teachers' (just over 1 percent). Among the 10 percent of teachers who have not switched to the new system, 3.6 percent are in the first category, 3.6 percent in the second category, and 2.6 percent in the highest category.

In rural schools, there are fewer master teachers than in urban schools. This indicates that teachers in rural areas are less qualified. Of the 203,247 rural general education school teachers, only 23,452 have the qualifications of 'master teacher' and 'research teacher', which is 11%.

There is also a serious shortage of qualified teachers in small rural schools. The problem of a lack of qualified teachers in small rural schools exists not only in Kazakhstan but also in many other countries. Small rural schools may have difficulties attracting and retaining qualified teachers due to a lack of resources, remote locations, low pay, and insufficient professional development.

In his study "Inequality in the Secondary Education System: Policy Reform Analysis of Small Rural Schools in Kazakhstan", Zh. Nurbayev notes that the number of rural teachers with a master's degree is three times smaller than in urban schools.

It is also important to note that the professional training necessary for working in small rural schools is not well organized in higher education institutions.

Inequality in the secondary education system, including small rural schools, is a serious problem that requires careful analysis and policy reform. Here are some key aspects that can be included in the policy reform analysis of small rural schools in the Republic of Kazakhstan:

1. Access to quality education: It is necessary to assess the availability and quality of educational resources in small rural schools. This includes an analysis of funding, the availability of qualified teachers, and school equipment.
2. Standardization of education: It is important to assess the compliance of educational programs and quality standards in small rural schools with the goals of the national education system. This will help eliminate inequality in access to educational opportunities.
3. Professional development of teachers: Developing support and training programs for teachers in small rural schools will help improve the quality of education and reduce inequality in educational achievement levels.
4. Infrastructure and resources: Assessing the physical infrastructure and availability of educational resources, such as textbooks, technology, and library materials, can identify problem areas and suggest measures for improvement.
5. Management and monitoring: Developing an effective management and quality education monitoring system in small rural schools will allow for effective tracking and response to inequalities and issues.
6. Community involvement: Local communities, parents, and the public should be involved in the reform process of small rural schools to ensure their support and participation in improving the educational environment.

Analysing these and other aspects of small rural school reform policy in Kazakhstan will help develop targeted strategies to reduce inequality and ensure access to quality education for all students.

One of the most important tasks in ensuring quality education is to reduce the gap in teaching quality between urban and rural schools. According to the Concept of Development of Preschool, Secondary, Technical, and Vocational Education in the Republic of Kazakhstan for 2023-2029, to equalize opportunities and reduce the gap in educational outcomes for students, it is necessary to focus on supporting low-performing schools and it is important to increase

every rural school student's chances of success and reduce the gap in education quality with urban schools.

Currently, regional projects such as 'Mobile Teacher', 'Қамқор жанұя', and 'КӨМЕК TIMES: school-to-school' are being implemented to support rural schools. Active educational projects of the Sustainable Rural Territory Development Fund are being implemented. Teachers working in small rural schools have the opportunity to improve their qualifications and will be provided with methodological support by attending courses, trainings, and seminars on working with students in combined classes.

In Kazakhstan, retraining and professional development of education workers are carried out annually. Every year, more than 100,000 teachers improve their qualifications at the expense of the republican budget. According to the Law "On Education", teachers must undergo retraining every five years. Professional development is carried out based on republican organizations that are in a competitive environment and conduct teacher training, such as the Republican Center for Professional Development 'Өрлеу', and the Center for Pedagogical Mastery at NIS.

Improving the qualifications of teachers in small rural schools in Kazakhstan is an important aspect of ensuring quality education. Here are some methods that can be used for this purpose:

1. **Organization of specialized courses and seminars**: Conducting courses and seminars on key aspects of education in small rural schools, such as the use of information technology in the educational process, differentiated teaching methods, working with multi-level classes, and other specific aspects.
2. **Use of technology for remote learning and access to educational resources** to compensate for the lack of teachers in certain subject areas: Developing remote learning programs for small rural school teachers, which will allow them to access professional development courses without having to leave their places of work. This development will enable them to access quality educational resources and enhance their professional competence, ultimately improving the quality of education for all students.
3. **Master classes and practical sessions**: Organizing master classes and practical sessions where educators can share experiences, as well as gain practical skills and tools for effective teaching in the conditions of small

rural schools. Organizing these for small rural school teachers will help them acquire new knowledge and skills that they can successfully apply in their teaching practice, ultimately improving the quality of education.

4. **Participation in scientific-practical conferences and seminars**: Facilitating the participation of teachers in scientific and practical events where they can gain new knowledge, familiarize themselves with advanced pedagogical practices, and exchange experiences with colleagues. Participation in conferences and seminars is a valuable resource for their professional development and improving the quality of education. Teachers can access new teaching methods, advanced technologies, and innovative approaches to teaching. Participation in conferences allows teachers to exchange experiences with colleagues from other schools, regions, or countries, which can lead to new ideas and methods of work.
5. **Organization of individual training and consultations for educators**, considering their needs and the specifics of working in small rural schools. This approach is an effective way to support their professional growth. To do this, it is necessary to identify needs, which means conducting surveys or polls among educators to identify their interests and needs in professional development. This will help better understand which topics and skills are most important for teachers. Based on the survey results and individual conversations with educators, individual learning plans should be developed for each teacher, considering their needs, goals, and level of initial knowledge.

Organizing individual training and consultations for educators can meet their needs for professional growth, which will ultimately lead to an improvement in the quality of education at the school.

Effective professional development of teachers in small rural schools will help increase their professional competence, ultimately leading to improved quality of education for students in these schools. To achieve this, it is necessary to develop professional development programs that consider the specifics of working in small rural schools, such as working with multi-level classes and the diversity of student needs.

It is also possible to organize training that includes practical sessions, master classes, and case studies. The use of modern educational technologies, such as online courses, webinars, and mobile applications, to organize training in a

convenient format and ensure access to educational resources from any location allows teachers to acquire skills that they can directly apply in their pedagogical practice.

Creating networked professional development programs that allow teachers to exchange experiences, ideas, and best practices with colleagues from other small rural schools, as well as systematic evaluation of the effectiveness of professional development programs to identify their strengths and areas for improvement and feedback from teachers about the impact of training on their professional development can help strengthen the professional community and enrich educational practice.

Educators need to be psychologically prepared for changes and additional professional loads required by the profession in the digital age. The new professional context in educational institutions requires additional efforts to adapt to changing conditions.

To address this issue, the following measures can be taken:

1. **Increasing salaries for teachers in small rural schools** to attract them to work in such institutions. Raising salaries for teachers in small rural schools can be an important mechanism to attract them to work in these settings and retain experienced professionals. It should be noted that, by the directive of the Head of State, teachers' salaries are raised annually, which has a positive effect. Additionally, teachers receive extra payments to their salaries. These include qualification bonuses (from 30 to 50% of the official salary), bonuses for holding a master's degree, for teaching in English, and for class management. Increasing salaries for teachers in small rural schools can be a powerful incentive to attract and retain highly qualified specialists, ultimately leading to improved quality of education in these institutions.
2. **Providing additional bonuses or benefits for teachers who agree to work in remote areas.** As part of the bonuses, teachers should be offered the opportunity to obtain housing on favourable terms or be provided with additional benefits related to rent or mortgages in remote areas. This can significantly reduce the financial costs of living and make working in such places more attractive.

The 'With a Diploma to the Village!' program, operational since 2009 in Kazakhstan, reflects the concept of encouraging young professionals, includ-

ing university and college graduates, to go work and live in rural areas or villages. Young professionals who have received education and qualifications in the city can and should contribute to the development of rural territories by working there and providing professional assistance and support to the local population. Under this project, young professionals can receive budgetary financing of more than seven million tenge. Overall, the idea of 'With a Diploma to the Village' is aimed at balancing the distribution of labour resources between urban and rural areas, which contributes to more uniform development of the country and improves the lives of the population in all regions. Providing additional bonuses or benefits for teachers working in remote areas can be an effective incentive to attract and retain qualified specialists, ultimately leading to improved quality of education in these locations. Bonuses or rewards for achieving high results in the educational process, improving student performance indicators, or other key quality indicators of education, i.e., providing teachers with opportunities for professional development and training so they can improve their skills and stay motivated.

Implementing these measures can help improve the situation with qualified teachers in small rural schools in Kazakhstan and other countries.

2.2. Approaches, Classification, and Characteristics of Professional Development Challenges for SRS Teachers

A small school is an educational institution where the number of students and teachers is small compared to larger schools. In such schools, there are usually several classes or even one class at each level of education. Small schools may have their own features, such as a narrower range of subjects taught, closer interaction between teachers and students, and more flexible methods of organizing the educational process.

Features of small schools include:

1. **Small number of students**: This can create both advantages and pose certain challenges (Table 3):

Table 3 – Benefits and Challenges of SRS

Benefits	Challenges
Teachers can focus more on each student, providing individualized instruction and support.	Schools with small numbers of students may have a limited choice of subjects and courses due to limited resources and demand.
In schools with small numbers of pupils, closer links are often formed between teachers, pupils and their families.	Students may have fewer opportunities for social interaction and a variety of extracurricular activities due to the small number of peers.
Fewer students allow for more flexibility in the organization of the learning process, taking into account the individual needs and interests of students.	Fewer students may result in a lack of diversity in learning experiences and interactions, which can limit the breadth of educational experiences.

Multigrade classes: Due to the limited number of students at each level of education, it is often necessary to combine several age groups into one class. The multigrade structure in a school means that students of different ages are combined in one class under the leadership of one teacher. This differs from the traditional model where each class consists of students of the same age or education level (Table 4).

Table 4. Characteristics of the multigrade classes

Characterization	Explanation
Diversity of age groups	In one class there may be students of different ages, which requires the teacher to take into account the individual characteristics of each student when planning and conducting lessons.
Differentiated approach	Teachers have to use differentiated teaching methods to adapt teaching material and tasks to the different levels of knowledge and ability of pupils.

Collaborative learning	Pupils in a multigrade structure can benefit from cooperative learning by observing the work of their older or younger peers and by communicating and helping each other.
Development of social skills	Pupils in a multigrade structure have the opportunity to interact and build relationships with children of different ages, which contributes to the development of their social skills and abilities.
Efficient use of resources	The multi-class structure allows optimising the use of school resources, as it reduces the number of teachers and classrooms while maintaining the quality of education.

Flexibility in organizing the educational process: This means the ability of the school and teachers to adapt teaching methods, content, and class schedules according to changing needs and learning conditions. In the context of a multigrade structure, flexibility is particularly important due to the diversity of ages, knowledge levels, and individual needs of students.

Flexibility in organizing the educational process is crucial for adapting to the unique dynamics of small schools. Here are some practical examples of how flexibility can be implemented:

- *Individualized Learning:* Teachers can tailor the curriculum and teaching methods to meet the needs of each student, considering their knowledge level, interests, and skills. This approach helps in addressing the specific learning requirements of each student, enhancing their understanding and engagement.
- *Grouping Students by Skill Level or Interest:* Students can participate in collective learning activities or be divided into mini-groups based on their knowledge levels or common interests. This allows them to work in more specialized groups, receiving more targeted support from the teacher. It fosters a collaborative environment where students can learn from each other while receiving appropriate challenges.
- *Project-Based Learning:* Students can engage in projects or research activities that are adaptable to different age groups and preparation levels. This method promotes active learning and critical thinking, as students

apply their knowledge to real-world scenarios and develop solutions to practical problems.

- *Diverse Interactive Methods:* Utilizing various interactive teaching methods such as discussions, debates, games, and role-playing can cater to different learning styles and student levels. These activities make learning more engaging and effective by actively involving students in the learning process.
- *Integration of Information and Communication Technologies (ICT):* Employing ICT in the educational process allows teachers to customize learning according to individual student needs, providing access to a wide range of educational resources and materials. This not only enhances learning opportunities but also prepares students for the technological demands of the modern world.

Flexibility in educational organization enables teachers to effectively respond to the changing needs and conditions of learning, ensuring more effective teaching and support for all students.

4. **Multidisciplinary Teaching:** Teachers in small schools often teach multiple subjects (multidisciplinarity), requiring them to have a broad knowledge base and the ability to work across different areas of knowledge (Table 5). This necessitates continuous professional development and adaptability, as teachers must stay informed across various disciplines and integrate this knowledge into their teaching strategies.

Table 5. Multidisciplinary Teaching

Characterisation	Explanation
Wide range of competences	Teachers must have competences in several areas of knowledge in order to successfully teach different subjects. This includes not only knowledge of subject content, but also the ability to effectively communicate information and develop students in each area.
Flexibility in planning	Multidisciplinary teachers need to be flexible and organised in planning their lessons to meet the curriculum requirements of all subjects taught.

Knowledge integration	Teachers can use integrative teaching methods to bring together different subject areas and help pupils to understand their interrelationships.
Development of professional skills	Multidisciplinary teachers must continually develop their professional skills to stay current with the latest educational trends and teaching methods in different subject areas.
Time management	Teachers must manage their time effectively to balance teaching multiple subjects, lesson preparation, revision and other responsibilities.

Multidisciplinary teachers are a valuable asset for resource-limited schools as they are capable of providing education in multiple subjects. This not only maintains the quality of education but also enriches the educational process by offering a variety of learning experiences. Such versatility in teaching allows for a more integrated and holistic approach to education, where students can see connections across different areas of knowledge.

5. **Close interaction between teachers, students, and parents** plays a crucial role in the educational process and contributes to effective learning and student development. In small schools (MKSH), this interaction is often more intense and personal due to the smaller number of students and teachers. This close-knit environment fosters a strong sense of community and support, enhancing the educational experience and allowing for more tailored and responsive education strategies (Table 6).

Table 6. Benefits of close interaction between teachers, students, and parents

Benefits	Explanation
Individualised attention	Teachers can provide more individualised attention to each pupil, adapting the learning process to their needs and abilities.
Support for learning	Parents can be actively involved in the educational process, providing additional support and

	motivation for pupils.
Openness and trust	Close interaction helps to create a trusting relationship between teachers, pupils and their parents, which facilitates the exchange of information, discussion of problems and joint resolution of issues.
Opportunities for growth	Teachers can receive feedback and support from colleagues and parents, which contributes to their professional growth and development.
Social support	Close interaction fosters a community in which students, teachers and parents support and motivate each other.

Here are ways to achieve close interaction:

- *Open communication*: Teachers, students, and parents should actively communicate with each other, exchanging information about progress, problems, and successes in education.
- *Collaboration*: All stakeholders can collaborate on various educational projects, events, and extracurricular activities.
- *Transparency*: It is very important for all participants in the educational process to be aware of the goals, expectations, and rules to ensure understanding and consistency in actions.

Close interaction between teachers, students, and parents creates a favorable educational environment in which students can fully realize their potential and achieve success.

General conditions in small schools:

1. Typically, a small school has relatively few students, creating a closer atmosphere and allowing for more individualized education. The small number of students in the school can have both positive and negative aspects (table 7).

Table 7 – Benefits and Disadvantages of Small Schools

Benefits	Disadvantages
Teachers can provide a more personalised approach to learning by	Schools with fewer students may have limited access to a variety of

paying more attention to each pupil and taking into account their individual needs.	courses, programmes and extra-curricular activities (hackathons, quests, etc.) due to limited resources.
Teachers can more easily establish close relationships with and understand pupils better, facilitating effective feedback and support.	Students may feel isolated due to the lack of a large peer circle and limited opportunities for social interaction.
Fewer pupils allows more flexibility in organising the learning process, including grouping pupils, choosing teaching methods, etc.	Fewer students can lead to a lack of diversity of perspectives and experiences, which can reduce the dynamics of learning and exchange of ideas in the classroom.
For some students, fewer classmates can reduce stress and create a more comfortable learning environment.	Schools with small numbers of students may face limited financial and material resources, which can affect the quality of education and opportunities provided.

A small number of students can offer the opportunity for more individualized instruction, but it may also introduce some limitations in access to resources and social interaction.

2. The multi-grade organization of the educational process involves combining students of different age groups or educational levels in one class under the supervision of one teacher. This approach is used in schools with limited resources or in rural areas where the number of students is small (Table 8).

Table 8 - Characteristics and benefits of a multigrade organisation

Characteristics	Advantages
A class may contain students of different ages, from elementary school children to high school students.	Efficient use of resources as fewer teachers and classrooms are needed to teach all students.
The teacher must be able to differ-	Students from different age groups can interact with each other, which

entiate and adapt the teaching material and teaching methods to the different levels of knowledge and abilities of the students in the class.	promotes social skills and understanding.
Pupils can complete tasks independently or in small groups, which encourages the development of independence and social skills.	The ability to tailor the learning process to the individual needs and abilities of each pupil.
Teachers need to pay attention to the needs of each student and provide individualised support.	Pupils can help each other, share knowledge and experiences, which fosters teamwork.
Teachers need to plan lessons flexibly, taking into account the diversity of age groups and learning levels in the classroom.	

The multi-grade organization requires teachers to be flexible, have good organizational skills, and the ability to work with diverse age groups and knowledge levels of students. However, with proper organization, this can be an effective way of teaching in resource-limited settings.

3. Teachers, students, and parents often have closer relationships since everyone knows each other better due to the smaller number of people in the school. Closer interaction between teachers, students, and parents is an important aspect of the educational process and can bring many benefits (Table 9).

Table 9 – Benefits for students, teachers and parents

For students	For teachers	For parents
Pupils can learn better through individualised support and additional explanations from the teacher.	By working more closely together, teachers can better understand each student's individual needs and abilities.	Parents can take an active part in their children's education by participating in parent meetings, school events, etc.
Close relationships	Teachers can better	Close interaction with

with teachers and parental support can help to increase pupils' motivation to learn.	adapt their approach to teaching to meet students' needs and help them succeed.	the teacher enables parents to better understand learning tasks and requirements, which helps them to better support learning at home.
Interaction with the teacher and parents helps pupils to develop communication and interpersonal skills.	Engagement with parents allows teachers to receive feedback on their work and support in dealing with problem situations.	Parents can express their wishes and expectations regarding their children's education and contribute to the improvement of the school environment.

Closer interaction between teachers, students, and parents contributes to a more effective educational process and the creation of a supportive learning environment.

Specific conditions of small schools may include:

1. **Limited range of subjects**: The limited range of subjects in a school means restricted available disciplines due to various factors such as limited resources or teachers' qualifications. This can lead to a deeper study of selected subjects, effective use of resources, but also to limiting students' choices and their preparation for various professional fields.
2. **Teachers teaching multiple subjects**: The ability of a teacher to teach several subjects or disciplines allows for optimized use of resources and provides more flexible teaching in a resource-constrained environment.
3. **More flexible scheduling**: Small schools may have a more flexible class schedule to accommodate the individual needs and capabilities of students and teachers.

Challenges of small schools:

1. **Limited resources**: Due to the small number of students and teachers, small schools often face limited financial and material resources.
2. **Shortage of qualified staff**, which can arise due to fewer job vacancies and the inability to provide sufficiently high salaries.
3. **Limited choice of subjects and courses** due to the limited number of

teachers and students, which can restrict educational opportunities for students.

4. **Insufficient social and cultural diversity** due to the smaller number of students and parents.

Small schools' challenges may also include:

1. **Staff shortage**: Due to the limited number of students and consequently less funding, small schools may face problems attracting and retaining qualified teachers.
2. **Limited choice of subjects and courses**: The smaller number of students can limit the opportunities for offered subjects and courses, restricting the choice and diversity of educational programs.
3. **Socio-cultural aspects**: Small schools may have less diverse social and cultural environments due to fewer students and parents. This aspect includes:
    - Close community and social interaction;
    - Multicultural environment and cultural diversity;
    - Preservation of community traditions and values;
    - Inclusiveness and support for various socio-cultural groups.

Advantages of small schools:

1. **Close attention to each student**, as the smaller number of students allows teachers to pay more attention to the individual needs and learning styles of each student.
2. **Closer relationships between teachers, students, and their families**, which can contribute to creating a supportive learning environment.
3. **The smaller number of students may allow for more flexible organization of classes and teaching methods**, considering individual needs and interests of students (table 10).

Table 10. Positive and negative aspects of SRS

Positive	Negative
Closer interaction between teachers and students.	Limited financial and material resources.
More flexible organisation of the learning process.	Lack of qualified teachers.
Possibility of more individualised learning.	Limited choice of subjects and courses.
	Less social and cultural diversity.

There are several types of small schools, which can vary based on different criteria. Some of these include:

1. **Single-class schools**: These are schools where each grade corresponds to only one classroom. Each class consists of a small number of students.
2. **Single-class schools with a multi-grade organization**: In these schools, classes of different age groups are combined in one classroom. For example, one class may include students from several grades (grades 1-4, 5-9, etc.).
3. **Small schools with a unified primary school**: In this case, the school includes several primary school classes and one or more secondary school classes, allowing the combination of students from different age groups.
4. **Small schools with a unified secondary school**: These schools include several secondary school classes and one or more primary school classes, allowing the combination of students from different age groups.

Different approaches to combining classes into sets include (table 11):

Table 11 – Approaches to combining classes into sets

By age groups	By level of knowledge	By level of proficiency
Pupils of different age groups can be grouped together in the same class. For example, one class may contain children from grades 1-4 and another class may contain children from grades 5-9.	Pupils can be grouped into classes according to their level of knowledge and ability, not just age. This allows the learning process to be more effectively adapted to the individual needs of pupils.	Students can be grouped into classes based on their level of proficiency in certain subjects or areas of study. This helps to maintain a better balance between the levels of the study groups.

Approaches to professional development often include organizing specialized workshops and training sessions, which are effective in supporting the professional development of teachers in small schools. Here are some steps that can be taken to successfully implement this approach:

1. *Identifying Needs:* Conduct a needs assessment of teachers in small schools to identify key areas where professional development is required. This could involve surveys, interviews, or observations of the teaching process.
2. *Developing a Program:* Based on the identified needs, develop a program of workshops and training that covers various aspects of education, such as teaching methods, learning assessment, technology use, and interpersonal skills.
3. *Selecting Qualified Specialists:* Invite experienced teachers, educational organization specialists, or pedagogical experts to conduct the workshops and training sessions. Ensure they have the appropriate knowledge, skills, and experience working with teachers in small schools.
4. *Organizing Events:* Plan the dates and locations of the workshops and training sessions, considering accessibility for participants from different regions. Provide the necessary equipment and materials for effective event management.

Events A key feature of these programs is that teachers must play an active role during the professional development program. This enhances teachers' perceptions of the relevance and usefulness of the program in relation to their daily work. Various types of activities can be used, including receiving feedback, observing experienced teachers, practicing new teaching methods, discussing change elements with others, and reviewing student work. Specifically, in the field of science and technology education, it was recommended that activities should guide teachers, especially in integrating and reflecting on their ideas.

Moreover, it's crucial that activities help teachers gather information about students' ideas and evidence of student progress in understanding the course material. These activities should explicitly support teachers in reflecting on student learning facts. Finally, the professional development program should consider the use of new technologies, as teachers often lack the time and experience to plan this independently.

In all four programs, teachers played a relatively active role. Examples of activities included reflecting on their definitions of science and technology and their attitudes towards both (Program D), and using a lesson plan form to describe a lesson video recorded by a teacher not involved in the program (Program A). Teachers played an especially active role in Programs B and C, where

teachers developed their own cycle of lessons and career guidance programs, respectively. However, none of the activities in the four programs clearly indicated how teachers could collect data on student learning. Overall, receiving feedback did not occupy a strategic place in these four programs either because it was not specified, insufficiently specified, or because teachers needed to 'register' to receive feedback. Taken together, the results suggest that this characteristic was somewhat present in the programs but not to the extent noted as effective in previous research.

Overall, leading researchers tried to rely on actual data when selecting activities. For example, Dr. Archer, the leader of research Program A, included activities that teachers value, according to the research by Bakkenes I. et al (2010).

Other principles used in the programs were framework construction and addressing the zone of proximal development for teachers:

- *advertising and registration*, i.e., spreading information about upcoming seminars and trainings among teachers in small schools via email, social networks, school announcements, and other communication channels, ensuring a convenient registration process for participants;
- *effectiveness assessment*, i.e., conducting evaluations of satisfaction and the effectiveness of seminars and trainings among participants to identify successful aspects and areas for future improvement;
- *post-event support*, i.e., providing ongoing support to teachers after the completion of seminars and trainings, such as offering access to online resources and consultations on issues encountered during the implementation of new knowledge and skills.

Effective organization of specialized seminars and trainings can help teachers in small schools expand their knowledge and skills, enhance their professional competence, and improve the quality of education for students.

Forming networks of professional communication facilitates cooperation among teachers from various small schools to share experiences, best practices, and resources. Forming networks of professional communication is a key aspect of supporting professional development for teachers in small schools. Steps to successfully organize such networks include:

- *identification of goals and target audience*, i.e., defining the goals of creating a professional communication network and the audience that can benefit most from participating in it, which may include teachers from

small schools, administrators, education specialists, and other interested parties;

- *choosing a platform*, i.e., deciding which platform will be the best tool for organizing a professional communication network, which could be a real-world meeting, a virtual platform for exchanging information and ideas (e.g., forums, chats, emails), or a combination of various methods;
- *attracting participants*, i.e., actively inviting teachers and other interested parties to participate in the professional communication network through emails, school website announcements, social networks, and personal invitations;
- *organizing meetings and events*, i.e., holding regular meetings and events for network participants to discuss current issues, share experiences, propose ideas and solutions, and establish contacts with colleagues;
- *supporting active communication*, i.e., encouraging participants to actively communicate and share information between meetings, which may include creating an online forum or group for discussing topics, sharing resources, and supporting each other;
- *evaluation and improvement*, i.e., regularly assessing the effectiveness of the professional communication network and its impact on teachers' professional development, using participant feedback to improve the organization and operation of the network.

Creating networks of professional communication can help teachers in small schools share experiences, find support and inspiration among colleagues, and expand their professional opportunities and knowledge.

Using online resources, ensuring access to online courses, webinars, and materials allows teachers in small schools to develop regardless of their location. Using online resources is an effective approach to supporting the professional development of teachers in small schools. Some ways to use online resources for this purpose include:

- providing *access to online courses and webinars* on various aspects of education, including teaching methods, using technologies, classroom management, and many other topics, allowing teachers to study materials at their own pace and convenience;
- creating *access to electronic libraries, databases, and online resources* containing useful articles, books, teaching aids, video lessons, and other materials on various educational topics;

- supporting *teachers' participation in online forums*, communities, and groups on social networks, where they can share experiences, ask questions, receive feedback, and support from colleagues;
- providing *access to educational video lessons*, educational channels on YouTube, and other online platforms where teachers can learn new methods, technologies, and teaching strategies;
- creating *electronic platforms* where teachers can share teaching materials, lesson plans, methodological developments, lesson templates, and other resources;
- providing *opportunities for online tests, surveys, and self-assessment* for teachers to evaluate their knowledge, skills, and professional needs.

Using online resources allows teachers in small schools to develop flexibly and effectively, gain access to up-to-date information and resources, and share experiences and ideas with colleagues at any time and from any location.

Mentoring and coaching. Organising mentoring and coaching programmes for teachers that provide individualised support and guidance in their professional development.

Mentoring and coaching represent effective methods for supporting the professional development of teachers in small schools, which can be utilised in the following ways. For instance, mentoring involves establishing long-term relationships between experienced teachers and their less experienced colleagues, where the mentor provides support, guidance, and advice to newcomers. Mentors can help new teachers develop teaching practices, overcome challenges, and adapt to working in small schools.

Coaching involves providing individualised support and guidance for teachers' professional growth. A coach can assist teachers in setting goals, developing and implementing action plans, providing feedback, and helping to overcome obstacles on the path to success.

The mentoring and coaching process may include the following steps:

1. Jointly determining professional development goals that the teacher and mentor/coach aim to achieve during their collaboration;
2. Creating an individualised action plan that includes specific steps, tasks, and deadlines for achieving the set goals;
3. Conducting regular meetings between the teacher and mentor or coach to discuss progress, analyse achievements and obstacles, and adjust the action plan as needed;

4. Providing constructive feedback that helps the teacher recognise their strengths and weaknesses, as well as develop their professional skills and competencies;
5. Evaluating the outcomes of the collaboration at the end to determine achievements, learning gains, and professional benefits, as well as to identify further steps.

Mentoring and coaching provide teachers in small schools with individualised and effective support in their professional development process, contributing to the improvement of education quality and student outcomes.

The classification of difficulties faced by teachers in small schools may include the following aspects (Table 12):

Table 12 - Classification of difficulties

Aspects of difficulties	**Content**
Financial difficulties	Limited budgets which can make it difficult to access professional development activities and resources.
Organisational difficulties	Insufficient funding for equipment, instructional materials, and infrastructure upgrades.
Access difficulties	Limited staffing levels, which can lead to teacher overload and limited time for professional development.
Interpersonal difficulties	Lack of specialised education professionals such as psychologists or special education specialists.
Methodological difficulties	Geographic isolation, making professional development events, workshops, and conferences difficult to access.
Evaluation difficulties	Limited availability of online resources due to inadequate internet coverage or lack of access to up-to-date technology.

The classification of these difficulties enables a better understanding of their nature and the key areas where support is needed for teachers in small

schools. This can serve as a basis for developing support programmes and strategies aimed at addressing these issues and enhancing the quality of education in such institutions.

The characteristics of the difficulties faced by teachers in small schools can be diverse and include the following aspects (Table 13):

Table 13 - Difficulty Characteristics

Aspects	Content
Contextual variation	Difficulties may vary according to the specific context of each MCS, including geographical location, student demographics, availability of resources, and the degree of community and administrative support.
Heterogeneity of challenges	Teachers in MCSs may face different types of difficulties such as organisational problems, methodological challenges, financial constraints and interpersonal conflicts, requiring a wide range of skills and strategies to overcome them.
Need for adaptability	Teachers must be flexible and resourceful to adapt to the unique conditions of MCSs, overcome challenges and find innovative solutions to provide quality education for all students.
Weakly structured support	Compared to large schools, small schools often have limited resources and support from the administration and the community, which can exacerbate difficulties and require greater autonomy and initiative on the part of teachers.
Opportunities for growth	Overcoming difficulties in MCSs can be a source of significant personal and professional growth for teachers, fostering their skills, creativity and professional fulfilment.
Community aspect	While difficulties can be challenging, small schools often have a strong community where teachers can support and inspire each other, share resources and best practices, which contributes to their own professional development.

Understanding these characteristics allows for more effective development and implementation of support strategies for teachers in small schools, ultimately contributing to the improvement of educational quality and better student outcomes.

Approaches, classification, and characteristics of professional development challenges for teachers can be presented as follows:

1. **Approaches to professional development**:

- Individualised approach: Teachers are provided with individual development plans that consider their needs, interests, and professional goals.
- Collaborative learning: Teachers learn together with colleagues, sharing experiences, ideas, and best practices during regular training sessions or professional events.
- Mentorship: Experienced teachers serve as mentors for younger educators, offering support, advice, and feedback.
- Professional networks: Teachers join professional communities and networks where they can exchange knowledge and ideas with colleagues from different schools.
- Use of technology: Teachers use online resources, webinars, and digital tools for self-learning and professional development.
- Training courses, seminars, and conferences: Teachers attend these to update their knowledge and skills in the field of education.
- Research activities: Teachers conduct research in their area of work, seek solutions to classroom problems, and share results with their colleagues. These approaches can be used separately or in combination to ensure effective professional development for teachers.

2. **Classification of professional development challenges**:

- Technical challenges: Stemming from a lack of computer skills and difficulties using new educational technologies.
- Pedagogical challenges: Related to difficulties in lesson planning and delivery, differentiated instruction, and supporting students with special educational needs.
- Interpersonal challenges: Arising from problems in establishing effective interactions with students, parents, and colleagues.
- Professional self-determination: Linked to uncertainty in choosing teaching methods and strategies, and difficulties with professional identity.

3. Characteristics of professional development challenges.

Understanding these characteristics allows for more targeted support strategies to address the specific needs of teachers in small schools. The main characteristics include:

- Limited access to resources and training opportunities, which may impede professional growth.
- Isolation from professional communities, leading to fewer opportunities for collaboration and support.
- Multifaceted roles requiring teachers to cover multiple subjects and responsibilities, increasing workload and stress.
- Adaptation to technological advancements and integration of digital tools in teaching.
- Addressing diverse student needs with limited support and resources.

Recognising these challenges enables the creation of tailored support programmes that can help teachers in small schools enhance their professional skills, improve educational outcomes, and provide better support for their students.

Characteristics of Professional Development Difficulties

Personal Difficulties in the professional development of teachers arise from individual characteristics such as self-esteem, motivation, and stress resilience, and may include the following aspects:

1. Uncertainty about their abilities or knowledge, which can hinder the adoption of new teaching methods or experimentation with new ideas.
2. Fear of failure, caused by the fear of negative evaluation from colleagues and administration, can prevent teachers from taking risks and striving for innovation in their practice.
3. Excessive self-criticism and high personal standards, which can lead to undue stress and an inability to recognise personal successes.
4. Lack of motivation or feelings of fatigue and exhaustion, which can impact a teacher's drive for self-improvement and development.
5. Difficulties adapting to changing educational requirements and new teaching methods, particularly if teachers are accustomed to specific approaches or teaching styles.
6. Challenges in managing stress due to intensive workloads and conflicts within the school environment, which can lead to burnout and hinder the professional development process.

To overcome personal difficulties, it is important to be aware of them, work

on self-analysis and self-improvement, and seek support from colleagues, mentors, or professionals in psychology and coaching.

Situational Difficulties in the professional development of teachers are associated with specific educational situations, working environments, administrative conditions, and requirements, and may include the following aspects:

1. Lack of financial, material, or technical resources, which can hinder the effective conduct of lessons and the development of innovative teaching methods.
2. Problems with classroom discipline, which can make teaching difficult and create a negative atmosphere in the school, adversely affecting the teacher's professional development.
3. Conflicts or misunderstandings with colleagues, which can hinder cooperation and the exchange of experience, thereby complicating professional growth.
4. Disagreements or conflicts with parents, which can create additional stress and hinder effective interaction within the school environment.
5. Changes in educational policy or curriculum, which may require teachers to adapt to new demands and methods of work, posing a challenge to their professional development.
6. Difficulties with students, as some students may have specific needs or require special approaches, presenting additional challenges for the teacher.

To overcome situational difficulties, it is important to develop skills in adaptation, problem-solving, and cooperation, and to seek support from school administration, colleagues, and education professionals.

Systemic Difficulties in the professional development of teachers are related to structural and organisational features of the school system, educational policies, resource availability, and reflect a wide range of issues connected with organisational or structural aspects of the educational system. Some of these include:

1. Lack of funding and resources, which can limit access to educational resources, training programmes, and professional development opportunities for teachers.
2. Insufficient infrastructure, outdated equipment, and insufficient teaching materials and facilities, which can hinder the provision of quality education.

3. Ineffective management, linked to organisational and administrative issues, which can lead to insufficient support for teachers and constraints on their professional development.
4. Lack of support and resources from school administration or educational authorities, which can obstruct teachers' professional growth.
5. Lack of systemic innovations and support for the implementation of new teaching methods and professional development approaches, which can slow down the progress of the school system as a whole.
6. Lack of appreciation and support for education from society, which can complicate the creation of incentives for teachers' professional growth.

Addressing systemic problems requires a comprehensive approach and efforts from various stakeholders, including school administration, educational authorities, society, and professional teachers' associations.

Professional development for teachers requires consideration of multiple factors and an individualised approach to addressing the difficulties that arise. It should focus not only on developing pedagogical skills but also on enhancing the personal qualities of the teacher.

Understanding and analysing the approaches, classification, and characteristics of professional development difficulties for teachers in small schools is a crucial step towards developing and implementing effective support strategies for educators in such environments. Addressing these challenges contributes to the improvement of educational quality and better student outcomes.

2.3. Modular Program for SRS Teacher Training

Modular Educational Programme for the Advanced Training Courses for Teachers of Small Rural Schools (SRS) "Pedagogical Technology of Collective (Interactive) Learning Method in SRS" (hereinafter referred to as the Programme, Listeners) is developed in accordance with the Rules for the Organisation and Conduct of Advanced Training Courses for Teachers, as well as Post-Course Support for Teachers (Order of the Minister of Education and Science of the Republic of Kazakhstan dated 28 January 2016 No. 95. URL: https://adilet.zan.kz/rus/docs/V1600013420) and regulates the educational process of the advanced training courses for listeners in an online format.

This Programme is aimed at acquainting listeners with both the theoretical

and practical foundations of the pedagogical technology of the collective learning method, equipping them with applied skills and competencies in using collective learning sessions and appropriate methods and techniques in small schools. The duration of the course training for listeners is 80 academic hours according to the Thematic Plan of this Programme.

The relevance of the Programme is due to the following factors:

1.The Law of the Republic of Kazakhstan "On Education" states that the main principle of state policy in the field of education is 'the equality of rights for all to receive quality education'. Therefore, one of the priority tasks of the education system is 'to create the necessary conditions for obtaining quality education aimed at the formation, development, and professional development of the individual based on national and universal values, achievements of science and practice'. To this end, the content of general secondary education was updated through the development and implementation of state compulsory education standards (SCES), model curricula, and programmes. Since 2012, there has been an attempt to improve teaching methods by introducing the best foreign practices into the country's teaching practice. However, despite the measures taken, students' results in international comparative studies such as PISA and PIRLS remain below the expected level.

2. The adopted Concept for the Development of Preschool, Secondary, Technical and Vocational Education of the Republic of Kazakhstan for 2023-2029 states the completion of the implementation of updated educational content based on changes in SCES for secondary education, curricula and plans, teaching and learning methods, and the introduction of a criterion-based assessment system. It highlights the need to improve the content of education, which implies reducing the academic load on students, focusing on academic knowledge, developing functional literacy, and orienting the content towards developing skills and competencies that meet the needs of students.

3. Strategically important documents set an ambitious goal of achieving quality at all levels of education, eliminating gaps, and providing barrier-free access to quality education for all students, forming a conscious and well-rounded citizen, and going through another stage of transformation with an emphasis on key elements that enhance the competitiveness of the Kazakhstani education system. At the same time, in today's rapidly changing world, the task of preparing students for life in conditions of uncertainty becomes increas-

ingly relevant. For this, it is necessary to develop qualities such as civic position, social responsibility, critical thinking, problem-solving, and teamwork.

4. Improving the quality of education urgently requires the formation of new pedagogical thinking, the development of professional skills of SS teachers by mastering methodological, didactic, pedagogical, and methodological knowledge and competencies, 'acceptance of new ideas, new ways of thinking and creativity' (K-J. Tokayev), and the activation of innovative activities of teachers in accordance with the Law of the Republic of Kazakhstan "On the Status of a Teacher", according to which the teacher has the right to 'freely choose methods and forms of organising professional activities, provided that the requirements of the state compulsory standard of the corresponding level of education are met;... implementation of new methods and technologies in pedagogical practice'. However, surveys show that 61% of teachers have heard about the collective learning method but have no basic understanding of it, confusing it with methods of organising educational work, collective forms of learning, or techniques for activating students' cognitive activities, etc. 72% do not know the techniques and methods of implementing work in changing pairs. Only 4.5% of respondents use collective learning sessions in their practice.

Thus, the proposed Programme is relevant and in demand for all types of schools, including full-time and small schools. Its implementation will enable teachers to acquire a system of knowledge and understanding of the essence of the pedagogical technology of the collective learning method and effectively use it in their practical activities, leading to improved student learning outcomes, successful socialisation, and self-realisation, and the formation of key competencies such as the ability to work collectively, critical thinking, problem-solving, and more.

2.3.1 Glossary

Group Learning Form – a group communication structure that, depending on the number of learners, has two types: group (working in small groups) and frontal (whole-class) (working in large groups).

Group Learning and Training Method (GLTM) – a socio-historical stage in the development of the learning process, where the organisational structure consists of individual, pair, group, and frontal learning forms, with the latter playing a dominant role, being the main cause of the overall education

crisis.

Scientific Approach to Learning – understanding learning as an integral part of the general system of nature and society, considering learning as it exists in objective reality.

Individual Learning Form – mediated communication.

Individual Learning and Training Method (ILTM) – a socio-historical stage in the development of the learning process, where the primacy of pair learning over individual learning was observed (until the XV-XVII centuries).

International Labour School – an educational organisation operating on the basis of full implementation of the Collective Learning Method (CLM) and multilingual education.

Collective Learning Form – communication in rotating pairs.

Collective Learning Sessions – specific learning forms consisting of one collective form; of collective and individual; of collective and pair; of collective, individual, and group; of collective, pair, and group; or of collective, individual, pair, and group, with the collective form of learning playing a leading role.

Collective Learning and Training Method (CLTM) – a predicted socio-historical stage in the development of the educational process necessary for the information civilisation, where the core component, along with traditional forms of learning, is the collective learning form.

Education Crisis – the discrepancy between the continuously increasing pace and volume of educational content and the outdated educational mechanism, a process of learning and training that has remained unchanged since the XVI-XVII centuries and is inadequate to the demands of modern life.

Learning Method – the educational process as a whole, the organisational structure of the educational process in action.

Methods in Learning – types of educational work, a combination of methods in the learning process; the form of the self-movement of content.

New Pedagogical Technology – the organisation of the educational process using horizontal collaboration techniques in GLTM conditions.

Newest Pedagogical Technology – the organisation of the educational process using vertical collaboration techniques in CLTM conditions; a method of continuous knowledge transfer.

Learning – the process of organised communication during which con-

trolled cognition occurs, and subjects acquire social-historical experience, reproduce, and master specific types of educational activities.

Organisational Learning System – the structural-functional mechanism of implementing a learning method, a type of learning method.

Organisational Structure of the Learning Process – the combination of all organisational forms used in learning as a material mechanism.

Pair Learning Form – communication in fixed pairs.

Pedagogical Technology – the process of self and mutual learning of learners under the guidance of a professional teacher, involving the changes and transformations occurring at each stage of mastering the educational content and the types of activities provided by the curriculum and syllabi.

Teaching – the activity of the educator.

Learning Principles – fundamental didactic provisions that reveal the essence and history of learning, the comprehensive and interconnected application of which will lead to the final effective result.

Mixed-Age Group (MAG) – a mixed-age group functioning under new pedagogical technology.

Mixed-Age Collective (MAC), **Mixed-Age Self-Education Collective (MASEC)** – a mixed-age collective (mixed-age self-education collective) operating under the newest pedagogical technology.

Education Content – the selection, creation of specific organisations where certain subjects are taught, achieving a particular level, etc., i.e., the content of knowledge, skills, abilities, the level of intellectual development and culture acquired by a person in primary education - primary education, in secondary school - secondary, and in higher education - higher education.

Learning Content – the activity mastered by the educator to varying degrees and not fully or partially mastered by the learner.

Learning Method – a socio-historical stage in the development of the learning process, where the organisational structure consists of learning forms.

Learning – the activity of the learner.

Learning Forms (Organisational Learning Forms, Forms of Learning Organisation) – communication structures used in the educational process in various combinations.

2.3.2 Programme Subjects

The program is new and innovative because:

1. there are no analogues in the education system of Kazakhstan and CIS countries;
2. it uses the term 'pedagogical technology of the collective learning method' for the first time;
3. it proposes a new approach to organising education based on the collective learning method;
4. it is developed based on modern scientific research and advanced pedagogical practices, taking into account contemporary education requirements, including the formation of socially significant key competencies in students necessary for successful socialisation and self-realisation in the modern world;
5. it includes both theoretical and practical classes aimed at teachers mastering the theoretical foundations of the pedagogical technology of the collective learning method and developing their practical skills in its application;
6. it is oriented towards both full-complement and small-complement general education schools.

The program's topics include the following main areas:

1. Theoretical and methodological justification and support for the pedagogical technology of the collective learning method.
2. Design and implementation of the pedagogical technology of the collective learning method using the online platform Discord.
3. Assessment of educational outcomes.

The program includes the study of the following modules:

Module 1. The concept of 'pedagogical technology'.

Module 2. Historical approach to pedagogical technologies.

Module 3. Pedagogical technology of the collective learning method.

Module 4. Pedagogical technology of the 'vertical' collective learning method.

Module 5. Learning foreign languages and the international labour school.

Module 6. Organisation of self-government in the context of new and latest pedagogical technology.

Module 7. Practice of mastering new and latest pedagogical technology.

Module 8. ICT and the development of IT competence for teachers in SRS.

2.3.3 Goals, objectives and expected results of the Programme

1. The **goal of the program**: to enhance the professionalism, competence, and practical skills of participants for the implementation of the pedagogical technology of the collective learning method.
2. **Objectives of the program**:
   - to summarise and systematise the participants' knowledge and understanding of the essence of the concept of 'pedagogical technology', its integral characteristics, and the historical approach to pedagogical technology;
   - to provide participants with knowledge and understanding of the pedagogical technologies of individual, group, and collective learning methods;
   - to develop participants' skills and competencies in designing the pedagogical technology of the collective learning method;
   - to develop participants' readiness and ability to implement the pedagogical technology of the collective learning method using the online platform Discord.
3. **Learning outcomes**:
   - knowledge and understanding of the essence of the concept of 'pedagogical technology', its integral characteristics, and the historical approach to pedagogical technology;
   - knowledge and understanding of the pedagogical technologies of individual, group, and collective learning methods;
   - developed skills and competencies in designing the pedagogical technology of the collective learning method;
   - readiness and ability to implement the pedagogical technology of the collective learning method using the online platform Discord.

Expected outcomes by modules:

1. developed knowledge and understanding of the essence of the concept of 'pedagogical technology';
2. developed knowledge and scientific-historical understanding of pedagogical technologies, their classification, and the objective pattern of transition from the pedagogical technology of individual learning to group learning and from group learning to the collective learning method;

3. developed knowledge and understanding of the pedagogical technology of the collective learning method as the highest stage in the development of the educational process, 'horizontal' cooperation methodologies;
4. developed knowledge and understanding of the latest pedagogical technology of the collective learning method and its main components, transitioning from 'horizontal' students' cooperation methodologies to 'vertical' students' cooperation methodologies;
5. developed knowledge and understanding of multilingualism and synchronous language learning skills using collective learning methodologies;
6. developed knowledge and understanding of leadership and management in the context of new and latest pedagogical technology, the conditions and principles of organising students' self-governance in the learning process;
7. developed knowledge and understanding of the changing functions of the teacher, multi-age learning in the context of the pedagogical technology of the collective learning method;
8. developed skills in developing and applying digital educational resources (DER) in the educational process of SRS using internet programs, working with the online platform Discord.

The **practical significance of the program** lies in the fact that it allows:

- enhancing teachers' professional qualifications in the theory and practice of the pedagogical technology of the collective learning method, increasing the effectiveness of their pedagogical activities;
- mastering new and latest pedagogical technologies of the collective learning method;
- applying methodologies for 'horizontal' and 'vertical' students' cooperation, and multilingual learning in practical activities;
- ensuring active student participation in the educational process, increasing students' motivation for learning;
- creating conditions for developing students' creative abilities;
- improving the effectiveness of learning material assimilation, exchanging knowledge and experience with each other;
- learning to work in a team and collaborate with others;
- developing critical thinking and problem-solving skills;
- developing IT competencies of SRS teachers, skills in developing and

applying DER in the educational process, and working on the online platform Discord.

As a **result of implementing the program**, teachers will be able to develop key competencies in students necessary for effective interaction and collaboration, successful socialisation, and self-realisation in the modern world, thereby increasing the overall effectiveness of education and improving student outcomes. In small rural schools, collective learning allows overcoming limitations related to the small number of students in a class.

2.3.4 Structure and content of the Programme

The program consists of **eight modules**, each containing overview lectures on the topic, audio/video lessons, theoretical presentation materials, and practical assignments to reinforce learning objectives. At the end of each module, a webinar on a specific topic is planned, allowing for subsequent adjustments. The final stage of the training includes micro-teaching.

Module contents:

Module 1. *The concept of 'pedagogical technology' Interpretation of the concept of 'technology'.*

Pluralism of approaches in the interpretation of pedagogical technology. Concepts of 'pedagogical technology' and 'learning technology'. Characteristics of the technological process in education (upbringing) as opposed to the technological process in production. Essence and characteristics of pedagogical technology. Three aspects of understanding pedagogical technology. Psychological and pedagogical approach to pedagogical technology. Integral characteristics of pedagogical technology. Pedagogical techniques. Methods and technologies in education.

Module 2. *Historical approach to pedagogical technologies.*

Scientific approach to pedagogical technology. Social and historical laws of the development of the educational process. Learning method as a sociohistorical stage of the educational process development. Classification of pedagogical technology: historical approach. Civilisational theory of social development and problems of pedagogical technology. Stages of pedagogical technology development. Technologies of individual, group, and collective learning.

Pedagogical technology of the individual learning method. ISL and its tech-

nological elements. Contradictions of the individual learning method. Technology of ISL and its crisis in the 15th-17th centuries. Technology of individual learning and the revival of ISL. Technological nature of ISL. Organisational systems of ISL: Dalton Plan, Howard Plan, Jena Plan, project method, Santa Barbara Plan, etc. Social, economic, historical, and pedagogical inconsistency of ISL technology.

Transition to GSL technology as an objective pattern in the development of the educational process. Pedagogical technology of the group learning method. GSL and its technological chain. Technological nature of GSL. Organisational systems of GSL: class-lesson and lecture-seminar systems, Trump Plan, Bell-Lancaster (monitorial) system, brigade-laboratory method, Waldorf pedagogy (school), etc. Eclectic approach to designing GSL technology as an attempt to improve it.

Global crisis of GSL and its technology in the 20th century: system analysis - signs, conditions, and causes. Megatrends in the development of the educational process: content and classification. Innovative teachers and their contributions to the improvement of the class-lesson technology of teaching.

Three-dimensional methodical learning system by Zh.A. Karaev-Zh.U. Kobdikova. Advanced learning based on T.T. Galiev's system approach. Modular learning technology by M.M. Zhanpeisova. Educational technologies of developmental and personality-oriented learning by T.M. Majikeeva. Design of the educational process based on S.K. Islamgulova's technological approach.

Comparative characteristics of ISL, GSL, and CSL technologies. Active learning. Interactive learning. Underdeveloped organisational structure of GSL and the necessity of transitioning to the pedagogical technology of CSL.

Module 3. *Pedagogical technology of the collective (interactive) learning method.* CFL - communication in temporary pairs and mixed-age cooperation as the main conditions for the implementation and functioning of the new pedagogical technology. The interrelation and optimal combination of CFL with other organisational forms. Issues of preparing students to work in the conditions of the new pedagogical technology. Activities of teachers and parents under CSL. Problems of individualisation and differentiation, variability, and continuity of learning. Issues of social, cognitive, and creative activity of students. Ability-based learning. Individual work schedule of participants in the educational process. Problems of network planning of lessons. Control, self-

and mutual control, and assessment, self- and mutual assessment of knowledge, skills, and abilities.

Technological nature of CSL. Pedagogical technology of CSL as the highest stage in the development of the educational process. Ensuring the integrity of the learning process and guaranteed results under CSL technology.

A.G. Rivin - author of the 'combinatorial dialogue' method. Experience of Kornin School and 'Wild University' and its analysis. Periodisation of the theory and practice of collective learning. The current state of the problem. New pedagogical technology and transition to CSL. Collective form of learning, its history, and CSL as a historically new method of learning. Classification of cooperation methodologies. Issues of preparation and organisation of collective learning sessions. 'Horizontal' cooperation methodologies:

- A.G. Rivin's methodology (Rivin planning): information support (textbooks, texts, articles, etc.); work in temporary pairs; independent (joint) paragraph-by-paragraph processing of scientific and educational information; retelling, discussion, addition, correction, attracting additional literature, developing precise formulations, titling the paragraph, notes in the partner's notebook; changing partners; completing work on the text; presentation in a small group; presenting the entire processed material; performing practical tasks; accounting and evaluation of work; working on new educational material;
- M.A. Mkrtchyan's task exchange methodology: developing a system of thematic cards; types and structure of cards; work in temporary pairs; individual (joint) task completion; task exchange; mutual verification and evaluation; recording the task solution (exercise completion) in the partner's notebook; changing partners; working in a new pair;
- V.F. Shatalov's exam preparation methodology: teacher's conversation (answers) on the exam questions; students' home preparation; students' answers to questions before the class (audience) (optional); self- and mutual learning; record keeping and control;
- A.S. Granitskaya's test preparation methodology: teacher's conversation with students on the text; students' extracurricular preparation of the text; mutual learning; activity assessment;
- mutual dictations methodology: preparing texts for dictation types; work in temporary pairs; text exchange; oral (written) text analysis; mutual

verification; joint and individual correction; error work; repeated verification; finding a new partner;

Other 'horizontal' cooperation methodologies: Reverse Rivin methodology. Beginner teacher's methodology. Questionnaire-based methodology. M.G. Bulanovskaya's method. Poetry memorisation methodology during collective learning sessions. Murmansk methodology. Rivin-Bazhenov methodology. Collective card-based sessions methodology. Analysis of individual horizontal cooperation methodologies. Collective learning form for studying general educational subjects. Experience of leading school teachers: characteristics and analysis. Foreign language learning methodology during collective sessions. Content, universality, and specificity of horizontal cooperation methodologies.

Module 4. *Pedagogical technology of the 'vertical' collective learning method.*

Transition to the latest pedagogical technology (CLM) and its main components. From horizontal to vertical cooperation methods among students. The Manskaya pedagogical technology as the initial version of vertical cooperation among students. Krasnoyarsk version of the latest pedagogical technology. Selection of the school and preparation of the teaching staff. Creation of an advanced class.

Algorithm of the latest pedagogical technology:

1. double presentation of educational information;
2. students redraw the reference abstract and ask questions;
3. students work with the textbook and question-based program;
4. verification of theoretical knowledge;
5. performing exercises (solving problems);
6. checking completed exercises (assignments);
7. control work;
8. olympiad and other high-difficulty tasks and topics;
9. revision;
10. direct exam preparation;
11. exam;
12. preparation of the next in line.

Langepas version of the latest pedagogical technology and its algorithm:

Stage I – *initial acquaintance with the program material content:*

1. reading the text from the textbook under the control of the leading student, questions to each other (learner and instructor while reading);
2. individual reading of the text (silently), answering questions formulated in the textbook;
3. copying examples, task solutions, names, dates, formulations, performing exercises, etc., into their notebooks;
4. checking knowledge of theory and notebook entries by the leading student (teacher);
5. performing simple exercises to consolidate theoretical knowledge on the topic;
6. checking completed exercises by the leading student (or teacher), working on mistakes.

Stage II – *revision, consolidation, control:*

1. revision of all theoretical material according to the question-based program, solving more complex (comprehensive) tasks, mutual verification "from top to bottom", system of control works;
2. extracurricular tasks (olympiad, elective, competitive) for advanced students significantly ahead of their peers. Extracurricular material is not mandatory and can be very diverse in content;
3. tests, annual control works, deciding on the student's admission to direct exam preparation.

Stage III – *exam, before and after:*

1. direct exam preparation (preferably using reference abstracts);
2. exam;
3. post-exam work (preparing the next in line, filling gaps, performing assistant teacher functions).

Ust-Kamenogorsk version of the latest pedagogical technology and its algorithm:

1. diagnostics of mastery of the program material and academic performance;
2. training in cooperation skills;
3. self- and mutual learning while completing assignments;
4. control and assessment of material comprehension in pairs, small groups, by the teacher;
5. individual and joint solving of tasks for consolidation;
6. studying a new topic;

7. individual control work on the entire topic;
8. transition to the next theoretical material and practice of solving tasks and exercises;
9. final exam for the entire course and transition to the new course.

Module 5. *Learning foreign languages and the international labour school.*

New and latest pedagogical technologies and foreign languages in school. The setup of philological training under ISL and GSL technology.

Methodology for learning foreign languages in school under the new pedagogical technology:

- mutual verification of words and expressions;
- joint work on new texts;
- mutual dictations;
- methods of introducing new texts;
- adapted Rivin methodology;
- learning poems;
- performing textbook exercises and their verification;
- working with questionnaires;
- preparing for essays and compositions;
- working with cards, etc.

The necessity of creating an international school. Internationalisation of the learning process and the international labour school.

Module 6. *Organisation of self-governance in new and latest pedagogical technology.*

Leadership and management in the new and latest pedagogical technology. Pedagogical foundations of self-governance. Conditions and principles of organising self-governance. The latest pedagogical technology and student self-governance. Structure of self-governance: permanent squad, combined squad, council of commanders. Functions of commanders and squad members. Organisation, functioning, and interaction of the mixed-age group (MAG) members.

Interaction among students, parents, and teachers. Functional duties of pedagogical staff and education administration. Network community of MAG participants. Developing self-governance skills (planning, accounting, control, evaluation, and analysis) among squad members.

Module 7. *Practice of mastering new and latest pedagogical technology.*

Plan of collective sessions. Functions of the teacher.

Module 8. *ICT and IT competence development for SRS teachers.*

Methodology for developing and using digital educational resources (DER) in the SRS learning process using internet programs (ClassTools, HotPotatoes). Technology for using internet platforms (ZOOM, YouTube, Google Classroom, Microsoft Teams, Kundelik.kz, 3CX WebMeeting). Technology for working on the online platform Discord.

Each module ends with a presentation and defence of projects by participants. Practical works accompany each module, followed by self- and mutual evaluation.

2.3.5. Organisation of the educational process

The program is designed for teachers of small rural general education schools. The form of education: without interruption from professional activities using distance educational technologies.

In the organization of the educational process in a distance format, 30% (24 hours) of the time is allocated to synchronous learning (online/webinars) and 70% (56 hours) to independent work of the student (hereinafter - SRW) in an asynchronous mode, based on an activity-based approach that involves the organization of progressively complex intensive activities. In the process of mastering the program, students develop materials necessary for practical activities.

During online learning, the educational process is organized using the online platform Discord.

The duration of the program is determined by an education agreement with the student of the general educational organization.

Upon successful completion of the training, a certificate is issued.

Thematic curriculum

№	Themes	Online/ Webinar	Independent work	Total
1	**Module 1:** *The concept of pedagogical technology*	**3**	**7**	**10**
1.1	Essence and characteristics of pedagogical technology.	1	1	**2**
1.2	Three aspects of understanding pedagogical technology. Psychological and pedagogical approach to pedagogical technology.	1	1	**2**
1.3	Practical work '*Integral characteristics of pedagogical technology. Pedagogical technology*'.		4	**4**
1.4	Webinar 1. '*Methods and technologies in teaching'*. Self-assessment tasks.	1	1	**2**
2	**Module 2:** *Historical Approach to Pedagogical Technologies*	**3**	**7**	**10**
2.1	Natural science approach to pedagogical technology. Learning method as a socio-historical stage of educational process development.	1	1	**2**
2.2	Pedagogical technology of individual way of learning and its organisational systems.	1	1	**2**
2.3	Practical work '*Transition to the technology of group way of learning as an objective regularity in the development of the educational process. The global crisis of group mode and its technology in the 20th century: system analysis: signs, conditions and cause*'.		4	**4**
2.4	Webinar 2. '*Underdevelopment of the organisational structure of the group way of learning and the need to transition to the pedagogical technology of the collective way of learning*'.	1	1	**2**

	Self-assessment tasks.			
3	**Module 3.** *Pedagogical technology of the collective way of learning*	**5**	**14**	**19**
3.1	The concept of 'pedagogical technology of the collective way of learning'.	1	1	**2**
3.2	Collective form of learning and multi-age cooperation as the main conditions for the implementation and functioning of the new pedagogical technology.	1	1	**2**
3.3	Practical work '*Individual work schedule of the participants of the educational process. Problems of network planning of training sessions*'.		4	**4**
3.4	Webinar 3 '*Control, self- and mutual control and evaluation, self- and mutual evaluation of knowledge, skills and abilities*'. Self-assessment tasks.	1	1	**2**
3.5	Classification of co-operation techniques.		1	**1**
3.6	Preparation and organisation of collective training sessions	1	1	**2**
3.7	Practical work '*Techniques of 'horizontal' co-operation*'.		4	**4**
3.8	Webinar 4. '*Other 'horizontal' techniques of co-operation*'. Self-evaluation tasks.	1	1	**2**
4	**Module 4.** *Pedagogical technology of the 'vertical' collaborative way of learning.*	**3**	**7**	**10**
4.1	Transition to the newest pedagogical technology and its main links. Krasnoyarsk variant of the newest pedagogical technology.	1	1	**2**
4.2	Langepas variant of the newest pedagogical technology and its algorithm.	1	1	**2**
4.3	Practical work '*Algorithm of the newest pedagogical technology'*.		4	**4**
4.4	Webinar 5. '*Ust-Kamenogorsk variant of the newest pedagogical technology and its algorithm*'.	1	1	**2**

	Self-assessment tasks			
5	**Module 5.** *Foreign language learning and the international labour school*	**2**	**7**	**9**
5.1	New and recent pedagogical technology and foreign languages at school		1	**1**
5.2	Methods of studying foreign languages at school in the conditions of new pedagogical technology	1	1	**2**
5.3	Practical work '*Methodology of learning foreign languages at school in the conditions of new pedagogical technology*'.		4	**4**
5.4	Webinar 6. '*Internationalisation of the learning process and international labour school'*. Self-assessment tasks.	1	1	**2**
6	**Module 6.** *Organisation of self-management in the conditions of new and latest pedagogical technology*	**3**	**7**	**10**
6.1	Leadership and management in the conditions of new and latest pedagogical technology	1	1	**2**
6.2	The newest pedagogical technology and self-governance of students	1	1	**2**
6.3	Practical work '*Organisation, functioning and interaction of members of a multi-age team'*.		4	**4**
6.4	Webinar 7. '*Formation of self-management skills (planning, accounting, control, evaluation and analysis) in team members'*. Self-assessment tasks.	1	1	**2**
7	**Module 7.** *Practice of mastering the new and latest pedagogical technology of the collective way of learning*	**1**	**5**	**6**
7.1	Practical work '*Collective lesson plan'*.		1	**1**
7.2	Webinar 8: '*Educator Functions'*. Self-assessment tasks.	1	4	**5**
8	**Module 8.** *ICTs and IT competence development of SRS teachers*	4	**2**	**6**
8.1	Methodology of developing and applying DER	1		**1**

	in the teaching process at SRS using online-programmes ('ClassTools', 'HotPotatoes').			
8.2	Technology of using Internet platforms ('ZOOM', 'YouTube', 'Google Class Room', 'Microsoft TEAMS', 'Kundelik.kz', '3CX Web-Meeting').	1		**1**
8.3	Webinar 9. '*Technology of work on the Discord online platform'*. Self-assessment tasks.	1	1	**2**
8.4	**Preparation of projects.** Evaluation of learning outcomes. Presentation and defence of projects. Reflexion and summarising the results of the coursework.	1	1	**2**
	Total*:	**24**	**56**	**80**

**Note: the duration of 1 academic hour is 45 minutes.*

2.3.6 Educational and methodological support of the Programme

Educational and methodological support is provided in accordance with the objectives, tasks, expected results, and content of the Programme. It is presented in the form of an educational and methodological complex, which allows participants to achieve the necessary level of material mastery. This complex provides participants with the opportunity to independently control and adjust, check results, and evaluate the effectiveness of their learning activities.

The educational and methodological complex includes:

1. The educational programme of advanced training courses for teachers of general education schools, 'Pedagogical Technology of Collective Learning'.
2. Mandatory theoretical material for study.
3. Content of interactive lectures with presentations and training sessions, webinars.
4. Assignments for practical work and independent work, final assessment.
5. A list of recommended literature.

Participants are provided with handout materials: theoretical material and presentations on each course topic, webinars, examples of practical assignments. Links to sources with additional information on the course are also provided.

The criteria for self- and peer assessment of assignments by participants include:

1. The relevance of the assignment content to the Programme's goals and objectives.
2. The quality of practical work:
    - Accuracy and completeness of the assignment execution.
    - Originality and creativity in the approach to the assignment.
    - Effectiveness of using methods from the pedagogical technology of collective learning.
    - Adherence to pedagogical principles and norms.
3. Practical work results:
    - The level of student engagement in the learning process.
    - The effectiveness of students' mastery of the material.
    - The development of cooperation and interaction skills among students.

2.3.7 Evaluation of the Programme's outcomes

The final assessment involves preparing presentations and defending group projects by course participants, where they formulate a hypothesis, demonstrate the achieved results, and forecast their future activities.

When evaluating the participants' practical skills, the developed project (collective lesson plan) is taken into account.

For interim and final assessments, a test control form on Google Drive is used. Based on the assessment results, corrections are made to the lecture and practical course materials.

The following grading scale is used:

- Not Completed: 0-30%
- Partially Completed: 31-40%
- Satisfactory: 41-55%
- Good: 56-70%
- Excellent: 71-100%

2.3.8 Post-course follow-up

Post-course methodological support for participants is provided through various forms of training events: seminars, master classes, coaching sessions, and webinars.

The methodological activities of the trainers focus on the following issues:

- Formation of skills in applying new and latest pedagogical technologies
- Utilisation of 'horizontal' and 'vertical' methodologies
- Monitoring and observation as the primary means of information gathering

The purpose of post-course events is to enhance teachers' understanding of the course content "Pedagogical Technology of the Collective Learning Method", improve their professional competence, uncover its resource potential, enrich pedagogical experience, and promptly address issues that arise during the learning process.

2.3.9 List of main and supplementary references

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3. MODEL OF ORGANIZING THE DISTANCE LEARNING PROCESS

3.1 Model of Organizing the Distance Learning Process for SRS Teachers

The analysis of problems in distance education at higher education institutions, related to the professional competence of teachers in small rural and base schools using distance learning technologies, reveals that it does not meet modern requirements. These problems can be divided into three groups:

1. The contradiction between the requirements for the level of professional competence of teachers and their readiness for distance learning. Currently, the ability to use distance technologies is highly valued, but many teachers lack the necessary training.
2. The shortage of teachers with practical training in remote areas due to pedagogical universities focusing on theoretical preparation, which does not meet the needs of distance education in SRS.
3. The lack of unified requirements for software and hardware for distance learning technologies. Effective use of these technologies requires appropriate equipment, but such an approach is lacking in different regions.

These contradictions negatively affect the organization of the educational process in SRS and pose the task of creating the necessary pedagogical conditions for effective professional education of future teachers. These teachers must be capable of organizing learning and solving problems that arise during the educational process. To address these problems, a comprehensive approach is required, including the following measures:

- Developing and implementing training programs for future teachers that meet modern requirements for their professional competence, including the ability to work with distance educational technologies;
- Ensuring practical training for future teachers in SRS conditions;
- Enhancing the qualifications of teachers in the field of distance learning;
- Creating unified requirements for software and hardware for distance learning technologies in schools.

Implementing these measures will improve the quality of training for teachers in small rural and base schools using distance educational technologies and ensure effective organization of the educational process.

According to a UNESCO report, Kazakhstan has demonstrated the most

progress among the Central Asian republics in closing the gap between urban and rural schools. However, reports also indicate that this is only the beginning of comprehensive development in this area. Despite the existing bonuses for graduates of pedagogical universities within the framework of the state program "With a Diploma – to the Village!" most young teachers under the age of 25 prefer to work in the city, leading to a decrease in the proportion of teachers working in rural areas.

In 2019, the "Rural School Based on NIS" program was launched with the participation of the Sustainable Development of Education Fund (SDEF) and Nazarbayev Intellectual Schools (NIS), which in 2022 was supplemented by the "Development of the Potential of Base Schools in Rural Areas" program. These programs cover 22 schools in 17 regions and aim to improve the educational process in rural schools.

A memorandum signed between SDEF, NIS, and "Қазақстан халқына" allocates 4.25 billion tenge for the charitable educational project "Development of the Potential of Base Schools in Rural Areas". This project is implemented with the support of the Ministry of Education of the Republic of Kazakhstan and NAO named after I. Altynsarin and aims at the rapid implementation of innovations that do not require significant investments but yield noticeable results.

To address this issue, it is necessary to develop and implement approaches to education, data collection, monitoring, and performance assessment that combine centralized and decentralized methods. Innovative approaches that take into account experience and best practices emerging from partnerships and teacher innovations are also essential.

The analysis of theoretical sources and the experience of implementing distance learning projects for teachers in SRS in various regions of Kazakhstan has led to the development of our own model for organizing distance learning for teachers in SRS (Figure 5, Table 14).

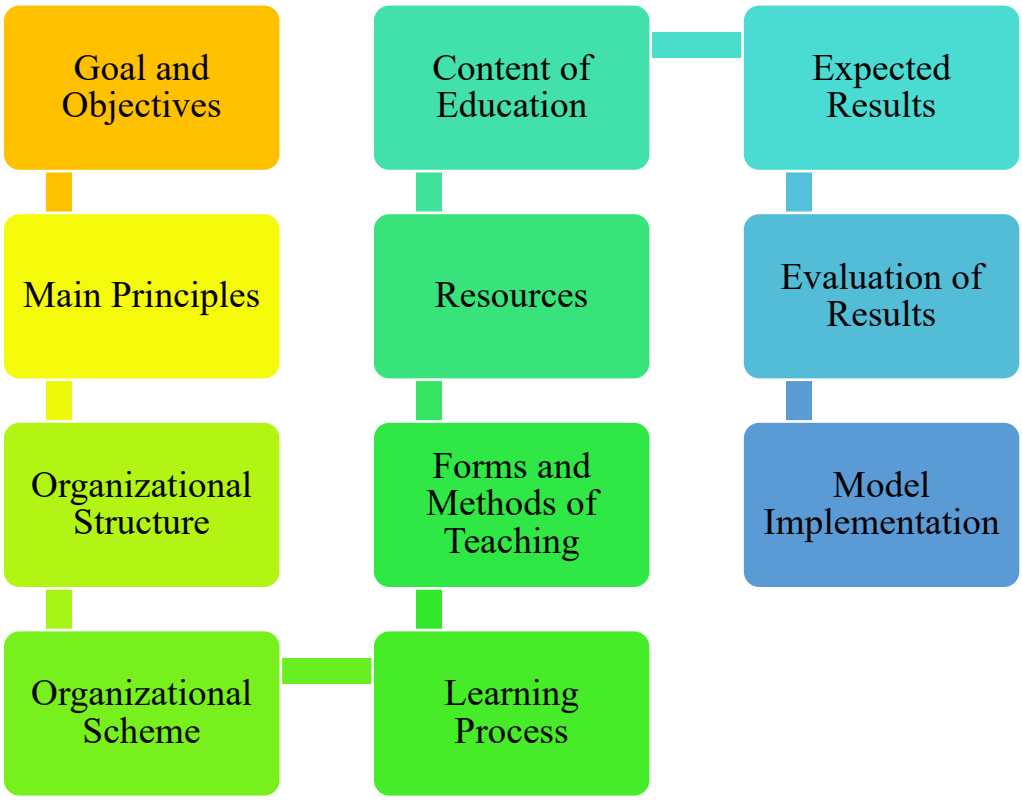

Figure 5. Model of Distance Learning Organization for Teachers of Small Rural Schools (SRS)

Table 14 - Model of Distance Learning Organization for Teachers of Small Rural Schools (SRS)

Goal: Ensuring high-quality professional training and enhancing the professional competence of SRS teachers in the use of information and communication technologies (ICT) and distance learning technologies in the educational process.		
Objectives		
Improving teachers' knowledge and skills in modern information and communication technologies	Developing teachers' skills in independent work and self-education	Fostering teachers' readiness to use distance learning technologies in the educational process
Main Principles		

Flexibility of forms and methods of training	Relevance, i.e., alignment of training content with modern requirements for teacher preparation	Individualization of learning (consideration of individual characteristics and needs of teachers)	Comprehensiveness, i.e., focus on developing all components of professional teacher competence	Accessibility and openness of training regardless of place of residence and level of preparation
Organizational Structure				
The regional education department serves as the methodological center for organizing the distance education of teachers in small rural schools (SRS).	SRS teachers are direct participants in the distance learning process.	Methodological offices of district education departments (MOD) provide methodological support to SRS teachers in matters of distance learning.		
Organizational Scheme				
Preparation: • Determining the professional training needs of SRS teachers. • Developing distance learning programs. • Preparing methodological materials and resources. • Forming groups for training.	*Learning Process:* • Implementing distance learning programs. • Ensuring feedback between participants in the educational process. • Supporting SRS teachers during the training	*Evaluation of Results:* • Conducting final assessments. • Analyzing training results. • Developing recommendations for the further professional development of SRS teachers.		

		process.	
Learning Process			
Online lectures are conducted using webinars or video conferences.	Online tests are conducted using specialized programs or services.	Video courses are hosted on the Discord digital platform for distance learning.	Consultations are held online or offline.
Forms and Methods of Teaching			
Offline learning (independent work with distance course materials, consultations with methodologists).	Distance assignments for teachers to test their knowledge and skills.	Online consultations to assist teachers in case of difficulties.	Online learning (webinars, video conferences, online lectures, courses) to gain theoretical knowledge on the studied topics.
Resources			
Methodological materials (methodological recommendations, memos, templates, etc.)		Digital platform Discord for distance learning	Educational resources (e-textbooks, study guides, videos, etc.)
Content of Education			
Modern Distance Learning Technologies: various distance learning technologies, their advantages and disadvantages, features of their use in the educational process		ICT Basics: fundamental concepts and principles of computer use, issues of using ICT in the educational process	Application of ICT in Teaching Specific Subjects: issues of using ICT in teaching specific subjects, examples of specific lessons and assignments

<table>
<tr><th colspan="5">Expected Results</th></tr>
<tr><td>Improvement of the quality of education in SRS</td><td>Teachers in SRS will be capable of independent work, self-education, and self-development</td><td>Teachers in SRS will be proficient in modern information and communication technologies and apply them in the educational process</td><td>Professional development of teachers in small rural schools (SRS) in accordance with modern requirements</td><td></td></tr>
<tr><th colspan="5">Evaluation of Results</th></tr>
<tr><td>Self-assessment enables teachers to evaluate their own achievements.</td><td>Final assessment is conducted in the form of an online test that evaluates the level of theoretical knowledge of teachers.</td><td>Practical tasks allow for the evaluation of teachers' skills in using ICT in the educational process.</td><td>Analysis of learning outcomes is based on the results of the final assessment and feedback from SRS teachers.</td><td>Recommendations for the further professional development of SRS teachers are developed based on the analysis of learning outcomes.</td></tr>
<tr><td colspan="5">Teachers receive certificates upon completion of the training.</td></tr>
<tr><th colspan="5">Model Implementation</th></tr>
<tr><td colspan="5">Organised by regional or district (city) education management authorities</td></tr>
<tr><td colspan="2">Preparatory Stage:
Determining the needs of SRS teachers for professional development (survey or questionnaire);
Developing training plans and distance learning programs</td><td>Main Stage:
Forming training groups considering individual needs and</td><td colspan="2">Final Stage:
Conducting final testing and evaluation of learning outcomes.</td></tr>
</table>

considering the specifics of their work (small class sizes, multi-age groups, diverse educational needs) and the needs of SRS teachers (involving education experts and teachers working in SRS); • Preparing methodological materials and resources for distance learning using modern educational technologies (video and audio recordings, electronic textbooks and manuals, online tests, etc.); • Preparing teachers who possess the necessary knowledge and skills in the field of distance learning; • Providing teachers with technical means to access educational resources and technologies.	the specific work of SRS teachers; • Organising online and offline training; • Ensuring feedback with SRS teachers to track their progress and provide necessary support.	

The model is implemented step-by-step using the digital platform Discord.

Preparatory Stage: A survey or questionnaire was conducted among SRS teachers to identify their needs for professional development in using ICT and distance technologies. A special channel was created on the Discord platform for this purpose. The questionnaire included the following questions: 1.1 What topics in the use of ICT and distance technologies in the educational process

are you most interested in? 1.2 What skills in using ICT and distance technologies in the educational process would you like to develop? 1.3 How often do you use ICT in your work? 1.4 What difficulties do you encounter when using ICT in the educational process?

Other methods, such as interviews with teachers and analysis of their work results, were also used. Based on the collected data, training plans and distance learning programs were developed to meet the needs of SRS teachers.

1. Distance learning programs were developed considering the specific working conditions of SRS, such as small class sizes, multi-age groups, and the diverse educational needs of students. They also address the professional competency needs of SRS teachers in ICT and distance technologies. These programs were developed with the participation of education experts and SRS teachers.
2. To support distance learning, educational and methodological materials and resources were prepared, including video and audio recordings of lectures, webinars, master classes, electronic textbooks and manuals, online tests, practical assignments, methodological recommendations, and templates. Modern educational technologies were used in the development of these materials.
3. Special courses and seminars were conducted to prepare teachers for distance learning. Training was conducted using the Discord platform, where teachers could acquire the necessary knowledge and skills.
4. Funds were allocated to provide teachers with technical equipment, such as computers, laptops, tablets, and internet access. This enabled teachers to effectively use distance educational technologies in their work.

Main Stage: Training groups were formed considering the individual needs and specific working conditions of SRS teachers. Factors considered in group formation included:

- Subject specialization;
- Place of residence;
- Affiliation with the same school, district, or region;
- Experience in using ICT;
- Level of ICT competence.

The organization of training included both online and offline formats. Online training comprised webinars, videoconferences, online lectures, courses, online tests, and more. Special channels and groups were created on

Discord for organizing online training. In these channels and groups, teachers could interact with instructors, ask questions, and receive support. These channels also hosted training materials, such as video and audio recordings of lectures, webinars, master classes, electronic textbooks and manuals, practical assignments, online tests, and other resources.

Feedback for SRS teachers was provided using various forms and methods, including individual consultations conducted both offline (e.g., in district education department methodical offices or educational centers) and online through videoconferences or chats, webinars, and videoconferences for discussing current issues, sharing experiences, and providing additional information. Forums and chats were used for communication and exchange of opinions between teachers and methodologists, and email was used for sending information, materials, and responses to teachers' questions. Online tests, practical assignments, surveys, and questionnaires were used for monitoring teachers' progress and assessing their learning. Feedback was also provided through various means of communication, including email, Discord chats, and phone calls, to ensure effective communication and support for SRS teachers during the training process.

At the **final stage**, a final assessment and evaluation of the SRS teachers' training results were conducted. The final assessment was organized in the form of an online test, designed to assess the level of theoretical knowledge and skills of teachers in the use of ICT and distance technologies in the educational process. In addition to online testing, the following methods were used to evaluate the training results:

- Analysis of the works and assignments completed by the teachers during the training;
- Self-assessment by teachers, where they evaluated their knowledge and skills in the use of ICT and distance technologies.

Based on the results obtained, conclusions were drawn about the effectiveness of distance learning for SRS teachers.

Materials placement on the discord platform

The following sections were used to place materials on the digital platform Discord:

- Channels for information exchange and discussion of various topics. Channels could be open, accessible to all users, or closed, accessible only to users with appropriate access rights.

- Communities to unite users by interest. In communities, channels, chats, forums, and other resources could be created.
- The "Files" section was used to store files accessible to all users or only to users with appropriate access rights.

Recommendations for placing materials on the digital platform Discord include:

1. Use clear names for channels and communities to help users easily navigate and find the necessary content.
2. Organize materials by topic to make them easily accessible and structured for convenience.
3. Add descriptions to the materials so that participants can quickly understand the content and purpose of each material.
4. Use tags for material searches, allowing users to quickly find the necessary information using keywords or tags.

Experimental training course implementation

The following steps were taken to conduct the experimental training course:

- Defined the goals and objectives of the experimental training course.
- Developed an educational program for the professional development of SRS teachers titled "Pedagogical Technology of Collective (Interactive) Learning" in Kazakh and Russian languages.
- Prepared educational and methodological materials and resources for the experimental training course.
- Determined the composition of the participants in the experimental training course.
- Organized the conduct of the experimental training course.

After the completion of the experimental training course, the training results will be analyzed, and necessary adjustments will be made to the distance learning model based on the data and feedback from course participants.

Recommendations and duration of training

The experience gained allowed us to develop specific recommendations for implementing the SRS teachers' distance learning model using the Discord digital platform. The training duration for this model is 80 academic hours in an online format and includes the following sections:

I. General Part (25 hours):

1. Basics of distance learning.

2. Modern information and communication technologies in education.
3. Self-education.

II. Practical Part (55 hours):

1. Methodology of teaching a specific subject.
2. Features of working in SRS.

Implementation Recommendations

For the successful implementation of this model on the Discord platform, the following is recommended:

1. Use appropriate commands to create channels and groups on the Discord platform, e.g., the (createchannel) command.
2. Place video and audio recordings, electronic textbooks and manuals, online tests, and other materials in channels and groups using appropriate commands, e.g., the (uploadvideo) command for uploading video recordings.
3. Organize webinars and videoconferences using special applications such as Zoom, Google Meet, etc.
4. Use chats on the Discord platform, email, phone calls, and other means to organize feedback with teachers and ensure effective interaction.

The implementation of the SRS teachers' distance learning model is an essential step in improving professional competence and readiness to use distance technologies in the educational process. This contributes to the improvement of education quality in SRS.

The proposed distance learning model is an effective tool that helps SRS teachers acquire the necessary knowledge and skills in using information and communication technologies (ICT) in the educational process. This is especially important considering the differences in teachers' places of residence and levels of preparation.

Furthermore, the distance learning model can be adapted to the specific conditions and needs of SRS teachers. It is necessary to develop unified standards for distance learning that consider the specifics of SRS and organize methodological support for teachers in distance learning issues.

Overall, successful implementation of the model will enable SRS teachers to effectively use distance technologies, thereby improving the quality of education and providing better opportunities for students in SRS.

3.2 Characteristics of Video Lessons on the YouTube Platform

Introduction to YouTube video lessons

Video lessons are educational materials created in the form of video files, designed for teaching and transmitting knowledge on a specific topic or subject. They are widely used in modern education and training due to a number of advantages (Table 15):

Table15 – Advantages of Video Lessons

Visual Format	Video lessons allow for the visualization of information using graphics, animations, demonstrations, and examples, making the material more comprehensible and easier to grasp.
Accessibility	Most video lessons are available online and can be viewed at any convenient time, facilitating access to educational content.
Flexibility	Students can watch video lessons anywhere and anytime, with the ability to pause, rewind, or replay sections of the video at their discretion.
Interactivity	Some video lessons include interactive elements such as tests, assignments, or links to additional materials, promoting active student engagement in the learning process.

YouTube video lessons are used as a platform for education and training in a wide range of fields, including:

- **Educational courses.** Many educational organizations, teachers, and experts create video lessons for teaching students in various subjects, from mathematics and sciences to arts and languages.
- **Training and self-development courses.** Various specialists share their knowledge and experience in video format, providing training materials to improve professional and personal skills.
- **Online study programs and courses.** Many online platforms and educational portals use YouTube to host educational video lessons, training programs, and courses for a broad audience.

- **Instructions and tutorials.** Video lessons are also used to create instructions, guides, and educational materials on various skills, techniques, and processes, such as repairs, cooking, drawing, and much more.

Using YouTube for video lessons offers unique opportunities for education and training, providing accessibility and flexibility in learning for various audiences. YouTube's management recognized the potential of its platform for educational purposes: in 2018, the company announced plans to spend $20 million on partnerships with creators of educational and practical content. As a result, a new channel, YouTube Learning, was launched, featuring educational playlists with video lessons and tutorials on various topics such as mathematics, science, music, and foreign languages. These playlists were created in collaboration with educational projects such as Khan Academy, TED-Ed, Crash Course, and Coding Train.

What advantages does the YouTube platform offer in education? YouTube is a unique platform for learning, offering many advantages. For example, to acquire new skills or information, you just need to watch a few videos on your device, be it a smartphone or tablet. Whether you want to fix something at home, learn a new recipe, or even draw something creative, you can do it by watching appropriate videos on YouTube.

Besides, YouTube encourages interaction and communication with other users. You can discuss videos in the comments, ask questions, share your thoughts, and get advice from other participants.

YouTube is also excellent for microlearning, where complex material is broken down into small parts, making the learning process more convenient and accessible. You can study materials according to your schedule, returning to them at any convenient time, and learning at your own pace.

You can find educational content on a wide variety of topics and subjects on YouTube. Some even prefer learning from YouTube videos over traditional education because it is more interactive and convenient.

It is important to note that new trends are emerging on YouTube that stimulate learning. For example, students have started sharing videos about their learning process, helping them feel part of a community during their studies. Universities and other educational institutions also actively use YouTube to attract students and spread educational content.

In summary, YouTube is a powerful tool for learning and development, providing access to educational content on various topics and subjects, as well

as fostering communication and interaction within the educational community.

The popularity of using YouTube by universities is growing. For them, it brings several benefits: they not only strengthen their authority and attract students but also offer quality educational content at an affordable price. Traditional educational institutions attract the target audience that spends most of their time on this platform. Additionally, the so-called "influencers"—bloggers who share their studies, classes, and university life on their channels—help universities attract the best students. For example, a video by blogger Jack Edwards discussing the pros and cons of Durham University received 162,000 views. This also contributes to university branding, and several higher education institutions have already begun enlisting well-known personalities to strengthen their authority among the student audience.

YouTube can be a great help in mastering new skills, developing hobbies, or deepening knowledge about the world around us. However, when choosing content, critical thinking should be applied, as educational videos can sometimes disguise discriminatory content or conspiracy theories "wrapped" in a respectable package. In such cases, it is important to rely on verified sources of information.

General content characteristics are crucial for the success of video lessons on YouTube. Let's examine each of them (Fig. 6).

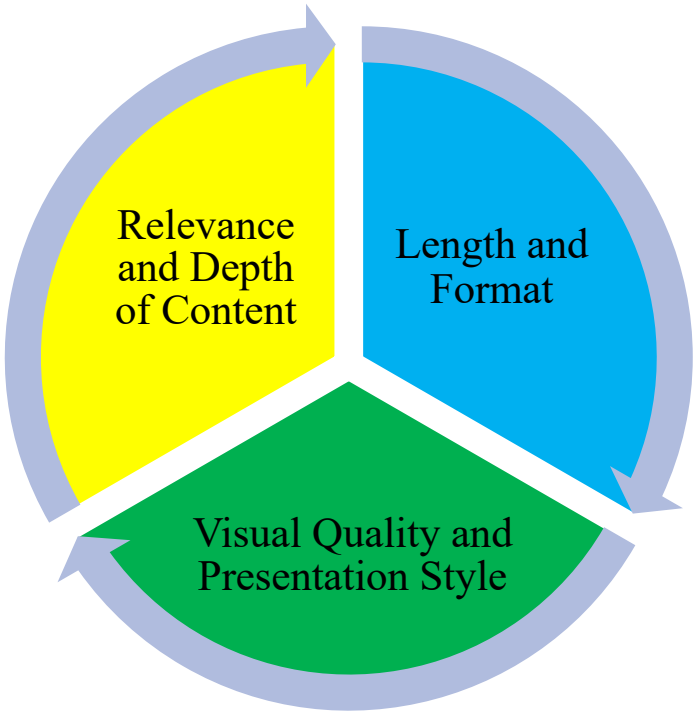

Figure 6. Content characteristics for YouTube

Length and format

1. Video lessons should strike a balance between comprehensiveness and brevity. Generally, shorter videos (5-15 minutes) tend to be more effective, as they cater to shorter attention spans and are more digestible for viewers.
2. Breaking down instructional programmes into smaller, manageable segments can enhance viewer retention and engagement. This allows viewers to easily navigate to specific sections of interest.
3. Offering a mix of formats, such as tutorials, step-by-step guides, Q&A sessions, and troubleshooting guides, can cater to diverse learning preferences and keep the content fresh and engaging.

Visual quality and presentation style

1. High-definition visuals and clear audio are essential to maintain viewer engagement. Avoiding shaky camera work and ensuring proper lighting can improve the overall viewing experience.
2. Consistent branding, polished graphics, and a cohesive visual style contribute to the professionalism of the tutorial, instilling trust in the content and its creator.
3. Visual demonstrations should be clear and easy to follow, with on-screen annotations or callouts used to highlight important points or actions.

Relevance and depth of content

1. Understanding the skill level and knowledge base of the target audience is crucial for appropriate content selection. Novices may require more fundamental explanations, while advanced users may need in-depth knowledge and advanced techniques.
2. Balancing breadth and depth ensures that the tutorial provides sufficient information without overwhelming the viewer. Providing additional resources or links for further exploration can meet the needs of viewers seeking more information.
3. Keeping content up to date with the latest trends, technologies, or best practices demonstrates the creator's expertise and maintains viewers' interest.

By focusing on these content characteristics, creators can produce video lessons that resonate with their audience, deliver valuable information, and maintain high levels of engagement and satisfaction.

Audience engagement interaction and engagement features

Interaction and engagement features play a crucial role in fostering a sense of community and collaboration among the audience of YouTube video lessons. Here are some key features:

1. The comment section allows viewers to share their thoughts, ask questions, provide feedback, and participate in discussions related to the tutorial's content. Creators can respond to comments, address queries, and directly interact with their audience, building rapport and loyalty.
2. Viewers can express their appreciation for the tutorial by liking the video or indicate dissatisfaction by disliking it. This feedback mechanism provides creators with valuable insights into the popularity and perception of their content.
3. Viewers can share tutorials with friends, family, or social networks via various platforms such as Facebook, Twitter, or messaging apps. Sharing increases the reach of the tutorial and helps attract new viewers to the creator's channel.
4. By subscribing to the creator's channel, viewers can stay informed about new video releases and receive notifications whenever new content is uploaded. Subscribers often have a higher interest in the creator's content and may participate in community events such as live streams or exclusive events.
5. Creators can host online premieres of their videos, allowing viewers to watch and chat in real time as the video is released. This interactive experience creates excitement and immediacy, fostering a sense of a live community event.
6. The YouTube Community tab allows creators to post updates, polls, photos, and other content to engage with their audience between video uploads. This feature encourages ongoing interaction and helps creators maintain a strong connection with their viewers.
7. Some creators host special Q&A sessions where viewers can ask questions in advance or during a live stream. This direct interaction with the creator allows viewers to gain deeper insights, clarifications on topics, or personalised advice.

Overall, these interaction and engagement features enrich the viewing experience, promote active participation, and foster a sense of belonging among the audience of YouTube educational programmes.

Product quality

Standards for audio and video production

Achieving high standards in audio and video production is crucial for creating engaging and professional video lessons on YouTube. Here is how creators can ensure quality in both areas.

1. *Audio quality*
   - Invest in a quality microphone that suits your recording environment and budget. Condenser microphones are ideal for studio setups, while dynamic microphones are better suited for reducing background noise in less controlled environments.
   - Reduce background noise by recording in a quiet location and using noise reduction techniques such as acoustic treatment, noise gates, or software plugins to minimise ambient sounds.
   - Monitor sound levels during recording to avoid clipping or distortion. Aim for clear and consistent audio throughout the lesson.
2. *Video quality*
   - Use a high-resolution camera. Invest in a camera capable of shooting high-definition (HD) or 4K video to ensure clear and detailed imagery. Consider factors such as sensor size, lens quality, and low-light performance when selecting a camera.
   - Pay attention to lighting. Use proper lighting techniques to illuminate the subject and create a visually appealing scene. Soft, diffused lighting is generally preferable for creating a flattering look while avoiding harsh shadows and overexposure.
   - Frame composition. Carefully frame your shots to maintain visual interest and focus on the subject. Use techniques such as the rule of thirds, leading lines, and depth of field to create dynamic and engaging compositions.
   - Stability. Keep the camera steady to avoid shaky footage. Use a tripod, stabiliser, or gimbal to achieve smooth camera movements and stable shots, especially during demonstrations or walkthroughs.
3. *Post-production*
   - Edit with precision. Use video editing software to trim, cut, and arrange footage for optimal pacing and flow. Enhance visuals with colour correction, contrast adjustments, and visual effects as needed.
   - Enhance audio. Fine-tune audio levels, apply noise reduction, and add effects such as equalisation and compression to improve clarity and

balance. Sync audio with video to ensure smooth playback.

- Add graphics and text. Use graphics, text overlays, and annotations to highlight key points, provide additional context, or guide viewers through steps in the tutorial.

By adhering to these standards for audio and video production, creators can enhance the quality of their video lessons, engage their audience, and establish trust and professionalism in their YouTube niche.

Editing methods and visual effects can enhance the overall quality and engagement of YouTube video lessons. Here are some **effective techniques and effects** creators can use:

- Cutting and trimming. Trim unnecessary footage by removing any parts of the video that are irrelevant or distracting from the main content to maintain viewer interest and streamline the tutorial. • Switch between camera angles by alternating between different camera angles or shots to add variety and keep the tutorial visually engaging.
- Transitions. Use smooth transitions such as fades, dissolves, or wipes between scenes or segments to create seamless transitions and avoid abrupt cuts. • Add motion graphics by incorporating animated transitions or graphic elements to add visual interest and polish to the video.
- Text overlays and annotations. Provide context by using text overlays to introduce topics, highlight key points, or provide additional information that complements the audio narration or visuals. • Step-by-step instructions by adding annotations or text overlays to guide viewers through each step of the tutorial and simplify following along.
- Visual effects. Enhance visuals by applying visual effects such as colour correction, filters, or stylised looks to improve the overall appearance of the video and create a cohesive aesthetic. • Highlight important elements by using visual effects to draw attention to specific parts of the video, such as highlighting buttons or menu items during software tutorials.
- Motion graphics and animation. Create animated intros/outros by designing animated introductions and endings to build a brand and provide a professional beginning and end to the video. Animated illustrations by using motion graphics or animations to explain complex concepts or visually demonstrate processes in an engaging and easy-to-understand manner.
- Green screen effects. Incorporate green screen footage by using a green

screen to overlay different backgrounds or settings behind the presenter, adding visual interest and versatility to the video. • Create virtual environments by using green screen effects to place the presenter in virtual environments related to the lesson topic, enhancing immersion and visual appeal.

- Sound effects and music. Add sound effects to enhance the audiovisual experience and emphasise key points or actions in the tutorial. • Use background music to set the tone, mood, and pace of the video, ensuring it does not overpower the narration or distract from the content.

By thoughtfully applying these editing methods and visual effects, creators can enhance the production value of their video lessons, engage their audience, and provide informative and visually appealing content on YouTube.

Branding and consistency are crucial elements for establishing a strong and recognisable presence on YouTube. Here is how creators can effectively implement branding and maintain consistency in their video tutorials:

Branding your channel

- Develop a cohesive visual style, including a logo, colour palette, fonts, and graphics, that reflects your channel's identity and niche.
- Create an engaging channel trailer to introduce new viewers to your content, showcase your unique strengths, and align with your brand style.
- Optimise your channel layout by adding a channel banner, profile picture, and "Featured" sections to highlight your best content and attract viewers.

Branding your videos

- Incorporate branding elements such as your channel logo, watermark, or intro animation at the beginning or end of your videos to enhance brand recognition and ensure consistency.
- Maintain visual consistency by using uniform colours, fonts, and graphics across all your videos to create a cohesive visual identity and reinforce your brand image.
- Implement consistent formatting by standardising the format and layout of your video thumbnails, titles, and end screens to create a uniform look and make your content easily recognisable.

Content consistency

- Define core content elements (themes, sections, or formats) that align with your channel's niche and audience interests. Consistently focus on these

content elements to create a clear identity and attract loyal subscribers.

- Stick to a publishing schedule by regularly uploading new content according to a pre-established timetable to keep your audience engaged and maintain momentum. Consistency in posting frequency helps build anticipation and trust among your viewers.
- Use a consistent tone of voice and communication style that resonates with your audience and reflects your brand's personality. Whether your content is informative, entertaining, or inspiring, maintain a consistent tone throughout all your videos.

Cross-promotion and collaboration

- Partner with like-minded creators or brands to cross-promote each other's content and reach a new audience. Collaborative projects can introduce new viewers to your channel while reinforcing your brand identity.
- Ensure that branding elements, such as logos or visual styles, are seamlessly integrated into collaborative videos to maintain consistency and strengthen your brand presence.

Audience engagement

- Encourage interaction, feedback, and participation through comments, polls, and community posts. Regularly engaging with your audience helps build relationships, increase loyalty, and strengthen your brand identity within the community.

By prioritising branding and consistency in your YouTube channel and video content, you can establish a strong and recognisable brand identity, gain your audience's trust, and create a cohesive viewing experience that resonates with viewers and sets you apart from competitors.

SEO and searchability

Optimising titles, descriptions, and tags is crucial for improving the visibility of video tutorials in YouTube searches. Here is how creators can effectively optimise these elements.

Optimising titles

- Include relevant keywords that accurately describe the content of your tutorial and align with popular search queries related to your niche.
- Be concise and compelling. Create titles that are clear, succinct, and attention-grabbing to encourage viewers to click on your video. Aim for a title length of no more than 60 characters to ensure it fully displays in search results.

- Front-load important keywords by placing them at the beginning of the title to enhance search visibility and relevance.

Optimising descriptions

- Provide a comprehensive and detailed overview of the tutorial content, including key points, covered topics, and any additional resources or links.
- Use relevant keywords throughout the description naturally and informatively, avoiding keyword stuffing.
- Include timestamps to help viewers jump to specific sections of your tutorial, enhancing user engagement. Place these timestamps in the description to make it easier for viewers to find relevant information.

Optimising tags

- Use relevant tags by selecting both general and specific tags that accurately reflect the content, topic, and keywords of your tutorial to increase the chances of your video appearing in relevant search results.
- Conduct keyword research to identify trending topics, frequently used terms, and relevant keywords in your niche. Utilise tools like YouTube's autocomplete function, Google Trends, or keyword research tools to discover popular keywords.
- Prioritise primary tags by placing the most important and relevant keywords as primary tags to give them more weight in YouTube's search algorithm.
- Use variations, synonyms, and related keywords as tags to cover a broader range of search queries and improve your video's searchability.

Additional tips

- Target long-tail keywords that are more specific and less competitive to increase your chances of ranking higher in search results.
- Study and analyse the titles, descriptions, and tags of competitors to identify strategies and keywords that are effective in your niche.
- Monitor the performance of your videos using YouTube Analytics to evaluate the effectiveness of your optimisation efforts. Adjust your strategy based on insights and viewer feedback.

By optimising titles, descriptions, and tags with relevant keywords and metadata, creators can improve the search visibility and discoverability of their video tutorials on YouTube, attracting more viewers and growing their audience over time.

SEO and searchability

Optimising the design of thumbnails is crucial for increasing click-through rates (CTR) and enhancing the overall performance of video tutorials on YouTube. Here are some tips for effective thumbnail design and CTR optimisation.

Create and use high-quality, engaging thumbnails

- Select clear, high-resolution images that accurately reflect the content of your tutorial. Avoid pixelation or blurriness, as these can deter viewers from clicking.
- Emphasise contrast and brightness. Use vibrant, saturated colours and high contrast to make your thumbnail stand out in search results and recommended videos.
- Use eye-catching visuals. Choose visually appealing images, graphics, or screenshots that draw viewers' attention and spark curiosity about your tutorial's content.
- Include text overlays. Add brief, descriptive text or headlines to the thumbnail to provide context and entice viewers to click. Use large, easily readable fonts and compelling language to capture attention.
- Test different designs. Experiment with various designs, layouts, and elements to determine which resonate best with your audience and increase CTR.

Maintain consistent branding

- Use consistent branding elements. Incorporate your channel's logo, colours, and visual style into your thumbnail designs to maintain brand recognition and consistency across your content.
- Create a recognisable thumbnail format. Develop a consistent thumbnail format or template that viewers can easily identify as belonging to your channel. This helps reinforce your brand identity and improves viewer recall.

Optimise for clarity and readability

- Keep it simple. Avoid cluttering the thumbnail with too many elements or text. Focus on a clear and concise image that effectively conveys the theme of your tutorial.
- Ensure readability. Make sure text overlays are legible and easy to read even at smaller sizes. Use contrasting colours and appropriate font sizes for maximum readability.

Highlight key points or benefits

- Showcase the value proposition. Highlight the main benefit or key takeaway of your tutorial on the thumbnail to communicate its value to potential viewers. Use visuals or text to convey what viewers will learn or gain from watching your video.
- Use intriguing visuals. Include images that hint at the content or outcome of the tutorial, sparking curiosity and compelling viewers to click for more information.

Monitor performance and iterate

- Analyse CTR data. Use YouTube Analytics to track the CTR of your thumbnails and identify which designs or elements are most effective at attracting clicks. Pay attention to trends and patterns to inform future thumbnail optimisation efforts.
- Conduct A/B testing. Create variations of your thumbnails and compare their performance over time. Test different visuals, text, colours, and layouts to determine the most effective design elements.
- Continuously improve. Based on performance data and viewer feedback, continually refine and iterate your thumbnail designs to maximise their effectiveness in driving CTR and attracting viewers to your tutorials.

By implementing these strategies for thumbnail design and CTR optimisation, creators can enhance the visibility, engagement, and success of their video tutorials on YouTube, ultimately attracting more viewers and growing their audience over time.

Algorithmic factors influencing visibility

Several algorithmic factors impact the visibility of video tutorials on YouTube, affecting the likelihood of their recommendation to users and appearance in search results. Here are some key algorithmic factors to consider.

Relevance. The YouTube algorithm prioritises videos that align with the user's search query or viewing history. To enhance relevance, creators should optimise their video titles, descriptions, tags, and content to match popular search queries and topics within their niche.

Engagement metrics. Metrics such as watch time, click-through rate (CTR), likes, comments, and shares are critical factors in the YouTube algorithm. Videos that garner high levels of engagement are more likely to be promoted and recommended to users. Encourage viewer engagement through compelling content, clear calls to action, and interactive features like polls,

quizzes, and annotations.

Watch time. Watch time refers to the total amount of time users spend watching a video. YouTube favours videos with longer watch times as it indicates viewer satisfaction and interest in the content. Create high-quality, engaging videos that captivate viewers and encourage them to watch for longer durations. Engage viewers with compelling storytelling, clear explanations, and visually appealing presentations.

Session time and session starts. The YouTube algorithm also considers how videos impact overall session time and session starts on the platform. Videos that lead to longer viewing sessions or prompt users to start new sessions are favoured in recommendations. Aim to create videos that are part of a cohesive content strategy, encouraging viewers to watch multiple videos in one session. Use playlists, end screens, and cards to guide viewers to related content and enhance their viewing experience.

User interaction signals. YouTube analyses user interaction signals such as likes, dislikes, comments, shares, and subscriptions to gauge viewer satisfaction and interest in the video. Positive interactions signal high-quality content, while negative interactions may indicate viewer dissatisfaction. Encourage positive user interactions by creating valuable, engaging content that resonates with your audience. Prompt viewers to like, comment, share, and subscribe with clear calls to action and interactive features.

Viewer retention. Viewer retention, or the percentage of a video watched by viewers, is a crucial factor in the YouTube algorithm. Videos with high viewer retention rates are more likely to be recommended and promoted. Structure your videos to maintain viewer interest and retention throughout the entire duration. Engage viewers in the first few moments, consistently deliver valuable content, and minimise distractions or lulls in pacing.

Channel authority and consistency. The YouTube algorithm considers channel authority and consistency when determining visibility. Channels that regularly publish high-quality, relevant content are more likely to be favoured in recommendations. Build channel authority by consistently delivering valuable content, engaging with your audience, and adhering to best practices for optimisation and promotion. Establish a clear niche or theme for your channel and maintain consistency in branding, content, and posting schedule.

By understanding and optimising these algorithmic factors, creators can improve the visibility and reach of their video tutorials on YouTube, attracting

more viewers and growing their audience over time.

Future trends and developments

Looking ahead, several trends and developments are expected to shape the landscape of video tutorial channels on YouTube:

Personalised learning experiences. As technology continues to evolve, there will be a greater focus on personalised learning experiences tailored to individual preferences, learning styles, and skill levels. Video tutorial channels can leverage data analytics, machine learning, and artificial intelligence to provide customised content recommendations, interactive learning paths, and adaptive learning programmes that cater to the unique needs of each viewer.

Interactive and immersive content. Interactive and immersive technologies, such as virtual reality (VR) and augmented reality (AR), have the potential to revolutionise how video tutorials are delivered and experienced. Creators can explore new formats and methods to engage viewers in a more interactive and immersive learning process, such as virtual simulations, 360-degree videos, and augmented reality educational programmes.

Live streaming and real-time interaction. Live streaming platforms continue to gain popularity, offering creators opportunities to connect with their audience in real-time and foster interactive engagement. Video tutorial channels can incorporate live streaming into their content strategy, conducting live Q&A sessions, interactive workshops, and collaborative learning events to engage with viewers and provide immediate feedback and support.

Cross-platform integration. With the proliferation of social media platforms and digital channels, creators can explore cross-platform integration strategies to reach a broader audience and maximise their impact. Video tutorial channels can leverage social media, messaging apps, and other digital platforms to promote their content, attract subscribers, and foster community engagement beyond YouTube.

Emerging technologies and innovations. Advancements in technologies such as artificial intelligence, machine learning, blockchain, and decentralised platforms may present new opportunities and challenges for video tutorial channels. Creators can experiment with innovative technologies and business models to enhance content creation, distribution, monetisation, and community building on YouTube and other platforms.

Globalisation and localisation. As video tutorial channels attract viewers from around the world, the demand for localised content that respects cultural

nuances will increase. Creators can explore localisation strategies such as multilingual subtitles, regional content adaptation, and collaboration with local creators to better serve a diverse audience and expand their global reach.

Ethical and responsible content creation. With increasing awareness of digital ethics, privacy concerns, and online safety, creators are expected to adhere to high standards of ethical conduct and responsible content creation. Video tutorial channels can implement transparent disclosure practices, promote digital literacy and responsible technology use, and prioritise the well-being and safety of their audience in their content and interactions.

Overall, the future of video tutorial channels on YouTube is likely to be shaped by technological advancements, changing consumer preferences, and evolving industry trends. Creators who innovate, adapt to the shifting dynamics, and prioritise audience engagement and value creation will be well-positioned to thrive in this dynamic and rapidly evolving landscape.

Recommendations for Content Creators

For content creators aiming to build and grow successful video tutorial channels on YouTube, we recommend the following:

Identify your specific niche or topic that you are passionate about and knowledgeable in. Choose a niche with sufficient demand and audience interest where you can offer unique insights or value-added content.

Understand your target audience by learning about their preferences, interests, and needs. Conduct audience research, engage with your viewers through comments, surveys, and polls, and gather feedback to tailor your content to their preferences and expectations.

Focus on creating high-quality, informative, and engaging content that adds value to your audience. Invest in video production equipment, editing software, and visual resources to enhance the quality and professionalism of your videos.

Develop a regular posting schedule and consistently provide new content to your audience. Consistency is key to building trust, loyalty, and engagement. Plan your content calendar in advance and stick to your posting schedule to maintain momentum and attract new viewers.

Optimise the titles, descriptions, tags, and thumbnails of your videos for search and discovery on YouTube. Use relevant keywords, compelling titles, and eye-catching visuals to attract viewers and improve the visibility of your videos in search results and recommendations.

Foster a sense of community and engagement with your audience by responding to comments, soliciting feedback, and encouraging discussion. Interact with your viewers through live streams, Q&A sessions, and community posts to build stronger connections and create a loyal fan base.

Explore multiple monetisation strategies beyond ad revenue, such as affiliate marketing, merchandise sales, sponsored content, memberships, and crowdfunding. Diversifying your income streams can help you maximise potential earnings and reduce reliance on any single source of revenue.

Stay informed about industry trends, algorithm updates, and best practices for content creation, optimisation, and promotion on YouTube. Keep up with new technologies, consumer preferences, and market dynamics to adapt your content strategy accordingly.

Collaborate with other creators, experts, and influencers in your niche to expand your reach, cross-promote content, and attract new audiences. Networking with fellow creators, attending industry events, and participating in online communities can also provide valuable insights and growth opportunities.

Remain true to your unique voice, personality, and values as a creator. Authenticity and genuineness resonate with audiences and help build trust and loyalty. Be transparent, honest, and authentic in your content, interactions, and collaborations with brands and fellow creators.

By following these recommendations and committing to providing valuable, engaging, and authentic content to your audience, you can build a successful video tutorial channel on YouTube and achieve your goals as a content creator.

Let us now move on to the **specific characteristics of instructional videos for educators and students**.

Step-by-step: creating an instructional video at the office or home

Creating a useful instructional video does not require a higher education degree or significant spending on equipment. Anyone can produce a quality instructional video using a standard consumer-grade camera and microphone without incurring substantial costs.

In this section, in collaboration with eLearning experts, we will thoroughly examine the entire process of creating instructional video materials, from scripting to filming.

To begin, let us identify the different types of instructional videos. Generally, there are three main types:

- *Screencast*: This is a recording of a computer screen accompanied by voice-over commentary explaining the on-screen activity. This format is ideal for teaching viewers how to use various software applications, such as Photoshop or other computer programs.
- *Video accompaniment or "talking head" video*: In this format, a person sits in front of the camera and reads text or comments on the material. This format is often used to complement a PowerPoint presentation, providing additional explanations for the slides.
- *Video lesson*: This is a short instructional video resembling a television show. Examples include cooking shows or educational programs like "Galileo". Video lessons feature rich visual content and a well-developed structure and script.

Next, we will discuss in detail how to prepare for filming a video lesson or video accompaniment and examine all the stages involved.

Step 1. Identifying the target audience

People often have a vague idea of who their target audience is. Many describe it as "Well... it's everyone who wants to learn English or understand the basics of content management. Essentially, it's everyone". However, even if your video lesson is not intended for a broad audience but rather for schoolchildren or students, it is essential to clearly define your target audience. This will help you focus more precisely and make the video as useful as possible.

To identify your audience, ask yourself: "How well do my viewers understand the subject?"

Step 2. Developing a script

Even if you are well-versed in the topic, it is essential to prepare a script. This helps to:

- Structure your presentation, think through the main points and tips that will make the lesson more informative and valuable for viewers;
- Avoid unnecessary pauses and filler words like "umm", which often occur in live broadcasts. With a script, you will always have a reference to avoid losing your train of thought during the recording.

Start with the most engaging facts or a brief introduction to the topic. In the middle, focus on thoroughly covering the subject. Conclude with a summary and a review of the key points. Do not forget to include a brief preview of the

next lesson to maintain viewer interest.

A script can also be used to create a storyboard for the instructional video. A storyboard is a set of thumbnails illustrating the key scenes and transitions.

As you become more confident in front of the camera, the script can be reduced to a handful of key points, and the presentation can be more improvisational. However, at the beginning of your work with instructional videos, a script is an essential tool.

Step 3. Choosing a camera and microphone

Five years ago, anyone could create an instructional video using a mobile phone and garner thousands of views on YouTube. However, today's viewers have higher expectations for sound and image quality. Many prefer HD-quality videos and high-quality sound. Therefore, it is worth paying attention to the quality of your video to attract more viewers.

To select an appropriate microphone for a video lecture, it is beneficial to familiarize oneself with different types of microphones, such as dynamic and condenser microphones. It is important to consider their features and characteristics to determine which one will be most suitable for your specific needs.

Dynamic microphones have the advantage of better suppressing echo and background noise, which is especially important when recording in rooms with poor sound insulation. However, they may be less sensitive to subtle sounds and sound nuances. Therefore, if you are recording a video lecture in an environment with background noise or potential echo, a dynamic microphone might be a more appropriate choice.

Condenser microphones offer higher sensitivity to sounds, allowing for the recording of more nuanced and detailed audio. They are, however, more sensitive to background noise and therefore require a quieter environment for optimal recording. If your filming takes place in conditions where silence can be ensured and background noise minimized, a condenser microphone might provide better sound quality.

When selecting a microphone, it is also essential to consider your budget, the availability of additional equipment (such as an audio interface or sound card), and the specifics of your recording environment (presence of background noise, type of room, etc.).

It is advisable to avoid using a handheld microphone, as its large size can attract undue attention to the speaker and distract the audience. Additionally, using a handheld microphone means one hand will be occupied, which can be

inconvenient if any actions are taking place on screen, such as conducting a chemical experiment.

For creating instructional videos, three types of microphones are suitable:

1. *Lavalier microphone, also known as a "lapel mic",* is small and lightweight and attaches to clothing. Due to its miniature size, it is almost invisible and does not hinder the speaker. This allows the person to move freely around the filming location, use gestures, and hold objects. The lavalier mic focuses on sounds within a 20-30 centimeter radius around it, filtering out distant noises. It is ideal for interviews and video recordings where the person speaks for extended periods.
2. *Headset microphone* is an affordable option, typically consisting of standard headphones with an integrated microphone. Professionals in public speaking often use models without headphones. The headset microphone always remains at the same distance from the mouth and does not rub against clothing during movement, unlike the lavalier microphone. This type of microphone is also suitable for video recording and conducting interviews.
3. *On-camera microphone, also known as a "shotgun mic",* is mounted on a video or photo camera. It is directed strictly forward and focuses on sounds only in front of it, ignoring side noises. This type of microphone always stays off-screen, so it does not attract unnecessary attention. Additionally, it can be attached to a special holder, known as a "boom pole", and positioned closer to the speaker, allowing for clearer recording of each line. The shotgun mic is ideal for recording dialogues between multiple participants or when filming wide shots, where the microphone needs to stay off-screen.

For beginners shooting their first instructional video, I recommend using a lavalier microphone. It is highly versatile: it can be easily hidden under clothing, and it effectively captures sound. Moreover, the price of a lavalier microphone is usually half that of other types of microphones.

Step 4. Determine the filming location

The success of an instructional video largely depends on its visual component, and one of the key elements is the background. The ideal filming location should fully correspond to the topic of the instructional video. For instance, if you are recording a video lesson on a chemical experiment, it is necessary to create an environment resembling a laboratory.

The background sets the context. For example, if a person is standing in front of a library background, it creates an association with a scholar or researcher. Compare this with an image of a woman next to a kitchen table: you likely thought she is a chef or a caring homemaker, right? A sunlit park, a luxurious restaurant, or a panoramic city view from a skyscraper roof—all these locations are suitable as a background if they align with the filming theme.

To solve the background issue, you can use another method—purchase a backdrop. You can find a backdrop on platforms like "Yandex.Market" for around 5000 KZT. Setting up a backdrop is easy, even in an apartment.

There are various types of backdrops, but the most popular are:

1. *Paper backdrop*: This is a primary choice for home video recording studios. The matte surface of the paper ensures even light distribution without glare, making the image cleaner and not distracting from the speaker. Additionally, paper backdrops are affordably priced, starting from three thousand rubles. However, they are prone to tearing.
2. *Fabric backdrop*: A fabric backdrop does not wrinkle and requires no special care. It can be used on uneven surfaces and adds softness to the image. You can make such a backdrop yourself from non-woven material.
3. *Non-woven backdrop*: This synthetic material effectively diffuses shadows and adds softness to the image. Its advantages include moisture resistance and quick drying. Additionally, a roll of non-woven backdrop is 20% cheaper than a paper backdrop.

In filming, blue and green backdrops, known among professionals as "blue screen" and "green screen", are often used. These colors are popular due to their effectiveness in chroma key shooting and subsequent background replacement using special software.

In addition to any of the listed backdrop types, various virtual decorations created on a computer can be applied.

My recommendation for beginners is to avoid using a green screen, as it requires special lighting and professional video editing skills. Instead, you can use a plain wall as a background. The key is for the wall to be a solid color, preferably not white. For example, I sometimes recorded my instructional videos in a library, using a backdrop of books. It is usually very quiet there, and the sound quality is excellent. Filming in such locations should be arranged in

advance.

Step 5. Set up lighting

Good lighting is crucial for creating a high-quality video frame. When filming outdoors, you must adapt to weather conditions or reschedule the shoot. However, indoors, you have full control.

Working lights, also known as “bright lights” (ranging from 500 to 1000 watts), are necessary for clear images. You will need to use three lights, and the quality of lighting will depend on their proper arrangement.

In an office or home setting, natural light can be used for filming. Choose a room that receives the most sunlight. Open curtains or blinds to maximize natural light. Position yourself so that the sunlight falls on your face, such as standing opposite a window. Early morning is particularly effective for shooting, as the sunlight is brightest then.

Step 6. Determine the host’s appearance

Do not underestimate the importance of the host’s appearance. Clothing and overall style play a key role in the first impression the video makes on viewers. Therefore, it is essential to carefully consider your appearance.

When choosing clothing, it should look neat and match the video’s theme. For instance, a lecturer discussing financial aspects of NATO should avoid casual attire that might cause viewers to distrust them.

Avoid certain clothing elements and accessories when filming instructional videos:

- Clothing with small checks, stripes, or polka dots, as they can create a moiré effect on the screen and distract viewers.
- Brightly colored suits that might contrast sharply and hinder perception.
- Clothing that matches the background color to avoid blending into the frame.
- Stylish accessories, such as sunglasses, necklaces, or wristwatches, should be modest and not draw too much attention.

These tips from experienced TV professionals can help create a more professional and focused image for the host in instructional videos.

Pay attention to the condition of your hands during the video. Consider the following:

- Ensure nails are in good condition: avoid broken nails or hangnails, as they can distract viewers.
- Keep hands clean and tidy: avoid yellow-stained fingers from smoking

or other bad habits.

- Before filming, make sure your face looks fresh: wipe it with a dry tissue and apply a little powder to avoid shine on the camera.

These details might seem minor, but remember that they can influence the overall impression of the instructional videos.

Step 7. Break the video recording into segments

Before recording the entire instructional video, read the text aloud to determine the optimal volume and pace of speech. Also, be sure to test the microphone.

Do not record the entire lecture or lesson all at once. Divide your presentation into several short segments. Pauses between them will allow you to catch your breath and rest, and the operator (if there is one) to change the shooting angle. Such changes in angles will significantly enrich the instructional video and make it more interesting for viewers.

Tip: It can be challenging to maintain constant eye contact with the camera while simultaneously engaging with the audience. To simplify this task, you can attach a small paper figure or another marker to the camera. During your presentation, you can look at it, making working with the camera more comfortable.

After reading a segment of the text, pause for 5 seconds while keeping your gaze on the recording camera. This extra footage will be easier to edit during post-production.

Ideally, record videos in a studio or a specially prepared room, but this is often not possible. Therefore, **follow these recommendations**:

- Turn off air conditioners, office equipment, and notifications on the computer if using a webcam for recording.
- It is preferable to film in a conference room or office with a closed door.
- Avoid empty rooms, as sound reflection from the walls can cause unwanted echo.
- Check that the chair you will be sitting on does not creak during recording.
- Turn off or remove all ringing and blinking notifications from the room to minimize possible distractions.

For better viewer convenience, it is recommended to break a long lesson into several episodes with logical introductions and conclusions, similar to a TV series format. Short video lectures can be grouped by themes, and themes,

in turn, can be organized into a course.

Step 8. Select software for creating instructional videos and edit the video

After completing the filming, the editing phase begins. Experts often prefer two popular programs: Sony Vegas and Adobe Premiere. However, both require thorough study, and beginners might find it challenging to navigate their functionalities immediately.

If you need to create a simple instructional video without complex special effects, you can use more user-friendly software. For instance, combining video materials with PowerPoint slide presentations can make the instructional course more engaging and comprehensible for viewers. This approach allows for the visualization of information and the enhancement of oral content with textual and graphical elements, promoting better retention of the instructional material. Using the iSpring Suite program to create a presentation with video accompaniment truly simplifies the process of developing video courses. The unique feature of this program is its direct integration into PowerPoint, making access to its functions convenient and intuitive for users familiar with PowerPoint. This enables the creation of high-quality, interactive instructional materials, including video lessons, slides, tests, and other elements, making the learning process more effective and engaging for students. With iSpring Suite, you can create video lessons directly in PowerPoint without switching to other applications. One convenience is the ability to use any presentation as a basis for a video lesson, simplifying and speeding up the creation process. This approach makes the creation of instructional materials more convenient and efficient, allowing you to utilize familiar PowerPoint tools and features to develop interactive and appealing video lessons. Additionally, the program offers a character builder, which allows for the creation of unique drawn characters that fit the necessary visual styles and tasks. This is particularly convenient as it eliminates the need to consult designers or illustrators, enabling you to assemble a character from available blocks and elements. This feature helps make videos more engaging and interesting for the audience.

Creating a character in iSpring Suite takes just a few minutes. You can customize skin color, facial features, hairstyle, and select clothing and accessories. The completed character easily integrates into the instructional script and can play various roles, such as mentor, client, manager, or employee.

After creating the character, it is automatically added to your library and

becomes available for use in other videos.

However, creating a video lesson is only the first step. It is essential that your content is accessible to your audience. To achieve this, iSpring Suite offers several publication options:

- On a website or blog: Convert your lecture into HTML5 format for online upload.
- On social networks: Upload the video presentation to iSpring Cloud storage and share the link via email or social media.
- In a learning management system (LMS): Package your video course in SCORM format and upload it to your LMS.
- On a CD: Publish the presentation for subsequent recording onto a CD.

After publishing your video lesson, you can gather feedback from viewers and use their suggestions to improve the content. Viewer feedback often contains many useful tips for content enhancement, so it is worth considering and implementing appropriate changes.

Remember the following **key points** before creating a video lesson:

1. *Script*: Write a script before starting the shoot. It will help organize your presentation, focus on the main idea, and avoid unnecessary details.
2. *Filming location*: The optimal filming location should fully match the theme of the video lesson. This helps create the atmosphere and support the overall context.
3. *Lighting*: Poor lighting can negatively affect the quality of the frame. Use three lights to create a clear and bright image.
4. *Clothing*: Choose clothing that will not cause technical issues, such as moiré patterns or poor blending with the background.
5. *Takes*: Divide your presentation into short segments. This helps manage the recording process more easily and diversify the video.
6. *Duration*: The ideal duration for a video lesson is around 7 minutes, considering the trend of social networks towards short informational formats.

Following these principles will help create a high-quality and attractive video lesson for your audience.

How to Use YouTube as a Platform for Teaching and Learning

YouTube, the global video-sharing platform, has transformed the way we learn and teach. From academic lectures to DIY tutorials, YouTube offers a vast repository of knowledge accessible to anyone with an internet connection.

In this section, we will delve into the multifaceted role of YouTube in education, exploring its impact from various perspectives.

YouTube transcends geographical boundaries, making educational content accessible to learners worldwide. Whether you are a student in a bustling metropolis or a remote village, YouTube provides equal access to information. For example, a high school student in rural India can learn about quantum physics from the same video as a student at the Massachusetts Institute of Technology.

Humans are visual creatures, and YouTube's video format caters to our innate preference for visual learning. Complex concepts become more digestible when presented through animations, demonstrations, and real-life examples. For instance, Khan Academy's math lessons use visual representations to simplify algebraic equations, enhancing students' understanding. Furthermore, YouTube features a wide range of content creators, including educators, scientists, artists, and enthusiasts. This diversity ensures that learners can find content that matches their interests and learning styles.

For example, a novice guitarist can follow the JustinGuitar channel for step-by-step guitar lessons, while an aspiring chef can explore cooking tutorials from Tasty. YouTube is not limited to formal education; it is a platform for lifelong learning. Whether you want to learn a new language, master programming, or improve your photography skills, YouTube can assist you. YouTube also fosters a sense of community. Comments enable learners to interact with content creators and other viewers. Questions, clarifications, and discussions enrich the learning experience. For instance, a student watching a chemistry lesson can ask questions in the comments and receive answers from both the creator and fellow learners.

YouTube complements classroom learning. Teachers can assign relevant videos as homework or use them during lectures. The flipped classroom model leverages YouTube to ensure active student engagement. However, not all content on YouTube is accurate and reliable. Learners need to develop critical thinking skills to evaluate sources, verify information, and choose credible channels.

In conclusion, YouTube's educational potential far exceeds its reputation for cat videos and viral challenges. It empowers learners, democratizes knowledge, and fosters a global educational community. As educators and learners, let us harness this powerful tool to expand our knowledge, skills, and

curiosity.

Guide for Educators

1. *Personalized playlists for curated content.* Educators can create personalized playlists to organize videos by specific topics, themes, or learning objectives. These playlists serve as curated repositories of content for students. For instance, imagine a high school biology teacher creating a playlist titled "Cell Biology Basics", which includes videos on cell structure, mitosis, and cellular processes.
2. *Annotations and cards for interactive learning.* Annotations (now replaced by cards) allow educators to add interactive elements to their videos, such as links to external resources, quizzes, or calls to action. For example, a history teacher can use cards to add links to additional materials or quiz questions related to the historical event discussed in the video.
3. *Live streaming for real-time interaction.* Live streaming enables educators to interact with students in real-time, making it ideal for virtual classes, Q&A sessions, or guest lectures. For instance, a university professor could host a live stream on "Quantum Mechanics", answering students' questions as they arise.
4. *Privacy settings and unlisted videos.* Educators should understand privacy settings. Public videos are accessible to everyone, while unlisted videos can only be viewed via a direct link. For example, a foreign language teacher might create unlisted videos for pronunciation practice to provide individual feedback to students.
5. *Closed captions and transcripts for accessibility.* Adding closed captions and transcripts ensures accessibility for all students, including those with hearing impairments or non-native speakers. For instance, a chemistry professor uploads lecture videos with accurate captions to cater to a diverse audience.
6. *Community contributions and collaborative subtitles.* YouTube allows community contributions for subtitles. Educators can crowdsource translations or improve existing captions. For example, a global studies teacher invites students to contribute subtitles in different languages for a documentary video.
7. *YouTube studio for managing videos.* YouTube Studio provides tools for video editing, thumbnail customization, and channel management. For

example, an art instructor uses YouTube Studio to create appealing thumbnails for art lessons.

Remember, YouTube is not just a repository of cat videos; it is a dynamic educational ecosystem ready for utilization. By mastering these features, educators can create engaging, accessible, and effective content for their students.

Organisation of Educational Resources

Student Perspective

***Personalised Learning Paths*:** Playlists allow students to create customised learning pathways. Imagine studying a complex topic such as quantum mechanics. Instead of randomly searching for videos, you can create a playlist that starts with basic concepts and gradually progresses to more advanced theories. For instance, your playlist might include:

- *Introduction to Quantum Mechanics:* A foundational video explaining key principles.
- *Wave-Particle Duality:* A deeper dive into the dual nature of particles.
- *Quantum Entanglement:* Exploration of this fascinating and mind-bending phenomenon.

Effective Exam Preparation**:** As exams approach, having a revision playlist can be a game-changer. Compile concise reviews, formula explanations, and solved problems. For example:

- *Physics Formulas for Quantum Mechanics:* A quick reference guide.
- *Solving the Schrödinger Equation:* Step-by-step examples.

***Collaborative Learning*:** Invite classmates to collaborate on a shared playlist. Everyone benefits from different perspectives and additional resources.

Educator Perspective

***Course Supplements*.** Teachers can create playlists as supplementary material to their courses. For example:

- *Biology: Cell Structure:* A playlist featuring animations, lab demonstrations, and expert interviews.
- *Literary Analysis Techniques:* Videos discussing critical approaches to literature.

***Flipped Classroom*:** In a flipped classroom model, educators assign playlists as preparatory material. Students come to class prepared, and class time is spent on discussions, problem-solving, and application.

***Assessment Preparation*:** Teachers can create playlists specifically for

exam preparation, including practice questions, sample essays, and study tips.

Content Creator Perspective

Niche Focus: As a content creator, focus on a niche topic. For example:

- *Urban Sketching Techniques:* A playlist for beginner artists.
- *Python Programming for Beginners:* A step-by-step coding guide.

***Sequential Order*:** Organise videos logically. Start with the basics and move to advanced content, considering prerequisite knowledge.

***Engaging Introductions*:** The first video matters. Engage viewers with a captivating introduction. For example:

- *Why Urban Sketching Matters:* Share personal anecdotes or historical context.
- *Hello, World! Basics of Python:* A friendly welcome to programming.

Best Practices for Curating Playlists

***Clear Titles and Descriptions*:** Use descriptive titles and informative descriptions. Users should understand what to expect.

***Thumbnail Selection*:** Attractive thumbnails motivate clicks. Avoid misleading images.

***Regular Updates*:** Keep playlists up-to-date. Remove outdated or irrelevant videos.

***Collaboration and Curation*:** Invite experts or enthusiasts to collaborate. Community-driven playlists thrive.

***Cross-Platform Sharing*:** Share playlists on social media, educational forums, or your website.

Examples of Effective Playlists

- *TED Talks: Inspiring Ideas:* Curated talks on various topics.
- *Khan Academy Algebra Basics:* Comprehensive math playlist.
- *CrashCourse: World History:* Engaging animated lessons.

Creating playlists is more than just gathering videos; it's about crafting meaningful educational journeys. Whether you are a student mastering your course, a teacher enhancing your teaching, or a content creator sharing your passions, embrace the art of playlist curation!

How to Use YouTube for Student Assessment

Assessment of student learning outcomes is a critical aspect of education. Traditionally, teachers have relied on written assignments, tests, and exams to evaluate student performance. However, in the digital age, we have access to powerful tools that can enhance assessment practices. One such tool is

YouTube, a platform that has transformed how we create, share, and consume content.

Here, we will explore how YouTube can be utilised for student assessment from various perspectives:

1. *Multimedia Assessment*. YouTube allows students to create and upload multimedia content such as videos, podcasts, and animations. As an educator, you can design assignments that require students to demonstrate their understanding through these formats. Example: In a history class, students can create short documentary films about historical events, analysing primary sources and presenting their findings through YouTube videos.
2. *Peer Assessment*. YouTube facilitates peer feedback. Students can view and comment on their classmates' work, providing constructive criticism and suggestions. Example: In a literature class, students can upload their book review videos. Peers can then assess the quality of the analysis, presentation skills, and overall effectiveness.
3. *Self-Assessment*. Students can use YouTube to reflect on their own learning journey. They can create video blogs discussing their progress, challenges overcome, and lessons learned. Example: A language course can encourage students to record weekly updates on their language learning achievements.
4. *Rubrics and Criteria.* Clearly define assessment criteria and share them with students. Rubrics can guide their video creation process. Example: For a video on a scientific experiment, criteria might include the accuracy of information, clarity of explanation, and creativity in visual aids.
5. *Authentic Audience.* YouTube provides an authentic audience beyond the classroom. When students know their work will be viewed by others, they often put in extra effort. Example: A marketing course might ask students to create product advertisement videos. The YouTube audience becomes potential consumers.
6. *Analytics and Insights.* YouTube analytics offer valuable data. Teachers can track views, engagement, and audience demographics. Example: Analysis of viewer retention can reveal which parts of the video lesson are most engaging or confusing.
7. *Accessibility and Closed Captions*. YouTube's automatic captioning fea-

ture enhances accessibility. Students with hearing impairments can benefit. Example: Encourage students to add accurate captions to their videos to ensure inclusivity.

8. *Challenges and Considerations*

- Privacy. Students may hesitate to share personal experiences or opinions publicly.
- Copyright. Teach students proper use and citation of external content in accordance with fair use principles.
- Technical Skills. Some students may need support in video editing and production.

YouTube opens exciting possibilities for student assessment. By integrating multimedia, peer feedback, self-reflection, and authentic audience engagement, teachers can create richer, more dynamic evaluation methods that cater to diverse learning styles and enhance educational outcomes.

Real example of successful education on YouTube

1. **Khan Academy**: Founded by educator Sal Khan, Khan Academy has revolutionised online education. With over 0ver 4000 video lessons covering subjects such as mathematics, history, and more, Khan Academy provides high-quality education for free to millions of learners worldwide. The short videos break down complex concepts, making them accessible for learners of all ages. The success of Khan Academy illustrates how YouTube can democratise education and bridge gaps in traditional learning.
2. **CrashCourse**: Led by the charismatic Hank Green, CrashCourse offers engaging video series on various subjects. Whether it's world history, biology, or literature, CrashCourse combines humour, animation, and concise explanations to capture students' attention. The channel's success lies in making learning fun while maintaining educational rigor. Students and teachers use these videos as supplementary resources in the classroom.
3. **Vsauce**: Michael Stevens, the creator of Vsauce, explores fascinating questions and scientific curiosities. His videos blend science, philosophy, and pop culture, fostering critical thinking. Vsauce's success is rooted in its ability to ignite curiosity and inspire viewers to explore beyond the classroom. From the Fermi paradox to the concept of infinity, Vsauce's

thought-provoking content has sparked countless discussions.

4. **TED-Ed**: An extension of the popular TED Talks, TED-Ed offers animated lessons on a wide range of topics. Collaborating with educators and animators, TED-Ed creates visually appealing videos that present complex ideas in an accessible manner. These lessons are valuable not only for students but also as professional development tools for teachers. TED-Ed exemplifies how YouTube can enhance traditional teaching methods.
5. **Cooking Channels**: Culinary enthusiasts have found a treasure trove of culinary knowledge on YouTube. Channels like Tasty, Binging with Babish, and Maangchi provide step-by-step cooking tutorials. Viewers learn techniques, discover new recipes, and gain confidence in the kitchen. These channels demonstrate that YouTube is not limited to academic subjects; it is also a platform for acquiring practical skills.
6. **DIY and Maker Channels**: YouTube hosts a vibrant community of DIY and maker channels, from woodworking to electronics. Channels like I Like To Make Stuff, The King of Random, and Laura Kampf showcase creative projects, inspiring viewers to explore practical skills. These channels highlight learning through doing, fostering a sense of accomplishment and self-reliance.
7. **Language Learning**: Numerous language teachers and polyglots share tips and resources for language learning on YouTube. Channels like FluentU, Easy Languages and Steve Kaufmann offer pronunciation guides, vocabulary lessons, and cultural insights. Learners can immerse themselves in authentic content, improving their language skills at their own pace.

In conclusion, YouTube Education transcends boundaries, making learning accessible, engaging, and dynamic. These examples illustrate the impact of YouTube as a global classroom where knowledge is freely exchanged, and curiosity thrives.

3.3 Results of Testing the Modular Distance Learning Program

Testing the modular distance learning program yielded the following **results**:

Successful course completion: The majority of SRS teachers successfully completed the course, demonstrating a level of knowledge and skills that met the program's requirements. This indicates the effectiveness of the modular program and the readiness of teachers to apply distance technologies in the educational process.

Increased professional competence: SRS teachers who completed the course expressed confidence in their knowledge and skills in using ICT and distance technologies. They found the program useful and informative for their everyday practice.

Increased interest: Many teachers showed interest in further training and participation in similar programs and educational events. This demonstrates a positive response and a need for continued support and development of such educational initiatives.

Feedback and recommendations: The feedback received from SRS teachers helped identify the strengths and weaknesses of the program. Based on this feedback, adjustments and improvements will be made for future iterations of the distance learning program.

Thus, **the results of testing the modular distance learning program demonstrated its effectiveness and usefulness for SRS teachers and revealed the participants' needs and desire to continue developing their ICT and distance technology skills in education**.

Content analysis of the modular program on the pedagogical technology of collective learning showed readiness to move away from the traditional class-lesson system and transition to a collective multi-age type of learning.

The main **differences from the class-lesson system include**:

Instead of autonomous classes, a single multi-age learning group (MLG) operates, allowing students of different ages to learn together, collaborate, and help each other systematically.

The curriculum is divided not by academic years but as a holistic program over several years, allowing students to progress in any subject according to their abilities and needs.

Instead of traditional lessons, collective learning sessions are held, enabling students to work together on common tasks and projects.

Concentrated study of subjects: Instead of daily studying all subjects, immersion in a few subjects for deeper learning, enabling students to focus on a few subjects for a longer period, leading to deeper understanding and retention;

allows students to choose subjects they are interested in, increasing their motivation to learn; develops self-organization skills, teaching students to plan their time and prioritize.

Individual learning plans for each student instead of a single calendar-thematic plan for the entire class, allowing for the consideration of individual needs, interests, and learning pace of each student; enables students to develop individual trajectories, progress at their own pace, and master material according to their abilities; teaches students to take responsibility for their education.

Joint management of the learning process by teachers and students, giving students the opportunity to participate in decision-making, which increases their motivation to learn; teaches students to work together, collaborate, and share their knowledge and experience; allows students to show leadership qualities and take responsibility for their learning.

As N.P. Seremenko rightly notes, “In a small rural school, children are grouped into class-combinations - 1-3, 2-4, 5-6, etc. Although the children are grouped together, they cannot be called a multi-age group because it is a group of students of different academic years, mastering the curriculum content of each class separately. Even if children study the same thematic material in each lesson, the main method of organizing learning is group learning, where the teacher first works with one class, then with another. Children of each class interact with the teacher for only 20 minutes out of a 45-minute lesson”.

A multi-age learning group (MLG) is a group of students who study according to individual educational programs, in different sequences, over different periods, and in different time groups.

Depending on the number of students in a small rural school (SRS), different types of multi-age learning groups are created. In an SRS with up to 100 students, one multi-age group from grades 1 to 11 is organized.

Let us examine the various **ways to form multi-age learning groups (MLGs)**.

Grades 1-4 combine children of the same age group, where the primary activity is learning. Here, the focus is on developing communication skills and independence.

Grades 5-9 include students at the basic secondary education level, where the primary activities are learning and social interaction. In these MLGs, the development of social skills, self-determination, self-awareness, and critical thinking occurs.

Grades 10-11 group older students whose primary activity is pre-professional, preparing them for future careers by developing self-presentation skills and goal orientation.

Key features of learning in MLGs include:

- Students learn according to individual educational programs tailored to their specific abilities and needs.
- Students have the opportunity to interact with peers of different ages, enhancing their communication skills, learning from older peers, and helping younger ones.
- MLG students actively participate in managing the learning process, helping to organize classes, conduct research, and make decisions.

It is important to note that multi-age groups should be formed considering not only the students' ages but also their preparation levels, interests, and needs.

In comparison with traditional methods, the technological process in MLGs systematically transforms the entire educational process. This means it affects all aspects, including goals, content, forms of organization, strategies and techniques, and educational resources (Table 16).

Table 16 - Comparison of traditional versus mixed-age learning

Criterion	Traditional system	Multi-age learning
Organisation of training	Classes.	Multi-age groups.
Curriculum and programme	The same for all classes.	Flexible individual, adapted to the needs of each learner.
Methods and forms of training	Defined by the teacher in accordance with the GCSE and the Model Curriculum.	Variety of forms and methods of training, taking into account individual characteristics.
Advantages	Simple and understandable implementation (easy to organise and manage), standardisa-	Individualisation (taking into account the individual characteristics and needs of each learner), skills development

	tion (provides a uniform level of training for all students), specialisation (teachers can specialise in a particular subject or age group).	(encourages cooperation, mutual assistance and communication between learners of different ages), motivation (increases interest in learning and allows learners to learn at their own pace).
Disadvantages	Rigidity (does not allow for individual learner characteristics), limited opportunities (does not always allow for the development of co-operation and self-help skills), lack of motivation (may lead to a loss of interest in learning for some learners).	Complexity (requires more careful preparation and qualified staff), can be difficult to organise, adaptability (can be difficult to adapt learning materials and teaching methods for different ages), heterogeneity (can be difficult to create a comfortable atmosphere for learners with different backgrounds).

Traditional same-age education, organized by grades and studying the same subjects at the same pace, leads to several problems, including:

- Extremely weak connection and continuity between the elementary, middle, and high school levels.
- Low quality of curricula developed for middle grades, which do not always meet the needs and capabilities of elementary and high school students.
- Overburdening students with a large volume of book knowledge, forcing them to memorize a significant amount of material that is often unnecessary in real life.
- Weak connection between education and real life, as the material studied in school often does not relate to the real problems and needs of students.
- Progressive decline in students' interest in learning, as it becomes boring and uninteresting for them.
- The gap between pedagogical science and school practice and teacher education.
- Slow implementation of innovative processes and achievements in the

field of education.

Multi-age learning in mixed-age groups (MLGs) helps to overcome these problems. It ensures a systemic connection of the entire educational process since children of different ages and grades study in the same learning group. This allows teachers to use more effective teaching methods and forms, take into account the individual characteristics, capabilities, and needs of each student, and ensure the connection between education and real life.

Conceptual ideas for **constructing the learning process in MLGs**

The theoretical and methodological foundation of learning is the natural scientific (materialistic) approach, which understands it as a socio-natural phenomenon. This approach emphasizes the primacy of natural communication as a universal mechanism of interaction between social subjects, integrating the achievements of domestic and world theory and practice of education. It is constructed on the following principles:

- Continuous and immediate transfer of knowledge (information).
- Completeness of education (orientation towards the highest final results).
- Learning according to the abilities of each student.
- Universal cooperation and friendly mutual assistance.
- Multi-age and multi-level composition of the educational collective.
- Diversity of topics and tasks as a particular case of the division of labour (functions, duties).
- Pedagogization of the activities of participants in the educational process.
- Internationalization of the learning process.

The concept of MLGs involves the implementation of the following ideas:

- Individualization of education: Each student masters the educational material at their own pace and according to their own plan.
- Humanization of education: The focus is on the student's personality, interests, and needs.
- Development of independence and responsibility: Students learn to set goals, plan and organize their activities, and control and evaluate their results independently.

Based on these conceptual ideas, the learning process in MLGs is structured. It includes the following elements:

- Collective learning activities, which are the primary form of organization in MLGs. In these activities, students of different ages jointly study the same material.
- Consolidated groups, which are temporary unions of students to perform specific educational tasks. These groups can be formed based on different criteria, such as the level of student preparation, the subject being studied, student interests, etc.

In the paradigm of multi-age learning, a consolidated group represents a temporary union of students aimed at achieving a specific educational goal (Table 17).

Table 17 - Characteristics and advantages of the consolidated groups

Criteria	Description
Specific characteristics	
Composition	The group can be made up of students of different ages and grades.
Activity	The combined group may cover a variety of topics, use a variety of team teaching methods and utilise a variety of learning tools.
Duration	Group functioning is limited to the period of time necessary to complete the task at hand.
Follow-up work	After completing work in one group, students move on to other groups, either existing or newly formed, to fulfil new tasks.
Benefits	
Skills development	Working together in combined groups encourages the development of co-operation, mutual assistance, communication and self-organisation skills.
Motivation enhancement	The mixed-age format and variation in methodology keeps students interested in learning, allowing them to learn at a comfortable pace and share their knowledge.
Individualisation	The cumulative learning approach takes into account the individual characteristics and needs of each learner.

Consolidated groups are an effective tool that allows the implementation

of multi-age learning principles, development of 21st-century skills, and increased motivation for learning. It is essential to note that the formation of consolidated groups, the determination of goals and objectives, and the choice of teaching forms and methods should be carried out considering the age characteristics, needs of each student, and their level of preparation. This approach ensures more effective assimilation of educational material, efficient use of time and resources, fosters the development of independence and responsibility among students, provides a variety of educational activities, and avoids monotony.

The class schedule is structured according to weekly immersions in academic subjects (Tables 18,19,20).

Table 18 - Example of a weekly concentration schedule for primary education level (with a separate MLG)

1st week	2nd week	3rd week	4th week
Russian Language	Mathematics	Russian Language	Mathematics
World Knowledge	Literary Reading	World Knowledge	Literary Reading

Table 19 - Example of a weekly concentration schedule in mlg for basic secondary education level

1st week	2nd week	3rd week	4th week	5th week
Kazakh Language	Mathematics	Kazakh Language	Mathematics	Kazakh Language
Biology	Kazakh Literature	Geography	Kazakh Literature	Physics
English Language	Chemistry	English Language	Biology	History

Table 20 - Example of a weekly schedule (MLG - full-day school)

Time	Activity Description
8^{30}-9^{00}	Musical lounge (or - circle of joy, dance warm-up, morning gymnastics, etc.)
9^{00}-10^{30}	First immersion in a subject (see weekly immersion)

10^{30}-11^{15}	In primary school - City of Crafts (construction, modelling, sculpting, etc.)
10^{30}- 11^{15}	In secondary and high school - studios, clubs, project activities, etc.
11^{15}-12^{45}	Second immersion in a subject (see weekly immersion)
12^{45}- 13^{15}	Lunch
13^{15}-14^{00}	In primary school - subject (physical education, or art, or craft education, or music)
13^{00}-14^{45}	In secondary and high school - third immersion in a subject
14^{45}-15^{20}	In primary school - outdoor games
15^{20}-16^{00}	In primary school - children's experimentation
14^{45}-16^{00}	In secondary and high school - elective courses, scientific society meetings, studios, clubs, etc.
16^{00}	Departure home without homework

Consider the organisation of collective sessions in multi-age learning groups (MLGs).

Structuring educational programmes To organise collective sessions, educational programmes are structured by learning modules. A learning module is a set of topics united by a common theme or goal. After structuring the programmes, connections and dependencies between modules are determined. This is necessary to design an educational route for each student.

Mastery of learning material An educational route is a possible path to mastering the curriculum, taking into account each student's abilities, inclinations, and aptitudes. Routes help promptly determine the next topic for studying the educational material.

Self-management in MLGs All students are involved in self-management processes through the organisation of a reflective space. A reflective space is an area where students can discuss their problems, difficulties, needs, etc. The reflective space includes the following elements:

- Permanent squads - small groups of students that function for a long time, have a stable composition, and are formed based on various criteria (desire, common interests, etc. of the participants).
- General assembly - a meeting where general issues of the educational process are discussed.
- Commanders' Council - a meeting of the leaders of the permanent

squads, where the problems and difficulties of each student related to the educational process are discussed.
- Teachers' cooperation - a union of teachers working in the MLG.

Consider the activities of permanent squads and the Commanders' Council. The activities of permanent squads, serving as a kind of platform, include discussion (squad members share their problems and experiences and offer each other support and advice), analysis (the squad jointly analyses problems and develops possible solutions), and planning (the squad can plan activities aimed at solving problems).

The activities of the Commanders' Council include listening (the Council listens to the commanders of the permanent squads as well as teachers), analysis (the Council analyses information about the work of all members of the learning group), problem-solving (the Council makes decisions on issues concerning the learning group), and planning (the Council can plan activities aimed at improving the learning process).

The activities of permanent squads and the Commanders' Council are interrelated: the Council relies on information received from the commanders of the permanent squads, and the decisions made by the Commanders' Council are communicated to the members of the permanent squads.

Thus, the organisation of the educational process in a multi-age group is based on the following principles:

- Structuring educational programmes by learning modules and designing individual educational routes for each student.
- Involving all students in self-management processes through the organisation of a reflective space.
- Forming permanent squads where participants in the educational process can discuss their problems and difficulties, learn to interact with each other, and make decisions.
- Regularly discussing the problems and difficulties of students at the Commanders' Council.
- Monthly meetings of all participants in the educational process to analyse the work of the entire learning group and make decisions for further planning.

These principles aim to create conditions for the comprehensive development of students, their self-realisation, and successful socialisation.

The organisation of collective sessions in MLGs assumes consideration of

the individual characteristics and needs of each student. For this purpose, educational programmes are structured by learning modules, connections and dependencies between modules are determined, and a reflective space is organised where students can discuss their problems and difficulties.

Teachers' cooperation To organise collective learning sessions, the cooperation of teachers is necessary, i.e., a group of teachers who work together on the organisation and conduct of collective learning sessions.

The activities of teachers' cooperation are multi-faceted. On the one hand, it represents a group of teachers performing several functions: instructional (organisation and conduct of learning sessions), organisational (distribution of responsibilities, monitoring the progress of the educational process), managerial (decision-making concerning the work of the cooperation), and methodological (development of methodological materials, analysis of learning outcomes).

On the other hand, cooperation goes beyond the simple distribution of functions among teachers. It involves joint activities, including planning (jointly defining goals, objectives, and content of learning sessions), designing (developing methodology and didactic materials), and reflection (analysing learning outcomes, identifying problems, and determining solutions).

Within the cooperation, three types of teachers are distinguished:

- Duty teacher (learning process technologist), responsible for the overall management of the educational process in the multi-age group.
- Subject specialist teacher, responsible for teaching a specific subject.
- Assistant teacher, assisting the duty teacher and subject specialist in conducting sessions.

Reflection, planning, and activity correction are carried out as needed and can cover different time scales (from analysing a specific session to evaluating the work of the cooperation over a long period), and various aspects (content, methods, forms of teaching, results).

Overall, teachers' cooperation is an effective tool that allows improving the quality of teaching and creating conditions for the development of each student.

Thus, teachers' cooperation plays a significant role in organising and conducting collective learning sessions. It ensures effective teaching, enhances the quality of education, and creates comfortable conditions for the learning and development of students.

These roles ensure effective planning, designing, and conducting collective learning sessions, as well as monitoring learning outcomes and making necessary adjustments.

The innovative experience of teachers in the small rural schools (SRS) of East Kazakhstan and Pavlodar regions demonstrates high efficiency. This is evidenced by the results of monitoring studies of students in MLGs of Pavlodar SRS (Tables 21 and 22).

Table 21- Teacher's cognitive activity assessment

Cognitive Activity	**Academic Year**				
	2016	**2017**	**2018**	**2019**	**2020**
Analysis of the Situation	23%	31%	42%	49%	53%
Goal Setting	25%	33%	45%	54%	61%
Designing Individual Educational Paths (IEP)	29%	49%	64%	79%	90%
Activity Planning	12%	34%	48%	63%	81%
Self-Control and Self-Assessment	52%	63%	71%	93%	99%
Reflection	14%	22%	31%	42%	57%
Ability to Identify the Subject of Communication	19%	28%	41%	48%	54%
Ability to Form Judgments about the Subject of Communication	24%	42%	58%	71%	84%
Ability to Find Arguments and Counterarguments	21%	36%	51%	58%	67%
Ability to Engage in Dialogue	10%	18%	36%	51%	68%
Ability to Defend One's Own Point of View	23%	36%	42%	49%	61%

Table 22 - Teacher's communication skills assessment

Communication Skills	Academic Year				
	2016	2017	2018	2019	2020
Speaks with Understanding	61%	77%	85%	91%	100%
Listens with Understanding	51%	65%	83%	100%	100%
Able to Express Thoughts in Writing	79%	81%	88%	100%	100%
Transforms Information	52%	62%	81%	99%	100%

The experience of small rural schools (SRS) in the East Kazakhstan region (2016-2020) demonstrated a decrease in anxiety levels by 17%, frustration of the need for achievement (an adverse psychological environment preventing children from satisfying their need for success) by 12%, fear of knowledge assessment situations by 8%, and fear of not meeting expected results by 17%.

Overall, the technological process in mixed-age learning groups (MLG) is an innovative approach to organizing education in SRS. It addresses many issues of the traditional educational system and ensures more effective learning and development for students.

Thus, the results of the testing and implementation of the Modular Educational Program for Advanced Training Courses for Teachers of Small Rural Schools (SRS) "Pedagogical Technology of Collective (Interactive) Learning Method in SRS" in the format of distance learning on an online platform showed high effectiveness of the course training.

CONCLUSION

This manual addresses the pressing issue of professional development for teachers in small rural schools (SRS) in the context of distance learning. Based on contemporary scientific research, advanced international experience, and the practical developments of the authors, it offers a comprehensive distance learning system aimed at enhancing the qualifications of SRS educators.

The manual covers a wide range of topics related to the organization and implementation of distance learning for SRS teachers, including theoretical foundations, research methodology, the modular training program, the distance learning model, and approaches to developing video lessons.

Based on the conducted research and experience, the following conclusions and recommendations can be made:

1. **Analysis of Current Trends**: An analysis of current trends in the professional development of rural SRS teachers, in the context of both international and domestic experiences, reveals that despite differences in approaches due to local conditions in various countries, common problems and solutions exist.
2. **Specific Teaching Characteristics**: Specific features of teaching in SRS have been identified, requiring special attention when developing distance learning programs, depending on the teachers' experience, readiness for professional development, and other factors.
3. **Research Methods and Methodologies**: The methods and methodologies used to study the challenges in the professional development of SRS teachers have been described, along with the classifications and characteristics of these challenges derived from quantitative and qualitative data analysis.
4. **Author's Modular Program**: An original modular program for the distance training of SRS teachers has been proposed and tested within the framework of the advanced training courses under the modular educational program "Pedagogical Technology of Collective (Interactive) Learning Method in SRS". The structure and content of the program modules are aimed at mastering modern pedagogical technologies, teaching methods, and the use of information and communication technologies in the educational process.
5. **Distance Learning Model**: A model for organizing the distance learning

process on the Discord platform has been developed and tested, based on scientific and experimental data, featuring video lessons on the YouTube platform created within the modular program.

An analysis of the results of testing the modular program indicates its effectiveness in enhancing the qualifications of SRS teachers.

For further development of the distance learning system for SRS teachers, the following prospective directions can be identified:

1. **Expanding Training Modules**: Expanding the range of offered training modules to meet the current needs and requests of educators.
2. **Interactive Online Courses**: Developing interactive online courses and training sessions to increase the effectiveness of distance learning.
3. **Unified Methodological Database**: Creating a unified methodological database on the issues of distance learning for SRS teachers.
4. **Methodological Support**: Providing methodological support for SRS teachers during the distance learning process.

Implementing these recommendations will further enhance the effectiveness of distance learning for SRS teachers and make it accessible to a broader range of educators.

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