

The Relationship Between the Use of New Technologies and Tools and the Academic Achievement of Elementary School Students

E.Yu. Kardanova, E.V. Panasenko & E.I. Braginets

To cite this article: E.Yu. Kardanova, E.V. Panasenko & E.I. Braginets (2018) The Relationship Between the Use of New Technologies and Tools and the Academic Achievement of Elementary School Students, *Russian Education & Society*, 60:6, 477-495, DOI: [10.1080/10609393.2018.1527126](https://doi.org/10.1080/10609393.2018.1527126)

To link to this article: <https://doi.org/10.1080/10609393.2018.1527126>



Published online: 03 Dec 2018.



Submit your article to this journal [↗](#)



View Crossmark data [↗](#)



E.YU. KARDANOVA, E.V. PANASENKO AND
E.I. BRAGINETS

The Relationship Between the Use of New Technologies and Tools and the Academic Achievement of Elementary School Students

The article describes how the iPIPS instrument was used to measure the school-entry ability of first-graders and their academic progress over the course of their first year in school in the city of Sevastopol.

English translation © 2018 Taylor & Francis Group, LLC, from the Russian text © 2017 “Kachestvo obrazovaniia v Evrazii.” “Sviaz’ ispol’zovaniia novykh tekhnologii i sredstv obucheniia s dostizheniiami obuchaiushchikhsia v nachal’noi shkole,” Kachestvo obrazovaniia v Evrazii, 2017, pp. 81–96. Translated by Kenneth Cargill.

Elena Yurievna Kardanova, Academic Supervisor of the Center for Monitoring the Quality in Education, Institute of Education, National Research University Higher School of Economics, candidate of physical and mathematical sciences, associate professor. E-mail: ekardanova@hse.ru.

Evgenia Vasilievna Panasenکو, Deputy Director of educational administration and head of the Department of K–11 Education and Boarding Schools, Department of Education, City of Sevastopol. E-mail: zhpanasenkp@gmail.com

Ekaterina Igorevna Braginets, research assistant, Center for Monitoring the Quality in Education, Institute of Education, National Research University Higher School of Economics. E-mail: ebraginets@hse.ru

This research paper uses the results of the “Predicting the Success of Children’s Education in the Elementary School System” project, which was supported by a grant from the Russian Science Foundation: “To enable individual scientific groups to conduct basic and exploratory research” No 16-18-10401.

This study provided a source of objective information for making considered policy decisions in the education sector. We present the results of our assessment of the effectiveness of the technological equipment that was provided to schools under the Modernization of Regional Education Systems (MRSO) project. A total of 655 students at schools that received this equipment participated in the study. We were able to determine that the equipment that was delivered did nothing to boost academic achievement. We conducted a qualitative study to interpret the obtained results. Based on this analysis, we were able to identify potential reasons why interactive learning tools are inadequately effective.

Introduction

After the absorption of the Republic of Crimea and the city of Sevastopol by the Russian Federation, schools in the region began the process of updating their facilities and resources and purchasing new equipment.

It should be pointed out that during the last twenty years little was done to update school facilities and resources, and the updates that were accomplished were largely achieved thanks to parental contributions. The updates that were made were not guided by any consistently applied and unified underlying strategy.

Serious changes to the regional educational system that are aimed at increasing the quality of education began in 2014. In particular, Sevastopol city schools participated in a program to modernize the regional educational system (MRSO). Under the MRSO program, elementary schools in Sevastopol were given interactive whiteboards and dynamic teaching aids (number fans, study cards, puzzles, assembly kits, etc.).

The regional education system development concept lays the foundation for the development of a long-term and comprehensive educational policy for Sevastopol, which is a city of federal significance. Therefore, administrators must assess the potential and shortcomings of the electronic teaching aids and dynamic school supplies that have been purchased. They also must

determine the trajectory of the further modernization of the regional education system while taking into account the previous experience.

To solve a number of administrative tasks facing the Department of Education of the City of Sevastopol, a decision was made to conduct a monitoring study that was designed to reveal the relationship between the use of new technologies and teaching aids (e-learning tools and dynamic classroom supplies) and the academic achievements of elementary school students. The iPIPS instrument was selected to assess the educational attainment of first-graders. We used it to measure the initial aptitude of first-graders and to assess their progress during their first year at school.

It is important to introduce innovative processes in elementary school, since the first stage of schooling sets the foundation for the entire education system. The use of new information technologies in elementary education makes it possible for a creative teacher not only to expand the range of ways of presenting lessons, but also to change the educational process itself by making it more interesting for students. The educational monitoring study is an instrument that can be used to track how innovative activity impacts the quality of education [1]. However, the success of any adopted school educational policy is determined not only by the school's facilities and resources, but also by the attitude that teachers take to the implemented changes [2]. Thus, foreign studies have noted that teachers prefer innovations to be introduced gradually [6]. They have also shown that if teachers fail to be properly trained in how to correctly use technological equipment (including in particular interactive whiteboards), then this will limit how much they use the equipment and whether they use it properly [5]. Technologies by themselves cannot solve teaching problems.

Because of this it was decided to supplement the quantitative monitoring study of first-graders with a qualitative study. To study the level of preparedness of teachers to use new equipment and their attitude towards innovation, we

conducted an interview with all the teachers in Sevastopol who use equipment supplied under the MRSO project and who participated in the iPIPS monitoring study.

Thus, to determine how new technologies should be introduced into the educational process, we studied the connection between the use of new technologies and teaching aids and the academic achievements of first-graders in Sevastopol. We also explored the attitudes and motivations of teachers towards classroom innovations.

Study framework

The main hypothesis of the study was that the use of new technologies and teaching aids (e-learning tools and dynamic school supplies) would have a positive effect on the academic achievements of students. During the course of the study, we formulated an additional hypothesis that continuing education courses for teachers that are designed to increase their information-communication technology skills have been insufficiently effective, and teachers use only either some or even none of the skills that they learned in these courses in the classroom.

Therefore, we also performed a qualitative study, or a formalized survey of all first-grade teachers who participated in the study, and we also conducted interviews with the teachers. Third parties were sought out to conduct interviews with the teachers in order to increase the reliability of the responses.

The study methodology involved analyzing the test results of students both at the beginning and the end of the first grade, and it also utilized mathematical statistical methods to study the effect of using new learning tools on the individual progress of learners while controlling for other variables (school type, teacher qualifications, etc.).

The study of first-graders was conducted in October 2015 (initial assessment of the aptitude of first graders) and in May 2016 (assessment of individual progress over the course of the first year of study and the qualitative study).

Sample description

To conduct the iPIPS monitoring study in Sevastopol, a representative sample of first-grade students was compiled based on data from the city's Department of Education. The sample was stratified on the basis of school type (public K–11 school, gymnasium, or specialized school) and school location (city district). The sample unit was the class, which was selected randomly from among all of the first-grade classes at the school. The number of classes that were selected at each school depended on the school's size.

A total of 1,281 students from 21 schools in the city were studied. One to five first-grade classes at each school participated in the study. A total of 58 classes were studied. The average age of the children at the start of school is 7.2 (SD = 0.36), and 48 percent of first-graders are girls. More than 97 percent of children speak Russian at home.

Only those schools that participated in the MRSO project were selected, meaning a total of nine schools. The selected schools have first grade classes that both received and did not receive equipment under the project. Both those and others were selected to participate in the study.

There were 655 first-grade students at the schools that took part in the iPIPS study. Thus, we assume that they were aligned according to socio-economic status and teacher characteristics, because the equipment was randomly distributed among classes.

Instrument description

The present study used the iPIPS instrument [4] to perform a baseline assessment of first-graders and measure their individual progress during the first year of schooling. This instrument allows us to estimate the child's starting position and observe his or her learning progress in several fundamental areas: mathematics, reading, and phonological literacy on the basis of an assessment of student progress during the first year in school. In addition to subject skills, the instrument allowed us to assess

the child's social and emotional development as well as behavioral characteristics. Our assessment also took advantage of contextual information about the conditions under which the child developed prior to enrolling in school, the characteristics of the child's family, the parents' child-raising practices, as well as the characteristics of the school educational environment.

The iPIPS instrument is based upon computer-aided adaptive testing. The assessment is performed in the form of a game with the help of an interviewer, which allows each child to be assessed in the most generous way and with the highest degree of accuracy. The iPIPS instrument was developed by the Institute of Education of the National Research University Higher School of Economics in cooperation with Durham University (United Kingdom). The studies that have been completed with this instrument attest to its high quality [3]. The ability of the tool to assess a student's progress can be utilized not only by teachers, school psychologists and researchers, but also by school and regional administrators. The results of this study have provided us with the necessary information to assess the reforms and innovations that have been carried out in the school.

The present study used the cognitive component of the iPIPS instrument, which consists of several sets of tasks:

- Writing
- Vocabulary
- Phonological component, which consists of the following tasks:
 - A. Word repetition
 - B. Finding the rhythm from the proposed set of words
- Reading comprehension:
 - A. Understanding the structure of the text
 - B. Knowledge of letters
 - C. Reading words (grasping the graphical outline of a word)
- Reading a short story (decoding a text)
 - D. Reading for comprehension
- Understanding of mathematics:

- A. Counting
- B. Addition and subtraction (supported by subject material)
- Number recognition
- C. Math problems
- D. Problems with a broader context

Thus, the baseline assessment gives us a very specific idea of the kinds of learning skills that each child possesses at the start of school, and the final assessment at the end of the first grade allows us to assess the individual progress that each child had made after the first year of schooling.

Study results

Connection between the academic achievements of first-graders and the use of equipment that was provided under the MRSO project

The goal of our study was to characterize the relationship between the use of new technologies and teaching tools (electronic teaching tools and dynamic teaching aids) and the academic achievements of first-graders in Sevastopol.

Figure 1 presents scores in reading at the beginning and end of the academic year in the classes at regional schools that were included in the study. The classes were all divided into two groups: classes that received equipment and classes that did not. The “antennae” extending from each box (the elongated rectangle in the figure) indicate the range of reading scores (from the minimum to the maximum) obtained in each group of classes. The horizontal bar in each box indicates the median (where 50 percent of students have a score below this bar). A total of 25 percent of the students fall below the box, whereas 25 percent can be found above it.

Our analysis of the figures as well as our statistical analysis have allowed us to conclude that the average reading levels of first-graders do not differ depending on whether they are enrolled in classes with or without equipment. There is no correlation at either the beginning or the end of the first grade.

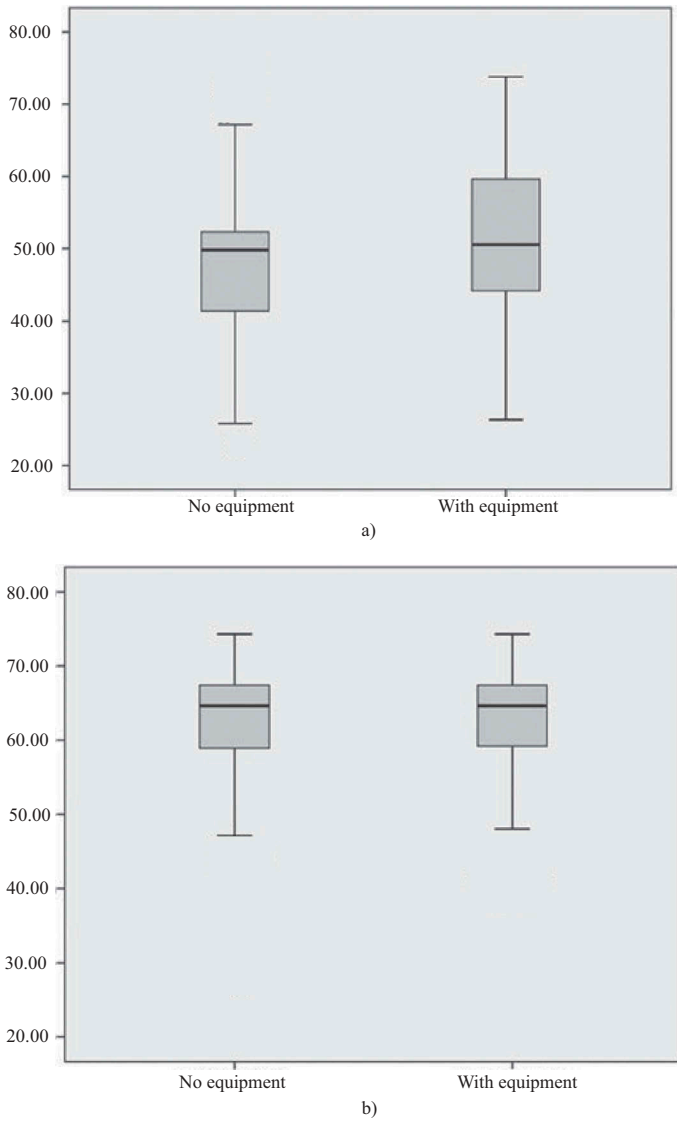


Figure 1. Reading Scores of Students Enrolled in Classes With and Without Equipment: a – Fall, b – Spring

It can be seen that the initial scores of the children enrolled in the classes with equipment are widely dispersed and that there are a large number of children who were highly prepared to start school. However, by the end of the first grade this observation no longer obtains: the reading scores of children at the end of the first grade show no correlation with enrollment in a class with equipment. Thus, we can conclude that the children enrolled in the group that did not receive equipment under the MRSO project made the same academic progress in their reading skills as children who learned in classrooms using equipment. A similar situation can be observed when it comes to mathematics.

Teachers were also surveyed, and as a result we were able to obtain information on the availability of equipment in the classroom, how this equipment is configured, and how much it is used in class and during after-school activities. We were able to identify four groups of teachers as a result of an analysis of the survey results:

1. Teachers who use interactive whiteboards and dynamic teaching aids during class.
2. Teachers who only use dynamic teaching aids in class.
3. Teachers who only use interactive whiteboards in class.
4. Teachers who use neither interactive whiteboards nor dynamic teaching aids during class.

A comparative analysis of the academic progress that children from each of these groups made in reading did not reveal any statistically significant differences. Thus, 15 percent of the classes in the first, second, and fourth groups demonstrated indicators of individual progress in reading that are higher than average for the city. The third group turned out to be very small, and thus it was removed from the statistical analysis. It is clear that progress is not correlated with whether equipment (interactive whiteboards and dynamic teaching aids) is present in the classroom.

A total of 15 percent of the classes in the second group demonstrated indicators of individual progress in mathematics

that are higher than average for the city. The figures were 18 percent and nine percent for the classes in the second and fourth groups, respectively. We expected that students would be able to learn faster from those teachers who use interactive whiteboards and/or dynamic teaching aids than from those teachers who work traditionally with chalk and blackboards.

The ambiguity of the results prompted us to conduct an additional study (interviewing teachers) whose purpose was to test the hypothesis that teachers did not receive sufficient training in how to work with information and communication technologies and that teachers did not fully use the skills that they acquired in continuing education courses.

Study of teacher opinion about how equipment that was provided as part of the MRSO project should be used

We conducted semi-structured interviews with teachers who work with equipment that was provided under the MRSO project. The interviews were conducted in May 2016, that is, at the end of the first grade. All 14 teachers from the first grades that participated in the iPIPS study and whose classes were provided with equipment as part of the MRSO project were interviewed.

During the interviews, teachers were asked questions that were designed to ascertain how they conduct their classes, create lesson plans, and use equipment. The interviews also included questions that sought to gauge the personal feelings of teachers about teaching with the use of equipment. One set of questions was designed to study the effect of continuing education courses on how teachers work with supplied equipment. Finally, teachers were asked about the problems and difficulties that they encountered when using the MRSO equipment.

The use of interactive whiteboards

During the interviews, the teachers were asked to describe how they conduct a typical lesson with the use of an interactive whiteboard. All of the teachers noted that they could use interactive whiteboards at any stage of the lesson: for explanations,

reinforcement, and assessment of learning. In addition, several teachers noted that they use an interactive whiteboard in order to make the covered material seem more relevant.

I use an interactive whiteboard at various stages of the lesson. I use it at the very beginning in order to draw the children's attention to the lesson topic, to describe the problem situation, and to show an illustration or an excerpt from a fairy tale. This immediately spurs the children's interest and attracts their attention. Even children who are easily distracted, who have a hard time paying attention in class, are immediately captivated. They reach for their pen to answer . . . I use it at various stages of the lesson. The children always find it interesting when I use the whiteboard to test their knowledge. They really like it. They always want to touch it in order to find out if they are right or wrong. The children are all elated when they find out that they are right. (Interview with teacher no. 1)

I use it most often when I am covering a new topic. The board's speaker can talk, and it can change the tone of its voice. This feature can help to eliminate the monotony that can bore children to tears . . . I can turn it on several times during the lesson. I intersperse using it with my own assignments. Finally, I assign a particular exercise to reinforce the covered material. (Interview with teacher no. 3)

We were able to identify the various methods that teachers use to present course material with interactive whiteboards as a result of our interviews. They can conditionally be divided into three groups:

The teacher only uses the materials that came with the textbooks:

“We have teachers at the school who like to use additional teaching aids. I do not consider this to be necessary. I do not see the need for them. I think that it is possible to work with the included materials.” (Interview with teacher no. 3)

The teacher uses the materials that came with the textbooks together with additional materials from the Internet (while partially adapting them for use in class):

Yes, of course, we periodically find materials to use in class on the Internet. We could never do without them. We assemble the lesson plans ourselves. I go to the Internet every time I want to show the children something new or to supplement the lesson. It may be something that you've already used before with other classes or some new ready-made resources. We often use the prepared materials, and we supplement them with other information for the sake of variety. (Interview with teacher no. 5)

The teacher uses the materials that came with the textbooks together with additional materials from the Internet (while partially modifying them for use in class). The teacher also creates his or her own content for use during lessons:

First of all, we have interactive teaching aids. They supplement the use of the interactive whiteboard. They are very interesting. They really help us out in all subjects. And, of course, thanks to the continuing education courses, we were able to learn how to create flip charts. We experiment, we study, and we watch videos on the Internet. (Interview with teacher no. 1)

At the time when the interactive whiteboards were purchased, it was supposed that they could be used to make a positive impact on student motivation, because the whiteboards come with enough functions to present lessons in the form of a game. Practically all of the teachers that participated in the survey agreed that the use of the interactive whiteboard made children more interested in studying the material:

It is more interesting talking to children in their language . . . It really helps the teacher out in the classroom. It spurs student motivation, which leads to a result. The process itself is very interesting . . . And what we are observing is a great deal of interest on the part of the students, of course. The children find it interesting. It relieves the monotony. It introduces variety, which is something that this age group requires. It provides a way of switching between types of activities. And, of course, there is a difference. The interactive whiteboard allows you to address the boredom that children in this age group are prone

to. It also stirs their interest, and it provides you with a way to give them something new . . . (Interview with teacher no. 2)

According to the responses that we received, the interactive whiteboard is used by teachers during group or individual work or for assignments that are done in pairs:

I use it both for group and individual work as well as for work that is done in pairs. I use it to create presentations and to perform various movements on the board. The material is more interesting when it is presented on an interactive whiteboard as opposed to a chalkboard. The students are happy to come up to it, write on it, and study the cards. They often ask: "We want to work some more on it. We weren't able to finish." They find it simply delightful. (Interview with teacher no. 2)

During the interviews, it was discovered that almost all of the teachers came to the conclusion that when they use the interactive whiteboard during the lesson, the children who are more hyperactive and the children with an attention deficit disorder are able to focus on the material much more easily than during traditional presentations.

You should understand that the children are able to focus better when presentations are made using the interactive whiteboard. They settle down to doing their schoolwork, and they finally start thinking about the assignment without getting distracted. Therefore, the interactive whiteboard has a positive influence. It helps the teacher calm hyperactive children down. (Interview with teacher no. 5)

There is one particular boy in our classes. He has a certain psychiatric disorder. He does not follow the lessons in class. Sometimes he writes and at other times he does not. But now he always does his class work. He stands straight up and walks to the whiteboard. He asks, "May I?" (Interview with teacher no. 6)

In one of the schools in the suburbs of Sevastopol, one of the interviewed teachers uses the interactive whiteboard for additional and individual assignments. She works with a child who

has physical disabilities (physical impairment of the arms and legs). In this case, it can be assumed that use of the interactive whiteboard can improve the quality of education for children with disabilities.

A separate set of interview questions was devoted to the process of training teachers in how to use the interactive whiteboard during lessons. An analysis of the interview responses showed that not all teachers attended this training. This happened for various reasons: "I came off maternity leave (I started work in August, and the training courses were in June)," "I was hired after the courses took place," etc. To learn how to use the board, these teachers consulted with teachers who had taken the courses and found information on the Internet, including on special websites and online teacher communities: "I did not complete the training, but I was able to train myself with the help my colleagues who had completed the continuing education courses. We sat together like students attending courses in a classroom, and they told and showed me everything" (Interview with teacher no. 5).

During the interviews, the teachers were asked about the format of the training and whether they thought that the courses they attended were effective. Most of the teachers noted that they found the courses to be useful. They helped them to feel less nervous about using the interactive whiteboard. The courses allowed them to study many of the whiteboard functions. However, the practical exercises that were covered in the courses were insufficient. Several teachers shared their impressions from attending open master classes that were organized by the Sevastopol Center for Teacher Training at one of the gymnasiums in the city. According to them, the practice that they received in these master classes was more useful and relevant. Two of the teachers at one of the schools drew attention to the fact that the courses were poorly timed:

I must admit that I have a hard time remembering what was taught in the courses. You might ask why that is the case? The courses were held around the time when the whiteboards were first delivered, but at that point they had yet to be installed in

our school. So it turned out that they were lecturing us about something that we could not see, touch or understand. Of course, we had read about them on the Internet. We had been shown them. But we were unable to try them in practice or to press the buttons. Therefore, it was a bit difficult to study this way, and I was not able to retain everything that I heard. If everything had been arranged in the reverse order (the whiteboards first and then the courses), it would have been simpler. We may have heard a lot of things, but we didn't fully comprehend what we were hearing... After they actually installed our boards, it would have been nice for us to attend the training courses again. (Interview with teacher no. 3)

The use of dynamic teaching aids

Various dynamic teaching aids were supplied to the city schools together with the interactive whiteboards. These included number and syllable fans, number blocks, cards with rubber bands for self-study, erector sets, and other visual teaching aids. These items were able to be purchased using the allocated funding. We discovered from the interviews that not enough sets of materials were delivered to the schools to allow individual use of the items in class. Students were forced to use these teaching aids in pairs or during after-school activities, when teachers were able to work individually with particular children who demonstrated poor academic performance during normal class hours.

The administrations of several schools organized surplus supplies of dynamic teaching aids. This approach allowed students to access extra materials if their class was allocated an insufficient number of teaching aids under the MRSO project. Teachers provided positive feedback when these surplus stores of supplies were provided, since it allowed the students to work individually with the materials during class. The teachers also expressed their satisfaction with the materials themselves.

However, we discovered from the interviews that far from all teachers who had access to the dynamic materials took advantage of them. Of all of those who were surveyed, only three teachers said that they use these materials systematically in their work. One teacher also noted that since a lot of visual aids had

been supplied, he had not yet had time to familiarize himself with all of the materials and he needed more time to be able to use them confidently in class.

Teachers cited the fact that dynamic teaching aids take up a lot of time during class as one of the reasons why they did not use them: you have to hand them out, explain how to use them, and then collect them again. Children work at different paces, and those who finish the assignment before others will start to grow bored. This suggests that some teachers are not fully acquainted with the possibilities of how dynamic teaching aids can be deployed, because when they are used correctly, the level of complexity of the tasks can be varied in such way that children who complete tasks faster can receive an additional task.

Conclusion

The main goal of our study was to identify a connection between the use of new technologies and teaching aids that were supplied to a number of schools in the city as equipment under the MRSO project and the level of academic achievement of students enrolled in first grade classes in Sevastopol. We also sought to ascertain the attitudes and motivations of teachers concerning these innovative developments. Student academic achievement was measured using the iPIPS instrument, which allowed us to assess the initial aptitude of children at the beginning of the school year as well as their individual progress over the course of the first grade.

It is important to note that all of the children enrolled at schools in Sevastopol demonstrated significant progress. However, an analysis of the results that we obtained during the course of the study did not reveal any direct correlation between the individual progress of the first graders with how much teachers used the new technologies and teaching aids. A formalized survey of all first-grade teachers who participated in the study as well as interviews with teachers were conducted in order to identify the possible reasons for this situation.

The results of the survey and interviews indicated that teachers encountered problems with how to use the equipment that was supplied under the MRSO project. Teachers cited the following in particular:

- Slow Internet access, no Internet access, as well as temporary power outages (particularly during the time of the emergency situation in the Crimea)
- A small number of handout materials that stimulated children
- Insufficient knowledge on the part of teachers about how to utilize the interactive whiteboard and dynamic teaching aids
- Insufficient time for the teachers to familiarize themselves with the received equipment to implement it in an educational environment

The following administrative decisions were made in light of the encountered problems:

- When a new batch of equipment was ordered for the elementary school offices for the 2016–2017 academic year, it was decided to equip two offices at the Sevastopol Pedagogical College. Therefore, future elementary school teachers will have the opportunity to learn how to use new modern equipment and get acquainted with all of its functions starting when they are students. Thus, when young teachers start teaching at schools, they will be armed not only with the necessary knowledge of teaching methodology, but they will also know how to use new modern information and communication technologies and teaching aids (dynamic teaching aids).
- Taking into account the fact that not all teachers who are currently working with new equipment have been trained in how to use it, additional training courses are planned for elementary school teachers who want to re-attend trainings as well as for those who plan to start teaching in equipped classrooms for the first time.
- The Sevastopol Center for Teacher Training has been instructed to increase the practical orientation of its courses by developing a special training module covering how dynamic teaching aids can be practically applied in the classroom and to schedule master classes in how they can be used.
- It was also decided to extend the practice of creating surplus stores of received equipment, which will allow the use of dynamic

teaching aids in individual sessions. A sufficient number of materials that are handed out to students must be ensured when ordering new sets of equipment.

The effectiveness of these measures should be verified by conducting additional studies that are aimed at examining the connection between the achievements of elementary school students and their individual progress using new technologies and teaching aids. Such a study is planned to be conducted with the same sample of elementary school students in Sevastopol when they enter the middle grades of elementary school. Such a longitudinal study will allow us not only to assess student academic progress and how it is connected to what equipment and new technology are used, but it will also allow us to identify other factors that affect the quality of learning in elementary school.

Bibliography

1. Matveyeva, S.E. "Povysheniye effektivnosti innovatsionnoy deyatelnosti v obrazovanii kak usloviye ego modernizatsii." *Vestnik TGGPU*, 2011, vol. 25, no. 3, pp. 263–266.
2. Pryadko, A.V. "Metodicheskaya rabota v shkole kak faktor razvitiya gotovnosti uchiteley nachal'nykh klassov k innovatsionnoy deyatelnosti." *Izvestiya Volgogradskogo gosudarstvennogo pedagogicheskogo universiteta*, 2014, vol. 89, no. 4, pp. 88–92.
3. Ivanova, A.E., et al. "Faktory, opredelyayushchiye gotovnost' pervoklassnikov k shkole: vyyavleniye regional'nykh osobennostey." *Voprosy obrazovaniya*, 2016, no. 4, pp. 84–105.
4. Khouker, D. "Startovaya diagnostika detey na vkhode v nachal'nyuyu shkolou i otsenka ikh progressa v techeniye pervogo goda obucheniya: mezhdunarodnoye issledovaniye iPIPS" In D. Khouker and E. Yu. Kardanova (eds.), *Tendentsii razvitiya obrazovaniya. Chto takoye effektivnaya shkola i effektivnyy detskiy sad?* Moscow: ID "Delo" RANKhiGS, 2014, pp. 311–320.
5. Garavaglia, A.; Garzia, V.; and Petti, L. "Quality of the learning environment in digital classrooms: an Italian case study" *Procedia – Social and Behavioral Sciences*, 2012, vol. 46, pp. 1735–1739.
6. Gündüz, Y., and Balyerib, A. "Examining innovation needs of primary schools: teachers' perceptions." *Procedia – Social and Behavioral Sciences*, 2014, vol. 116, pp. 139–143.

КАЧЕСТВО ОБРАЗОВАНИЯ
В ЕВРАЗИИ

СВЯЗЬ ИСПОЛЬЗОВАНИЯ НОВЫХ ТЕХНОЛОГИЙ И СРЕДСТВ ОБУЧЕНИЯ С ДОСТИЖЕНИЯМИ ОБУЧАЮЩИХСЯ В НАЧАЛЬНОЙ ШКОЛЕ*

КАРДАНОВА ЕЛЕНА ЮРЬЕВНА

Директор Центра мониторинга качества образования, Институт образования НИУ ВШЭ, канд. физ.-мат. наук, доцент
e-mail: ekardanova@hse.ru
Москва, Россия

ПАНАСЕНКО ЕВГЕНИЯ ВАСИЛЬЕВНА

Заместитель начальника управления образования, начальник отдела общего среднего образования и интернатных учреждений, Департамент образования города Севастополя
e-mail: zhpanasenk@gmail.com
Севастополь, Россия

БРАГИНЕЦ ЕКАТЕРИНА ИГОРЕВНА

Стажер-исследователь Центра мониторинга качества образования, Институт образования НИУ ВШЭ
e-mail: ebraginet@hse.ru
Москва, Россия

АННОТАЦИЯ. Описаны способы применения инструмента диагностики стартового уровня подготовки первоклассника и его прогресса в течение первого года обучения в школе (iPIPS) в качестве источника объективной информации для принятия взвешенных политических решений в сфере образования на примере г. Севастополя. Приведены результаты оценки эффективности оборудования, поставленного в рамках проекта модернизации региональных систем образования (МРСО). В исследовании приняла участие 655 учеников школ, получивших это оборудование. Выяснено, что поставленное оборудование значительно не увеличивает прогресс первоклассников. Для объяснения полученных результатов было проведено качественное исследование, по итогам которого были выделены потенциальные причины недостаточной эффективности интерактивных средств обучения.

КЛЮЧЕВЫЕ СЛОВА: начальное образование, стартовая диагностика, доказательная образовательная политика, модернизация региональных систем образования, iPIPS.

* В этой научной работе использованы результаты проекта «Прогнозирование успешности обучения детей в системе начального образования», выполненного в рамках гранта РФФИ «Проведение фундаментальных научных исследований и поисковых научных исследований отдельными научными группами» №16-18-10401.