Exposing policy gaps: the experience of Kazakhstan in implementing distance learning during the COVID-19 pandemic

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Abstract

Purpose – The purpose of this study is analysing the experince of Kazakhstan in implementing distance/online learning during pandemic. The COVID-19 pandemic has affected all areas of social and economic life, including education. More than 1.3 billion students worldwide have switched to online/distance learning. In Kazakhstan, more than 6 million active participants in the educational process are navigating this online migration. There is significant criticism of the process among the general population, demanding scholarly investigations into the government's actions.

Design/methodology/approach – This paper examines the re-organization of education in Kazakhstan during the COVID-19 pandemic. Methods to uncover this included an express survey of 31,300 households, in interviews with 65 parents, 15 children, 9 school/college/university administration and teachers and 15 representatives of the Government of Kazakhstan, and in analyses of statistical and regulatory documents.

Findings – This study finds that the government of Kazakhstan has faced significant issues in the transition to distance/online learning due to weak internet infrastructure and a lack of effective interaction with all stakeholders, as well as biased statistical and analytical information.

Originality/value – The pandemic has functioned as a test of government readiness for crisis and has exposed several fault lines where official development policy has been ineffective. While the "gap" between policy and outcome is often attributed to failures in local implementation, the unique factors at play here – an interested citizenry and committed teachers – show that considerably more work has to be put into bringing "best practices" from developed countries to developing ones.

Keywords Kazakhstan, Distance learning, Education system, COVID-19, Pandemic, Government preparedness, Parents' perception

Paper type Research paper

Introduction

The COVID-19 pandemic has caused enormous damage to not only the global economy but also global education systems. More than 100 countries have implemented school closures

nationwide, affecting about 1.3 billion students and youth around the world (UNESCO, 2020).

In response, most countries have switched to distance/online learning in record time. Kazakhstan is no exception. All educational institutions in the country switched to online/distance learning in March 2020 by government decree.

A constant question accompanying reforms in Kazakhstan has been whether execution on the ground will measure up to the drafted and passed policy resolutions outlining what needs to be done. Typically, failure to achieve stated outcomes has been blamed on a lack of micro-readiness to implement policies on the local level, with culprits including a disinterested citizenry, corruption, and incompetent local actors. In response to the distance/online learning, transition in Kazakhstan, similar criticisms were made. However, interviews with parents and other stakeholders challenge this narrative. Reassessing Kazakhstan's reform efforts at the macro level, the research questions therefore shift the burden of proof to national policy in the debate over why desired outcomes are not being met.

Literature review

A policy is often a standing plan pointing to a desired causal chain of events, between initial conditions and desired future consequences (Pressman and Wildavsky, 1973; Houston, 2003).

Anderson (2003) offers that "policies [are] designed to accomplish specified goals or produce definite results, although these are not always achieved". Implementation is the action plan (Winter, 2011a, 2011b, 24). Sabatier and Mazmanian (2005) define implementation as "the carrying out of a basic policy decision, usually incorporated in a statute but which can also take the form of important executive orders or court decisions".

Policies involve two levels of implementation: micro (the local decision-making level) and macro (the central decision-making level). Macro implementation plans can be "ineffective unless they are in accord with the micro level commitments and capacity" (Berman and McLaughlin, 1975). Thus, the effective implementation of policies involves the mutual interaction of a policy with its institutional settings (Berman and McLaughlin, 1975). Kazakhstan's difficulties with reform in a variety of spheres have repeatedly shown a notable gap between desired and retained outcomes, and consistently the problem has been described as the "micro level commitments and capacity" failing to live up to what is otherwise good policy, a research trend with a long multinational history (OECD, 2017; deLeon and deLeon, 2002; Wandersman *et al.*, 2008; O'Toole, 2000; Hill and Hupe, 2003; Saetren, 2005; Winter, 2011a, 2011b; Winter, 2012; Saetren, 2014).

Policies can be a response to change and a source of change (Gornitzka *et al.*, 2005; Jordan and Turnpenny, 2015). Newly independent countries like Kazakhstan have had to create instruments for implementing policy objectives as they go through each novel policymaking process. These instruments are the means of government intervention that may include various regulations, acts, subsidies, taxes, etc. (Salamon, 2002; van Nispen Frans, 2011) (Table 1).

Hooghe and Marks (2001) point out that in policy-making actors move between different levels of action and decision-making is dispersed across multiple structural layers.

Key extents to examine policy implementation are the diversity of the actors engaged in this process and their dynamic interdependence, adaptable learning capacities, the perviousness of context and main triggers motivating change (Nilsen, 2015).

Consequently, research on Kazakhstan has often argued that policy implementation problems are a result of the failure of actors, rather than a problem of the policy itself (OECD, 2017). Studies over the last decade tracking Kazakhstan's progress to theoretically introducing a modern model of distance learning in the country seem to be evidence of good policy being made, but as time went on, ominous signs began to mount.

For example, Sapargaliyev (2012) explored the stages of formation and prospects of e-Learning in Kazakhstan. According to the author, the Kazakh educational community effectively uses information resources and ICT in education. The author claimed that the education system and corporate learning in the country were undergoing a strong government-supported (financially and in implementation) total restructuring in relation to e-Learning.

Nurmukhametov et al. (2015) claimed that the Ministry of Education and Science of Kazakhstan has created a Kazakh educational portal to provide a communication link to the whole population of MES RK as well as providing 100% internet access to all educational organizations as well as the computerization of education. Only a year later, however, in shades of what the pandemic revealed, Dalayeva (2013) discussed the policy of implementing the E-Learning System project in the field of informatization of education at the upper levels of education, including higher schools and higher education institutions. The author pointed out that despite the policy measures, many educational organizations still lacked access to digital learning resources.

Meanwhile, Ibrayeva et al. (2018) examined the experience of the e-learning practice at Al-Farabi Kazakh National University, where authors emphasized the "anytime, anywhere" availability of distance learning process. However, they revealed the problems related to the quality of online courses and the teaching skills; legal problems related to the protection of intellectual property; and financial problems related to the costs of preparing e-courses.

Sun and Chen (2016) then proposed practical suggestions for developing online courses. According to the authors, the primary challenges in online education are developing a sense of community in the online environment through promoting the social presence, interaction, and collaboration. The authors noted that Kazakhstani online education needed well-designed course content with motivated interaction between well-prepared instructor and learners, the creation of a sense of an online learning community and the rapid advancement of technology.

On that note, Daniel (2020) suggested that to increase the capacity to teach remotely, schools and colleges should use asynchronous learning which does not need to deliver material at a fixed time: on-demand access therefore represented an innovation for Kazakhstani education requiring adjustment from both teachers and students.

Policy formulation instruments	Policy implementation instruments
Agenda setting, i.e. defining a problem that needs to be solved or implemented	Introducing the policy objectives
Creating legal base, i.e. various regulations toward policy objectives	Following the rules and legal documents
Budget allocation to implement a policy	Budget distribution\resource allocation
	Creating infrastructure
	Training\education
	Implementation of the policy

Table 1.
Policy instruments

Overall, the literature makes it clear that any gaps between expectation and reality of policy outcomes in Kazakhstan on distance/online learning would be a presented as a failure of the education system, described as "Soviet" by the OECD (2017), to fulfill good policy.

Methodology

To study issues related to the transformation of the educational process in Kazakhstan and analyze the readiness of the government of Kazakhstan for a large-scale transition to online/distance learning, a survey and in-depth interviews were conducted among parents, school/college/university students, administration of educational organizations, the representatives of government agencies in the state and local level, and experts of the education system.

The survey of parents was conducted in April 2020 in all regions of Kazakhstan using a sample of 31300 respondents aged 18 and older. The survey was conducted using the publicly available online tool Google Forms. Respondents aged 26 to 45 were 80.12% of the survey. Most respondents have higher education (43.2%) and/or vocational education (34.3%). Among families surveyed, 20% have two children, 27.1% have three children, and 25.6% have four or more children (Table 2).

The survey consisted of the following main components:

- socio-demographic characteristics of respondents;
- assessment of the education system's readiness for distance/online learning;
- quality assessment of the educational process; and
- challenges faced with providing distance learning at home.

This research mostly focuses on the finding getting from the second component of the survey – assessment of the education system's readiness for distance/online learning.

Along with this, in-depth interviews were conducted with 65 parents, 5 university's students, 5 college's students, and 5 school age children. The interviews were conducted online through zoom, phone and WhatsApp in the Kazakh and Russian languages, spending an average of 45 minutes per respondent.

To study the macro-readiness of the Kazakhstan government to switch to distance/online learning, interviews were conducted with 9 representatives of school/college/university administration and teachers, and 15 representatives of the education system: policy makers and decision makers. The target group was employees, the leadership of the Ministry of Education and Science of the Republic of Kazakhstan, the administration and the education department of local executive bodies of the regional, city and district levels, responsible for distance/online education during the spread of coronavirus infection.

The main purpose of the interview was to examine the government readiness in terms of policy formulation and its implementation.

The use of several research tools and including respondents with different socio-economic and educational statuses makes it possible to more objectively analyze the government's readiness to provide educational services during a pandemic.

Discussion of the data findings

Macro level of government preparedness

In 2019, the education system in the Republic of Kazakhstan included 10 314 organizations of preschool education, 7 393 organizations of general secondary education, 821 organizations of technical and vocational education, and 131 organizations of higher and postgraduate education (IAC, 2019).

CATEGORY	(%)
Gender	
Female	95.7
Male	4.3
Age	
18–25 years old	1.6
26–35 years old	36.6
36–45 years old	44.6
46–55 years old	15.3
56–65 years old	1.8
Above of 65 years old	0.1
Education	
Secondary and High School	19.4
Community College degree	34.3
University bachelor's degree	43.2
University Master program degree	2.6
University PhD program degree	0.5
Age of husband/wife	
18–25 years old	0.4
26–35 years old	23.8
36–45 years old	42.5
46–55 years old	19.6
56–65 years old	3.2
Above of 65 years old	0.2
I do not have husband/wife	10.3
Education of husband/wife	
Secondary and High School	22.9
Community College degree	35.3
University bachelor's degree	30
University Master program degree	1.6
University PhD program degree	0.3
I do not have husband/wife	9.9
Number of children in family	
One	7.9
Two	20
Three	27.1
Four	25.6
Five	12.6
Six	4.7
Seven	2
Language of instruction	
Kazakh	75.9
Russian	16.9
Kazakh and Russian	6.8
English	0.1
Other	0.3

Note: In the analysis some observations will be omitted due to missing values

Kazakhstan has been working systematically, if not always equitably, to digitalize the educational process since well before the pandemic. At the same time, the level of preparedness of the state for the transition to distance/online forms of education also depends on the level of preparedness of educational institutions.

An expert interview showed how distance or online learning was or was not being introduced in Kazakhstan before the pandemic:

"There is a valid normative legal act - these are the rules for organizing the educational process with the use of distance learning technologies (DOT). These rules were adopted in 2015 under number 137, which includes the basic norms for organizing the educational process in universities using DOT. Thus, DOT has been used in universities before the pandemic, but only in certain cases and for certain categories of people." (Policymaker, expert in higher education, MES RK).

"Earlier, distance learning for schoolchildren was not used. It was not even enshrined in legislation. But this is experience. In a short time, in just 33 school days, we have gained tremendous experience. We saw all the pros and cons of distance learning. We saw how to develop this form of education, what is needed for this and in which direction we should move." (Policymaker, expert in school education, MES RK).).

The transition to distance/online education in Kazakhstan associated with the spread of coronavirus infection began from the moment of the announcement of the Decree of the President of the Republic of Kazakhstan on March 15, 2020 No. 285 "On the introduction of a state of emergency in the Republic of Kazakhstan".

In turn, the Ministry of Education, within a short time (within a week) after the declaration of the state of emergency, formed a working group (project team), which included both education workers and independent experts.

In Kazakhstan, higher educational institutions (hereinafter referred to as the university) and colleges switched to distance learning from March 16, 2020, and secondary education schools from April 6, 2020.

It turned out that 90%–95% of universities already had information platforms for organizing education in a distance format (more than 560 thousand students). The situation with colleges was a little more complicated (over 470 thousand students), but still made in a timely manner.

In general, secondary schools were ready for the transition to a new format of education, since earlier, as the respondents noted, 94% of schools over the past three years used the distance learning format in terms of the use of information programs, mainly the dominant Kundelik platform:

First, the pandemic came as a surprise to many countries. More than 190 countries have switched, and several million children have switched to distance learning. It was a great test for everyone, not excluding Kazakhstan. In a short time - within a week, we formed a project group, which included employees and management of the Ministry, IT companies, independent experts, and teachers. Such work was carried out, firstly, an analysis was carried out on what we have, what opportunities there are in Kazakhstan, including the coverage of the Internet, the readiness of educational institutions for distance learning [. . .] ". (Policymaker, expert in school, vocational and higher education, MES RK).

"It should be noted here that, overall, the schools were ready, and for three years now, the forms of distance learning in secondary education, in principle, have been applied. This is because for the third year now we have 94% of schools in Kazakhstan, and this is 3 million schoolchildren and 335 thousand teachers, they are covered by the Kundelik system, this is the dominant system.

In principle, homework was exchanged through this system [. . .].". (Policymaker, expert in school, vocational and higher education, MES RK).

Moreover, experts noted the high level of participation of all stakeholders and interaction with the international community.

The respondents note difficulties with the quality and access to the internet in many remote regions of Kazakhstan. That is, in this case, in practice, the online mode was not used.

At the same time, the Ministry carried out work on interaction with all stakeholders (mobile operators, television and radio companies, IT companies, etc.) in education and on organizing joint work in a difficult time for the country. The Ministry organized various training webinars for students and teachers with the participation of highly qualified Kazakh and foreign experts.

At the national level, interactions were carried out with educational institutions on a weekly basis through videoconferences to resolve emerging issues on distance/online education:

"The Ministry, as an authorized body, has done a good job with all participants in the educational process. [. . .] The ministry provided assistance in organizing various webinars on distance and online education with the invitation of experts who could share their experience in the application and implementation of DOT. There were also workshops for representatives of DOT systems in education [. . .] But in general, we had webinars every week." (Policymaker, expert in higher education, MES RK).

"We knew that not all children have computers and not all localities have Internet, high-quality Internet, and we filmed lessons and reported them through television. [. . .] There are about 1200 settlements without television, this is about 8000 students, for such children we passed assignments through Kazpost. [. . .] Nevertheless, some schools studied as usual, with somewhere between 450 and 25,000 pupils, these are small schools with as few as 5-8 children. " (Policymaker, expert in school, vocational and higher education, MES RK).

As noted earlier, the Ministry organized work to provide free access to educational information platforms and funds for the purchase of computer equipment presented freely to needy students and teachers (in total, about 170 thousand devices and 20 thousand routers/modems).

And, the local executive authorities organized special points, maintaining all the necessary sanitary conditions with providing access to the internet and a computer for students who had problems with access to information technologies.

For instance:

In order to provide teachers and students with equipment, computers were distributed for temporary use and equipment was additionally purchased" (Policymaker at the local administration of the Saryarka district of Astana).

"As far as I know, everyone here worked together on this issue. If there was no Internet, the delivery of tasks was carried out via mail [. . .] somewhere they bought locally, somewhere they transferred computers and routers for use" (Policymaker, expert in higher education, MES RK).

Meanwhile in the macro level we also consider teachers' competencies to provide educational services in the distance format. The research shows that the information and communication skills of teachers are key indicators in the integration of ICT technologies in the educational process (Almerich *et al.*, 2016). Moreover, ICT competencies help teachers to enrich their teaching portfolio and introduce new approaches to teaching practice (Ertmer and Ottenbreit-Leftwich, 2010).

According to a state program for the development of education, adopted in 2005, 90% of Kazakhstan's teachers (a total of 338,755 people) had to be trained on how to use ICT in the educational process by 2020. Between 2007 and 2009, a program for the development of computer literacy among teachers was adopted (IAC, 2019).

From 2012 to 2014, within the framework of the professional development course, "ICT competence of teachers based on the introduction of e-learning system of educational organizations", 24,000 teachers distributed around the country improved their ICT competency. Secondary school teachers in Nur-Sultan made up the smallest part of participants of advanced training courses in ICT (722 people) (IAC, 2019). More modestly, in 2015, only 9% of teachers completed the relevant training courses (OECD, 2015), and in 2018, 15,050 or 4% of teachers were trained in e-learning (KazInform, 2018).

According to the results of the expert interview, the experts noted that there was a weak information and communication competence in some teachers, mainly of the older generation. Also noticed was a lack of competence in the preparation of online resources for training programs within distance learning.

For instance:

> But, here, to be honest, our teachers undergo advanced training and retraining courses in their subjects every five years. But since we did not have courses specifically for distance learning [. . .] in the future it is necessary for our teachers throughout the republic to take distance learning courses. This is our desire. " (Policymaker at the local executive administration, Karaganda region).

> "It was difficult at first. We were a little agitated, but already in the second week it was clear that each teacher was clearly prepared. " (Teacher, Nursultan)

According to surveyed parents, 28.42% of respondents rated the overall level of professional competence of teachers during distance/online learning as average, while over 70% of respondents were generally satisfied with the quality of teaching (Figure 1).

The majority of respondents (about 68%) were also satisfied with the level of teachers' information and communication skills (Figure 2). The study here suggests that the teaching staff had been pre-trained to conduct online or distance learning.

The study has further determined the level of satisfaction of parents with the quality of distance/online education provided on a 10-point scale. As the results shows, 50.9% of respondents were not completely satisfied (Figure 3):
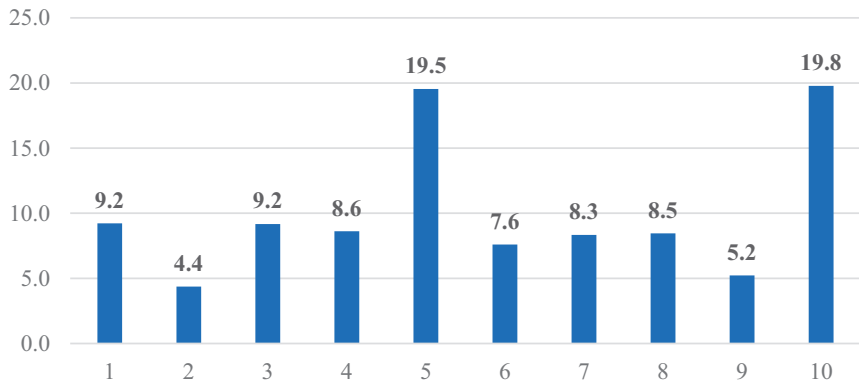

Figure 1.
Assessment of the readiness of the government and local executive bodies to switch to distance online training
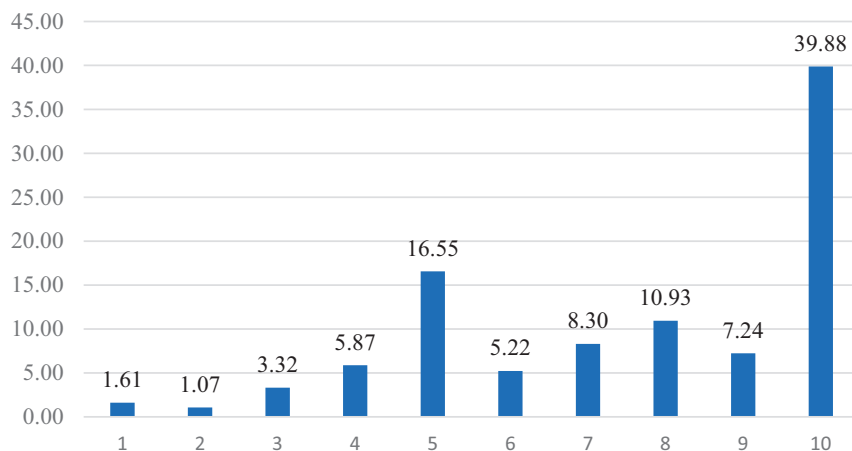
Figure 2.
Assessment of the
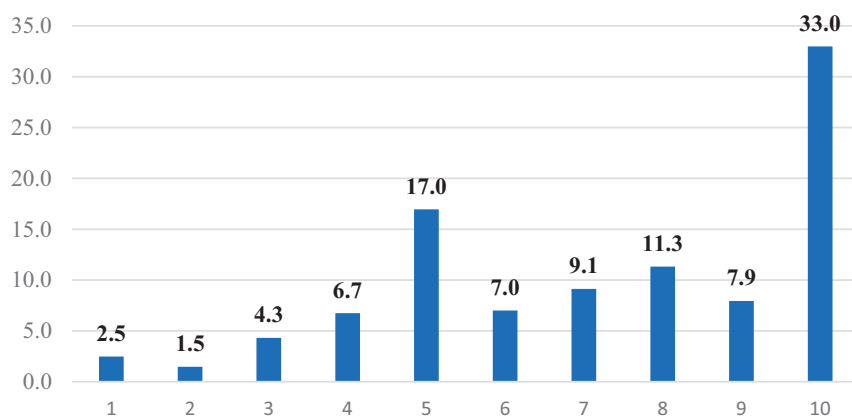general level of
teachers' competence

Figure 3.
How do you evaluate
the level of
information and
communication
competencies of
teachers?

"A child doesn't have time to perform 5 exercises within 30 minutes. Four to five classes are held per day from 8am until 4pm. Time and anxiety is taken from the child and mother, and other children are left without attention" (Woman, 37 years old, West Kazakhstan region)

When evaluating the content of educational tasks during the pandemic, 69.1% of respondents indicated that they were satisfied with their children's educational content, while 30.9% were dissatisfied:

"There are too many homework tasks that could be done selectively. Due to the fact that the classwork and homework are done at home, the tasks turn into homework[. . .] it is reasonable to reduce the number of homework assignments."(Female, 40 years old, Karaganda region)

One of the objectives of government policy was to prepare teachers, parents, and students for the transition to distance/online learning. Four difficulties included internet access, access to computers, IT skills, and psychological stress caused by the lockdown.

For instance:

"Probably, it should be noted two main, big problems that we faced, this is the lack of technology among teachers and schoolchildren. And they have no Internet [. . .] " (Policymaker in secondary and higher education, MES RK).

The systematic work of educational authorities to digitalize the country's education system for many years should have helped facilitate a painless transition to distance learning.

However, our survey results show that 50.9% of parents are not satisfied with the readiness of the government and local executive bodies to switch to distance/online learning (Figure 4).

However, despite dissatisfaction with the government's readiness to switch to distance/online education, the majority of respondents (52.5%) believe that the Ministry of Education and Science made the right decision to switch to this format of education, taking public health concerns into account.

The micro-level of preparedness of the education system

Since distance learning during the COVID-19 pandemic is carried out at home, the micro-level of distance learning implementation refers to Kazakhstani families.

Thus, according to the survey results, during the COVID-19 pandemic, the majority of Kazakhstani schools (about 97% in the context of study participants) switched to distance and online education (Figure 5).

According to the data, the most actively used technology among Kazakhstani students during distance/online learning is smartphone-45.91%, TV and smartphone - 31.99% (Figure 6).

According to state policy, the educational process can be carried out through television lessons (Kazakhstan Today, 2020). However, each Kazakhstani family has an average of two school-aged children (Figure 7), which implies the need for at least of two usable devices.

The study thus indicates that not all families in Kazakhstan were ready to switch to distance/online learning, primarily due to a lack of information and technical resources (Figure 6).
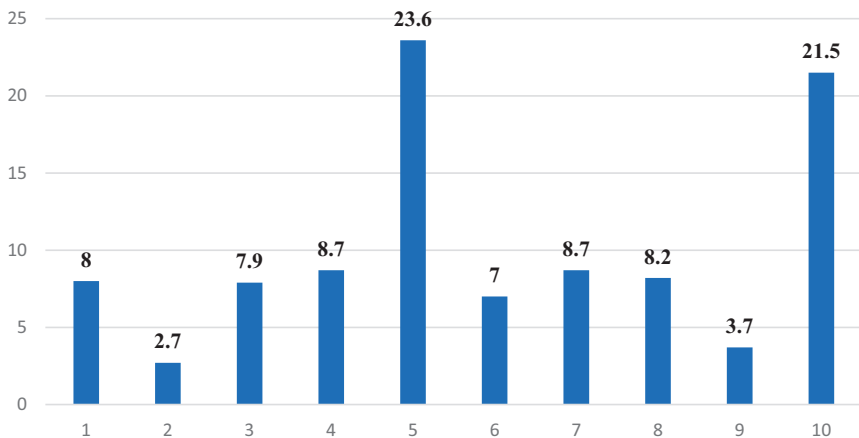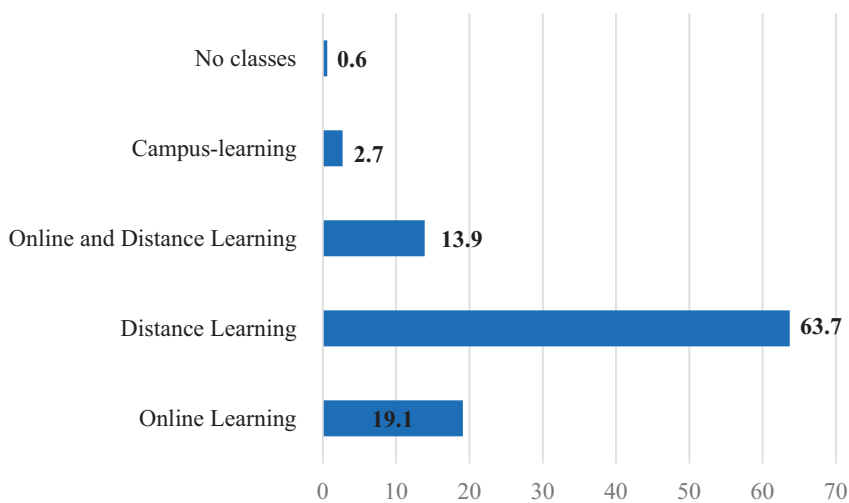
Interviews with parents supported this further:

Figure 4.
Satisfaction with the quality of education provided in distance/online format

No classes | 0.6
Campus-learning | 2.7
Online and Distance Learning | 13.9
Distance Learning | 63.7
Online Learning | 19.1

0   10   20   30   40   50   60   70

Figure 5.
Delivery mode

Nothing | 0.27
All of the above | 8.35
Laptop and cell phone | 8.24
TV and Cell phone | 31.99
Laptop and TV | 1.69
TV only | 0.80
Cell phone only | 45.91
Laptop / Computer only | 2.75

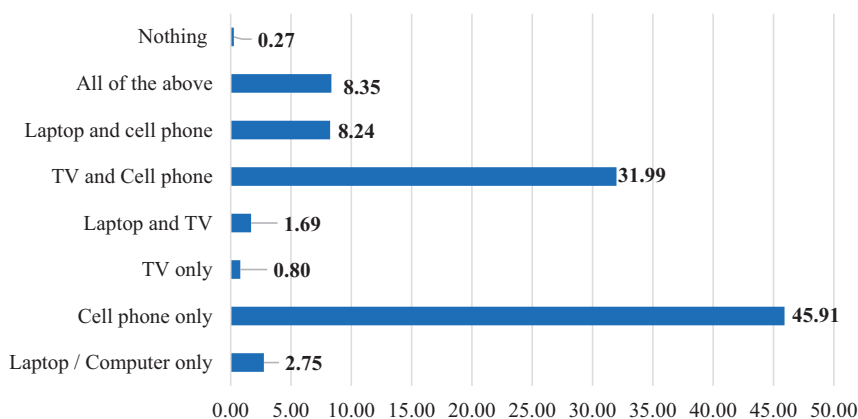0.00   5.00   10.00   15.00   20.00   25.00   30.00   35.00   40.00   45.00   50.00

Figure 6.
Technologies used in
distance/online
learning

"How is it possible to study through phone. Eyes can break. It is just awful" (Woman, 39 years old, Kostanay region).

To further explore, the study covered the range of difficulties faced by Kazakhstani parents during distance/online learning at home (Figure 8). The Ministry of Education and Science had previously confirmed the inability of internet access in Kazakhstan to use online learning with extensive multimedia resources (Tengrinews.kz, 2020). This imposes a significant burden on parents in addition to the need to monitor the progress of children's education, as well as to provide academic assistance with learning new content.

Interpretation of findings
In this study, the government's decisions are considered as macro-level solutions for implementing distance learning in Kazakhstan in the context of a pandemic. This includes systematic measures for the informational support of education as the main condition for the

Figure 7.
Number of children
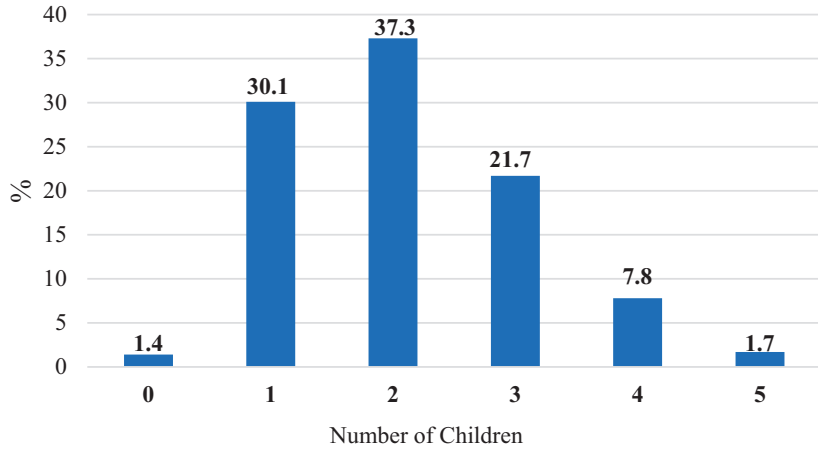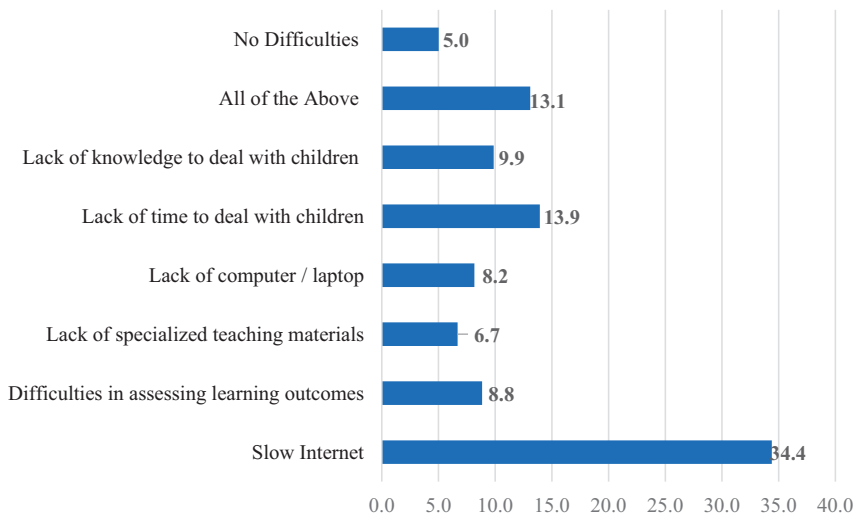studying at school

Figure 8.
Difficulties in the
process of distance/
online learning

transition to online learning. According to Kazakh researchers, the Kazakh government supposedly had enough experience in facilitating the online/distance learning (Nurmukhametov *et al.*, 2015; Dalayeva, 2013; Ibrayeva *et al.*, 2018). However, as the current study reveals, distance learning in the country was used mainly in the higher education system and in the case of those who have special education needs, and the system was not prepared to handle a mass expansion.

The analysis of the activities carried out by the government, including the Ministry of Education and Science of Kazakhstan, indicates that there were no systematic approaches to the implementation of the tasks set toward distance/online learning during the pandemic. Teachers were enthusiastic to teach children but were often unable to satisfy parents.

Indeed, the results of the current study show that measures to improve computer literacy among parents were not carried out. Preparing parents to the distance/online learning could increase their general awareness of the prerequisites for learning using information and communication technologies. Low computer literacy cannot be blamed on parents' lack of interest when the education of their child is at stake; the policy implementation instruments should therefore include not only formation of legislation base but also procedural tools such as education, training, provision of information and public hearings (Howlett, 2000; Salamon, 2002; van Nispen Frans, 2011).

Global best practices suggest providing children from low-income families with laptops and internet at the expense of schools or local governments. It should be noted that the current student to computer ratio in the country is 10:1 (IAC, 2020), the official goal is set at one to one (OECD, 2015). Doing this step, however, requires keeping track of laptops to make sure they are given to people truly in need, and then used for education and not resold, a separate policy apparatus. Teachers may not be a helpful source for this knowledge, as respondents noted that teachers were given little time to even analyze new material and lessons are held in an accelerated mode, which affected the level of students' learning outcomes.

Policy formulation should include all interested stakeholders. Instruments for implementing policy goals include numerous procedural tools such as training, resource allocation, provision of information and public hearings (Howlett, 2000; Salamon, 2002; van Nispen Frans, 2011). Over 50% of respondents of this study are not satisfied with the readiness of the government and local executive bodies to switch to distance/online learning, this points to the need of involving parents in the decision-making process for the transition to distance learning, since parents are best equipped to assess their family's readiness to provide children with home-based education during a pandemic.

Conclusion

The results of this study show that the process of transition to distance/online learning in Kazakhstan require targeted sociological research to be conducted on what the capabilities of local actors are to implement policy regardless of their motivation.

During the transition to distance/online learning in Kazakhstan, the vulnerable groups of students from large families, disadvantaged rural regions and remote localities should have to be at the forefront of policy measures. This is not just because they need the most help, but also because they are the least equipped to carry out the policy measures successfully.

According to the results of the study, the official information on providing regional schools with broadband internet (99%), high-quality computers (10:1) and with the access to online/offline platforms during the pandemic has turned out to be not fully reflective. Corruption has not been found to be a cause of this.

However, despite the budget allocation for the purchase of computer equipment at the local level, only about 170 thousand computer equipment have been distributed. As a result, most students use smartphones (45.91%) in distance/online learning. As this is investigated, it is nevertheless more worrying that parents were mainly excluded from decision-making process on distance/online learning. Most families in Kazakhstan with school aged children have faced serious challenges in equipping their kids with computers (or laptops) and internet connection.

Ultimately, while formulating a new policy it is necessary to set up effective policy instruments that take into account what can be realistically accomplished. None of the problems that beset the transition were unpredictable, but policies did not take into account the situation on the ground and then were not presented to the public with a clear picture of

likely outcomes. In a situation that had massive buy-in and significant public interest, people were dissatisfied. Policy formulation must be able to take place in a world where micro-readiness is accurately understood from the start, not only in post-mortems.

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