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The Key Characteristics of Teaching Excellence Programs for Academic Leaders

A review of high-ranking universities' experiences reflected in international publications

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July 2019

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Abstract. Teaching excellence and academic leadership programs have been emerging and growing in response to the increasing demand for better teaching quality and educational change in universities all over the world. International publications analyzing the experiences of high-ranking universities in developed economies (USA, Germany, Denmark, Netherlands, and Australia) are reviewed in this article to identify the characteristics of successful professional development programs for teaching quality and academic leadership in higher education designed to foster educational change. Some fundamental concepts are investigated, such as teaching excellence, teaching quality, instructional development, and academic leadership; their fuzziness and partial overlapping are demonstrated. The article also describes the character-

istics of teaching excellence programs for academic leaders, such as key stakeholders (governmental, institutional, and teacher demands) and major approaches to promoting teaching excellence and academic leadership, which include the concept of reflective practice, andragogical theory, transformative learning approach, self-directed learning, inquiry-based learning, and refocusing from teacher to student. The core design features of teaching excellence and academic leadership programs are discussed, such as selection criteria, frequency and duration, principles and formats of implementation, performance and effectiveness assessment. Special emphasis is placed upon the potential obstacles in program realization, in particular the role of internal administrative policies and institutional environment on program effectiveness and the embeddedness of such programs into the university system of educational quality assurance, teacher performance monitoring, career advancement, and human resource strategies.

Keywords: teaching excellence, academic leadership, professional development, university development, adult education, andragogy.

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Translated from Russian by I. Zhuchkova.

The quality of university education has attracted educational researchers and practitioners in many countries over the recent decades [Keesen et al. 1996]. Concerns about teaching quality rose [Elton 1998] in the face of a number of factors, such as education massification, growing international competition, university corporatization, economic expectations and demands in education, the ever-increasing socio-geographic heterogeneity of student population [Bain, Zundans-Fraser 2017], and “the need to raise the status of teaching relative to research” [Brockerhoff, Stensaker, Huisman 2014:236]. As a response to those demands, new professional development programs for academic leaders emerged to improve the quality of teaching, foster leadership skills in teachers, and thus enhance the overall learning experience. This article explores international publications of the recent years in an attempt to identify the characteristics of successful professional development programs for teaching quality and academic leadership in higher education designed to foster educational change. In particular, the article seeks answers to the following questions:

- 1) What are the interests of the key stakeholders in teaching excellence programs?
- 2) Which of the adult education approaches are the best for using in teaching excellence programs?
- 3) What are the possible directions of teaching excellence program design and implementation?
- 4) How can institutional environment promote or inhibit the effectiveness of such programs?

As a first step, the article examines the terms and concepts that are significant for answering the questions asked above, namely teaching excellence, teaching quality, instructional development, and academic leadership. Next, it describes the key stakeholders in teaching excellence programs and their chief demands. Then, it investigates the instructional approaches that have proven to be the best solutions for teaching excellence and academic leadership programs. It also describes the possible methods of program design and implementation, paying special attention to participant selection criteria, the fundamental principles of implementation, possible formats, evaluation procedures, and potential obstacles. Finally, the role of internal and external institutional environment in program effectiveness is analyzed.

1. Approaches to teaching excellence program analysis and the existing limitations

Little data on teaching excellence programs is available in Russian literature, whereas international university practices are abundant, diversified and well-described, so this article only reviews non-Russian publications in the field. It focuses on studies describing the implementation of such programs by high-ranking universities in devel-

oped countries—which is most often the case in this type of literature. The review embraces articles devoted to teaching excellence programs administered by universities featured in the top 200 in the Times Higher Education World University Rankings: Utrecht University, the Netherlands (74th); University of Washington, USA (28th); University of Alberta, Canada (132nd); Maastricht University, the Netherlands (128th); University of Antwerp, Belgium (200th); University of Sydney, Australia (59th); Western University, Canada (190th); and an anonymous U.S. leading research university. In addition, the review includes studies based on large-sized samples, such as those analyzing the performance of 74 centers for excellence in teaching and learning (CETL) in Great Britain, or higher education teaching programs across 20 universities in eight countries, or university initiatives in academic leadership undertaken by members of the Association of American Universities. Of all the possible programs for academic professional development, initiatives in teaching excellence and academic leadership were selected for this review. These two components are regarded as directly interrelated, as new ideas in teaching and learning should result in educational change, e.g. curriculum transformations.

Quality teaching initiatives are very diverse both in nature and in function. Some of these initiatives are undertaken at teachers' level, others at departmental, institutional or country level [Henard, Lepinse-Ringuet 2008]. The same diversity can be found in academic leadership programs. This study investigates into initiatives at all levels that share the goal of achieving excellence in teaching quality and academic leadership.

Research articles, books, and reports are analyzed in this review. Literature search was performed mainly in the domains of teaching quality, teaching excellence, academic leadership in teaching, and instructional development at the level of universities and the system of higher education as a whole. Analysis also involves publications on adult education, andragogy, reflexive pedagogy, critical pedagogy, and transformative learning. This study thus relies on the method of critical literature review.

The choice of research questions and analysis method results in some inescapable limitations to this review.

1. Ample literature on academic leadership and abundant publications on teaching excellence do not make it easier to find publications at the intersection of the two fields, so various versions of such initiatives were included in analysis.
2. Publications describing such programs normally use the constructivist approach and offer insight into social structures, relationships, and connections. The teaching approaches are either not disclosed or mentioned very briefly as a framework for those programs.

3. The key goal of this study implies reviewing the main topics and discussion points within them without going into too much detail. Besides, this article does not analyze the program content thoroughly, suggesting that it may vary depending on the institution's demands.
4. In the context of this study, some terms are used indiscriminately as relative synonyms, e.g. educational program / initiative / training, or teacher / instructor / lecturer.

2. Key Terms and Concepts

2.1. Teaching excellence and teaching quality

The concept of teaching excellence has become an important theme in higher education all over the world. Policy initiatives in promoting teaching excellence have emerged and spread in many countries [Brockhoff, Stensaker, Huisman 2014]. Meanwhile, some authors believe that the very term teaching excellence lacks precision, since "anything can be excellent" [Skelton 2007:265]. Excellence in teaching is approached as a multidimensional concept, of which "the dimensions <...> are of two kinds; first, classificatory, distinguishing the three levels of institution, department and individual, and second, substantive, describing the different ways in which each of the three levels can exhibit excellence" [Elton 1998:3]. At the level of the individual, Lewis Elton identifies the following dimensions of teaching excellence:

- "Being a reflective practitioner (putting self-reflection systematically into practice)
- Being an innovator
- Designing curricula
- Providing a teaching service to the community
- Researching into the teaching of one's discipline
- Conducting pedagogic research
- Being a scholar in one's discipline" [Ibid.:6].

At the level of departments and institutions, teaching excellence involves management of others; management of resources; development of other staff; development, management and review of courses; promoting, leading and supporting change, etc. [Ibid.]. For example, the German education system defines teaching excellence initiatives as being focused on central leadership, structural and cultural changes, and improvement of teaching quality [Brockhoff, Stensaker, Huisman 2014]. This level is where rewards for teaching excellence are predominantly administered [Elton 1998].

Teaching excellence also has structural and cultural aspects [Brockhoff, Stensaker, Huisman 2014]. The structural dimension includes provision of infrastructure; provision of information and counselling; use of active learning in class; systematic evaluation (including student evaluation); adjustment of the organizational structure;

and promotion of interdisciplinary teaching [Brockerhoff, Stensaker, Huisman 2014; Frost, Teodorescu 2001]. The cultural dimension of teaching excellence implies creation of communities of teaching and learning practices; provision of arenas for dialogue; teaching evaluation based on recruitment and reward criteria; other staff development; and development of strategies for teaching [Brockerhoff, Stensaker, Huisman 2014; Frost, Teodorescu 2001]. The corporate culture qualities on which teaching excellence should rest include such values as “trust, honesty, free inquiry, open debate, tolerance for difference, and respect for others” [Frost, Teodorescu 2001:410].

Teaching quality is an ambiguous concept, too [Diaz-Mendez, Gummesson 2012]. According to Fabrice Henard and Soleine Lepince-Ringuet, “some scholars regard quality primarily as an outcome, others as a property. Some consider teaching as the never ending process of reduction of defects and so Quality Teaching can never be totally grasped and appraised” [Henard, Lepince-Ringuet 2008:3]. They come to a conclusion that conceptions of quality teaching happen to be stakeholder relative, underlining that it is not only teacher’s pedagogical skills but also the learning environment and adequate support to staff and students that determine the quality of teaching. Such definition of teaching quality components is in line with the three-level structure of teaching initiatives. Quality can also be understood as “excellence”—this traditional conception of quality has been dominant in many old elite higher education institutions [Ibid.]. Therefore, the concepts of teaching quality and teaching excellence are closely interrelated and will be used as relative synonyms further on in this article.

2.2. Instructional development

Instructional development—the best term to describe educational programs that are successful from teachers’ perspective—can be defined as “any initiative specifically planned to enhance teachers’ teaching so that student learning is supported” [Stes, Coertjens, Peetegem 2013:1104]. In the recent decades, educational institutions in a number of countries have established instructional development units to improve teaching quality. One should discriminate conceptually and substantially between instructional development and professional/academic/faculty development in higher education, even though the concepts partially overlap. “Whereas instructional development explicitly aims to develop faculty members in their role as teachers, professional development concerns the entire career development of a faculty member and is not limited to teaching, but also considers research and social services” [Ibid.]. Academic development and faculty development are terms related to instructional development, but they also include the aspect of organizational development to foster their processes. The concept of educational development is even broader and indicates the whole range of development activities, such as instructional, curriculum, organizational, professional, academic, and

faculty development [Taylor, Rege 2010]. Publications on instructional development programs was considered relevant to achieving the stated research goal. In addition, teaching excellence also involves development of leadership skills in teachers, so academic leadership is another key concept in this review.

2.3. Academic leadership

Academic leadership is regarded as one of the key outcomes of training programs. Literature on leadership in education is abundant, yet few publications explore the relations between leadership and teaching excellence [Ramsden et al. 2007]. In this review, academic leadership is analyzed in the context of integrating educational changes to enhance teaching quality, leaders being viewed as stewards of teaching excellence [Gigliotti 2017; Phillips et al. 2018]. Some researchers argue that teachers are more likely to adopt a student-centered approach and work on their teaching practice if “leadership in teaching is perceived as transformative and teachers are involved in the context of co-management with a clear and consistent reward system” [Ramsden et al. 2007:143]. Elton suggests the following criteria for academic leadership at the individual level of teaching excellence:

- Management of others in course teams, etc.
- Development, management and review of courses
- Development of staff
- Departmental leadership in the teaching area
- Acting as manager and editor for writing teams of learning materials
- Promoting, leading and supporting change” [Elton 1998:10].

Academic leadership is sometimes understood as the art of cultivating relationships, as a direct response to “wicked problems,” and as a mosaic of administrative competencies [Gigliotti 2017], but most often as effective communication in the context of educational change. Academic leadership requires a great amount of resource and effort, change often being difficult to implement and sustain in the rather rigid system of higher education [Phillips et al. 2018].

All the aspects of teaching excellence and academic leadership described above are reflected in the methods of design, implementation and assessment of the initiatives analyzed, which will be shown below.

3. Characteristics of Teaching Excellence Programs for Academic Leaders

3.1. Why? Key areas of interest

The quality of education became the subject of growing concerns for a number of universities across the globe in the 1990s, which led to the emergence of targeted professional development and academic leadership programs for teachers in higher education. Reasons for introducing such programs can be grouped into three categories, reflecting the major interest groups. The first category includes mac-

ro-reasons associated with country-specific education policies. For instance, Denmark launched a campaign to demarcate the functions of universities and polytechnic institutes in the 1990s. The key differences between the two types of educational institutions were widely discussed at the national level, and it was a historic turn for Danish universities establishing the priority of research over teaching and at the same time analyzing the causes of high student attrition rates. Additional pressure was created by student union campaigns [Keesen et al. 1996]. On that account, a number of centers were established to promote academic excellence, which still exist as public institutions supporting national universities [Robins, Ambrozy, Pinsky 2006]. As an alternative to creating such isolated centers, governments may offer competitive research funding for universities administering teaching excellence programs, as described by David Gosling and Rebecca Turner using the example of Great Britain [Gosling, Turner 2015].

Internal needs of educational institutions represent another category of reasons for launching targeted teaching excellence and academic leadership programs. Given all the potential diversity of situations, requirements, and problems to be solved, it becomes obvious that initiatives and methods of their implementation vary greatly across universities. Some of such programs, for instance, are compulsory for novice teachers [Grunefeld et al. 2015; Stes, Coertjens, Petegem 2013], while others are not [Gosling, Turner 2015]; some are integrated and directed by departments and make allowance for the discipline-specific characteristics of learning and teaching [Eley 2006; Keesen et al. 1996], while others are administered centrally and serve the institution as a whole [Stes, Coertjens, Petegem 2013]. Education reforms in universities are often implemented by centers for teaching and learning that are responsible for “providing expertise, enhancing teaching potential, ensuring education quality, holding competitions and rewarding the winners, and issuing dedicated grants” [Bain, Zundans-Fraser 2017:11].

Finally, at the micro-level, there is personal motivation of teachers to participate in teaching excellence programs. First of all, instructors are interested in getting promoted and tenured [Gibbs, Coffey 2004; Keesen et al. 1996]. In some cases, they are also awarded certificates of completion that are equivalent to the level of Master’s degree [Stes, Coertjens, Petegem 2013]. In the end, motivation for professional growth and personal fulfillment cannot be ignored either [Biggs, Tang 2011].

3.2. How? Major instructional approaches

In most cases, teaching excellence programs suggest implicitly or require explicitly that teachers should learn and try out the approaches that the institution seeks to encourage and sustain in students. This orientation serves the basis for designing the program content.

As with students, learning for instructors in teaching excellence programs should be organized with due allowance made for the principles of teaching adult learners, which constitute the subject of andragogy. Education of adults rests on the assumptions that (i) they need to know “why they should learn something before start being taught” [Knowles 1984:55], (ii) they have a quite mature self-concept and “a deep psychological need to be perceived by others as being self-directing” [Ibid.:56], (iii) they prefer individualized learning based on their previous life experiences, (iv) they are “ready to learn what they need to know to solve current life problems, (v) <...> they are problem-centered in their orientation to learning” [Ibid.:59], (vi) and they are motivated for growth and development by inner drives rather than by external influences. These orientations can be traced across a number of teaching excellence and academic leadership initiatives implemented by high-ranking universities.

Teaching excellence and academic leadership programs widely use the practitioner-centered model of professional development, in which “mature teachers, just like any other type of practitioners, are active thinkers, or practice theorists, who are constantly trying to make sense of their work” [Foley 1999:8]. Learners of this type tend to be more successful in teaching excellence programs in case the latter are organized within the reflection-in-action framework [Lawrence-Wilkes, Ashmore 2014]. “Reflective practice is <...> a form of practice where situations in professional life are problematized to become potential learning situations. By analyzing those situations, professional practitioners learn, grow, and develop in their practice” [Jarvis 1992] (quoted after [Lawrence-Wilkes, Ashmore 2014]).

A few more approaches to learning in teaching excellence programs, in addition to those mentioned above, turned out to be very important and broadly debated. Transformative learning, for example, “appears to be a powerful resource for solving the issue of changing the existing teaching approaches. This is a complex introspective approach to teaching and learning that leads to changes in professional identity” [Newman 2012:38]. In self-directed learning, teachers are positioned as key decision makers about what matters for their own professional learning and as “active learners experiencing a process of personal learning rather than simply attending a mandated program” [Smith, Loughran 2017:5]. The inquiry-oriented approach to teaching and learning stresses the existing capabilities of teachers; for instance, project-based learning requires a deeper knowledge of subject matter and changes in assessment and classroom management strategies [Fishman et al. 2003].

Many authors make a strong case for a shift in students’ views about the role of the instructor—moving from an authority which dispenses truths on the topic, to an authority as a resource with specific expertise to share. Likewise, students move to view their own role as a passive receptor of facts to being actively engaged in de-

fining arguments and creating new knowledge [Kanuka 2010; Stes, Coertjens, Petegem 2010]. This viewpoint draws from the model of Marcia B. Baxter Magolda's model for epistemological reflection that has four stages: absolute knowing, transitional knowing, independent knowing and contextual knowing [Kanuka 2010]. Learning methods are determined by the instructional approach. With teacher-centered approaches, learning is restricted to memorizing facts, whereas student-centered approaches orient students towards deeper learning and yield better student performance. Teaching excellence programs designed within the framework of reflection-in-action [Lawrence-Wilkes, Ashmore 2014] provide teachers with tools that actually allow them to improve students' learning outcomes. Monologic teaching sparks little enthusiasm in teachers as well as students [Willcoxson 1998]. Therefore, modern teaching practices are expected to shift the focus from teacher to student [Trigwell, Prosser, Waterhouse 1999].

To summarize, major approaches to promoting teaching excellence and academic leadership include the concept of reflective practice, andragogical theory, transformative learning approach, self-directed learning, inquiry-based learning, and refocusing from teacher to student. All of them are designed to develop appropriate conceptions of teaching and learning in instructors [Trigwell, Prosser, Waterhouse 1999], develop their ability to reflect and be self-improving, increase their self-confidence [Gibbs, Coffey 2004], and, most importantly, bring about qualitative change in education.

3.3. How exactly? Specific features of program design

3.3.1. Selection criteria, frequency, and duration of programs

If a teaching excellence and academic leadership program is not mandatory for attendance by specific groups of faculty members, a participant selection procedure must be developed. As a rule, instructors are recommended for participation by their immediate supervisors [Grunefeld et al. 2015]; in other cases, applicants may be asked to submit their CVs [Grunefeld et al. 2015; Robins, Ambrozy, Pinsky 2006], participate in an interview [Grunefeld et al. 2015], provide written responses to a set of questions about their previous and current teaching experience and academic goals [Robins, Ambrozy, Pinsky 2006], present their statement of teaching philosophy [Schönwetter et al. 2002], or submit a proposal for a scholarly project [Robins, Ambrozy, Pinsky 2006]. Programs may be administered on a regular basis [Keesen et al. 1996] or be targeted to specific groups [Eley 2006]. In order to achieve long-term effects, actually change teachers' conceptions of teaching and learning and approaches to teaching, and "create a sustainable, efficient innovative learning environment", programs must last for quite an extended period of time [Willcoxson 1998:67]. A lot of researchers suggest engaging faculty members in teaching excellence programs, while others consider it a more efficient strategy to focus on leadership immersion, so that leaders would then steward quality improvement in their teams [Phillips et al. 2018].

- 3.3.2. The fundamental principles of implementation
- Analysis of the teaching excellence and academic programs administered by universities in different countries (USA, Germany, Great Britain, Denmark, the Netherlands, and Australia), as reflected in the literature analyzed, allows identifying the following design and implementation requirements contributing to the successful achievement of teaching excellence and the development of leadership skills:
- (1) Participant recruitment must be based on reliable information about teachers' views and goals [Frost, Teodorescu 2001];
 - (2) Participants have an opportunity to influence the program content [Grunefeld et al. 2015] and plan [Robins, Ambrozy, Pinsky 2006] in accordance with their own interests and professional duties;
 - (3) Programs must combine theory of teaching with direct practice [Grunefeld et al. 2015; Stes, Coertjens, Petegem 2010];
 - (4) Programs must ensure an environment conducive to intensive interaction among participants, experts, and mentors [Grunefeld et al. 2015; Stes, Coertjens, Petegem 2010; 2013], collegiality and faculty collaboration being seen as powerful tools in crafting instructional improvement [Frost, Teodorescu 2001];
 - (5) Programs must allow the participation of faculty, leaders, and faculty developers in building a collaborative vision of the intentional academic culture and create a shared responsibility for the outcomes [Phillips et al. 2018];
 - (6) Programs must be long enough to initiate perceptible change in education [Grunefeld et al. 2015], while maintaining a good balance between program duration and rational spending.
- 3.3.3. Possible formats of implementation
- The following formats are used most often by universities across the countries to administer teaching excellence and academic leadership programs:
- Intensive themed sessions conducted, whenever possible, off campus [Grunefeld et al. 2015], e.g. faculty development workshops series [Robins, Ambrozy, Pinsky 2006];
 - Invited speakers and expert lectures [Grunefeld et al. 2015; Robins, Ambrozy, Pinsky 2006];
 - Role-playing scenarios in which participants develop expertise in guiding faculty as leaders [Phillips et al. 2018];
 - Small-group tasks and discussion [Grunefeld et al. 2015; Stes, Coertjens, Petegem 2013] using video or micro-teaching fragments, case studies [Stes, Coertjens, Petegem 2013], practice and critical incident analysis and searching for solutions [Grunefeld et al. 2015];
 - Reciprocal attendance of lectures, peer observation and feedback [Henard, Leprince-Ringuet 2008; Robins, Ambrozy, Pinsky 2006; Stes, Coertjens, Petegem 2010; 2013];

- Reflection on one's professional goals and aspirations [Robins, Ambrozy, Pinsky 2006], implementation of theory-to-practice projects [Grunefeld et al. 2015], e.g. development of a new educational program, exploration of writings pertinent to education, or experimenting with new teaching methods [Robins, Ambrozy, Pinsky 2006];
- Construction of a teaching portfolio [Robins, Ambrozy, Pinsky 2006; Schönwetter et al. 2002], in which the instructor reflects on their teaching philosophy and how it will transform after completing the program [Grunefeld et al. 2015]. Teaching philosophy consists of the following components: (i) definition of teaching; (ii) definition of learning; (iii) view of the learner; (iv) goals and expectations of the student–teacher relationship; (v) discussion of teaching methods; and (vi) discussion of evaluation [Schönwetter et al. 2002]. A teaching philosophy statement is a critical rationale based around a distinctive set of aims, values, beliefs and convictions that provide an organizing vision of the teacher's thoughts on teaching and learning [Ibid.];
- International scholarships [Grunefeld et al. 2015], intensive exchange of experience with colleagues [Robins, Ambrozy, Pinsky 2006];
- Leadership immersion [Phillips et al. 2018].

3.3.4. Performance assessment

In order to receive a certificate or otherwise verify the successful completion of a teaching excellence and academic leadership program, those taking part are required to meet certain criteria: participation and active engagement in the program sessions; a qualitative elaboration of the assignments at the end of each module [Stes, Coertjens, Petegem 2010; 2013]; development of a teaching portfolio [Keesen et al. 1996]; and final test scores [Stes, Coertjens, Petegem 2013]. Performance of program participants can be assessed by experts, peers [Robins, Ambrozy, Pinsky 2006], and tutors [Keesen et al. 1996; Stes et al. 2013]. Besides, self-report data is also used [Robins, Ambrozy, Pinsky 2006]. Participants can be asked to develop and present an instructional project [Grunefeld et al. 2015], create or improve an existing course or educational program [Stes, Coertjens, Petegem 2010; 2013], etc. In case expertise is limited and casts doubt on the reliability of teaching quality assessments, it is recommended to develop a group of academic staff who are trained in the areas of teaching and the evaluation of teaching. "Together with similarly trained external peers, as well as both external and internal peers who are subject specialists, these can then form the teams who will judge the quality of teaching" [Elton 1998:9].

3.3.5. Program evaluation

Evaluation of effectiveness is intrinsic to any training program, but many authors claim that evaluations of instructional development initiatives have been generally limited to measures of participants' satis-

faction while little is known about the impact on daily teaching practice [Stes, Coertjens, Petegem 2010; 2013]. Nevertheless, a few objective assessment methods can be singled out based on literature analysis. Evaluation may be targeted at the program itself or the participants; it may be carried out by experts, peers, or students [Willcoxson 1998]. The criteria include the quantity and quality of projects implemented by the participants after the completion of the program [Grunefeld et al. 2015]; personal achievements, such as a developed vision of oneself as a teacher and one's professional transformation [Grunefeld et al. 2015]; career advancement, including promotions [Robins, Ambrozy, Pinsky 2006], and awards for quality teaching [Ibid.]; network effects, such as collaboration among graduates beyond graduation [Ibid.]; and other possible effects of programs, including negative ones [Grunefeld et al. 2015].

When evaluating program effectiveness, it is necessary to bear in mind that participants' stated intentions to engage in educational initiatives do not often actually translate into implementable teaching strategies [Trigwell, Prosser 1996]. Personal teaching philosophies stated by lecturers often have little in common with their educational practice [Murray, MacDonald 1997]. A number of researchers believe the grades of students taught by graduates of teaching excellence and academic leadership programs to be a good measure of actual program effectiveness, lamenting the fact that this measurement tool has been widely neglected [Gosling, Turner 2015; Grunefeld et al. 2015; Robins, Ambrozy, Pinsky 2006]. Opinions of students may differ a lot from those of teachers [Ramsden 1991]. Students' perceptions of changes in teaching after the completion of a teaching excellence program by their lecturer are affected by a number of factors, including how much time has passed since the program was completed [Ibid.]. "Choosing reliable and quantifiable indicators to assess the quality of one's teaching and the efficiency of teaching initiatives remains challenging" [Henard, Leprince-Ringuet 2008:2], and a lot of studies discuss appropriate approaches to such evaluation [Diaz-Mendez, Gummesson 2012].

3.4. Potential obstacles

Initiatives to improve teaching and learning, be it specialized centers or dedicated programs, are always contested—their implementation is inevitably fraught with contradictions, tensions and conflicts [Gosling, Turner 2015]. Contestation may come from academic leaders (deans, department heads) opposing to new approaches in education; senior university managers unwilling to lose control over the instructional processes; program directors irritated about the need to coordinate every single step and the lack of freedom in project implementation; senior academic staff having little sympathy with the innovations because they are not part of the traditional culture of the institution; or stem from the lack of institutional support for the initiatives [Ibid.]. Conflicting conceptions of the nature and role of disciplines,

curriculum requirements, processes of knowledge creation and updating, and teaching quality criteria may coexist in an institution's academic culture [Ibid.]. Perception of teaching excellence initiatives can also be affected by internal issues, such as allocation of time, money, and other resources [Brockhoff, Stensaker, Huisman 2014], or difficulty supporting a viable network of graduates without sufficient funding [Grunefeld et al. 2015]. It is not always easy to get people to understand the aims and agenda of the program and to make them collaborate [Gosling, Turner 2015]. A number of authors question the long-term impact of teaching excellence and academic leadership programs on teachers' conceptions of learning and teaching, wondering whether such programs actually result in educational change [Stes, Coertjens, Petegem 2010].

3.5. Role of institutional environment

Not only pedagogical but also institutional and administrative investments are required to provide for a qualitative change in teaching and learning [Oliveira, Vasconcellos 2011]. The role of institutional environment, which may promote or inhibit effectiveness of teaching excellence programs, sustain their outcomes or prevent their use, is discussed in many of the publications analyzed. Universities undertake various actions to provide institutional support for the effects of teaching excellence and academic leadership programs. For instance, conferences were organized and a magazine for staff and students about university teaching was started by Utrecht University as part of its teaching improvement initiatives. Development of teaching competence can be integrated into the system of promotion criteria and the career structure of staff positions [Keesen et al. 1996]. Overall, such programs should influence the university's human resource policy [Ibid.]. Researchers note that to be effective, teaching centers must be able to operationalize policy, recognize the different stakeholders, understand the need to work with the "all-powerful middle level" (department heads/chairs and deans), create a presence and links within the schools/faculties, ensure there is high-level support and involvement, understand adequately the limits of their power, understand the impact and work within the inter-relatedness of other university policy areas, and work toward making institutional changes, if necessary [Kanuka 2010]. Therefore, concerted micro-politics should be complemented with institutional change [Gosling, Turner 2015].

4. Conclusion

The review of literature performed in this study allows making the following inference: to be successful, a teaching excellence and academic leadership program in higher education should meet the stakeholders' aims and expectations at the three levels of individual, institution, and government, the balance of those levels being subject to case-specific variations. Instructional approaches used in programs must reflect the educational change expected to be achieved after

the program completion. As a rule, a shift from teacher-centered to learner-centered learning and a more elaborate choice of instructional approaches are generally expected. The most popular approaches, according to the review findings, include andragogical theory, action-reflection learning, problem-based learning, practice-oriented approach, transformative learning approach, self-directed learning, and inquiry-based learning. Those are the ideas that most often underlie the teaching excellence and academic leadership programs, providing access to expert knowledge and building the foundation for expansion of professional communication, critical analysis of personal experience, real-life problem solving, and support for educational change initiatives. In order to result in actual educational change, a teaching excellence program must be long enough: in a number of cases, programs last for an academic year or longer. Institutional environment has proved to be a significant factor of program effectiveness. Areas of potential contestation must be explored in the first place. In particular, the dominant academic culture, popular conceptions of teaching and learning, the established power structure, and financial health of the institution should be analyzed as factors that may promote or inhibit program effectiveness. Sustainability of program effects depends on how well the program has been integrated into the systems of career promotion, quality provision in education, teaching effectiveness assessment, and human resource policy.

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Learning Design: Creating Powerful Learning Environments for Self-Regulation Skills

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Abstract. The interdisciplinary research in the learning sciences has and still does substantially contribute to meeting the current need for new environments for learning by developing and elaborating new perspectives on the ultimate goal of school education, and on the nature of learning to achieve this goal. The presentation starts with a brief review of such a perspective. Against this background the article will focus on self-regulation as a major component of the goals of education. Findings about the positive relationship between self-regulation and student learning have led researchers to design learning environments for improving students' self-regulation skills.

Several metacognitive methods have been designed especially for the math learning; as an example the IMPROVE model developed by Mevarech and Kramarski (2014) will briefly be presented. Research evidence will then be discussed showing that such learning environments are effective for developing and improving self-regulated learning in Kindergarten children and primary and secondary school students. Of course, realizing this potential requires in the classroom teachers pay explicit attention to the teaching of self-regulated activities. Therefore, a major challenge for teacher training and professional development consists in improving teachers' awareness and knowledge of self-regulation and equipping them with effective strategies for developing self-regulation skills in students.

Keywords: school, environments for learning, student's self-regulation, self-regulated learning, metacognitive methods for learning.

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Introduction

The interest in learning and how to influence it have been around throughout history. But the scientific study of learning only started at the beginning of the 20th century in the US with Thorndike as one of the pioneers. During that century several perspectives on learning succeeded each other, such as behaviorism, Gestalt psychology, cognitive psychology, constructivism. But overall, notwithstanding high

expectations throughout the 20th century about the potential of the scientific study of learning for the improvement of educational practices, the relationship between research and practice remained a rather awkward and not very productive one.

The situation started to change in the last decades of the 20th century, due to the emergence of the learning sciences (LS): a new interdisciplinary field based on research emanating from cognitive science, computer science, educational psychology, philosophy, sociology, anthropology and applied linguistics [Evans, Packer, Sawyer 2016]. The LS aim at better understanding of learning in different real-world situations, namely in classrooms, in workplaces, in the family, and in informal environments. Researchers in the LS apply a variety of methodologies, such as experimental and quasi-experimental designs as well as qualitative approaches. Important from an educational perspective is that they engage in design-based research focusing on the development and evaluation of innovative learning environments (LEs), and by so doing contributing to the improvement of instructional practices.

This pursuit of innovative educational practices was supported by rapid changes in society during the late part of the 20th century, especially the development toward a learning society. Indeed, it has repeatedly been observed that education has not been able to keep up with these changes. This has raised the challenge and the growing need to reform education in view of preparing the future generation for the learning society and for today's technologically complex and economically competitive world through the acquisition of high literacy skills, such as critical thinking, solving complex problems, creativity, regulating one's own learning, and communication skills. Interestingly, the interdisciplinary research in the LS has and still does substantially contribute to meet this need for new environments for learning by developing and elaborating new perspectives on the ultimate goal of school education, and on the nature of learning to achieve this goal.

This article will first present briefly such a perspective. Against this background it will focus on self-regulation as a major component of the goals of education. The positive relationships found between self-regulation and student learning have lead researchers to design learning environments for improving students' self-regulation skills. As an example the IMPROVE model developed by Mevarech and Kramarski [2014] will briefly be presented. Research evidence will then be discussed showing that such learning environments are effective for improving self-regulated learning in Kindergarten children and primary and secondary school students. Taking this into account it will be argued that a major challenge for teacher training and professional development consists in improving teachers' knowledge of self-regulation and equipping them with effective strategies for developing self-regulation skills in students.

1. The goal of education and the nature of productive learning

Traditionally educational psychologists were focused on how to pursue and achieve the objectives of education, but not on determining those goals. However, learning scientists discovered that the challenge of educational reform required reconsidering also the objectives, namely the need for a shift from the traditional focus of learning and teaching on the transition of (surface) knowledge, and toward the acquisition of deep conceptual knowledge and learning and thinking skills.

1.1. Adaptive competence (AC) as the ultimate goal of education

In a report of the European Round-Table of Industrialist [1995] today's learning society is defined in terms of the following characteristics:

- “learning is accepted as a continuous activity throughout life;
- learners assume responsibility for their own progress;
- assessment is designed to confirm progress rather than to sanction failure;
- personal competence and shared values and team spirit are recognized equally with the pursuit of knowledge;
- and learning is a partnership among students, teachers, parents, employers and the community working together” (p. 15).

Taking this into account, education at all levels must focus more than has been the case on developing and fostering in students' adaptive expertise/competence [Hatano, Inagaki 1986] (see also [Bransford et al. 2006]), i.e. the ability to apply meaningfully learned knowledge and skills flexibly and creatively in a variety of contexts, opposed to routine expertise, i.e. the ability to complete typical school tasks quickly and accurately but without understanding the process that was required to accomplish the task. Considering also research on expertise in a variety of disciplines, there is today a fairly broad consensus that achieving AC in a domain requires the integrated acquisition of several categories of cognitive, motivational and affective components [De Corte 2012; Ligorio, De Corte, Dochy 2015]:

1. A well-organised and flexibly accessible domain-specific knowledge base involving the facts, symbols, concepts, and rules that constitute the content of a subject-matter field.
2. Heuristics methods, i.e. search strategies for problem analysis and transformation which do not guarantee but significantly increase the probability of finding the correct solution through a systematic approach to the task (e.g., decomposing a problem into sub-goals).
3. Metaknowledge: knowledge about one's cognitive functioning (metacognitive knowledge; e.g., knowing that one's cognitive potential can be developed through learning and effort), and knowledge about one's motivation and emotions that can influence learning (e.g., becoming aware of one's fear of mathematics)

4. Self-regulation skills: skills for regulating one's cognitive processes (cognitive self-regulation; e.g., reflecting on a solution process), and skills for regulating one's motivation and emotional processes (motivational self-regulation; e.g., maintaining attention and motivation to solve a given problem)
5. Positive affect: positive emotions and attitudes toward subject-matter domains and toward learning, and positive self-efficacy beliefs

1.2. Constructive learning as the road to AC

To pursue AC taking thereby into account the importance of contextual and social factors that affect learning, contemporary school learning should embody more than it has in the past the current prevailing perspective on learning as an active/constructive, cumulative, self-regulated, goal-directed, situated and collaborative, individually different process of knowledge and skill building. These features of productive and meaningful learning are well documented by a substantial amount of LS research [De Corte 2010; National Research Council 2000, 2005; Woolfolk 2016]. Therefore they can and should guide educational practices.

This constructive perspective on learning has been criticized by authors who argue in favor of direct instruction (e.g., [Kirschner, Sweller, Clark 2006]). However, based on an analysis of the literature of the past fifty years, Mayer [2004] has concluded that guided discovery/constructive learning leads to better learning results than direct instruction. But the learning environment should be characterized by an effective balance between discovery and personal exploration, on the one hand, and systematic instruction and guidance on the other hand, while being sensitive to learners' individual differences in abilities, needs, and motivation.

2. Defining self-regulation

There is today a broad consensus that self-regulation has significant impact on students learning activities and their school achievement (see e.g., [Schunk, Greene 2018]). But as shown by Dinsmore, Alexander, Loughlin [2008] after about 25 years of research on self-regulation there is still no clear and unequivocal definition of this construct. Our perspective on self-regulation as a component of adaptive competence described above, is in line with Pintrich's [2000] general working definition: "... it is an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features in the environment". (p. 453)

In accordance with our socio-constructivist conception of mathematics learning, we thus share the view that SRL is — as stated by Winne [1995] — an inherently constructive and self-directed process. It is a form of action control characterized by the integrated regula-

tion of cognition, motivation, and affect. Likewise we share the broad perspective on SR as involving besides cognitive and metacognitive aspects, also motivational and affective components [De Corte, Verschaffel, Op't Eynde 2000]. This implies at the same time that we consider metacognitive skills as a subordinate component of self-regulation.

Research on SR of learning and thinking has been mainly undertaken from two theoretical perspectives that provide a further specification of this component of adaptive expertise: Zimmerman's model of SR based on social-cognitive theory (see e.g., [Schunk 1998]), and theories of problem solving, especially the work of Schoenfeld [1985]. Zimmerman's [2000] cyclical process model of SR consists of three phases:

- forethought which relates to processes (e.g., goal setting) and beliefs (e.g., self-efficacy beliefs) that precede action and efforts to learn or to solve a problem;
- performance or volitional control which refers to processes that occur during learning or problem solving (e.g., monitoring, attention focusing);
- self-reflection which includes processes that take place after performance (e.g., self-evaluation, attribution) and influence forethought for the next regulatory cycle.

Schoenfeld's [1985] theory of problem solving is less elaborated than Zimmerman's model as far as the SR component is concerned. It focuses on metacognitive or cognitive self-regulatory skills that accompany an expert problem-solving process or learning task, namely:

- orientation toward the task (e.g., building a representation of a problem),
- planning a solution process or an approach to the task,
- monitoring during task execution,
- evaluating the outcome,
- reflecting on a solution or a learning process.

There is obviously a strong parallelism between both perspectives with respect to the metacognitive processes: building a representation of the task and planning an approach fit well in Zimmerman's forethought; monitoring converges with a major process of the performance phase, and evaluation and reflection correspond to Zimmerman's self-reflection phase.

As mentioned before, beliefs are an important component of our model of adaptive competence. Research shows indeed that epistemic and motivational beliefs that students hold play an important role in SRL [De Corte et al. 2000; Muis 2007]. Epistemic beliefs involve beliefs about math as a discipline, about the learning math, and about

the social context of math activities in the classroom. For example: if students believe that math knowledge consists of a set of separate facts and rules, they are more likely to activate memory strategies focused on remember formulas and procedures. Motivational beliefs about the self in relation to math learning concern several constructs examined in motivation research, such as achievement goal orientation, perceived responsibility for failure and success, and self-efficacy. For example: self-efficacy beliefs seem to play a crucial role in the processes by which students actively manage their learning activities.

3. Learning design for improving self-regulation skills

Findings about the positive relationship between SR and student learning have lead researchers to design learning environments for improving students' self-regulation skills [Mevarech, Verschaffel, De Corte 2018]. Several metacognitive methods have been designed for the math learning, mostly based on the work of Polya [1945] and Schoenfeld [1985]. They use self-addressed metacognitive questions and share common stages as suggested by the model IMPROVE (see e.g., [Mevarech, Kramarski 2014]):

- Introducing the new materials, concepts, problems or procedures using metacognitive scaffolding.
- Metacognitive self-directed questioning in small groups or individually.
- Practicing by employing the metacognitive (MC) questioning.
- Reviewing the new materials by teacher and students, using the MC questioning.
- Obtaining mastery on higher and lower cognitive processes.
- Verifying the acquisition of cognitive and metacognitive skills based on feedback-corrective processes.
- Enrichment and remedial activities.

The core component of the IMPROVE consists in training the students to use four kinds of metacognitive self-directed questions:

- Comprehension: What is the problem all about?
- Connection: How is the problem at hand similar to or different from problems you have solved in the past? Please explain your reasoning.
- Strategies: What strategies are appropriate for solving the problem and why?
- Review: Does the solution make sense? Can you solve the problem differently, how? Are you stuck? Why?

3.1. Research evidence at the Kindergarten level

Studies conducted in the 1980s-1990s claimed that children younger than 10 years old have limited metacognitive skills: they are in the concrete developmental stage and therefore cannot use higher-or-

der skills, such as those involved in metacognition. However, in the years 2000s, research started to report other evidence. Veenman, Van Hout-Wolters, & Afflerbach [2006] indicated that children at the age of 4-5 years can estimate the difficulty of a task and have some knowledge which strategies to use. Whitebread and Coltman [2010] showed that without adult intervention, kindergarten children at the age 3-5 spontaneously plan, monitor, control, and reflect on their mathematics activities. Based on this research, several intervention studies applied metacognitive pedagogies for enhancing kindergarten's children metacognition and mathematical reasoning (e.g., [Ginsburg, Lee, Boyd 2008]).

In these studies, the teacher scaffolds children's thinking by providing metacognitive hints based on IMPROVE and asks to explain their reasoning. For example, Mevarech and Eidini (in preparation) conducted a study in which the teacher read aloud from an e-book embedded with metacognitive scaffolding. The metacognitive questions were modified to fit the child's age: What does this page tell us? What do you have to do in order to find the answer? Please explain your thinking. Why do you think you have to add/subtract? The intervention highly enhanced children's metacognition and mathematical reasoning: the experimental group could better explain their reasoning, used richer mathematical language, and improved their problem solving skills more than the control groups.

3.2. Developing SR skills for word problem solving in the primary and secondary school

De Corte and Verschaffel [2006] designed an innovative learning environment ("Skillfully Solving Context Problems (SSCP)") for acquisition of cognitive self-regulation skills for mathematical problem solving by fifth graders. It consist of a series of 20 lessons involving of five stages:

- I build a representation of the problem.
- I decide how to approach and solve the problem.
- I do the necessary calculations.
- I interpret the outcome and formulate an answer.
- I control and evaluate the solution.

A set of eight heuristic strategies was embedded and taught in the first and second stages; for example: draw a picture of the problem situation, distinguish relevant from irrelevant data. Acquiring this problem-solving strategy involved: awareness training (becoming aware of the phases of a competent problem-solving process); self-regulation training (becoming able to monitor and evaluate one's actions during the solution process); and heuristic strategy training (gaining mastery of the heuristic strategies). The environment was designed in narrow cooperation with the teachers of the participating classes who were intensively prepared for implementing of the learning environment.

The effects of the intervention were evaluated using a pre-test-posttest-retention test design with an experimental group con-

sisting of four fifth-grade classes ($n = 86$) and a control group of seven comparable classes ($n = 146$). A wide variety of instruments was applied: word problem solving tests, and a standardized math achievement test, an attitude questionnaire, interviews teachers and students, and video-registration of some lessons.

To elicit and support in students constructive, self-regulated, situated and collaborative learning the environment was based on the three pillars that embody those characteristics of productive learning:

- A varied set of complex, realistic, and open problems that lend themselves well for the application of the SR skills and the heuristics.
- Creating a learning community through the application of a varied set of activating and interactive instructional techniques: group work, whole class discussion, and individual assignments.
- Establishing an innovative classroom culture through the introduction of new social norms with respect to learning and teaching problem solving; e.g., stimulating students to articulate and reflect upon their cognitive and SR regulation activities; discussion about what counts as a good problem, a good response, and a good solution procedure; and reconsidering the role of the teacher and the students in the learning community.

Main results can be summarized as follows. The intervention had a significant and stable positive effect on the experimental pupils' skills in solving math problems (in comparison with a control group). The positive effect was stronger for the high ability students, but also the low ability ones benefited significantly from the intervention. The results on a math achievement test revealed a significant transfer effect to other parts of the math curriculum (measurement, geometry). There was a substantial significant increase in the experimental students' spontaneous use of heuristic and self-regulation skills (orienting, planning, monitoring, evaluating).

Studies by Mason & Scrivani [2004] and by Panaoura, Demetriou, & Gagatsis [2010] in which an SSCP-based learning environment for problem solving was used also with fifth graders, yielded similar major findings. These studies show that innovative learning environments in which SR skills for solving math problems are learned by using interactive instructional methods in a new classroom culture can significantly increase students' competence. The basic principles of the interventions converge with the characteristics of the effective learning environments that derive from recent meta-analyses of teaching experiments:

- (1) train in an integrated way cognitive, metacognitive, and motivational strategies, using thereby a variety of teaching methods;
- (2) pay explicit attention to the usefulness and benefits of strategies;

- (3) create opportunities for practicing strategies and provide feedback about strategy use;
- (4) create an innovative classroom culture that stimulates SR learning, especially reflection [Dignath, Büttner 2008; Dignath, Büttner, Langfeldt 2008; Veenman, Van Hout-Wolters, Afflerbach 2006].

Studies on the effects of SRL on secondary school mathematics achievement reveal similar findings to those conducted at the lower levels of education. Metacognitive pedagogy via IMPROVE is particularly beneficial for promoting students' mathematical literacy, because it trains students to activate higher-order cognitive skills which are crucial for solving math literacy tasks [Mevarech, Lianghuo 2016].

To conclude, meta-analyses [Dignath, Büttner, 2008] based on 49 studies at the primary school and 35 at the secondary school level, that analyzed the effects of SRL on reading and math achievement reported an average effect size of 0.69. For both school levels, higher effect sizes were observed when the training was conducted by researchers instead of regular teachers. Moreover, higher effects were attained in the domain of math than in reading/writing or other subjects. The main conclusion of these meta-analyses is that SRL can be fostered effectively at both primary and secondary school level.

4. Teachers and self-regulation teaching

As a major aspect of adaptive competence self-regulation skills constitute a critical component of students' ability for successful academic learning and performance. Indeed, research shows convincingly for that the positive relationship between SRL and student achievement. Moreover, research also confirms that learning environments can be designed and implemented that support and foster students' SR learning.

Of course realizing this potential requires in the classroom teachers pay explicit attention to the teaching of self-regulation activities. In the respect research indicates that teachers have difficulties in teaching self-regulation skills in their classroom, thus in practicing self-regulated teaching [Kramarski 2018]. For instance, we videotaped and analyzed in 10 sixth-grade classroom the teaching activities during two math problem-solving lesson. In these classes a reform-oriented mathematics textbook was used which is inspired by the SSCP learning environment. The textbook proposed to that teachers pay the explicit attention to a list of heuristic and metacognitive skills, such a metacognitive strategy for solving math problem. The results showed that although some heuristics were regularly used during the lessons, many skills – especially the metacognitive strategy - very almost never addressed. In other words, when the teaching of math problem solving is done based on a textbook that explicitly presents and advocates the use and application of a SR skills, this does not easily nor automatically result in a high-fi-

delity and sustained implementation of the innovative approach [Depaepe, De Corte, Verschaffel 2007].

More recent studies confirm and further document what was observed in previous research, namely that teachers experience problems in applying SR learning and teaching [Kramarski 2018]. More specifically, their knowledge about SR and SRL is restricted; accordingly they are not good at implementing SRL, and they do not create learning environments that elicit and stimulate SR activities in their classroom. There is thus urgent need to focus on SR and SRL in initial teaching training as well as in the professional development. In that perspective research should engage in designing the development of appropriate tools and methods to enhance teachers' knowledge of SR, and to equip them strategies for fostering SR skills in students.

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Tracking, School Mobility, and Educational Inequality

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Abstract. School tracking is defined as the placement of students into different school types, structured hierarchically by performance. In the majority of OECD countries, tracking takes place at the age of 15 or 16. In Russia, similarly, students are sorted into “academic” (high school) and “non-academic” (vocational training) tracks after Grade 9, at the age of 15. However, even before that split, Russian children are distributed among schools of differing types (“regular” schools, specialized schools, gymnasiums and lyceums), which some researchers refer to as “pre-tracking” [Kosyakova et al. 2016]. No empirical evidence as to how often students change school prior to formal tracking at age 15 has been available so far. Using the

St. Petersburg administrative school database containing information on all school transitions made in the 2014/15 academic year, this article investigates school mobility among first- to eleventh-graders. In particular, it compares the frequency of changing school across different grades as well as the overall incidence of school transitions. Regression models were constructed for academic/non-academic track choice after Grade 9, which link the share of students transitioning to vocational training institutions with school characteristics. With regard to changing school prior to formal tracking, findings reveal rather low school mobility. Indeed, in spite of having vast school change opportunities in a school system of a Russian megalopolis, 65% of students attend the same school from Grade 1 through Grade 9, and 85% stick to one school between Grades 5 and 9. This is consistent with Yulia Kosyakova and her co-authors’ inferences on pre-tracking in the Russian secondary school. The implications for building individual educational trajectories and dealing with educational inequality are discussed.

Keywords: school tracking, school differentiation, school choice, school change, educational inequality.

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Inequality in access to quality education remains an acute social problem of the modern society, with Russia being no exception. Education determines life chances and creates opportunity for social mobility, which makes the problem of unequal opportunities for different so-

cial classes of almost paramount importance in sociology of education. Dozens of studies and hundreds of articles have been devoted to this issue over the past six decades [Ammermüller 2012; Lucas 2001; Raudenbush, Eschmann 2015; van de Werfhorst, Mijs 2010]. The relationship between parental socioeconomic status and tertiary education attainment has been confirmed by a number of studies worldwide [Bessudnov, Malik 2016; Breen, Jonsson 2005; Hillmert 2003].

The findings obtained by Russian researchers specialising in sociology of education provide strong evidence that the education system in Russia, similar to that of other countries, promotes the reproduction of inequality. Despite equal opportunities being declared, chances for getting a quality education—which means a high social status and success in life—are largely dependent on such factors as parental education and occupational status, family income, and place of residence [Konstantinovskiy et al. 2006; Sobkin, Ivanova, Skobeltsina 2011; Shubkin 1970]. Of particular importance is the fact that inequality in education manifests itself as early as at the level of elementary and middle school [Konstantinovskiy 2010; Sobkin, Ivanova, Skobeltsina 2011; Cherednichenko 1999].

Inequality of educational opportunity is closely related to school stratification and tracking, i.e. the distribution of students into different educational tracks. Stratification of school education is typical, albeit to varying degrees, of all European countries [Horn 2009; Woessmann 2009]. An enormous body of literature has addressed institutional differentiation and the factors affecting academic tracking [Ammermüller 2013; Ball, Bowe, Gewirtz 1996; Buchner, van der Velden, Wolbers 2009; Dustmann 2004; Hanushek, Woessmann 2006; Maaz et al. 2008; Pietsch, Stubbe 2007; Schneider 2008; van de Werfhorst, Mijs 2010].

We suggest adding the aspect of school mobility to the debate on school tracking and stratification. Students may change schools for various reasons, but we are interested in school transitions within individual educational trajectories.

Parents in Russia, unlike in many other countries, have fairly broad opportunities in respect of school choice and not obliged to send their children to the school within their catchment area¹, although proximity to home still is a key factor of first-time school choice [Konstantinovskiy et al. 2006; Sobkin, Ivanova, Skobeltsina 2011; Tennisheva, Savelyeva, Alexandrov 2018]. Moreover, school choice is not restricted to the first grade, as surveys show that many parents do not regard the

¹ School admission rules have undergone considerable changes over the last 30 years. The current Law on Education (Law No.273-FZ) stipulates admission preferences for residents within the school catchment area, allowing schools to fill vacant places with children regardless of their district of residence. The law entitles the subjects of the Russian Federation to interpret the concept of catchment area in their own ways. For more details, see [Alexandrov, Tennisheva, Savelyeva 2018].

school attended by their first-grade children as the one they should graduate from. Interview and questionnaire results often demonstrate that school change is perceived by parents as a possible or highly probable option. As the child grows older and can move around the town on their own, they can be transferred from the nearest “regular” school to a gymnasium or specialized school according to the interests and abilities they have developed by the time [Tenisheva, Savelyeva, Alexandrov 2018; Alexandrov, Tenisheva, Savelyeva 2018]. Unfortunately, there has been no data on how often those intentions are actually fulfilled, and this study fills the gap to some extent.

We are guided by two objectives, the first one being to provide a quantitative description of student mobility in order to measure the stability of choices made by first-graders’ parents. The second objective is to find out, using statistical models, which school characteristics count when choosing between the academic and non-academic educational tracks after Grade 9.

Our approach implies investigating school mobility in the context of stratified schooling and the closely related problem of (in)equality in access to education, which has never been studied from this perspective in Russian or foreign literature so far.

School Stratification and Inequality

More than 40 years ago, Joel Spring referred to schools as “the sorting machines” distributing young people among stratified levels of the labor market according to their interests, abilities, and educational attainment [Spring 1976] (quoted after [Kerckhoff 1995]). Using the metaphor in a broader sense, Alan C. Kerckhoff underlines that educational institutions form channels of intergenerational social mobility and determine individuals’ chances of achieving a certain position in the social hierarchy [Kerckhoff 1995].

A lot of countries have education systems in which different types of schools offer curricula of varying quality, implying that further educational trajectories will be rather different for graduates of each school type. Although school stratification and tracking exist in nearly all communities, details vary from country to country. First of all, it is important how early the sorting begins and how strong it is, i.e. how much divergence there is among the tracks. For instance, it may suffice to be a graduate of any school to apply for higher education in some countries, whereas certificates of a certain type of school are required in others. Daniel Horn points out that low school mobility, when transitions between schools of different types are difficult or impossible, is a crucial characteristic of school tracking [Horn 2009].

Some authors suggest discriminating between explicit and implicit tracking [Maaz et al. 2008]. Explicit tracking implies availability of various types of schools with different requirements and curricula, as in Germany, the Netherlands, Belgium, and many other countries in Western Europe [Ammermüller 2012; Buchner, van der

Velden Wolbers 2009; Hanushek, Woessmann 2006]. With implicit tracking, schools have a unified formal organization and curricula but differ in teaching quality and student composition. Such divergences can be observed between schools in high- and low-income neighborhoods as a result of residential segregation, as in the case of the United States [Raudenbush, Eschmann 2015].

Countries with explicit school-level tracking systems differ in the age at which children are tracked into different types of schools for the first time. According to OECD statistics, most countries track their students at the age of 15 to 16 (Australia, Canada, Denmark, Finland, France, Great Britain, Greece, Iceland, Ireland, Italy, Japan, Norway, Poland, Portugal, Spain, Sweden, Switzerland, and the United States), and some at the age of 11 to 12 (Belgium, the Czech Republic, Hungary, the Netherlands, and Slovakia). The earliest stratification is typical of Austria and Germany, which track students into schools with different curricula at the age of 10, right after the completion of elementary school [OECD 2004]. The German school tracking system is considered to be one of the most stratified systems. Beginning with middle school, children are allocated among three different educational tracks, of which only one (Gymnasium) enables students to begin studying at a university, while Hauptschule and Realschule prepare students for vocational training. Prior to tracking, children attend elementary schools with nearly the same curricula; when they have completed Grade 4, they are recommended by teachers for the specific type of school according to their academic performance and achievement in elementary school [Pietsch, Stubbe 2007].

International school education assessments, such as PISA, PIRLS, or TIMSS, provide the opportunity to study the influence of institutional characteristics of national education systems on student performance, variation in educational outcomes, and intergenerational social mobility. To date, strong evidence has been accumulated in favor of the theory that the relationship between socioeconomic status and academic achievement is more manifest in the education systems with explicit tracking. Consequently, low intergenerational mobility and reproduction of educational inequality can be expected in countries with school tracking. Children from lower social classes are disproportionately more likely to be allocated to lower educational tracks and experience negative peer effects [Ammermüller 2004; van de Werfhorst, Mijs 2010]. The earlier tracking takes place, the greater educational inequality [Ammermüller 2012; Hanushek, Woessmann 2005; Maaz et al. 2008].

School Stratification in Russia

In Russia, formal tracking occurs at the age of 15, after the completion of Grade 9. 9-Grade graduates can choose between proceeding to Grades 10 and 11, or high school (“academic track”), and transitioning to a vocational school (“vocational track”). Teenagers intending to

obtain higher education usually complete eleven grades of secondary school, pass the Unified State Exam (USE), and get a high school diploma. In theory, vocational school graduates can go to university as well (provided that they take the USE test), but it will hardly be a prestigious university with quality education. The split into high school and vocational training is enshrined in law; curricula differ dramatically between the two tracks, making transitions between them impossible. Obviously, such tracking is explicit.

Therefore, explicit tracking in Russia begins after the completion of Grade 9. As for elementary and middle school, the situation is much less unequivocal. According to the 1992 revision of the Law on Education, the Russian education system offered different types of schools. Apart from the standard regular school option, the law mentioned specialized schools, gymnasiums and lyceums. Back in the 1990s, when the Soviet system of school education was under transformation, the newly emerged so-called “variable” system of educational institutions (gymnasiums, lyceums and specialized schools) was considered to be a positive trend in education, as it promised to create additional opportunity for student self-fulfillment. According to Anatoly Kasprzhak [2010], “lyceums, gymnasiums, and specialized schools look out for students capable of (motivated for) high-level intellectual activity, which dictates the need for selection”. Schools of those types had a different legal status, which they had to verify through attestation on a regular basis, and which determined their level of funding. In addition, the status of gymnasium, lyceum or specialized school permitted the use of admission assessments even at the first-grade level. That is to say, there were legal grounds for student tracking and selection beginning with elementary school between 1992 and 2012.

Around 20% of Russian schools had a «high status» (namely gymnasium, lyceum, specialized school) in 2010 [World Bank 2012], yet the percentage varied greatly across regions (e.g. 35% in Moscow Oblast or 25% in Yaroslavl Oblast [Yastrebov, Pinskaya, Kosaretskiy 2014]). On the whole, the percentage of high-status schools in urban areas is higher than the national average, correlating positively with city size. St. Petersburg, for instance, has 73 gymnasiums, 44 lyceums and 130 specialized schools, which cumulatively account for 42% of all the schools in the city.

The education law of 2012 abolished status differentiation and formally equalized all the institutions of secondary education, turning former lyceums, gymnasiums and specialized schools into regular secondary schools². Local educational authorities of some regions took things a step further, deleting the words “gymnasium” and “lyceum”

² Federal Law No.273-FZ On Education in the Russian Federation of December 29, 2012.

from school names, yet such regions were few. The schools that lost their official high status also lost the right to run first-grade admission tests. Under the new law, they were only allowed to turn students away if they had no more places left. Such “landscape grading” was designed to reduce the inequality of educational opportunity between high- and low-income families.

Despite equality under the law, gymnasiums and lyceums are obviously different from “regular” schools in the public perception. Researchers who conduct surveys related to schools and education assessment also tend to differentiate between regular and high-status schools (see, for example, [Avraamova, Loginov 2016; Avraamova, Klyachko, Loginov 2014; Alexandrov, Tenisheva, Savelyeva 2018; Prakhov 2012]). Unfortunately, there are no quantitative studies on different types of schools and school tracking at the levels of elementary and middle school. Attempts to discern between family and school effects on academic achievement have also been extremely few. The only exception is the study conducted by Alexey Uvarov and Gordey Yastrebov [2014] using data from the Monitoring of Education Markets and Organizations (MEMO). Family resources being controlled for, the high status of a school (namely lyceum, gymnasium or specialized school) was found to be the only school parameter related to academic performance. However, its impact was very low and so unstable that the authors considered it to be a statistical artifact. School grades were used as a measure in that study, yet their validity for comparing school performance is highly questionable as the same grades may correspond to different levels of knowledge in different schools. School effects would probably have been much more salient if the results of standardized tests (State Final Examination (SFE) or USE) had been used instead of grades, but unfortunately no such information is available in the MEMO database. Another study investigated the role of supplementary courses and investments in exam preparation training and showed that USE performance was significantly better among gymnasium and specialized school students [Prakhov 2012]. The two papers analyze individual-level patterns, but the same trend is observed on aggregated data, with average USE performance being higher in high-status schools than in regular ones [Yastrebov, Pinskaya, Kosaretskiy 2014]. Obviously, discrepancies between different school types persist despite formal equalization.

In a recent study, Yulia Kosyakova and her co-authors [Kosyakova et al. 2016a; Kosyakova et al. 2016b] introduce the concept of “pre-tracking” to describe situations where children attend schools differing in social composition of the student body and educational outcomes even before the formal division into academic vs. non-academic tracks. Our analysis of school mobility in the middle grades may shed light on the stability of school choices made prior to formal tracking.

School Mobility

Surprisingly little research has been done into school mobility, or school transitions, in Russia. A search through Russian-language scientific literature shows that most Russia-based studies in this domain have been done by psychologists and address the issues of adaptation to the new environment. Publications on student mobility in English are fairly numerous, focusing mainly upon the effects of school change on academic achievement [Mehana, Reynolds 2004; Rumberger, Thomas 2000; Swanson, Schneider 1999].

The incidence of school mobility can be very high. In the mid-1990s, only 50% of Chicago elementary students remained enrolled in the same school over a three-year period [Kerbow 1996]. As students grow older, mobility rates decline but still remain quite high. According to the U.S. Department of Education survey of 2002, 21% of eighth-graders and 10% of twelfth-graders had changed schools at least once in the two years preceding the survey [Rumberger 2003].

American and British researchers have found that switching schools most often has to do with moving to another district or city, the mobility rate being the highest among children from migrant families [Dobson 2008; Rumberger 2003; Swanson, Schneider 1999]. Other reasons for changing school include bullying, conflicts, unsafe/inappropriate learning environment, and transfer to a school that is more desirable to parents [Dobson 2008]. David Kerbow estimates that nearly 60% of transitions that were not caused by residential movement were associated with dissatisfaction with the previous school, and 40% with the attractiveness of the new one, which offered better academic programmes or better sports and extracurricular activities. In addition, it appears that families who move their child because of dissatisfaction with the previous school do not, in general, search far for a new location, whereas a more attractive school may be located quite far from home [Kerbow 1996; Kerbow, Azcoitia, Buell 2003].

In the context of this article, we are most interested in transitions to a more attractive school, which can be called “strategic mobility”. In the absence of explicit tracking, i.e. in a situation with standardised school curricula, students have an opportunity to modify their educational trajectory, for instance, by changing to a school that provides better preparation for college. Approaching school change “strategically” and seeking to enhance their educational prospects, students normally improve their academic performance, which has been confirmed in a number of studies [Teachman, Paasch, Carver 1996; Rumberger et al. 1999]. Do many of them exploit that opportunity, though? This question is answered in part in our study.

Data and Methods

Official data on student mobility among St. Petersburg public schools for the 2014/15 academic year was used as an empirical basis for research. The database contains information on all the students enrolled in all St. Petersburg schools (677 schools and nearly 400,000

students) during the specified period. The data was provided by the Regional Center for Education Assessment and Information Technology (RCEAIT), which is in charge of the Paragraph AMIS (Automated Management Information System). The Paragraph AMIS, obligatorily installed in every school, allows collecting, keeping, and processing of data on the educational institution, its staff and students. In particular, this system is used to maintain a record of student mobility, i.e. admissions and withdrawals (due to graduation or transfer to another school). Because secondary education is compulsory in Russia³ and every child or adolescent should be enrolled at some educational institution until the age of 18, keeping a record of student mobility is strictly regulated, an entry being made in the Paragraph AMIS about each and every student withdrawal.

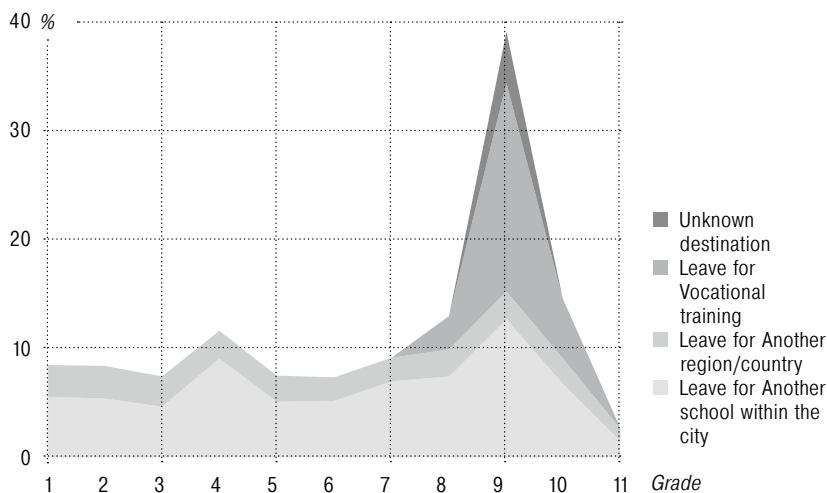
We used two subsamples from the RCEAIT database. First, data on 370,282 students enrolled in 582 schools—including 335 regular schools, 130 specialized schools, 73 gymnasiums, and 44 lyceums—was used to analyze the incidence and patterns of school mobility⁴. Schools classified under other categories (elementary schools, progymnasiums, remedial schools, open schools and boarding schools) were not included in analysis. Second, in order to construct a regression model predicting withdrawal from school after Grade 9, we sampled all the schools that provided records on the educational institutions to which their students moved after Grade 9. Unfortunately, schools are not obliged to gather this kind of information, so information about student choices after Grade 9 is often missing, thus essentially reducing the amount of useable data. The resulting sample includes 238 schools (137 regular schools, 53 specialized schools, 48 gymnasiums and lyceums) which kept records of further educational trajectories of 13,721 9-Grade graduates.

Analysis involved using the methods of descriptive statistics and linear regression with robust standard errors (the sandwich package in R). The choice of the latter method is governed by the skewed distribution of the dependent variable (percentage of students leaving school after Grade 9), which leads to heteroscedasticity in linear regression analysis; the problem is solved by using robust standard errors. Weight coefficients were applied to maintain the original distribution of school types.

³ Federal Law No.194-FZ On Amending Certain Legislative Instruments of the Russian Federation Due to the Adoption of Compulsory Schooling of July 21, 2007.

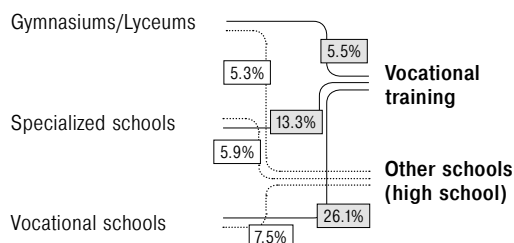
⁴ Although the current education law has abolished school status stratification, the old names (gymnasium, lyceum, specialized school, etc.) have been officially retained and in the Paragraph statistical database in St. Petersburg (as well as in many other regions).

Figure 1. **The incidence of school mobility by grade**



Results At first, we analyzed the incidence of all school transitions between Grades 1 to 11, expressed as percentages of total cohort enrolment. Figure 1 presents the results, showing that 2 to 3% of students in every cohort withdraw from school yearly due to a change of residence, i.e. moving to another city, region, or country. This percentage remains almost unchanged throughout elementary and middle school and fades away by the end of high school. The incidence of within-city student mobility peaks in Grades 4 and 9, i.e. after the completion of elementary and middle school. Apart from those peaks, 5 to 7% of students in every cohort (but only 1.5% in Grade 11) switch schools within St. Petersburg yearly. Lacking data on the reasons for between-school mobility but drawing from international findings, we can assume that at least half of the children change schools due to residential movement. The others transition to another school may be attributed to school-related reasons, such as poor peer relationships, conflicts, etc. Some transitions are made “strategically” in a search for a better school. We suggest that such “strategic” transfers explain the school mobility peaks in Grades 4 and 9. Average school mobility rate for all the cohorts is 8.7%, of which 2.4% is accounted for by transfers to schools in another region or country and 6.3% represents within-city transitions. Around half of the students who ever changed schools did it twice or even thrice. Access to data on unique and recurrent transitions in every cohort allows estimating the number of children who never changed schools. In our sample, 65% of students remained in the same school in Grades 1 through 9. Adherence to a specif-

Figure 2. **Transitions from schools of different types after Grade 9** (percentage of all students enrolled in schools of a given type)



ic school increases even more when only middle school transitions are considered, with 85% of students attending the same school in Grades 5 through 9.

Transitions to vocational schools represent a separate category. They take place most often in Grade 9 (19%) and sometimes, but much less frequently, in Grade 8 (3%) or 10 (5%). Completion of 9-Grade also accounts for 4.5% of all transfers for which no data is available and which very probably falls under the vocational training category as well. The incidence of rates of transitioning to vocational schools estimated using the RCEAIT database are in line with the findings obtained by other researchers [Bessudnov, Malik 2016; Alexandrov, Tenisheva, Savelyeva 2015].

Next, we analyzed the differences in transitions after Grade 9 depending on the type of school. The results are presented in Figure 2. The incidence of transfers after the completion of middle school varies greatly across school types, ranging from the lowest in gymnasiums to the highest in regular schools, specialized schools falling in-between. In addition, schools of different types also differ in respect of where their students go after Grade 9. Withdrawals from gymnasiums are distributed evenly between high school (other school types) and vocational instruction, whereas schools of the other two types mostly deal with transfers to vocational institutions, the rate being especially high among schools with standard curricula.

The next step involved regression analysis to predict the share of 9-Grade graduates transferring to vocational training as a function of school characteristics. Table 1 shows the school characteristics used in the regression models. Records on the educational institutions to which students had transferred after Grade 9 were provided by 238 schools, including 118 regular schools, 51 specialized schools and 69 gymnasiums/lyceums. When constructing the models, we used weight coefficients to adjust the distribution of school types in the sample with the distribution of all schools in the city. Table 1 demon-

Table 1. School characteristics used in the regression models.

	Mean (SD)	Median	Min–Max
Percentage of 9th-graders transitioning to vocational schools	17.3% (14.8)	14.7%	0–67.7%
USE score in mathematics	47.8 (7.2)	48.0	31.1–79.5
USE score in Russian	64.3 (5.9)	64.7	50.3–83.4
Average school size (number of students enrolled)	713.9 (361.6)	664.7	157–2741
Average number of years of teaching experience for teachers	13.8 (2.4)	13.9	7.8–19.5
Percentage of students from outside the catchment area	11.8% (17.5)	4.6%	0–92%
Percentage of non-native Russian speakers among students	3.5% (4.2)	2.4%	0–41.3%
School occupancy rate	96.2% (20.3)	98.2%	35.4–211.0%

Note: All percentages and mean values are calculated using weight coefficients.

strates that schools differ dramatically in the percentage of 9-Grade graduates transferring to vocational schools, the widest gap being observed between regular schools and gymnasiums/lyceums. As seen from Table 1, this fraction ranges from 0 to 69%, i.e. there are schools where all students select the academic track as well as those where the vast majority of ninth-graders go to vocational schools.

We constructed a series of regression models with the percentage of 9-Grade graduates transferring to vocational schools as the dependent variable. The following variables from the RCEAIT database were selected to serve as predictors: school type (gymnasium/lyceum, specialized school or regular school), school size (number of students), USE scores in Russian and mathematics (five-year average), school occupancy rate (percent of state-rated capacity), average number of years of teaching experience for teachers, percentage of students from outside the catchment area, and percentage of non-native Russian speakers among students. The results are presented in Table 2.

Model 1 includes only the school type variable. On average 22% of ninth-graders leave regular schools (reference category) to enroll in vocational education, which is 14% higher than in gymnasiums and lyceums and 9% higher than in specialized schools, the differences being significant at the level of 99.9%. This model explains 19% of the variance of the dependent variable.

Explanatory power increases significantly when average USE scores in mathematics and Russian are added (Model 2), with the

Table 2. Regression analysis results. Dependent variable: percentage of 9-Grade graduates transferring to vocational schools.

	Model 1	Model 2	Model 3
Constant	22.38 (1.5) ***	83.24 (13.37)***	81.72 (15.68) ***
Gymnasium/Lyceum	-14.25 (1.75)***	-5.14 (2.48)*	-5.71 (2.64) *
Specialized school	-9.4 (2.03)***	-3.46 (2.05)	-4.01 (2.26)
USE score in mathematics		0.25 (0.16)	0.07 (0.16)
USE score in Russian		-1.18 (0.25) ***	-1.04 (0.27) ***
School size			0.005 (0.002) *
Average number of years of teaching experience for teachers			0.39 (0.35)
Percentage of students from outside the catchment area			-0.12 (0.04) **
Percentage of non-native Russian speakers among students			-0.2 (0.37)
School occupancy rate			-0.05 (0.05)
Adjusted R ²	0.19	0.26	0.29

Note: *** p<0.001; ** p<0.01; * p<0.05

new model explaining 26% of the variance. Meanwhile, the “specialized school” type loses its statistical significance, and the “gymnasium/lyceum” type becomes less significant, though maintaining the significance level of 95%. That is to say, with USE scores in Russian being equal, ninth-graders are less likely to leave gymnasiums/lyceums than schools of other types for vocational education. The USE score in mathematics turned out to be insignificant. The coefficients should be interpreted as follows: a one-point increase in the average USE score in Russian leads to a 1.18% drop in the percentage of students transferring to vocational schools after Grade 9. The gymnasium/lyceum status reduces the mobility rate by another 5.14%.

Adding more school characteristics to the model (Model 3) additionally explains only 3% of variance. School size and percentage of students from other neighborhoods proved to be significant (95 and 99% significance levels, respectively). The coefficients are interpreted in the same fashion as described above. Other school characteristics, such as average years of teaching experience, percentage of non-native Russian speakers among students and school occupation rate, were found to be insignificant. On the whole, the model explains 29% of the dependent variable, which is considered to be a good result. Still, the best part of the variance is left unexplained by the model, which means it is caused by unaccounted factors.

Discussion The 1990s' transition from the unitary model to the variable one, granting every student the opportunity to select an "educational route", was perceived by educational professionals as a positive trend in the development of Russian school education [Vershlovsky 2004; Kasprzhak 2010]. Indeed, the diversity of schools offering the same basic curriculum along with specialized syllabi in specific subjects paves the way for personalized educational trajectories. Surprisingly, however, no empirical studies of school students' educational trajectories have been conducted so far. How often do children starting off as first-graders in a regular school and showing ability in a specific domain move to a gymnasium, lyceum or specialized school?

This study has pioneered research in school mobility in Russia. Based on a large empirical dataset (all transitions among St. Petersburg schools in the 2014/15 academic year), we demonstrate that changing school in Grades 1 to 9, i.e. before formal tracking begins, happens quite rarely, with 65% of students completing 9-Grade in the same school that they went to as first-graders. Student mobility is even lower in middle school, 85% of students attending the same school between Grades 5 to 9. Opportunities for school change are considerably broader in megalopolises and large cities than in rural areas, where there is often only one school per locality.

Analysis of educational transitions after Grade 9 (to other high schools or to vocational schools) reveals essential divergences among schools of different types. About 10% of students leave gymnasiums after Grade 9, with half of them transitioning to vocational schools and the other half to a different high school, compared with 13% and 6% in specialised schools and 26% and 7.5% in regular schools, respectively.

As soon as no information on school transfer reasons is contained in the statistical data available, we find it impossible to separate "strategic mobility" (choice of school type, specialization or curriculum; transitions in a search of a better institution to promote the child's self-fulfillment) from transfers caused by residential movement or poor peer relationships. Taking into account the patterns revealed in international studies, it is fairly safe to assume that the vast majority of school transitions are due to a change of residence or other non-academic reasons, with "strategic mobility" accounting for only about 1–2% of transfers yearly.

Our study shows that the idea of educational trajectory choice has not been realized, despite various school types and choice opportunities being available. Expansion of freedom of choice results in an educational market that favors educated middle-class families, where parents invest time and effort in analyzing and comparing different schools to find the best option possible. Less educated families are often unaware of how the education system actually works and lack the social and cultural resources to send their children to the best school. This is true for Russia as well as for other countries [Alexandrov, Ten-

isheva, Savelyeva 2018; Ball, Bowe, Gewirtz 1996; Bosetti 2004; Bunar, Ambrose 2016; Thieme, Treviño 2013].

Despite the legislative efforts (abolition of formal school statuses), wealthier and higher-educated families will always be more advantaged, which is explained by theory of “effectively maintained inequality”. This theory posits that socioeconomically advantaged actors secure for themselves and their children some degree of advantage wherever advantages are commonly possible—either quantitative (years or levels of school completed) or qualitative. In terms of secondary education, that means selecting a higher quality school or following the most promising curricular track within a specific school [Lucas 2001].

Therefore, although there is no formal tracking before Grade 10 in Russian schools, implicit tracking begins already from Grade 1. Kosyakova and her co-authors suggest referring to this phenomenon as “pre-tracking” [Kosyakova et al. 2016a; Kosyakova et al. 2016b]. Pre-tracking is brought on by school status stratification⁵, specific categories of parents that actively choose schools for their children and low school mobility.

Education is a process that proceeds in stages, and early educational career decisions have a strong effect on the choices available at later stages [Dustmann 2004]. The earliest educational decisions—the choice of elementary school—are made by parents and depend entirely on their social status, education and cultural capital. Children from lower socioeconomic backgrounds are most often allocated into lower educational tracks, where their disadvantage gets magnified. Earlier school stratification correlates with higher inequality [Ammermüller 2012; Maaz et al. 2008; van de Werfhorst, Mijs 2010]. It has been believed up until now that the earliest age of tracking is observed in the German and Austrian schooling systems; and even so, stratification in those countries takes place after the completion of elementary school, and children are allocated based on their academic performance (although their family’s social class still plays an important role) [Pietsch, Stubbe 2007]. We can see, however, that in Russia the first important educational choices are made already at the age of seven [Kosyakova et al. 2016]. Those choices are made by parents and depend exclusively on their cultural capital, socioeconomic status, and ambitions, which allows some researchers to talk about “parentocracy”, meaning that “education becomes ever-increasingly dependent on parents’ revenues and wants rather than the child’s abilities and efforts” [Konstantinovskiy 2010].

⁵ Although the current education law has abolished formal school status stratification, parents choosing schools for their children are perfectly aware of the differences in school reputation and prestige—the more so as the old status-indicating names have been retained by schools in most regions of Russia.

It is critical to consider the trends described in this article when developing educational initiatives. The experience of Russia and other countries shows that the opportunity to switch schools in order to build an optimal educational trajectory as such is not enough for students or their parents to make an effort to actually build such trajectory in the best possible way [Howell 2006]. Meanwhile, Russia has a positive practice—with very limited implications though—of students who win prizes in high-level academic Olympiads being actively recruited by the best schools and thus getting access to environments that are most conducive to the development of their talent. We suggest that this approach can be extrapolated to broader categories of children that express interest in specific academic domains. Active promotion of students' mobility between school of different specializations will not only help achieve the desired variability of school education but will also help reduce educational inequality.

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Success and Failure of School Students: Parental Expectations and Teachers' Perceptions

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Abstract. The article presents the results of RANEPa Center for Lifelong Learning Economics' Monitoring of Efficiency of School Education concerning teachers' and parents' perceptions of student achievement. The study involved analysis of official statistics and data from sociological surveys of parents, teachers, and school administra-

tors across different types of communities structured by the level of socioeconomic development.

The fact that student achievement is largely contingent on teacher quality is beyond dispute. It turns out, however, that teachers also attribute poor student performance to low parental involvement, socioeconomic disadvantage, health issues, and irresponsible student behavior. According to teachers, the proportion of students unable to cope with the curriculum increases consistently from grade to grade, peaking in Grades 8 and 9. Better student performance in Grades 10–11 (high school) may be explained by withdrawal of some students after completing the middle school level.

Most parents perceive their children's academic performance to be above average. At the same time, along with teachers, parents report a decline in student achievement in middle school. Families attribute this downswing in performance to various factors, including lack of subject-specific abilities, flawed curricula, and decline in student engagement. Only 9.3% of parents consider teaching quality to be a factor of low student performance. Lower average family income is associated with higher frequency of reporting low child performance at school. The influence of family income on student achievement may be explained, in particular, by differences in the opportunity to buy extra tuition, including private tutoring.

Keywords: monitoring, efficiency in

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Education is assigned a key role in the implementation of Russia's national goals and strategic objectives stipulated by Presidential Decree No.204 of May 7, 2018. Education National Priority Project aims to make Russian education globally competitive, boost Russia into the top ten in global school education rankings, and nurture well-balanced, socially responsible individuals based on the moral and ethical values shared by Russia's ethnic groups, as well as its historical, national and cultural traditions¹.

The Education Development state program calls for maintaining Russia's leading positions in the Progress in International Reading Literacy Study (PIRLS) and Trends in International Mathematics and Science Study (TIMSS) as well as improving its ranking in the Programme for International Student Assessment (PISA)².

International evidence indicates that learning outcomes of school students are largely contingent on their family, socioeconomic and ethnic backgrounds [Walton, Cohen 2011; Skiba et al. 2014; Morgan et al. 2016]. Academic performance at school correlates strongly with future income and employment, resulting in the reproduction of social class differences throughout generations. Reducing the achievement gap induced by socioeconomic factors has been a paramount theme in global education policy [OECD 2018a; Berkowitz et al. 2017; Cohen et al. 2009]. Achieving a high level of student performance and minimizing the differences in school students' learning outcomes are the two main objectives in secondary education that nearly every country pursues today.

Russian fourth- and eighth-graders have been showing good performance on the mathematical and science scales of TIMSS and PIRLS, and elementary school graduates have the highest scores in reading literacy [Kovaleva 2018].

At the same time, middle school graduates in Russia perform way below their international counterparts in meta-subject and real-world skills. Over 50% acquire only the baseline level of proficiency in international assessments, and about 20% perform below that level. Test results indicate that less than 30% of middle school graduates expect to complete university education (as compared to approximately 40%

¹ Decree of the President of the Russian Federation No.204 On National Goals and Strategic Objectives of the Development of the Russian Federation for the Period up to 2024 of May 7, 2018. <http://kremlin.ru/acts/bank/43027>

² Resolution of the Government of the Russian Federation No.1642 On Approving State Programme: Education Development, 2013-2020 of December 26, 2017. <http://government.ru/programs/202/events/>

in the top ten countries) and only 5% demonstrate the highest level of problem-solving skills (as compared to at least 11% in the top ten countries)³ [Kovaleva 2018; Centre of Evaluating the Quality of Education, Institute for Strategy of Education Development, Russian Academy of Education; OECD 2018b].

Ways to improve learning outcomes are investigated in the context of refocusing the education system to developmental education, which requires upgrading the teaching methods and learning packages, ensuring consistent professional development of teachers, and introducing an integrated education monitoring system based on PISA-like tools [Kovaleva 2018].

Researchers emphasize that learning outcomes cannot be improved through initiatives in only one of the key directions. This problem requires a systemic approach, which includes creating a positive learning environment, enhancing the leadership competencies of school principals, and providing utmost support to disadvantaged students, families and schools [Kovaleva, Loginova 2017; Pinskaya et al. 2018; OECD 2018a; Barber, Mourshed 2009].

Learning outcomes should be improved by introducing a unified education assessment system in Russia that will involve national assessments of education quality, federal-level tests, surveys of professional competencies of teachers, state final examinations (Basic State Examination (BSE) and Unified State Exam (USE)), and international comparative studies. By providing objective data on learning outcomes, such a system will allow solving the identified problems in time and making necessary managerial decisions. However, it should be taken into account that every type of assessment procedure has limited implications [Kravtsov 2017].

Despite the progress made in the development of secondary education in Russia in the recent years, low academic performance of a large percentage of students remains one of the problems in Russian school education. The Education National Priority Project⁴ includes

³ The top 10 countries in PISA 2015 were Singapore, Japan, Estonia, Taiwan, Finland, Macao, Canada, Vietnam, Hong Kong, and China (4 provinces) in science (the focus of PISA 2015); Singapore, Hong Kong, Macao, Taiwan, Japan, China (4 provinces), South Korea, Switzerland, Estonia, and Canada in mathematics; Singapore, Hong Kong, Canada, Finland, Ireland, Estonia, South Korea, Japan, Norway, and New Zealand in reading. The best performance (Levels 5 and 6) in at least one domain was attained by Singapore, Taiwan, Hong Kong, China (4 provinces), Japan, South Korea, Macao, Canada, Switzerland, and Finland.

⁴ Decree of the President of the Russian Federation No.204 On National Goals and Strategic Objectives of the Development of the Russian Federation for the Period up to 2024 of May 7, 2018 (<http://kremlin.ru/acts/bank/43027>). Passport of National Priority Project "Education", approved by the Presidium of the Presidential Council for Strategic Development and National Priority Projects (Protocol No.16 of December 24, 2018).

federal initiatives that are supposed to play an important role in enhancing school students' learning outcomes: Success of Every Child, Contemporary School, and others. However, the objectives that must be reached to achieve the federal project goals, such as "provide the opportunity to learn technology", "modernize school infrastructure and facilities", or "develop methodology and criteria for school education assessment, drawing from international student assessment practices" can hardly improve academic achievement or make it easier for school students to attain the curriculum goals.

Information on how teachers and parents perceive the current state of school education, what they consider to be the reasons of low student performance, and how they assess the prospects for the development of school education is a critical resource in the elaboration of effective means to improve student achievement.

The Monitoring of Efficiency of School Education conducted by the Center for Lifelong Learning Economics under the Russian Presidential Academy of National Economy and Public Administration (RANEPA) on a yearly basis involves analysis of official statistics and data from sociological surveys⁵ of parents, teachers, and school administrators across different types of communities structured by the level of socioeconomic development. This article presents the results of the 2018 round of the survey⁶ in which teachers and parents assessed academic performance of school students and expressed their opinions on the reasons of student failure [Avraamova et al. 2019].

Student Performance as Perceived by School Teachers

The teachers who participated in the sociological survey were asked to assess the effectiveness of key education stakeholders including themselves.

Teaching quality and teacher's ability to solve complex problems, such as integrate new methods and technology, keep the curriculum relevant, and support failing students, are decisive factors for improving the quality of school education as such [Kosaretskiy, Froumin 2019].

In the survey, teachers evaluated the effectiveness of educational authorities, school administrators, students and their parents, and themselves. They rated their own work and that of school administrators as highly effective (90 and 89.2% of positive evaluations, respectively). About two thirds of teachers (61.5%) believe that students take

⁵ The sociological survey was managed by Prof. Elena Avraamova, Doctor of Sciences in Economics, Head of the Laboratory for the Studies of Social Development, Institute of Social Analysis and Forecasting, RANEPA, and Dmitry Loginov, Candidate of Sciences in Economics, Senior Researcher at the Laboratory for the Studies of Social Development, Institute of Social Analysis and Forecasting, RANEPA.

⁶ The 2018 round of the survey was carried out in Altai Krai, Stavropol Krai, Chelyabinsk Oblast, and St. Petersburg (limited sample).

Table 1. Teacher perceptions of key education stakeholders' effectiveness (% of row)

Education stakeholders	How would you rate effectiveness of the education stakeholders?			
	High	Fairly high	Satisfactory	Low
Educational authorities	14.6	45.6	35.2	4.6
Administrators in your school	33.9	55.3	10.1	0.7
Teachers in your school	20.9	69.1	9.4	0.6
Parents, in raising their children	1.7	27.9	62.7	7.7
Students, in learning	2.1	36.4	58.0	3.5

Source: RANEPA
 IAER CLLE Monitoring

Table 2. Teacher perceptions of changes in key education stakeholders' performance (% by row)

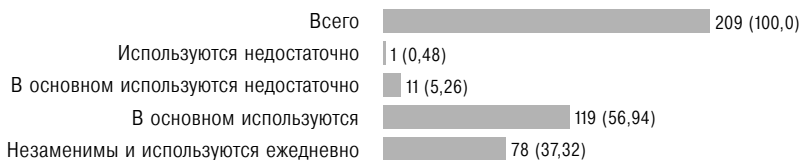
Education stakeholders	How much would you say has performance of the education stakeholders changed in the recent years?				
	Improved significantly	Improved somewhat	Remained the same	Declined somewhat	Declined significantly
Educational authorities	11.5	26.8	53.4	7.0	1.3
Administrators in your school	25.3	39.9	32.3	2.3	0.2
Teachers in your school	19.1	44.8	32.5	3.2	0.4
Parents, in raising their children	2.4	20.2	46.9	24.7	5.8
Students, in learning	3.9	29.0	45.1	19.2	2.8

little responsibility for their learning, and parents for raising their children (70.4%) (Table 1).

Among teachers, 22% report a decrease in student performance in the recent years, while 45.1% do not see any changes. Similar evaluations were obtained concerning parental involvement in raising their children, with 30.5% reporting a decline and 46.9% observing no change. Unfortunately, such evaluations may conceal low levels of professional competencies that teachers need to ensure effective parent-school communication (Table 2).

The survey asked teachers to assess the percentage of students who find it difficult to cope with the curriculum. According to 45.9% of the respondents, students who are unable to master the curriculum completely account for less than 5% in Grades 1 to 4. Slightly over a quarter of the teacher sample (26.1%) believe that the percentage of low performers in elementary school ranges from 5 to 10%. The share

Рис. 1. **Использование книжек с картинками в детском саду,**
численность респондентов (доля выборки, %)



of difficult learners increases with age, peaking in Grades 8 to 9, where 10 to 15% of students are unable to complete the curriculum, according to 26% of the teachers, while 15.7% of the respondents report the percent to be over 15%. At the same time, an improvement in Grades 10 and 11 is reported, which may be explained by withdrawal of some students after completing the middle school level (Figure 1).

Curriculum attainment rates in Grades 1 to 4 are lower in rural schools than in urban ones. In Grades 5 to 7, a decline in student achievement is observed in both rural and urban areas, being more significant in the latter case. A number of international studies also confirm that rural students perform lower than their urban peers [Roscigno, Crowle 2001; AASA 2017; Showalter et al. 2017]. In Grades 8 to 9, a greater decline in curriculum attainment is observed in regional capitals, where 25.6% of teachers report a 10 to 15% student failure rate and 16.8% of the respondents believe that over 15% of students are unable to cope with the curriculum. Even in high school, where academic performance gets better overall, schools in regional capitals show a much smaller improvement than those in rural areas (Figure 2). This is probably because the percentage of middle school graduates who proceed to high school is much lower in rural schools than in urban ones, so the proportion of higher-motivated, capable learners may be higher in rural areas.

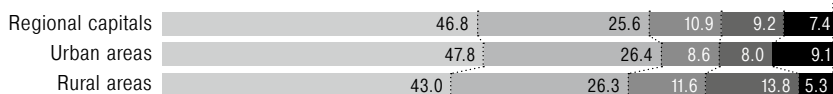
Reasons for Low Student Performance: Teachers' Perspective

Student performance is largely contingent on teacher quality, which 63.5% of teachers agree with. This data is in line with the international findings indicating that teacher quality and cognitive skills play a key role in improving student achievement [Wenglinsky 2009; Hanushek, Piopiunik, Wiederhold 2019]. At the same time, teachers also attribute poor student performance to low parental involvement (86.7%), socioeconomic disadvantage (72.8%), and health issues (67.5%). Low parental involvement can be found even in seemingly functional, economically advantaged families. Only 14.3% of teachers consider low

Figure 2. Teacher perceptions of the percentage of school students unable to cope with the curriculum, by type of locality (%)

(How many students would you say are unable to cope with the school curriculum?)

Grades 1 to 4



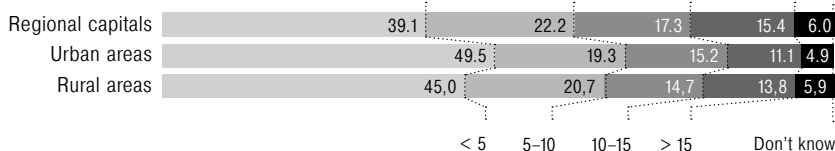
Grades 5 to 7



Grades 8 to 9



Grades 10 to 11



Source: RANEP
IAER CLLE
Monitoring

family income to be a strong predictor of student failure (Table 3). These results are consistent with the international finding that, “on the one hand, in all countries that participate in PISA, learning outcomes are associated with the social background of students and schools <...>. But on the other hand, the strength of the relationship between social background and the quality of learning outcomes varies substantially across education systems—proof that poor results are not inevitable for disadvantaged students.” [Schleicher 2018]

According to 67.5% of teachers, low student performance may be caused by health issues, and 72.8% consider being raised in a disadvantaged family to be a significant factor.

About 60% of the teachers report student motivation for learning to be decreasing year after year (Table 4). It was already in the late 20th century that researchers pointed out that “motivated students are easy to recognize; they are difficult to find” [Scinner, Belmont 1993] and that intrinsic motivation of school students decreases from grade to grade [Harter 1981].

Improvements in education quality depend directly on improvements in student motivation. Teachers need to upgrade their educa-

Table 3. Teacher perceptions of the reasons for student failure (% of row)

To what extent do you think difficulties that some students have in learning can be explained by the following?

	To a great extent	To a limited extent	Not at all
Health issues	67.5	28.0	4.5
Being raised in a disadvantaged family	72.8	22.6	4.6
Coming from a migrant family	30.6	48.1	21.3
Low family income	14.3	49.5	36.2
Low parents' education levels	42.9	45.5	11.6
Low parental involvement	86.7	10.6	2.7
Overly complicated curriculum	44.4	44.6	11.0
Low teacher quality	63.5	24.2	12.3

Source: RANEP
IAER CLLE Moni-
toring

Table 4. Teacher perceptions of changes in school (%)

How would you say the following has changed in the recent years?

	Decreased	Remained the same	Increased
Student motivation for learning	56.7	29.5	13.8
Drive to achieve career success among students	24.1	44.6	31.2
Parenting quality	73.1	23.6	3.3
Student misbehavior	20.8	46.7	32.5
Respect to adults, including teachers, from students	61.2	32.6	6.2
Mutual respect among students	48.1	46.6	5.3

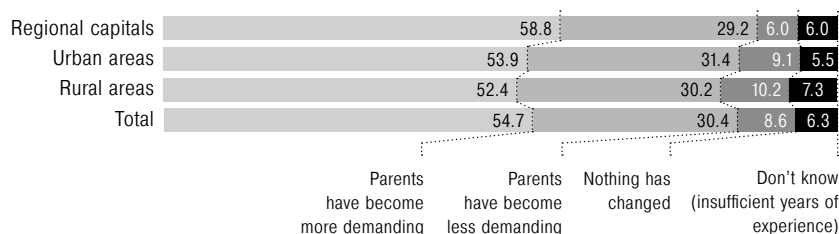
tional technology and teaching methods in order to prevent loss of motivation with age, get students engaged, and promote effort in the classroom—formation of such professional competencies should be the focus of the system of professional development and training for teachers [Kosaretskiy, Froumin 2019].

Although teachers report low parental involvement in education, 54.7% (58.8% in regional capitals) believe that families have become more demanding of education quality in the recent years (Figure 3).

Being dissatisfied with the learning outcomes, teachers are unable to offer classroom management techniques to improve them, 37.1%

Figure 3. **Teacher perceptions of parents' demands of schooling quality (%)**

(How would you say parents' demands of schooling quality have changed in the past year or two?)



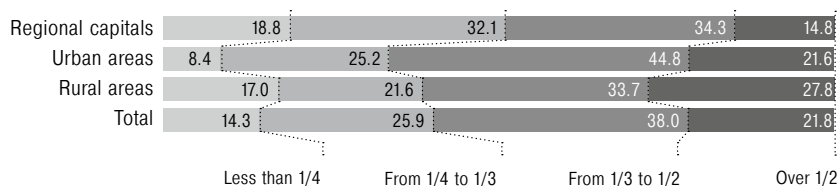
Source: RANEP
IAER CLLE
Monitoring

considering it necessary to separate students by ability, 44.5% being convinced about the effectiveness of inclusive education, and 18.4% being unable to answer the question. There is considerable variation in how countries track and stream students, as there is no right way to design school systems. On the one hand, non-selective systems offer equitable opportunities to learn to all of their students; on the other hand, selection of high-performing students allows improving education quality and, hence, the learning outcomes of some students. Nevertheless, evidence from PISA shows that top-performing education systems do not separate students by ability. Researchers explain this fact, in particular, by assuming that societies and economies needed a relatively small cohort of well-educated people, the demand for which is ever growing today [Schleicher 2018].

Withdrawal from school after the completion of middle school level (Grade 9) is thought to be the optimal strategy for low-performing students by 64.9% of teachers, and only 2.5% consider it advisable for such students to proceed to high school. On the one hand, this may be indicative of teachers having unbiased perceptions of the high school curriculum and the challenges it may present for low performers. On the other hand, seeking to achieve a specific final outcome, teachers may be unwilling to retain low-performing students in high school as they will downgrade school performance indicators.

Over half of the teachers report that at least one third of students leave school after the completion of Grade 9. The highest percentage of teachers reporting withdrawal of over 50% of middle school graduates is observed in rural schools (27.8%). According to most urban teachers (44.8%), the share of middle school graduates leaving school ranges between 1/3 and 1/2. The opinion that students withdrawing from school after Grade 9 account for less than 1/4 is shared by nearly equal percentages of teachers in regional capitals and rural areas (18.8% and 17%, respectively) (Figure).

Figure 4. Teacher perceptions of the percentage of students leaving school after the completion of Grade 9, by type of locality (%)
(How many students would you say leave school after the completion of Grade 9?)



Source: RANEP
IAER CLLE
Monitoring

Table 6. Percentage of middle school graduates proceeding to high school, Russian Federation (%)

	2016	2017
Urban areas	62.0	60.9
Rural areas	47.3	45.9

Source: Unified Information System of the Ministry of Education and Science of the Russian Federation. Form No. OO-1 "Information about an Institution Offering Academic Programs in Elementary, Middle and High School Education". Unified Information System of the Ministry of Education and Science of the Russian Federation. <http://eis.mon.gov.ru>

Over half of the teachers surveyed (52.6%) claim that the percentage of middle school graduates withdrawing from school has grown in the recent years, which is in line with the statistics. In 2016, 62.0% of urban middle school graduates and 47.3% of rural ones proceeded to Grade 10, as compared to 60.9 and 45.9% in 2017, respectively (Table 6).

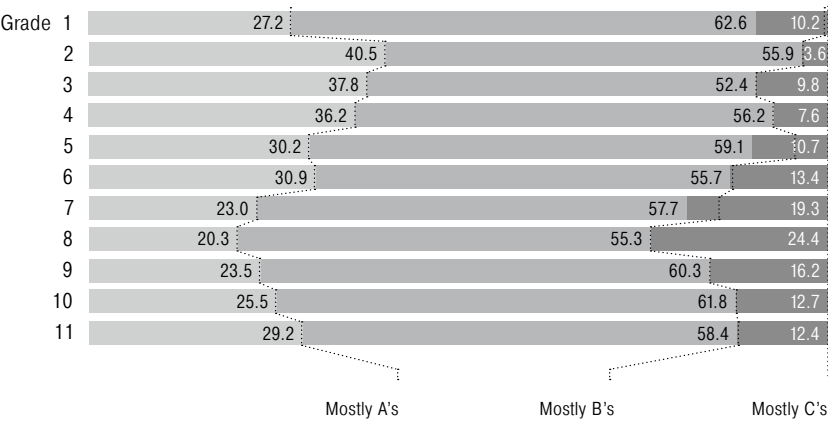
It cannot be asserted unequivocally that students unable to cope with the curriculum are more likely to withdraw from school. The percentage of A and B students among those transitioning to vocational schools has been increasing in the recent years. According to RIA Novosti⁷, students applying for a number of vocational schools in Russia have a mean grade of B and higher. Vocational instruction provides an opportunity to acquire a trade, enter the labor market earlier than college students, and achieve financial independence—which probably makes this track attractive for young people and their parents.

Learning Outcomes as Perceived by Parents

A lot of education system researchers hold that satisfaction with the quality of education does not depend on real-life outcomes or learning environment characteristics. However, they consider parents' opin-

⁷ Guide for Entrants: Vocational Schools of Russia 2018. RIA Novosti. <https://sn.ria.ru/20180425/1518278906.html>

Figure 5. **Parental perceptions of children’s academic performance, by grade of school (%)**
(How would you rate your child’s overall academic performance?)



Source: RANEP
IAER CLLE
Monitoring

Table 7. **Parental perceptions of students’ academic performance, by type of locality (%)**
(How would you rate your child’s overall academic performance?)

	Mostly A's	Mostly B's	Mostly C's
Regional capitals	31.6	57.2	11.2
Urban areas	27.4	60.2	12.4
Rural areas	30.4	55.0	14.6
Total	29.6	57.6	12.8

Source: RANEP
IAER CLLE Moni-
toring

ions to be an important criterion in education quality assessment [Kosaretskiy, Froumin 2019; Ragoznikova 2012; Churilina, Egorova, Chuklina 2017].

Indeed, the monitoring data indicates that most parents perceive their children’s academic performance to be above average. Only 12.8% of families reported their children getting mostly C’s (14.6% in rural areas) (Table 7).

At the same time, along with teachers, parents report a decline in student achievement in middle school. At the level of elementary school, mostly C’s performance is reported most often by parents of first-graders (where formal scores are not awarded) and third-graders. Other than that, the percentage of parents reporting mostly C’s performance more than doubles from 10.7% in Grade 5 to 24.4% in Grade 8 (Figure 5).

Table 8. Parental perceptions of student performance, by family income (%)

(How would you rate your child's overall academic performance?)

	Mostly A's	Mostly B's	Mostly C's
High	35.7	53.2	11.1
Middle	30.1	58.6	11.3
Low	22.5	56.9	20.6

Source: RANEP
IAER CLLE Moni-
toring

Table 9. Enrollment of students in extracurricular education, by family income (as reported by parents, %)

(Is your child enrolled in any extracurricular classes?)

	Yes	Not anymore	No
Upper-middle	66.8	15.7	17.4
High	73.3	15.6	11.1
Middle	65.1	16.3	18.6
Lower-middle	62.9	17.1	20.1
Low	52.5	18.0	29.5
Total	64.8	16.4	18.9

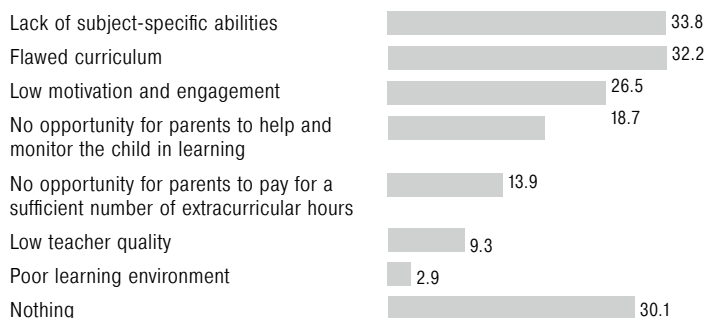
Table 10. Enrollment of students in extracurricular education, by academic performance (as reported by parents, %)
(Enrollment in extracurricular education)

	Yes	Not anymore	No
Mostly A's	71.6	10.5	17.9
Mostly B's	65.1	17.3	17.6
Mostly C's	47.7	25.6	26.7
Total	64.8	16.4	18.9

Source: RANEP IAER CLLE Monitoring.

The percentage of parents reporting low student performance correlates negatively with family income, being the lowest (11.1%) among families that perceive themselves as economically advantaged. The same socioeconomic group features the highest incidence of reporting mostly A's performance (35.7%). A reverse trend is observed with low-income families, which are more likely to report mostly C's than

Figure 6. Parental perceptions of the reasons for low student performance (% , more than one answer was possible)
 (In your opinion, what is preventing your child from doing better at school?)



Source: RANEPA
 IAER CLLE
 Monitoring

mostly A's performance (Table 8). This is where the opinions differ between parents and teachers, as the latter do not assign a substantial role in academic achievement to family income.

Children from economically advantaged families may be more successful at school, in particular, because their parents have the opportunity to buy extra tuition. More than half of the families with high self-reported income enroll their children in extracurricular education, including private tutoring (Table 9).

Indeed, better-performing students are more likely to be enrolled in extracurricular education. Such enrollment was reported by 71.6% of A students' parents and only 47.7% of C students' families (Table 10).

Most often, parents attributed low academic performance of their children to lack of subject-specific abilities (33.8%), flawed curriculum (32.2%), and low student engagement (26.5%). They also mentioned inability to pay for sufficient extracurricular hours as one of the barriers to student performance improvement (13.9%). Only 9.3% of the parents referred to low teacher quality as a reason for student failure, and 30.1% observed no barriers at all in the existing education system (Figure 6).

Parent-reported reasons for low student performance can be grouped into three main categories: (i) student abilities and motivation, (ii) school effectiveness, and (iii) family resources. The factors that families associate with children's individual qualities and aspirations and with the process of schooling are rated by them to be the most powerful predictors of learning outcomes.

International studies of parental involvement in education mostly focus on the factors affecting learning outcomes, such as sociocultural capital, assistance with homework, emotional support for children, and interaction with teachers. There are few publications that investigate into the reasons for student success or failure as perceived

by parents. Mothers and fathers usually attribute their children's academic success to ability and their failure to effort [Rytkönen, Aunola, Nurmi 2005]. Middle-class families tend to think that students' ability and effort are the primary drivers of their success, whereas parents from other socioeconomic backgrounds look more towards the importance of the student-teacher relationship. In student failure studies that involved students, parents, and teachers, the majority of participants pointed their finger away from themselves with the students and parents tending to blame the teacher; and the teachers being more likely to look to students and parents [Peterson et al. 2011].

International practices designed to improve learning outcomes of school students do not provide the exact answers as to what has to be done to enhance the school system. Yet, analysis of international experience allows identifying some common features typical of the world's top-performing education systems. First, such systems are concerned about encouraging the skills and abilities of every child instead of segregating students and supporting only the most capable of them. For this reason, the top-performing systems attract the most talented teachers to the most challenging classrooms and the strongest school leaders to the most disadvantaged schools. Second, teacher education is assigned a key role, as the quality of a school system will never exceed the quality of its teachers. The top-performing countries encourage their teachers to be innovative and engage in professional development, and they also build horizontal, not vertical relationships between school administrators and teachers [Schleicher 2018].

Take, for instance, Canada's school improvement reform of 2003–2007 (Toronto, Ontario), which led to a substantial enhancement in education quality. First of all, the reformers proceeded from the assertion that all children can learn, so educators should seek to provide a high level of achievement, while rendering individualized support to every learner. Second, the reform set clear priorities, focusing on the key areas of development, as the authors believed that frequent priority modifications result in fragmented solutions. Third, special emphasis was placed upon leader development at all levels of the education system and active communication with all reform participants, including those being sceptic about the outcomes. The success of the reform was largely provided by consistently building capacity within schools, promoting school collaboration, and improving access to effective practices. Particular attention was paid to the precision in using the elaborated strategies and effective practices. The authors insisted on ensuring school accountability and performance feedback, so that data on the outcomes attained locally could be used for identifying effective practices and making necessary managerial solutions. Finally, the "all means all" principle implied changes for every school, support for every single student, and shared responsibility for the progress of the reform and timely achievement of its goals. Researchers

believe that the Canadian initiative largely owed its success to the understanding of its mission shared by all education stakeholders, which resulted in funds being allocated to exactly where they were needed most at every stage. Of course, Canada's education system still has issues that need to be solved, but it has been improving dynamically, breaking Canada into the ten top-performing school systems in the world [Fullan 2010; 2011; Hargreaves, Fullan 2015; Levin 2008].

Therefore, the vital mechanisms of education quality improvement include timely and individualized support for students, enhancement of the curriculum, integration of innovative teaching methods and educational technology, improvements in professional development for teachers, and an integrated education monitoring system. The most important, however, is that all education stakeholders should recognize the significance and sharedness of the strategic objectives faced by the education system, attainment of which will determine the achievement of Russia's national development goals.

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Constructing a Russian-Language Version of the International Early Reading Assessment Tool

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Abstract. Successful adaptation of first-graders to school largely determines their subsequent educational attainment. In Russia as well as across the globe, there are few high-quality standardized assessment instruments providing a comprehensive picture of what children know and what they can do when they start school. Large-scale evaluation of reading literacy is particularly challenging due to age-specific characteristics and the assessment format. This article outlines a step-by-step procedure of localizing a part of the international instrument iPIPS designed to measure early reading skills at the start of school and the progress made during the first school year, within the Rus-

sian educational paradigm. Localization is understood as transformation of an instrument originally developed in another language (English in this case) so that it makes account of the cultural and linguistic characteristics of the target audience. The procedure included development of a Russian-language version of iPIPS and a series of studies to verify its construct validity. The process involved analyzing the linguistic characteristics of the original tasks, finding equivalent linguistic means in the Russian language, and designing Russian-language tasks identical to the original ones in terms of functionality. To verify construct validity of the localized instrument, we evaluated the psychometric properties of the scale, tested its reliability, and studied compliance of the task structure and hierarchy with the theoretical framework. The findings have revealed that large-scale local or regional tests administered using this localized assessment instrument may yield valuable data which can be further used for analysis of the current situation and informed decision-making in educational policy.

Keywords: reading assessment instrument, iPIPS, elementary school, localization, validation.

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Early elementary grades are crucial for children's cognitive and personal development. Numerous studies have shown that successful adaptation of first-graders to school largely determines their subsequent educational attainment [Bezrukikh, Filippova, Baydina 2012; Tymms et al. 2009]. Politicians, researchers, and educators are concerned about using high-quality assessment instruments to measure children's knowledge and skills at the start of school and the progress they make in order to provide for evidence-based learning organization and early academic interventions, where necessary.

Education assessment systems use both national instruments and the results of international comparative studies, which improves the overall efficiency of educational management [Bolotov et al. 2013]. However, planning and administration of large-scale international assessments are fraught with a number of methodological challenges, of which measurement pitfalls are the greatest ones, as both analysis and interpretation depend on the instrument's ability to measure the intended construct similarly across all the participating countries. When it comes to reading assessment, researchers and instrument developers from different countries face a daunting task of elaborating national versions of the instrument that will overcome the effects of a specific language on reading in that language. These days, reading literacy is measured by two international comparative assessments, the Programme for International Student Assessment (PISA) for 15-year-old students and the Progress in International Reading Literacy Study (PIRLS) for fourth-graders. However, no international comparative studies of similar scale exist to measure reading literacy at the start of school objectively and reliably. Such studies are incredibly hard to implement, since the influence of language is the strongest at the early development stage [Ercikan, Roth, Asil 2015]. Nevertheless, researchers attempt to compare early reading competencies at the start of school across different countries, English-speaking for instance [Tymms et al. 2014].

This article describes the step-by-step procedure of localizing a part of an international instrument originally designed in the English language to measure early reading skills, by the example of iPIPS¹. The procedure included development of a Russian-language version of iPIPS and a series of studies to verify its construct validity.

1. Approaches to Early Childhood Assessment

Knowledge and skills of preschool and early school-age children can be assessed either by asking them directly what they know and can do or by using indirect evaluation methods, such as observation or teacher (parent) surveys. There are some proprietary methodologies in Russia designed to assess specific skills in children and often re-

¹ <http://ioe.hse.ru/ipips>

quiring psychological assistance in administration and interpretation, such as the voluntary behavior assessment instrument Graphic Dictation or the phonemic awareness study The First Letter [Kovaleva et al. 2012]. There is a number of well-known integrated measures of a broad range of children's competencies at school entry abroad. For example, the Early Development Instrument (EDI), designed in Canada and applied by many other countries as well, is a teacher-completed measure of physical, social, emotional, communicative, and language and cognitive domains of child development in the last year of preschool [Janus, Brinkman, Duku 2011]. Other countries use preschool and school environment assessment instruments, such as Early Childhood Environment Rating Scales (ECERS) and School-Age Care Environment Rating Scales (SACERS). Those are based on observation and structured expert assessment of child's environment [Harms 2013].

Additional difficulties in child assessment emerge when it comes to large-scale early literacy studies which require heavy resource investments, elaborated design, and standardized procedures [Mislevy, Steinberg, Almond 2003]. In case of international or cross-cultural assessments, there are also challenges associated with the need to provide uniformity of measurements across countries, cultures, and languages [Rutkowski et al. 2010].

No projects similar to PISA or PIRLS exist to measure first-year performance, and few of the existing instruments meet the criteria of objectivity, integrity, and quality to be used for international comparisons. One of the few examples is International Performance Indicators in Primary Schools (iPIPS), designed to measure early reading skills at the start of school and the progress made during the first school year.

The iPIPS instrument, originating from the University of Durham in Great Britain, exists today in a few versions localized for different countries [Tymms 1999; Archer et al. 2010; Niklas, Schneider 2013; Wildy, Styles 2011]. Children are asked to do computer-adaptive tests with the assistance of an examiner (school psychologist, counselor, or pre-briefed teacher). Each assessment cycle consists of two stages: at the beginning and at the end of the first school year. The total of iPIPS tests allows assessing child development in four domains: early reading and math skills, phonemic awareness, and vocabulary.

The iPIPS characteristics and the opportunities it offers make it quite a promising objective to elaborate a Russian version of the instrument and join the growing iPIPS project. First, even though the direct assessment format requires some additional resources (adult supervision), it allows making inferences about learning abilities and learning difficulties of every child. Individualized approach eliminates bias, which is rarely achievable with indirect assessments. Second, computer-adaptive testing allows assessing children's knowledge and skills in a friendly and comfortable environment without giving them tasks that are overly complicated for their current level. Third,

the instrument also measures the progress that children make in their first year at school. Fourth, proven reliability and validity of the original version and its adaptations for other English-speaking countries [Demetriou, Merrell, Tymms 2017; Tymms et al. 2009; Wildy, Styles 2011] offer prospects for international comparative first-grader studies that will include non-English orthographies, too.

2. The iPIPS Reading Model

Early literacy research findings show that learners acquire early reading skills in phases, the language of teaching affects how long students need to acquire those skills, and learners of all alphabet-based languages pass through the same phases [Seymour, Aro, Erskine 2003; Rayner et al. 2012; Gove, Wetterberg 2011].

The most basic reading model, which the iPIPS authors constructed using the results of many years' research and which is consistent with the theoretical ideas of Russian educators [Egorov 2006; Kornev 1995], postulates that children pass through some important phases when learning to read: they develop a general idea of how the language works, learn to recognize letters and graphic representations of words, gradually develop decoding skills, and finally achieve the level of reading comprehension [Merrell, Tymms 2007].

Knowing how the language works implies understanding the fundamental organization of language and its forms, which includes knowing how to hold a book and where to start reading, being aware of left-to-right progression, being able to distinguish between letters and words, etc. [Clay 1985]. Letter-name knowledge is another important longitudinal predictor of learning to read, as letters serve fundamental functions in alphabetic writing systems [Foulin 2005]. Word recognition often comes to children as they learn letters. Research findings indicate that a lot of children are capable of recognizing and understanding simple familiar words even before they acquire reading comprehension skills [Harrison 2004].

Children who already know how the language works will require some specific teaching methods to take their reading further to embrace decoding and comprehension skills [Harrison 2004; Merrell, Tymms 2007; Zhurova, Elkonin 1963]. In the course of practicing in reading with the help of one or two strategies, children develop decoding skills, gain experience, and learn to read more and more words automatically—this is when their information processing abilities can be redirected to text comprehension [Merrell, Tymms 2007].

The reading model offered by the iPIPS authors, describing step by step the development of reading skills in children, includes the following phases:

- 1) Ideas about reading (the concept and structure of text)
- 2) Letter recognition
- 3) Sight word recognition

- 4) Decoding (mechanical reading)
- 5) Reading comprehension

3. Adaptation and Localization

Adaptation of an English-language instrument is an extremely complex and resource-intensive process [Leong et al. 2016]. Besides, even if all the procedures are followed accurately, the outcome is not always suitable for cross-country comparative assessments [Ivanova 2018].

Adaptation of an instrument seeks to ensure validity of interpreting the results obtained with country-, language-, or culture-specific versions of that instrument [Sireci, Patsula, Hambleton 2005; Leong et al. 2016]. Research institutions involved in educational assessment offer a variety of guides and recommendations designed to provide a high quality of instrument adaptation in international studies [AERA, APA, NCME 2014; Leong et al. 2016]. Those procedures are aimed at achieving maximum result comparability as the main prerequisite for further use of international study findings, which is only possible if measurements obtained with the instrument versions developed for different languages and cultures are equivalent. Measurement equivalence, in its turn, implies three critical components: construct equivalence, equivalence of method, and equivalence of items [Ercikan, Roth, Asil 2015].

When developing the Russian-language version of iPIPS, we proceeded from the firm belief that localization is the only possible solution for the iPIPS reading test. Localization involves taking a product and making it linguistically and culturally appropriate to the target locale (country/region and language) where it will be used [Esselink 2000]. In this article, localization of an assessment instrument is understood as the process of developing a version of the instrument in another language that lies within the original theoretical framework but makes account of the target country's cultural characteristics. The main difference between localization and adaptation is that localization does not imply direct comparison of individual students' test scores across countries.

Elaboration of the Russian-language version of the early-grade reading assessment instrument took a significant amount of time and effort and involved multiple adjustments and improvements in the process. Age difference of more than two years between the English-speaking target audience (four- to five-year-olds) and Russian first-graders (six- to seven-year-olds) along with a number of substantial differences between the Russian and English languages were the greatest challenges faced by the developers.

4. Methodology

4.1. iPIPS reading test localization

Translation and expert evaluation of the baseline reading assessment tests targeting British children came to be the first step towards cre-

ating the Russian-language version of iPIPS. Translation (direct and reverse) was performed in compliance with the recommendations of the International Testing Commission (ITC) [Leong et al. 2016]. The original iPIPS reading test was designed to evaluate language development of elementary school students who were native speakers of English. This part of the iPIPS instrument included a few modules corresponding to phases of the reading development model proposed by the iPIPS authors. Understanding of text structure was tested by a module of tasks asking students to indicate the beginning and end of a given text, etc. Letter recognition was assessed using tasks that asked children to name a letter or the corresponding sound. Word recognition skills were tested by asking children to match spoken words (pronounced by examiners) to written ones presented in the test (e.g. find the pronounced word in a row of four or five words offered by the task). Decoding skills were measured by having children read a short story aloud and examiners scoring the number of words pronounced correctly.

When developing the Russian-language version of the iPIPS reading tasks, the latter were preserved nearly unchanged (translation was performed, and equivalent letters, words and texts in Russian were selected with due regard to usage and baseline literacy rates). Meanwhile, the reading comprehension module was much more difficult to work with, as the texts offered to Russian- and English-speaking children had to be comparable in the level of complexity, and the tasks hidden within them (the so-called “traps”) had to evaluate the same competencies. Eventually, this part of the iPIPS instrument was localized in stages. First, linguistic characteristics of the original text were analyzed; next, equivalent “traps” in Russian were found; finally, a Russian-language text with “traps” and content close to the English-language original was produced. The sections below will dwell on every stage of the work done.

4.1.1. Linguistic characteristics of the original reading comprehension test

The student is asked to read a text and, in some parts of it, choose one of three response options (expert evaluation was performed using the texts *Underground* and *Walking to School*). While making their choice, children have to deal with the so-called “traps”, which represent some of the biggest challenges faced by learners of their native language (English), such as distinction between words and different grammatical forms (temporal and aspectual verb forms; subjective, objective, and possessive personal pronouns; singular and plural nouns, etc.), articles and how to use them, distinction between the meanings of language units, valency and concurrence characteristics of words, simple and double prepositions, etc.

The units in a “trap” are related pairwise, one of the three options being part of both pairs. For example, in the cluster *creatures–animals–animal*, the first pair *creatures–animal* contrasts its components by noun number (the former being plural and the latter, singular), and

the annuals–animal pair is based on the principle of phonological similarity. While animal is the unit common for both pairs, it is creatures that should be selected as the correct answer.

Some “traps” use a more intricate mechanism of concealing difficulty. In the sentence They can run quickly and are very good at leaping upon to fences, trees and quit / other / offer high places, the pair other–offer is based on phonological/orthographic similarity, but there is no direct relationship between quit and other. The “trap” consists in quit being spelled similar to quite which could be used instead of other in this context: other high places–quite high places. Therefore, children are expected to choose quit in case they are unable to distinguish visually between quite and quit (otherwise speaking, failure will be caused by orthographic similarity between the words).

To explicate the logic behind selecting “traps” for each of the two texts, a somewhat deeper insight into the English language is required.

4.1.1.1. Structural characteristics of English as compared to Russian

Modern English is a flecional language of the analytic type. Throughout its evolution, synthetic forms blending the semantic and grammatical meaning within the same phonological and orthographic units (s-del-a-l; de-motiv-ate-d) have been gradually replaced with analytic ones representing sequences of independent phonological and orthographic units loaded with discrete semantic and grammatical meanings (have been asked). Although synthetic forms still exist in English, they are becoming ever more simplified (consisting of ever fewer components which are relatively simple and often monosemantic, as in re-do, where the only meaning conveyed by re- is that of “repetition”).

A relatively high incidence of homonymy—homophones (of–off; night–knight, etc.), homographs (to wind [ai]–wind [i], to tear [ɪə]–tear [iə]), and homoforms (heard (past tense of hear)–herd, left (past tense of leave)–left (opposite of right))—is another distinctive feature of the English language. Along with homonyms, there are a lot of words in English that are similar in sound or spelling but do not make homonymic pairs. Phonological and/or orthographic similarity is represented in the following examples extracted from the texts analyzed: wake–work–walk, buy–boy, carried–cared, leaf–leave, etc.

Verbs are central to the English language system [Fillmore 1981]. Apparently, use of personal and impersonal verbs is mastered at the earliest stages of first-language acquisition. This is reflected in the texts offered by the English-language version of the test, which contain “traps” testing children’s ability to recognize the spelling and the semantic meaning of various verb forms as well as their knowledge of verb form components (auxiliary verb + form of main verb).

Another important characteristic of the English language is fixed word order, which manifests itself, in particular, in a large number of stable syntactic constructions (complex object, the for-to-infinitive construction, etc.). Native English speakers begin to learn those

syntactic patterns in a Gestalt-like manner at the earliest stages of first-language acquisition—that is why “traps” testing children’s ability to use them are abundant in the English-language texts.

Difficulty of a text is determined by the amount and quality of “traps” in it. Orthographic/phonological similarity “traps” prevail in *Walking to School* (eight “traps”²), while *Underground* contains only six traps of this type, yet a large amount of grammar/syntax “traps”.

4.1.1.2. Structural characteristics of Russian as compared to English, and making account of them when developing the Russian-language version of the test

Development of a comparable test for Russian-speaking children is possible provided that the distinctive characteristics of the Russian language are taken into account. The main difference between the two languages is that Russian has been an inflected language of the synthetic type throughout its history of development, which implies prevalence of synthetic forms and coexistence of different semantic and grammatical meanings within the same phonological and orthographic units. For instance, the form *pri-dorozh-n-ogo* represents the semantic meanings of “near” and “road” and the grammatical ones of gender, number, and case. Unlike English, Russian has few analytic forms consisting of different independent components, each with a semantic or grammatical meaning of its own (compare, for example, *have been working to budu gotovit’*). Isolated cases of analytism in Russian are represented by comparative and superlative adjectives (*bolee udachny / samy vazhny*) and some forms of the future verb tense (*budem zanimat’sya*). This divergence between the languages must be taken into account when devising “traps” testing distinction between grammatical forms. Whereas a number of “traps” in the easiest English-language text *Walking to School* ask children to choose the right answer from three continuous tense forms (*is / was / were shining or was wearing / wear / wore*), “traps” in the Russian language may suggest choosing the verb form that agrees with the subject in person and/or number (*svetilsya / svetilas’ / svetilos’ or bylo / byli / byla*).

Another distinctive feature of the Russian language is being centered around nouns and noun groups in terms of syntactic organization. In other words, the noun in Russian is a carrier of sense that is critical to understanding the meaning at the level of sentences. By contrast, English assigns this paramount role to the verb (and thus is said to be verb-based, or verb-centered). This difference, in particular, is obvious when we compare nominal parts of speech in Russian, with their extensive system of grammatical categories (gender, number, case, etc.), to English noun phrases which only have a number, a rather reduced category of case, and that of definiteness, and some have one category only (e.g. adjectives are only varied by degrees of

² Statistical data analysis is somewhat impaired by different types of logic underlying the “traps”, so approximate figures are given.

comparison). “Traps” testing first-graders’ ability to distinguish between the grammatical forms of nominal parts of speech are extremely few in the English-language texts, but they must be included in the Russian-language version as being highly relevant to language development (e.g. *zhivotnye / zhivotnoe / zhivotnogo or vysokomu / vysokogo / vysokiy or rebyata / rebyatam / rebyat*).

When adapting the texts to test native Russian speakers, the numerous orthographic and phonological identity/similarity “traps” in the original version should be abandoned, as Russian has much fewer words like that than English (the high degree of homonymity in English is explained by the prevalence of one-syllable words, which increases the likelihood of concurrence). Besides, “traps” testing the ability to distinguish between different articles and auxiliary verbs are also impossible to transplant into Russian (the few auxiliary verbs in Russian used to build future tense forms (*budet rabotat’*) are easy to recognize for native speakers even at the earliest stages of language development).

Finally, another distinctive feature of Russian is free word order. Synthetism of the Russian language (grammatical markers being realized within orthographic and phonological units) grants relative freedom in sentence building. Using an extensive system of grammatical markers, native speakers of Russian establish the necessary logical connections and formulate complete thoughts without being constrained by component arrangement (of course, again, this freedom is relative, since collocation rules for logically bound text elements postulate that an adjective cannot be separated from the element it modifies and that noun as an object should stay within the verb phrase). As a result, Russian has no stable syntactic constructions that are typical of English (such as complex subject or complex object), so syntax “traps” of this kind should also be left out in the process of localization.

Relying upon the distinctive characteristics of the Russian language, a typology of “traps” centered around the linguistic competencies of native Russian speakers is proposed.

One category includes “traps” based on phonological and orthographic similarities, in which three response options have similar sound and/or spelling: *poka / pora / gora ... vstavat’*; *Vo dvore yeye uzhe ... zhdal / sdal / zhban ... Kostya*, etc.

Another group consists of “traps” designed to test the ability to distinguish between the grammatical forms of words. These may include, for example, nouns differing in number / case: *rebyata / rebyatam / rebyat ... poshli k shkole*; *vypey ... moloka / moloku / molokom*; verbs in different tense-aspect forms, forms of person and number: *Oni bystro ... begat’ / begaet / begayut*; *Togda im ... nuzhen / nuzhna / nuzhno ... pomoshch’*; personal and possessive pronouns in various forms: *No ... ona / on / oni ... vse zhe lovyat myshey*.

The third category is represented by “traps” testing students’ ability to choose the right response depending on the context. In this case,

preceding context allows using any of the options available, while limitations are imposed by the context that follows, or the choice may be contingent on a broader context. For instance, in the sentence *Ya budu s nim ... uchit' / igrat' / gulyat' ...* any of the options will do, and the choice can only be done as the child has read the continuation of the phrase, *komandu "Ryadom"*.

Lexical "traps" constitute a special subcategory of semantic "traps" and imply choosing from prefixed words (with the same stem). Not only are students expected to identify the right form with the context but they also should distinguish between the options offered. In *Prezhde chem vyiti iz doma, Yulya sobralas' / nabralas' / zabralas'*, students need first of all to make sense of the meanings of each verb and then match the right meaning with the immediate context.

Taking into account the differences between Russian and English, we have managed to develop a typology of "traps" that makes allowance for the distinctive structural characteristics of Russian as the target language. Next, the resulting version of the instrument had to be tested for reliability and validity.

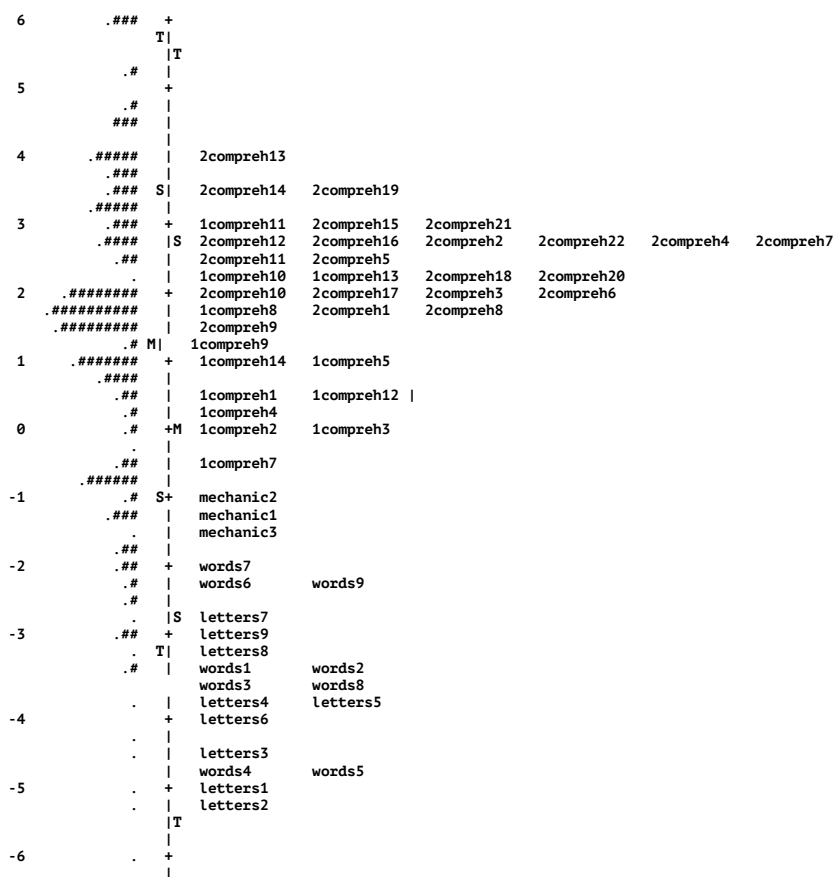
4.2. Collecting evidence of validity

The first iPIPS pilot study was carried out in Veliky Novgorod and Novgorod Oblast in October 2013 on a sample of 300 first-graders. It turned out that a number of tasks had a low ceiling that too many children could reach. Next year, the project participants met with elementary and preschool education experts to discuss the challenges in the study. The tasks in the Russian-language version of iPIPS were reviewed with due consideration of expert advice and in close collaboration with partners from the University of Durham, and a few more evaluation tests followed in 2014–2018. In particular, the tasks that had been too easy were replaced with more challenging ones. As a result, a localized version of the iPIPS instrument was created, for which a series of validity tests was performed.

Instrument validation is an indispensable part of proving the quality of an instrument, and a time-consuming process that requires a substantial amount of research. At the first stage of proving validity of data obtained with iPIPS, evidence of construct validity was collected. For that purpose, the internal structure of the reading scale was examined, its capacity and the psychometric characteristics—based on the assessment results obtained in 2015 on a sample of 1,822 first-graders (average age 7.4, 51% girls) in several schools of Moscow.

Conducting a psychometric analysis of the Russian-language reading scale, we used the basic Rasch model for dichotomous choice assessment instruments [Rasch 1960]. The same model was used to evaluate the original iPIPS version in English [Tymms 1999]. Test data was analyzed using WINSTEPS software [Linacre 2011].

Figure 1. **Reading scale variable map**



5. Results

5.1. General description of the reading scale

Figure 1 shows the map of variables, depicting the relative position of task difficulty and student ability on the reading scale. At the left end of the figure, the logit scale is shown. On the right-hand side of the vertical axis, the reading tasks are presented, ranging from the easiest (e.g. letter recognition—at the bottom) to the most difficult (e.g. reading comprehension—at the top). At the left side of the axis, the distribution of student ability in the scale is shown.

Empirical data obtained from tests and visualized as a map is consistent with the theoretical expectations of task distribution on the reading scale. In particular, we can see that the letter-naming task is the easiest and the reading comprehension one with semantic “traps” is the most difficult for children. Finally, the map clearly demonstrates a wide distribution of both task difficulty and student ability. Such distribution corresponds to the original English-language version, which outlines prospects for indirect cross-country comparison of student performance using the modern test theory paradigm.

5.2. Data-model fit Rasch goodness-of-fit test is based on response residuals, i.e. the difference between observed and expected response [Ludlow, Haley 1995]. Adequate fit of data to the model is found in every task except two letter-naming ones (which may be due to their low levels of difficulty).

5.3. Dimensional analysis Measure unidimensionality, often defined as the existence of one latent trait underlying the data, is one of the principles of the Rasch model for measurement [Hattie 1984]. In this case, reading is measured as a unidimensional construct realized in the array of instrument tasks. Principal component analysis of Rasch model residuals proved the test to be substantially unidimensional [Linacre 2011].

5.4. Reliability analysis Classical test theory reliability (Cronbach's alpha) of the test is 0.98, which is an extremely high degree of internal consistency. Item spread exceeds 9 logits for task difficulty and 15 logits for student ability.

Therefore, the iPIPS reading test can be considered a quality measure that may be used to assess early reading development in children at the start of school. This inference was reconfirmed in the course of psychometric analysis of the results of assessing first-grade students in Kazan in 2016 [Republican Center for Monitoring the Quality in Education 2016].

6. Discussion The main purpose of this article was to outline a step-by-step procedure of localizing and validating the Russian-language version of the iPIPS reading test. The iPIPS instrument targets children at the start of school, hence at the start of learning to read.

Reading is an extremely complex skill that is fundamental for school education, shaping the child's overall ability to learn [Antipkina, Kuznetsova, Kardanova 2017; Stanovich 2000]. Reading comprehension is achieved through a series of cognitive processes allowing to analyze lexical (at the level of word recognition) and synthetic (at the level of sentences) information, make inferences, and use metacognitive strategies (self-directed learning, ability to concentrate on the reading process, etc.) [Magliano et al. 2007; Stanovich 2000]. Children master reading comprehension skills stage by stage, from the first acquaintance with a text in their native language, to letter and word recognition, to reading sequences of letters and combining them into words, and, finally, to understanding what they have read. Such stage-by-stage reading acquisition is exactly what the reading model proposed by the iPIPS developers implies [Merrell, Tymms 2004].

The purpose of this study—localization and validation of a Russian-language version of an instrument testing such a complex skill as reading in such a specific target audience as children starting school—is so complicated in its nature that it appears impossible to simply use the existing practices of cross-national and cross-cultural instrument

adaptation, such as The ITC International Handbook of Testing and Assessment [Leong et al. 2016], or the international experience of the PIRLS-participating countries [Mullis et al. 2009].

In a situation where children only begin to start learning to read, adaptation of an international assessment instrument implies using concrete units of Russian and, in the case of iPIPS, English language, which makes it impossible to ensure strict equivalence between the two versions [Ercikan, Roth, Asil 2015]. That is to say, the instrument should be localized with due regard to the distinctive characteristics of the target language, Russian in this case. Assessment of reading comprehension skills is a major challenge, as texts offered to children who are native speakers of Russian and English should be comparable by complexity and the text-related tasks should evaluate the same skills. That is why the iPIPS reading test was localized in stages and involved analyzing the linguistic characteristics of the original tasks in the first place, finding equivalent linguistic means in the Russian language, and, finally, designing Russian-language tasks identical to the original ones in terms of functionality.

Due to a range of substantial structural differences between English and Russian (most importantly, English being verb-centered and Russian noun-centered, different sets of parts of speech and their functions, fixed word order in English resulting in a high incidence of stable syntactic constructions vs. free word order in Russian that agrees well with a developed system of grammatical markers), the stages of language development are not the same for English- and Russian-speaking children, which surely affects the process of reading acquisition.

In order to make the instruments testing reading development in British and Russian elementary school students as identical as possible, it was necessary to carry out linguistic analysis of the original iPIPS version, identify the functionally comparable linguistic means in both languages, and create tasks in Russian that would test equivalent reading skills.

This article describes step by step the procedure of localizing the iPIPS reading test and the process of gathering evidence of its validity within the framework of modern test theory. In particular, it presents the results of analyzing the scale structure and dimensionality, the functioning of individual tasks and the scale as a whole, and internal consistency of scale items. Those procedures have proved psychometric goodness and reliability of the scale and confirmed the compliance of task structure and hierarchy with the theoretical framework of the study.

The stage of collecting construct-related validity evidence described in this article is indispensable yet not the final one in the long process of instrument validation. Additional studies are needed—in particular, to collect content and predictive validity. Series of such studies have already been administered; however, they are left be-

yond the scope of this article and need to be analyzed specifically in the future.

Finally, research proving the fundamental possibility of conducting an indirect (given the non-equivalence of reading assessment instruments between Russian and English and, on the other hand, availability of uniform standardized procedures, theoretical frameworks, and constructs) comparative assessment of first-graders' reading skills in Russia and Great Britain could be regarded as another piece of evidence for instrument validity.

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Inequality of Opportunity in Educational Achievement in India

Implications of Earning Distribution and Affirmative Action

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Abstract. The objective of this study is to provide a quantifiable measure of the distributional content of education and its implications on earnings distribution by gender across different groups of people by using survey data in India. We analyse educational disparities among the children with age up to 14 years by gender, and household specific characters with Indian data. The study observes that, in the rural economy, the girls have less access to full time education than

boys. In the urban region, on the other hand, the access to full time education at primary level is more for girls than for boys. The estimated coverage is less in the rural areas than in urban areas. The HOI is more among the urban children than among the rural children. Parent's education has the highest contribution to inequality of opportunity to full time education at primary or upper primary level.

Keywords: school, primary level, upper primary level, enrolment ratio, educational inequality, Human opportunity index, India, gender differences, social status, rural areas, India.

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1. Introduction

The distributional aspect of education has intertwined economic, social and political implications for its effect on income and wellbeing. As education is viewed as one of the fundamental inputs of a person's wellbeing and a powerful predictor of earnings, inequality in educational achievement translates into earnings inequality. It is observed that inequality in educational achievement and earnings inequality are highly correlated [Blau, Kahn 2005; Bedard, Ferrall 2003]. World Inequality Report [2018] pointed out that the income inequality is largely due to educational inequalities. Thus, disparities in education, and access to education for the vulnerable has been an area of concern in ensuring inclusive and equitable quality education and promoting learning opportunities for all as mentioned in the Sustainable Devel-

opment Goals (SDGs). The objective of this study is to provide a quantifiable measure of the distributional content of education by gender across different groups of people by using survey data in India.

The distributional content of quality education has significance in the context of rising trend in privatisation of education as observed in many developing countries including India. The explosion of private schools widens the choice of schooling by the parents and results in new dynamics to enhance competitiveness among the private providers. It is expected that the increase in competitiveness provides an incentive for quality education. There has been a debate on whether private schools are able to provide better environment for quality learning. Coleman et al. [1982] with US data observed that students in private Catholic schools performed better than those in public schools and the rate of drop out in the former type of schools was less than the rate in the latter type. In many developing countries also, students from private schools perform better on various measures of cognitive skills than those from public schools [Jimenez, Lockheed 1995]. Although some private schools do provide quality education, they are highly expensive and this is often out of reach of the poor. Thus, the effects of expansion of private schooling on quality and equity in education and the role of the government to provide quality education have become growing concerns for research.

This study cares about the distribution of education and the distribution of opportunities for acquiring quality education at primary level. As education at the primary level is the entry point of formal education, this study examines the extent of equal opportunity in access to primary education in India. Equality of opportunity ensures that gender, ethnicity, parent's education, parent's income and other circumstances have no influence in access to education of a child. But, a substantial inequality in educational attainment exists across caste, religion, and ethnic boundaries in India [Desai, Kulkarni 2008]. In most of the studies in the literature, educational inequality is measured on the basis of educational attainment. Our study focusses on the background factors that may have significant effect on educational attainment. If there exists inequality of opportunity in education at the primary level, its damaging impact persists in the distribution at higher education. For affirmative policy intervention in controlling the damaging effect, we need to estimate inequality of opportunity in education at the starting point, the primary level of education. This is the basic motivation of this study.

There are some studies focussing on the similar issue in the literature. For example, the study by Singh [2011] measures the extent of inequality of access to primary education by using National Family Health Surveys in India during 1992–1993 to 2005–2006, and observes that inequality of opportunity declined with greater degree of regional variations. Asadullah and Yalonetzky [2010] by applying Pearson—Cramer index, an overlap index and a special Gini index with Na-

tional Sample Survey (NSS) data on employment and unemployment in India documented the persistence of inequality of educational opportunity during the period 1983–2004. They observe that Kerala experienced the least unequal state in terms of educational opportunities. This study also observed that inequality of opportunity in getting education declined in West Bengal and Orissa.

In this study, we estimate the probability that a child has access to primary education by considering circumstance variables like gender, parent's education, parent's affluence, and social group by using 71st round survey data on social expenditure, education, by the National Sample Survey Office (NSSO) in 2014. The methodology used in this study is closely related to the study by Singh [2011] with the latest available survey data on education. The inferences drawn in Asadullah and Yalonetzky [2010] are based on employment and unemployment survey where detail information on education are not available. Our study fills the gap in the literature by providing quantitative measure of inequality of opportunity in primary education by using the latest available survey data on education in India.

Measuring inequality in educational outcomes, and inequality of opportunity to quality education has been a challenging job in empirical research, partly because of data constraint. In many studies, years of schooling is treated as educational attainment and Gini coefficient of year of schooling is used in measuring inequality in education [Castelló, Doménech 2002; Morrisson, Murtin 2007]. Interestingly enough, year of schooling as a measure of education is problematic for several reasons. The level of learning in a particular level of education may be different in different countries, even in different regions in a same country. The quality of learning of one year of schooling is different across different schools in a city. In some database, for example household survey data conducted by the NSSO in India, educational attainment of a person is provided in broader levels of education, such as primary, secondary, graduate, and post-graduate and above. This database is used in this study in looking into the distributional content of education.

We analyse educational disparities among the children with age up to 14 years by gender, and household specific characters with Indian data. We estimate Human Opportunity Index (HOI) to measure the distribution of opportunities in access to basic education. The HOI captures the degree of inequality in multiple indicators into a single measure. This paper seeks to measure the distribution of opportunities in school enrolment and attainment by type of circumstances by taking into account private and public schoolings. This study aims to provide quantitative estimates of how unequal is the distribution of opportunity among groups in different circumstances, the contribution of circumstances to total inequality in opportunities, and the extent of inequalities in access to good quality education. To capture the contribution

of each circumstance to inequality of opportunity, the Shapley decomposition method is used.

The paper is organised as follows. Section 2 describes the data set and variables constructed for empirical work in this study. Section 3 considers the conceptual issues and methods used in measuring inequality in educational achievement, and inequality in educational opportunity. Section 4 presents empirical results. Section 5 concludes.

2. Data description

The empirical part of this study is based on 71st round household survey on Social Consumption: Education carried out by the NSSO in 2014 covering the whole of the Indian Union. The survey collects information on school participation of persons within the age group 5 to 29 years. As this study concentrates on education at primary and upper primary level, we have considered the sample of children with age group 5 to 14 years. Multi stage stratified random sampling is used in drawing the ultimate sample unit, households. At the first stage 4577 villages in the rural area and 3720 urban blocks in the urban area have been selected by following the sampling technique probability proportional to size with replacement (PPSWR) for the central sample at all India level. At the second stage stratification of the households is done on the basis of students having technical or general education. At the ultimate stage 8 households have been selected by using simple random sampling without replacement (SRSWOR) from each sample village and urban block selected at the first stage. The total number of sample households in this survey are 36479 and 29447 in rural and urban India respectively.

Information collected in this survey are household characteristics like household size, household type, religion, social group, along with household's monthly consumption expenditure, household's accessibility to computer and internet, household's distance from nearest school, and so on. Demographic and other characteristics of household members, current educational attendance and current enrolment status for children and youth, and other information relating to schools and the courses, private expenditure on education and other related information are incorporated in to the survey schedule.

For analysing inequality of opportunity in education, we focus on those covariates that are informative of the family background and other inherited circumstances of the child. The covariates used in this study are gender of the child, parent's education, social and ethnic status of the household, household's income (monthly consumption expenditure as a proxy), and location of the household. Parental education is measured by the highest education level completed and is expressed in terms of education dummy. The highest level of schooling of the parents is an indicator of parental human capital.

Access to education measured by school attended at primary and upper primary level by the children of age up to 14 years on full time

basis is used as a proxy for opportunity to be educated. The schools are categorised into government funded, private funded and government aided. Circumstance variables are child specific and household specific. Gender of a child is a dichotomous variable coded 1 if the student is girl and 0 if boy. Social status of a household is categorical variable that includes scheduled tribes (STs), scheduled castes (SCs), other backward castes (OBCs) and upper castes (UCs). To estimate the differential effect of social status we have used 3 dummy variables by taking upper castes as a reference group. Parents' education and income are also taken as circumstance variables.

3. Concepts and methods in measuring inequality of opportunity

A large number of studies, both theory and application, exists in the literature on inequality of opportunity. The literature on the measurement of inequality of opportunity has focused primarily on opportunities for the acquisition of income or wealth. There are two main approaches in the empirical literature. In the ex-ante approach, associated with van de Gaer [1993], the opportunity set faced by each type is evaluated, and equality of opportunity is attained when there is perfect equality in mean across all groups. Since equality of opportunity would imply equality in means across groups, inequality of opportunity can be seen as some measure of between-group inequality. In the ex-post approach, associated with Roemer [1998], equality of opportunity obtains only when individuals exerting the same degree of effort, regardless of their circumstances, receive the same reward. Inequality of opportunity would, in this case, best be captured by the weighted sum of inequality within groups characterised by the same degree of effort.

Opportunities in education that enable individuals to acquire knowledge and certain skills depends on efforts and circumstances. Inequality of opportunity in getting quality education by the children relates to circumstances, a set of personal, family or community characteristics inherited from their families and the location at birth which are beyond their control. Inherited circumstances are beyond the control of the children and is highly relevant from the point of view of social justice. In a world of equal opportunities, success in educational achievement depends only on efforts like free choice of schooling, talents, hardworking, not on circumstances.

A growing literature concerning educational inequality has emerged, but most of the studies are restricted to the OECD countries [Ramos, Van De Gaer 2016; Roemer, Trannoy 2016]. Thomas et al. [2001] calculated the Gini index of education of the population aged 15 and over, based on school attainment data for 146 countries. The Gini coefficient in education (GE) measures the relative distribution of education among the people. It is constructed on the basis of years of schooling (y) associated with the various levels of schooling (i and j), the percentage of the population with each level of educa-

tional attainment (p_i, p_j), and the average educational attainment (μ) of the population:

$$(1) \quad G_E = \mu^{-1} \sum_{i=2}^n \sum_{j=1}^{i-1} p_i p_j |y_i - y_j|.$$

The GE ranges from 0 to 1, with a value of 0 indicating that all persons have equal level of schooling, and a value of 1 resulting from one person having attained the highest level of education and the rest attaining none.

Ferreira and Gignoux [2014] developed measures of educational opportunity in terms of variance of educational achievement as well as in terms of the share of the variance in test scores that is explained by pre-determined circumstances in a linear regression by using the OECD's Program of International Student Assessment (PISA) test scores.

Bourguignon et al. [2007] developed parametric measure of inequality of opportunity in ex-ante approach:

$$(2) \quad \theta_i = \frac{I(C_i' \hat{\beta})}{I(y)}.$$

Here, $\hat{\beta}$ is the OLS estimate of the regression coefficients in a multiple linear regression of y on C :

$$(3) \quad y_i = C_i' \hat{\beta} + \varepsilon_i.$$

It is the reduced form of the model:

$$(4) \quad y = f(C, E, u);$$

$$(5) \quad E = g(C, v),$$

Here, y denotes achievement, and C denotes the vector of circumstances, E denotes a vector of efforts, u and v denote random shocks. Along with the student's own efforts, school characteristic variables are included in E . The coefficient, β is intended to capture the reduced form effect of circumstances – both directly and through efforts.

The variance estimates are used to measure an inequality index,

$$(6) \quad \theta_i = \frac{v(C_i' \hat{\beta})}{v(y)}.$$

It measures the share of the total variance in educational achievement that is accounted for by predetermined circumstances. This index is extremely simple to calculate and is simply the R^2 of an OLS regression of the child's test score on a vector C of individual circumstances. This index is cardinally invariant in the standardisation of test scores. It is decomposable into components for each individual variable in the vector C as for Shapley—Shorrocks decomposition.

This measure is simply the share of the total variance in achievement that can be accounted for by pre-determined circumstance variables in a linear regression. The index is simple and intuitive, and provides a lower-bound estimate of the joint causal effect of all pre-determined circumstances on educational inequality. It is cardinally invariant to the standardisation of test scores, and exactly additively decomposable into the partial shares accounted for by individual circumstance variables. It is also closely related to the origin-independence concept of intergenerational educational mobility.

In this study, the index for inequality of opportunity is constructed in the following way: First, the conditional likelihood for access to quality education is estimated by using logit model with circumstance variables that affect the opportunities to education. We have estimated logistic model on whether a child had attended at primary level of education on full time basis separately for rural and urban areas. Logarithmic value for monthly consumption expenditure as a proxy for household income, age of the child, gender dummy of the child, parent's education, parent's occupation, medium of instruction, type of school and distance of the school from house of the child are taken as explanatory variables.

$$(7) \quad y_i^* = \beta_0 + \sum_{j=1}^k \beta_j x_j + e_i.$$

Here, the dependent variable y_i^* denotes the ability of a child had in getting full time education and is unobservable.

What is observable is the outcome that a child had attended a school for full time course having the following decision rule:

$$(8) \quad y_i = \begin{cases} 1, & \forall y_i^* > 0; \\ 0, & \text{в ином случае.} \end{cases}$$

The ability in getting full time education (y^*) has two components:

$$\beta_0 + \sum_{j=1}^k \beta_j x_j \text{ и } \varepsilon_i.$$

The first part is deterministic and depends on the circumstance variables, while the second part is purely stochastic and unobserved.

In the logistic model, the log odds ratio is linear in the parameters.

$$(9) \quad \ln \left(\frac{p_i}{1-p_i} \right) = \beta_0 + \sum_{j=1}^k b_j x_j.$$

From the estimation of this logistic regression, we can obtain coefficient estimates and the predicted probability of access to quality education, \hat{p}_i .

$$(10) \quad \hat{p}_i = \frac{1}{1 + \exp(\hat{\beta}_0 + \sum_{j=1}^k \hat{\beta}_j)}.$$

Weighted average of the estimated probability of access to education is estimated as

$$(11) \quad \bar{p} = \sum_{i=1}^n w_i \hat{p}_i,$$

Here, n is the number of circumstance groups, w_i is the share of group i in the total population. The weighted average shown in (11) \bar{p} measures the overall coverage rate.

The index of inequality of opportunity is measured by

$$(12) \quad I_{io} = \frac{1}{2\bar{p}} \sum_{i=1}^n w_i |\hat{p}_i - \bar{p}|.$$

The measure of inequality of opportunity is popularly known as the dissimilarity index in the literature [Barros et al. 2009]. This measure highlights on the fraction of available opportunities that could be re-allocated from better-off groups to worse-off groups to make the distribution equitable. The index, IIO measures the dissimilarity between access of education for groups defined by circumstance characteristics and the access for the same for the population as a whole, and sometimes it is called the dissimilarity index. The value of IIO ranges from 0 to 1. For perfect equality of opportunity, IIO will be 0. The index, IIO will be 0 if the access to opportunity is independent of circumstances and in this case the human opportunity index will be equal to the probability of access to education for the population as a whole. The higher the value towards 1, the higher will be the inequality.

We also construct index of human opportunity from the index of inequality of opportunity to measure the adjusted coverage in the access of education in the following way:

$$(13) \quad I_{ho} = \bar{p}(1 - I_{io}).$$

It measures the coverage rate of an opportunity, discounted by inequality in the distribution across circumstance groups. The Human Opportunity Index combines the measure of inequality with the average access to opportunities. It focuses on coverage, measuring how many opportunities are available, and inequality of opportunities, measuring how the distribution of opportunities is equitable, among children. It increases with overall coverage and decreases with the differences in coverage among circumstance groups.

The Shapley decomposition method is used to measure the contribution of each circumstance to inequality of opportunity. The Shapley decomposition of the Human Opportunity Index (HOI), includes the estimation of the basic statistics like Coverage of Basic Opportunities (\bar{p}), the dissimilarity Index (IIO), and the Human Opportunity Index (IHO). The decomposition allows the identification of the marginal contribution of each circumstance to inequality in access to opportunities.

Table 1. Status of current educational attendance at age 5–14 years (%)

Status of school attendance	Rural			Urban		
	Total	Girls	Boys	Total	Girls	Boys
Never attended	8.0	8.8	7.2	5.1	5.6	4.6
Ever attended but currently not attended	2.9	3.1	2.7	2.3	2.1	2.5
Currently attending non formal education	0.6	0.7	0.5	0.3	0.3	0.3
Currently attending in pre-primary	3.5	3.2	3.7	4.4	4.3	4.5
Currently attending in primary and above	85.1	84.2	85.9	87.9	87.8	88.1

Source: Author's estimation with 71st round survey data

Table 2. Share of students attended at primary and upper primary level on full time basis

School type	Rural			Urban		
	Total	Girls	Boys	Total	Girls	Boys
Government	74.5	76.4	72.9	34.7	35.7	33.8
Private aided	6.5	6.4	6.7	19.4	19.0	19.7
Private un-aided	18.8	17.1	20.4	45.7	45.0	46.4
Others	0.1	0.1	0.1	0.3	0.3	0.2

4. Empirical findings

4.1. Summary statistics

The data set contains the profile of boys and girls of the sample households in education. Whether a person is attending school or not is recorded in the survey schedule in the form of the current status of educational attendance. Table 1 exhibits the status of access to education in terms of attendance in school separately for boys and girls in rural and urban areas. To make the estimate population representative from the sample, we have used sampling weight constructed from the multiplier given in the data set. Roughly 8 percent of the children in age group 5 to 14 years have never attended school of any type in the rural economy. The incidence of never attending in school among the children is less in urban areas than those in the rural economy. The share of never school attended is higher among girls both in rural and urban areas as compared to boys. Around 85 percent of the rural children and 88 percent of the urban children of this age group are in schooling at primary level and upper primary level.

Table 2 displays the distribution of children of age group 5-14 years who are currently attending primary or upper primary schools across different types of schools. In the dataset used in this study schools types are categorised into government, private with government aid, private without government aid and other schools. Roughly three-fourth of the children are attending government schools at the primary and upper primary level in rural areas, but the respective share in urban location is remarkably less (around one third). The incidence of purely public schooling is high among the girls as compared to boys both in rural and urban areas, but it is significantly high in the rural areas. In the urban areas, the incidence of schooling in purely private owned institutions is more than 45 percent.

4.2. Estimating logit model

We have estimated a logistic model to find out how a child's access to education at primary level depends on circumstances separately for rural and urban children. All children having the same set of circumstances are said to be of the same group type. Here, the dependent variable is binary with its value equal to 1 if a child is attended in a school at primary or upper primary level on full time basis and 0 otherwise. Therefore, the estimated coefficients measure the effects of circumstances on log odds ratio for attending school on full time basis. We have taken gender dummy (Dgirls) to capture gender differences in attending full time schooling. Household income is supposed to affect whether a child had access to quality education. Logarithmic values of monthly per capita consumption expenditure ($\ln(\text{mpce})$) is used as a proxy for household income. Families in the social groups Scheduled Tribe (DST), Scheduled Castes (DSC) and Other Backward Castes (DOBC) are normally treated as vulnerable as compared to general castes. In our estimation the household in general castes is treated as the reference group. Education of head of the household (DEHH) is an important circumstance variable which is considered into our estimated model.

We have disaggregated the sample data into circumstance groups by gender, and ethnicity. The objective is to understand how much children's circumstances like gender, ethnicity, and other socioeconomic and demographic factors are responsible in getting access to basic education of good quality. We utilise information on family background and other predetermined personal and household specific characteristics that determine a person's educational outcomes.

The data set used in this study contains 82296 sample children with age group 5 to 14 years of which 50454 have been taken from the rural and 31842 from urban areas. The distribution of the sample children by their status of education at primary level are shown in Table 3. Over 50 percent of the children who get access to full time education are boys both in rural and urban areas. Thus, girls are lagging behind boys, although not at a greater rate, in getting education. Nearly 70 percent of the children getting access to full time education in urban

Table 3. **Distribution of children by status of education at primary level**

Обстоятельства	Rural				Urban			
	Not attend fulltime		Attend fulltime		Not attend fulltime		Attend fulltime	
Gender								
Boys	11951	(55.5)	14803	(51.2)	7986	(55.7)	9016	(51.5)
Girls	9563	(44.5)	14137	(48.8)	6352	(44.3)	8488	(48.5)
Household head								
Educated	11453	(53.2)	14579	(50.4)	10361	(72.3)	12235	(69.9)
Not educated	10061	(46.8)	14361	(49.6)	3977	(27.7)	5269	(30.1)
Ethnicity								
ST	3723	(17.3)	5816	(20.1)	1120	(7.8)	1508	(8.6)
SC	4236	(19.7)	5513	(19.0)	2128	(14.8)	2525	(14.4)
OBC	8768	(40.8)	11417	(39.5)	6042	(42.1)	7688	(43.9)
General	4787	(22.3)	6194	(21.4)	5048	(35.2)	5783	(33.0)

Note: Figures in parentheses indicate percentage share in a particular circumstance group
Source: As for Table 1

location come from the families where head of the household is educated. The share of children with full time education is the highest in other backward castes followed by the upper castes.

The estimated results of the logit model are shown in Table 4. In the rural economy, the girls have less access to full time education than boys. In the urban region, on the other hand, the access to full time education at primary level is more for girls than for boys. The household income has positive effect on probability in getting full time education. Among the children from households in different social groups, the tribes and other vulnerable groups have less access to full time education than the children from upper castes households. If the parent of a child is educated, the access to full time education of the child is more. The marginal effects of household income and parents' education are more than the other circumstance variables. The lower panel of the Tables exhibits the overall significance of the model.

4.3. Estimating HOI

In the second step we have calculated the predicted probability of access to full time education for each child on the basis of the predicted relationship as shown in Table 4 and the vector of their circumstances. The estimated probability of access to education is calculated by taking the weighted average of the predicted probabilities and it captures the coverage. The estimated coverage is less in the rural areas than in urban areas (Table 5). In the next step we have computed the

Таблица 4. **Логистическая оценка систематического посещения школы**

	Rural		Urban	
	Odds Ratio	Marginal effect	Odds Ratio	Marginal effect
Intercept	0.01***		0.001***	
D_{girls}	0.90***	-0.02	1.02	0.003
$\ln(mpce)$	1.06**	0.01	1.25***	0.03
D_{ST}	0.79***	-0.05	0.96	-0.01
D_{SC}	0.87***	-0.03	0.89**	-0.02
D_{OBC}	0.86***	-0.03	0.89***	-0.02
D_{EHH}	1.74***	0.10	1.99***	0.10
Number of observation	50448		31833	
$LR \chi^2 (7)$	34531.49		23112.77	
Prob > χ^2	0.00		0.00	
Pseudo R^2	0.52		0.57	
Predicted Probability of full time education	0.76		0.83	

*** $p > 1\%$; ** $p > 5\%$; the rest are insignificant.

Source: As for
Table 1

Table 5. **Estimation of HOI**

Variable	Rural	Urban
Coverage (\bar{p})	62.46	65.95
Dissimilarity (I_{ip})	2.74	2.76
HOI	60.75	64.13
Pseudo R^2	0.00	0.01
Observation	50448.00	31833.00
Vulnerable Pop	23724.00	11876.00
Vulnerable (%)	47.03	37.31

dissimilarity index or index for inequality of opportunity. The estimated value of this index is roughly the same both in rural and urban children. The last step is the computation of the HOI by discounting a penalty for improperly allocated opportunities from the overall coverage rate. The HOI is more among the urban children than among the rural children. In terms of our estimation the share of vulnerable children is more in rural areas than in urban areas.

Table 6. Shapley decomposition of the I_{OP}

	Rural	Urban
HOI	0,61	0,64
D -index	0,03	0,03
Penalty	0,02	0,02
Coverage	0,62	0,66
$\ln(\text{mpce})$	5,9	26,22
D_{girls}	12,7	1,48
D_{ST}	2,55	1,75
D_{SC}	2,92	6
D_{OBC}	4,93	6,39
D_{EHH}	70,99	58,16

Source: As for Table 1

4.4 Shapley decomposition

To find out the contribution of each circumstance to inequality of opportunity, the Shapley decomposition method is used. Parent's education has contributed the most to inequality of opportunity to full time education at primary or upper primary level both in rural and urban areas. Gender gap contributes significantly more in educational inequality in rural areas than in urban areas. Economic condition of the households plays an important role both in rural and urban areas (Table 6).

5. Conclusions

Education is viewed as one of the fundamental inputs of a person's wellbeing and a powerful predictor of earnings. The objective of this study is to provide a quantifiable measure of the distributional content of education by gender across different groups of people by using survey data in India. We analyse educational disparities among the children with age up to 14 years by gender, and household specific characters with Indian data.

Around 85 percent of the rural children and 88 percent of the urban children of this age group are in schooling at primary level and upper primary level. The incidence of purely public schooling is high among the girls as compared to boys both in rural and urban areas, but it is significantly high in the rural areas.

We have estimated a logistic model to find out how a child's access to education at primary or upper primary level depends on circumstances separately for rural and urban children. In the second step we have calculated the predicted probability of access to full time education to find out the estimated probability of access to edu-

cation. We have computed the dissimilarity index or index for inequality of opportunity and finally we compute the human opportunity index.

In the rural economy, the girls have less access to full time education than boys. In the urban region, on the other hand, the access to full time education at primary level is more for girls than for boys. The estimated coverage is less in the rural areas than in urban areas. The HOI is more among the urban children than among the rural children. Parent's education has the highest contribution to inequality of opportunity to full time education at primary or upper primary level.

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Institutionalization of Mentoring as a Resource for Professional Development of Russian Teachers

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Abstract Results of a sociological study are used to analyze the major problems of mentoring early-career educators, and arguments are provided to support statutory recognition of mentors for novice school teachers and the mentoring system as such. The study was conducted by members of the MSUPE Center for Applied Psychological and Pedagogical Research jointly with scholars from five regional universities. It involved 25 interviews with school administrators (principals and head teachers) as well as questionnaire surveys of beginning teachers (work experience of under five years, age under 30) and their experienced colleagues. The total sample consisted of 490 teachers (150 new and 430 experienced) employed with federal and municipal institutions of general education.

Findings show that the main barriers to effective mentoring include (i) novice teachers being unaware of their professional deficiencies and the need to be mentored by experts, (ii) experienced teachers being unwilling to mentor because of status, workload and pay uncertainties, and (iii) administrators paying inadequate attention to systematization of novice teacher professional adaptation.

Institutionalization is required to allow further development of the mentoring system in Russian schools. Statutory regulation of mentoring implies introducing relevant job positions, elaborating mentor job duties, determining the size and sources of pay, creating a system of mentor selection and training, and defining the content and major forms of mentoring programs.

Keywords teacher education, novice teacher, professional development, mentoring, professional adaptation.

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The Role and Application of Picture Books in Pre-school Practice

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Abstract. Picture books occupy an important place in the life of a child both in family and in school. As a unique combination of illustration and text in a pedagogical mode, picture books teach, incite creative imagination and enrich the cognitive and socio-emotional world of a child. The goal of our research is increase understanding the place and the role of genre diverse picture books in Montenegrin pre-schools in the current context. Pre-school teachers noted key challenges in the use of picture books in pre-school practice in general

and singled out proposals for more efficient application. In this paper, we deal with parents' participation in mediating picture books' content and values to pre-schoolers. We took our research sample from the population of teachers in pre-schools of central, northern and southern region of Montenegro. Our research included 209 pre-school teachers from five kindergartens and 93 respondents from the three institutions, which we interviewed during the seminars. We combined elements of both quantitative and qualitative surveying and interviewing.

Our research indicates a significant and continued use of genre-diverse picture books, but also an absence of new titles, technical support in the selection of high-quality books, domestic authors and vague criteria in the selection of books, as well as a lack of parental involvement in the selection of books.

Keywords: picture books, children, pre-school, pre-school teachers, parents.

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Introduction

The first book in a child's life that awakens curiosity and sensitivity to the world of literary art is certainly a picture book. By enabling an interactive transposition and essential interaction between two sign systems, the word and the image, this medium immerses the child into a unique engaging world of story that is rich in content while featuring various relations among the characters and interesting, distinctive plots. This is the type of discourse where the strands of the written

narrative and the picture are synthesised and complement each other in prompting unique cognitive experiences for children and motivating them for further reading enquiry. The American Association of Librarians [ALA 2008] distinguishes the picture book from other books with illustrations that provide visual experience for children. «The picture book has a substantial unity of the story flow, theme or conceptual framework, developed through a sequence of pictures that make up a book» [Batarelo Kokić 2015:378].

Among a vast diversity of picture books that serve varied educational goals and seek to convey numerous messages, we can find different title and genre choices that are conditioned by age, theme, transgenerational and experientially marked conceptual criteria, as well as by professional assessments of the quality of children's books. Yet, despite the broad variation in the type, composition, the content offered and other features that shape decisions to opt for any specific kind of this category of literature, there is a common understanding that the part that the picture book plays in achieving crucial learning and development goals within the early childhood context is of paramount importance. At the same time, we should also point to the highly significant role that adults (primarily parents and then pre-school teachers) play in the process of familiarising a child with distinctive literary and artistic qualities of the picture book [DeBruin-Parecki 2009].

In this paper, we focus on the selection of picture books in the current reality of pre-school institutions, how the picture book works as an interactive medium in the practice of early learning and development, the values that pre-school teachers recognise in the selected layered and semantically enriched children's stories, as well as the place and role of parents in this «magic world and cosmogony,» through the professional lens of pre-school teachers. In addition, we are particularly interested in how pre-school teachers identify specific challenges related to the existing market for and the selection of picture books, and what they propose as means to ensure more effective application of «the first children's book» in the pre-school practice of Montenegro.

Origin and types of picture books

If we take a retrospective look at the variety of definitions and qualifying frames that describe the nature of the picture book, then perhaps we should first remark on an 1860 translation of Thiele's *Das Bilderbuch* by Šulek, where he refers to the book that marks a child's very first encounter with the literary world (a picture book) as a «storybook, a book with pictures» [Majhut, Batinić 2017:21]. The *Encyclopedic Dictionary of Pedagogy* [1963] defines the picture book as an illustrated book for children of pre-school age. The relationship between text and illustration, among other things, determines the genre attribution of the picture book and/or the children's book. Nodelman [1989] points out that picture books are primarily intended for small children and convey information or tell a story through a series of pictures com-

bined with little or no text. According to Batarelo Kokić, how the image and the word interact to convey meaning in picture books is different from any other type of discourse [Batarelo Kokić 2015:379]. As a distinctive form, the picture book is a “semiotic space” in which meaning is created and reflected through a kaleidoscope of unique experiences of pictures and words [Feathers, Arya 2015]. Where text prevails over the visual strand in the artistic composition, such books for children can be classified as the illustrated book, because «words serve as the primary means of narration, while pictures only bear a supportive or merely decorative function» [Nikolajeva 2002:88].

We are able to trace the advent of the very first picture book to as far back as 1658, when a unique illustrated primer, *Orbis Sensualium Pictus*, that was authored by the well-known educator J. A. Komenski was released in Nuremberg [Martinović, Stričević 2011]. There is reason to consider *Biblia Pauperum*, a popular, easy-to-comprehend version of Scripture that was intended for the less educated and dates back to the late Middle Ages, as the first example of the book to harness visuals as the primary strand of narration that was accompanied by just small amounts of text [Majhut, Batinić 2017]. Nevertheless, it was not until the 19th century that picture books that feature more artistic illustration than text began to gain mass ground [Ibid].

In providing a comprehensive account of how the children’s book came to be and has been evolving through history, Moebius [2011] distinguishes two major referential dimensions whereby we can understand and interpret how the multi-layered artistic discourse of the picture book unfolds, engages and affects the reader while also determining various applications of the picture book. On the one hand, Moebius emphasises such features as theatrics, dynamism, «the drama of the turning page,» «panorama,» the ritual, the process, etc. On the other, he points to the very experience of “getting immersed” into the visual strand of the content plane with its vibrant kaleidoscope of colours, patterns, textures, shapes, etc. [Moebius 2011:171]. Cope explains: «The book is not an object, but a form of text and a means of communication. The book is not a product, but the ‘architecture of information’» [Cope 2001:6].

We are able to distinguish multiple approaches and frameworks in how a typology of the picture book can be established, which differ in whether it is an academic, experiential or any other perspective that underlies a given classification, the choice of specific criteria, etc.

Thus, Matulka [2008] speaks about the following five groups of picture books: picture books for beginner readers; picture books related to a particular concept or topic; picture books in the digital format; toy picture books; and picture books with rhymes and verse [Batarelo Kokić 2015:379].

Picture books of the first group, i.e., those intended for younger kids who are just beginning to get the hang of reading, are usually the most abundant and diverse type of the picture book that features a va-

riety of fairy tale, fable and/or other content, often expressed in verse and where illustrations prevail, so that a child can easily read it either independently or with some support from adults [Matulka 2008]. Picture books related to a particular concept or topic (thematic picture books) contribute to introducing children to letters, numbers, sizes, shapes, colours, occupations, plants, animals, etc., and often mediate multi-conceptual and complex messages (ibid). Digital picture books contain a variety of animation, film and other «add-ons,» which allow more interactivity and complement the reality through the virtual dimension [Hoffman, Paciga 2014]. Toy picture books offer children a multifaceted and engaging interactive space where the strands of visual and, if any, textual expression are synthesised with a specific mode of direct participation through play. Matulka subdivides such picture books into the following four types: cardboard picture books (board books) with rounded corners; three-dimensional picture books (pop-up books) with illustrations that rise up to form a three-dimensional scene or figure once the page is turned; flap picture books (flap books); and picture books with cut-outs (cut-out books) that have their parts cut in order for the story to unfold revealing gradually «hidden» parts of a comprehensive themed composition [Batarelo Kokić 2015].

Campagnaro [2012] divides picture books into two larger groups. The first group refers to those books whose composition fuses the strands of text and visual narrative in rendering plots that typically have a clear, predictable ending. Picture books of the second group are more interpretative and interactive in nature, and the type of communicative space they create is more dynamic, polysemic and articulating multiple messages [Ibid]. A newer format of picture books, which is the digital picture book, is distinctive in its meta-structure, narrative and form. It is distinguished by certain paratexts, layout and different display modes [Batarelo Kokić 2015]. The multi-dimensional and multi-functional interactive environment that picture books in the digital format offer early learners is created by synthesising different levels and modes of user participation that range from simply surfing through pages to full involvement through activities such as designing content or writing text [Al-Yaqout, Nikolajeva 2015]. When explaining the complexity of the digital format, Hoffman and Paciga [2014] point to the mandatory novel elements of the new «e-book,» such as animation, interaction and technology, alongside features of the common legacy that they share with traditional «paper» picture books.

Word and image in the picture book

There are numerous considerations that are involved in developing judgement about the quality of picture books. When setting out to comprehensively evaluate a given picture book, one needs to thoroughly consider facets pertinent to both its structural dimension (i.e.,

type and format, texture, colour, illustration, technology framework, etc.) and the content plane (i.e., themes and conceptual patterns, values embedded and messages conveyed, etc.). It turns out that what we can reasonably call a quality picture book is always a product of well-coordinated joint efforts by teachers, psychologists, writers, designers, programmers, etc. that is consistent with the principles of ensuring meaningful and engaging content, age appropriateness and achieving relevant psycho-emotional (e.g., allowing an emotional outlet) and learning effects.

As already mentioned, the picture book is a medium where the semiotic dimensions of written narrative and image are equally important and interwoven in the matrix of expression in creating a unique interactive space whereby particular messages are transmitted and goals of learning and development are fulfilled. A review of the existing literature on the subject enables us to identify a variety of terms and definitions that have been proposed to describe the interplay of text and image, e.g.,: «duet,» «counterpoint,» «interference,» «congruence,» «alternation,» «alternative progress,» «synergy,» etc. [Sipe 1998]. There are various classifications that seek to identify and qualify the types and modes of how the textual and visual strands of artistic expression are related to each other in the picture book [Agosto 1999]. Below is one example of such a classification:

- Symmetric interaction – pictures and text convey the same information
- Complementary relation – pictures and text complement each other in rendering a cohesive storyline
- Intensifying relations – text and image have a mutually amplifying effect
- Contrapuntal interaction – the strands of written and visual narrative unfold in achieving polyphony, just like in music
- Contrastive relation – pictures and text interact in achieving the artistic effects of contrast, juxtaposition, etc. [Nikolajeva 2002] (according to [Vučković 2019]).

How words and visuals interplay in the matrix of expression of the picture book can be viewed, in particular, as two dimensions where the textual strand primarily serves to render temporal settings while the visual strand is most likely used to portray spatial settings [Nodelman 1988] (according to [Vučković 2019]). «The text–picture relation is not so much a matter of the power balance between the two, as rather the way that text and picture interact with one another and how much they transform one another» [Sipe 1998: 98].

Yet, it is interesting to note that once we come to reflect on matters related to the authorship of a picture book and how its various contributors are typically recognised, then we find that—although text and picture are just as important and have equal footing in rendering a coher-

ent and cohesive content plane—illustrators are barely ever listed as authors of a children's book proper. Also, when we deal with instances of critique by various commentators that address the quality, appropriateness and other facets of a specific picture book, we can note that such critical reviews mostly focus on the textual dimension and explore perspectives in the domain of literary theory, whereas discussions through the professional lens of illustrators and experts in aesthetic and artistic expression have so far been less common [Majhut Batinić 2017:22].

When a picture book is applied in the educational process, its content plane that is rendered via this complex dyad of the textual and visual strands of expression, including the special colouring, multi-layer links, etc., begins to receive pedagogical interpretations that are shaped by individual mind-sets and experiential backgrounds that various actors involved (recipients, mediators, etc.) have developed themselves as well as by how they interact with each other once immersed into the book discourse. When surfing through a vivid, intense and engaging plot offered by a picture book, the child acquires in each particular case unique psycho-emotional experiences and perceptions, and the role that the teacher plays in guiding and facilitating this idiosyncratic process is undoubtedly of great significance [Korać et al. 2007].

Works of literary art certainly reflect the cultural matrix from which they originate and convey certain values of temporal and environmental «forms of representation.» Thus, we find explicit or implied [Bruner 2000] portrayals and narratives with textual or combined symbolic fictional descriptions of gender, racial, national, class and age-developmental features [Vučković 2018]. Textual and visual narratives that explore various interesting topics through synthetic rendition of the real, the imaginary and the mythical also contain certain value connotations [Opačić 2015]. Fairy tales reflect social relationships, positions and roles of different characters, etc. while naturally transmitting important value messages. Characters are usually depersonalised and depicted as bearing generic features that are conceived of as typical of certain social groups or classes, which is symbolically expressed through the interplay of the word and the image [Žižek 2013].

The child and the picture book

It is already at an early pre-school age that the child begins to take interest in picture books. As children mature, their cognitive focus expands and changes, so this period in the child's life is known as the period of fairy tales [Vranjković 2011]. After the age of seven, the child is interested in both realistic stories that portray settings and phenomena common in everyday childhood experience, as well as in fantasy stories. Yet, according to Vranjković, as the child grows and develops across psycho-emotional and social dimensions to take more interest in picture books, fairy tales, fables, realistic or fictional story, etc.

at one age or another, we are unable to clearly demarcate between the stages in how this interest of the child evolves over time, because these developmental spans are never isolated, but are continuous and immediately interrelated while inducing both proactive and retro-active effects [Ibid].

If we look at the child from the humanistic and constructivist standpoints, then we have in mind the child's multidimensional capacities, including auditory-visual sensitivity, which enable the child to learn to speak and communicate and then to read and write from an early age [Martinović, Stričević 2011]. Therefore, the choice of the best appropriate format of the picture book, its content, how specific messages and particular values are mediated, etc. should always be made while taking into account the child's capacities of curiosity, questioning, reception, etc. [Xiaoyuan 2017].

The developmental and pedagogical foundations that prevail in the existing system of pre-school education in Montenegro consistently emphasise a paradigm of childhood that is anchored in the post-modern, socio-constructivist image of the child. This framework has particularly stressed the instructional, care-centric modern matrix of childhood development that reflects the so-called "deficit model of childhood" [Pešić 2009], where the intrinsically immature and inapt "child in need" is the main metaphor in interpreting childhood, which devaluates or rules out altogether the important internal powers and capacities that the child possesses since the very moment when he or she comes into this world.

Therefore, exploring how picture books are applied in practice and how they contribute to early learning and development, as viewed by pre-school teachers, which is the main focus of this analysis, possibly represents another research dimension that could provide novel perspectives for re-examining and rethinking the conceptions of the child and the paradigm of childhood education that currently dominate the realm of pre-schooling in Montenegro.

By delving into a multi-dimensional discourse of "picture book worlds," where the exploration of fascinating artistic plots is immediately interwoven with and facilitated by the direct interaction with real-life participants involved, the child advances in developing meanings and co-constructing his or her own understanding of reality [Miškeljin 2010: 135]. It is precisely this paradigmatic pedagogical starting point that brings about the entire spectrum of methodological treatments of the child, in the institutional and, we assume to a significant extent, in the non-institutional sphere, while also reflecting preferences in the choice of picture books of particular content as well as of how they are mediated to children.

De Bruin-Parecki [2009] specifically points out the importance of interactive reading for later school accomplishments of children. Studies investigating the relationship between increased access to digital picture books and the development of literacy in children of

pre-school age indicate a noticeable positive correlation, i.e., the former does add to functional literacy of children [Karemaker, Pitchford, O'Malley 2010; Korat, Shamir 2012; Shamir, Korat, Fellah 2012; Shamir, Shlafer 2011]. The latest neuroscience research has testified that reading can induce important changes in the brain and that, apart from empathetic involvement into the world of a book or a character, the process of reading also sparks changes that unfold in the neuro-physiological domain [Popović 2018: 605].

Methods and sample

The aim of our research was to examine how pre-school teachers in Montenegro evaluate the importance that picture books have for children, how they see their current role in the educational process, what kind of interest children and parents show in the selection of picture books, and the values that most frequently characterise favourite children's picture books. As well as looking at these aspects of the picture book application in pre-school practice, we also sought to 'read' the aspects of the current childhood model in pre-school institutional practice in Montenegro.

For considering this kind of the research objective/question, we singled out these key issues:

- Representation of a picture book in pre-school practice, as well as the children's interests in relation to the contents, titles and types of books
- Benefits from a continuous 'dive into the world of' high-quality picture books, i.e., the way children participate in the processing and adopting contents of the first children's book from the perspective of pre-school teachers
- The extent and means of parents' involvement in the mediation of the picture book contents to pre-schoolers.

In order to observe the educational practice in Montenegro pre-schools with picture books and to find answers to our research questions, we developed a questionnaire consisting of closed, semi-structured and open questions. In the second phase of research, after carrying out seminars with pre-school teachers from institutions in Podgorica, Nikšić and Budva, dedicated to the theme 'Picture books in kindergarten,' we talked with participants about previously marked issues, so that we can get a complete overview of the topic we are interested in.

The Sample

Respondents were pre-school teachers from institutions in Montenegro. To ensure a representative sample, the questionnaire was addressed to representatives of the six kindergartens in the north (Plje-

Table 1. **The Sample**

Public kindergarten	Number of pre-school teachers	%
'Ljubica Popović' - Podgorica	98	46.89
'Dragan Kovačević' - Nikšić	39	18.66
'Naša radost' - Herceg Novi	37	17.70
'Eko-bajka' - Pljevlja	19	9.09
'Solidarnost' - Ulcinj	16	7.66
Total	209	100

vlja, Nikšić), central (Podgorica) and the southern part of Montenegro (Ulcinj, Herceg-Novi).

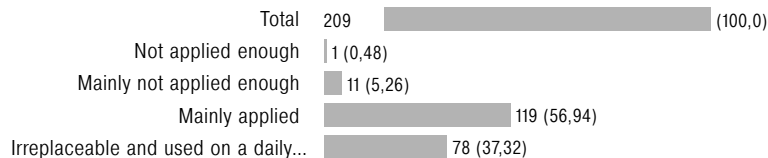
The seminars were attended by 93 pre-school teachers from three kindergartens (Budva, Podgorica and Nikšić) and through conversation with them and through their 'discursive engagement,' as well as internal group reflection on the current status of picture books in kindergartens, we tried to get a more layered and 'deep description of the phenomenon' [Geertz 1973] (according to [Cohen et al. 2007: 22]). The answers to marked questions, from the viewpoint of 'wondrous indexed daily life' [Garfinkel] (according to [Cohen et al. 2007: 25]) we transcribed and categorised results around the main focal points/concepts.

Application of picture books in kindergartens and children's interests

In picture books 'words change pictures and pictures change words' [Nodelman 1988: 220]. Therefore, this illustration and literary format (different than usual text-centric approach as an illustration has primacy among the youngest), as the first 'meeting' of a child with literature and writing, is the most appropriate for children's cognitive-emotional sensitivity and 'fictional orientation.'

When answering about how frequently picture books are used in the teaching practice in kindergarten, pre-school teachers recognise and appreciate the high significance of the first children's book and expressed an affirmative stance on this issue by choosing the two first-offered options on the assessment scale: the picture book is irreplaceable, 37.32%; and mainly applied, 56.94% (Figure 1). They pointed out that they very often plan reading and processing different picture books in the educational work (84.69% of respondents choosing options every day and very often). However, when it comes to the current conditions we have a somewhat different distribution of answers. Despite awareness of the great significance that picture

Figure 1. **Application of picture books in kindergarten.**
(Number of respondents (%))



books have in working with children, as much as 42.11% of respondents responded that the available corpus of picture books in kindergarten does not meet various children's needs and interests. It is not easy to determine precisely how and why: the pre-school teachers did not explain the concept of children's interests, nor did they classify the corpus of picture books according to more precise criteria, such as clearer indication of different levels of need, learning, cognition in children (artistic/poetic and/or non-artistic/prose, thematic, problem picture books). According to the teachers, the current corpus of picture books includes famous titles, classic fairy tales, thematic and realistic stories of known and/or unknown authors, as well as those in which children encounter different fantastic characters: witches, wizards, dragons and other creatures [Vučković 2013; Vučković, Pajović-Dujović 2016]. There there are also some new titles, and cartoons and animated films, adapted to picture book format.

Our respondents emphasised the scarcity of domestic, Montenegrin authors of picture books among those applied in the selected kindergartens. In particular, 80 pre-school teachers, which are 38% of those surveyed, estimated that the entire available marketplace of picture books for kindergarten totally lacks children's stories written by the writers of the Montenegrin community, while 19.62% of respondents reported that we do have several titles. What is the meaning of this significant lack of interest in this kind of creativity for children in our community and what is its correlation with the 'domesticated,' actual image of a child? The paradigm of 'deficient childhood,' which is implicitly culturally, even prescriptively perpetuated through regulations and recent traditionally declared programs in our community, also appears through the present practical, contextual relationship of the child's needs and potentials. Missing creative conceptuality and activity in the field of children's artistic and non-artistic stories, implicitly testifies to there being persistent 'passive promotion' of the model of the immature 'child in need' (deficient model).

Our respondents also highlighted that children of different ages have interests conditioned by their cognitive-emotional capacity and maturity, so that younger ones choose fabulous short stories filled with interesting and colourful illustrations.

Table 2. What kind of picture books are most interesting to children, that is, which they usually choose?

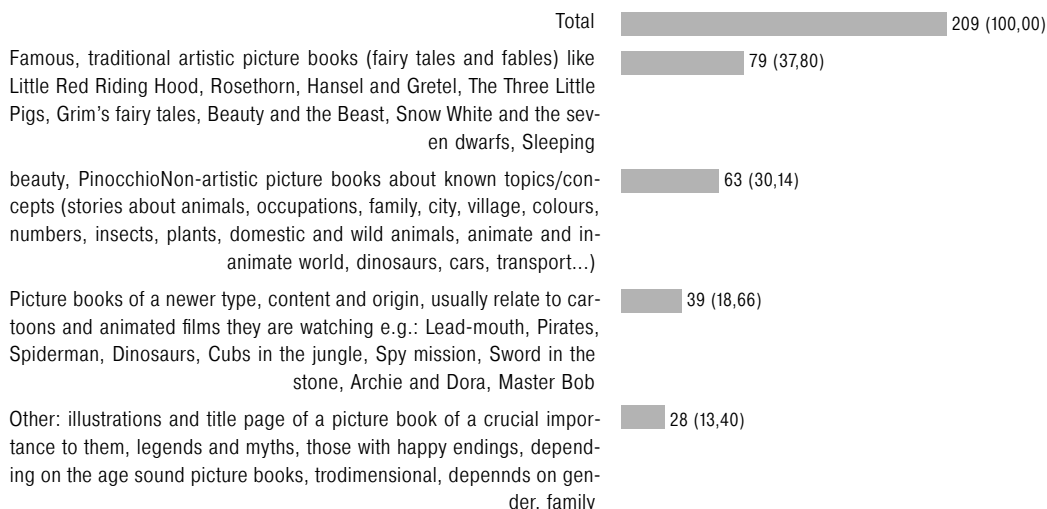
	Number of respondents	%
a) With more illustrations	128	61.24
b) Three-dimensional	53	25.36
c) Interactive	21	10.05
d) BC	2	0.96
e) ABC	4	1.91
f) Sensory	1	0.48
Total	209	100.00

At an early age, naturally, illustrations play a crucial role and are of a most importance in the picture book composition, so our interviewees point out that younger children predominantly choose such forms (Table 2). As Brian Sutton-Smith concludes, children prefer story-songs in particular, while at an older age their focus shifts to prose [Marjanović 1987]. During their development, children first observe pictures and link meanings that represent their experience of reality and later enter the world of symbols and verbal meanings. Therefore, Bruner [1990] stratified child development into three necessarily continuous phases: action, iconic and symbolic. Our pre-school teachers observe that with cognitive maturation and richer experience, children show intense interest in picture book contents in the form of fairy tales, but also fantastic tales, realistic forms garnished by relevant, interesting illustrations.

In the present context, the selection of children's picture books is primarily oriented towards famous, traditional artistic contents and titles of fairy tales and fables, 37.80% (Little Red Riding Hood, Hansel and Gretel, The Three Little Pigs, the Brothers Grimm's fairy tales, Beauty and the Beast, Snow White and the Seven Dwarfs, Sleeping Beauty, Pinocchio, The Ugly Duckling, Sleeping Beauty, Andersen's fairy tales, Bambi, Heidi, Disney picture books, The Tin Soldier, Puss in Boots, etc.), than towards picture books about known topics/concepts and of an educational character, which may contain complex material (30.14%), i.e., stories about animals, occupations, family, city, village, colours, numbers, insects, plants, domestic and wild animals, animate and inanimate world, dinosaurs, cars, transport.

Respondents also cited also some new, illustrated narrative genres, such as cartoons and animated films presented in a picture book format, as frequent children's choices, e.g.: Pirates, Spiderman, Dinosaurs, The Sword in the Stone, (18.66%), the quality of which is not

Figure 2. **Picture books chosen by children**
(Number of respondents (%))



always certain. Some of our respondents observed that the illustrations and title page of a picture book appear to be of crucial importance for the selection and awakening of children's interest in the story content.

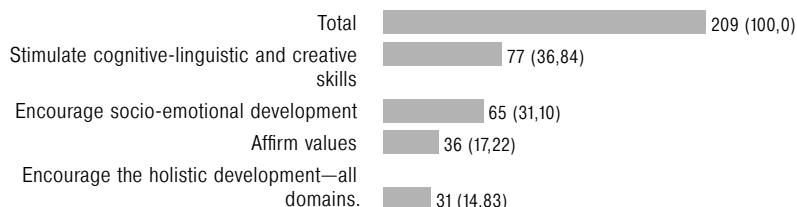
Picture books that help children face complex problems (multiculturalism, children with special needs, different family challenges, etc.), that children use to look for solutions or make critical judgments [Martinović, Stričević 2011], did not take a significant place in answers by our respondents.

Benefits of the application of picture books in kindergarten

Undoubtedly, in the broadest sense, with numerous varieties and genre diversity, equipment, and age appropriateness, picture books occupy a very important place in the educational and pedagogical pre-school environment. In this respect, when considering a picture book's role in working with children, pre-school teachers remarked on the numerous benefits coming from purposeful application and elaboration of 'the first children's book' in the educational process. We condensed the answers about the benefits children gain from listening, reading, reception, experiencing and interpreting a picture book's contents into several thematic and semantically related categories:

- Picture books stimulate cognitive-linguistic skills (36.8%): speech, thinking, attention, imagination, memory, reasoning, adopting

Figure 3. **Benefits of picture books for children**
(Number of respondents (%))



concepts, enrichment of vocabulary and sentence, free and creative expression, love of the book, written words, the pictorial expression, auditory-visual sensitivity, model learning, creative activities

- Picture books encourage socio-emotional development of children (31.1%): communication and socialisation skills, conflict resolution, empathy, understanding their own and feelings of others, bonding with each other, with parents, teachers, and other adults, love of the book, etc.
- Picture books affirm values (17.22%): building friendships, perseverance, courage, gaining respect, responsibility, recognition, appreciation and 'living' goodness, justice, distinguishing between good and evil, listening to and respecting the point of view of others, tolerance towards others and different, respect, compassion, love of the book, a love of reading, generosity, humanity, learning critical analysis of good and bad qualities of their own and others' behavioural practices
- Picture books encourage the holistic development of children (14.83%): all developmental domains are backed because children are active on all fronts while engaging with a picture book (Figure 3).

From these ideas and thematically classified benefits, as assessed by our respondents, we conclude, firstly, that there are very important and numerous measures of good in assessing a picture book's contents when working with children and it is possible to notice an interweaving of meanings between given thematic units. The ideas of fairness, humanity, kindness, empathy, changing focus to other persons and different points of view, appreciation, listening and communication skills and so on, permeate all of the above thematic constellations: cognitive, socio-emotional and the attitude valuing sphere. Therefore, it is clear that the picture book medium has a significant potential for the promotion of the child's overall development. However, our re-

Table 3. Activities of children after reading a picture book
(What activities for children most often arise from working with a picture book?)

	Number of respondents	%
Activities in the visual arts centre, drawing, painting, illustrating.	79	37.80
Retelling, the story in pictures, dramatisation, drama and puppet shows.	63	30.14
Completing a story, making up stories: 'I give you a picture – you give me a story'	34	16.27
Activities in manipulative, sensory and musical fields.	33	15.79
Total	209	100.00

spondents emphasised that adults can mediate all of these benefits and value notions of picture book contents, if they themselves have these specified values in their own implicit epistemology, starting from a love of the book.

Picture books are a very challenging medium, but also very interesting to children. It is a medium for the exchange of ideas, opinions, different perspectives, as well as opening opportunities for new activities. Therefore, answering the question about the most common choices and activities induced by reading, listening, talking about the content of the picture book, pre-school teachers mention several directions of children's interests and spontaneous, inquisitive activity:

From the perspective of pre-school teachers, picture book application has a multidimensional importance for the development and learning of a child and naturally it is not an isolated medium, relevant only to one activity field (e.g., speech-linguistic area), but a necessary integrative and binding element of various contents and activities, which children live daily in a family and kindergarten.

Despite the diverse indicated fields of the picture book application, in addition to mentioned positive aspects of being the first children's book, and in terms of further life of a picture book's themes and contents, pre-school teachers do not list as an option in-depth interpretation and project consideration of some thematic concepts in practice. All the 'output' activities that teachers cited as originating from the work on a picture book are at the first level of a picture book's messages transfer, i.e., illustrating stories, simulation of characters and relations in the visual arts and drama centre, retelling, as a reproduction of what was memorised, and following at the next level there are 'story opening,' inventing new contents, adding original completion (15.79%). Prediction, analysis, creation of new solutions, the choice of different strategies to solve problem situations, encouraging chil-

dren to apply metacognitive forms to reflect on a story are considerably less prominent in the answers of our respondents (34 respondents), because 'children are still too small' (according to one teacher). This fact once again affirms the implicit infantilisation of the 'child at need' and a certain underestimation of their capacities.

Parents' involvement in picture book mediation

In an era of widespread segregation of children and adults into separate domains [Marjanović 1987], as well as missing jointly spent time within the family, the question arises about the ways, intensity and quality of parents' involvement in the mediation of picture book content and messages to children. On the other hand, in the current pre-school paradigmatic concept and experience of childhood, one of the basic starting points of the pedagogical system action is also a deliberate, multidimensional affirmation of partnership with parents and their full involvement in the planning of child-oriented educational process. The obligation of a pre-school teacher is to motivate parents to be more active participants in shaping the environment and the overall socio-emotional climate in kindergarten (systemic-ecological model of natural joining of social contextual connections, according to J. Bronfenbrenner), even in the domain of working and familiarising children with their first books.

In the view of Cheng and Tsai, parents and children can have different relationships during reading picture books: parent as the dominant person, child as the dominant person, communicative parent-child pair relationship, and low communicative parent-child pair relationship [Batarelo Kokić 2015: 384]. Also, the authors suggest a significant correlation between parent-child relationships and cognitive performance of a child. Chang and Tsai [2014] investigated how the process of joint reading of picture books 'built on the basis of an enlarged reality' between parents and children (33 pairs) affects the behaviour of children and their cognitive progress [Ozdamli, Karagozlu 2017]. During research and content analysis, the authors have interpreted the previously mentioned models in a simpler way, with four different patterns of behaviour between children and parents in the process of reading picture books: 'dominant parent,' 'dominant child,' 'talkative child and parent' and 'poorly talkative child and parent.' During the later test verification, children in pairs 'dominant parent' and 'poorly talkative child and parent' have shown a lower degree of cognitive progress in development [Ibid].

Bearing in mind the importance of parental involvement in the mediation of a picture book's content and values to children, we wanted to know how much time, interest and commitment the parents have to do so at home and in kindergarten. When asked whether parents read picture books to children, pre-school teachers answered that parents read to children regularly (3.83%), and mainly (58.85%), while a sig-

Figure 4. **Frequency of reading picture books (parents)**
(Number of respondents (%))

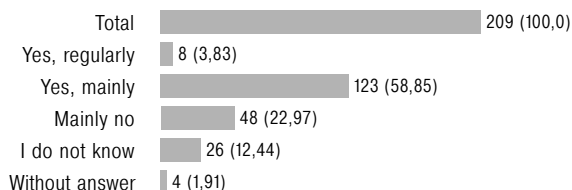
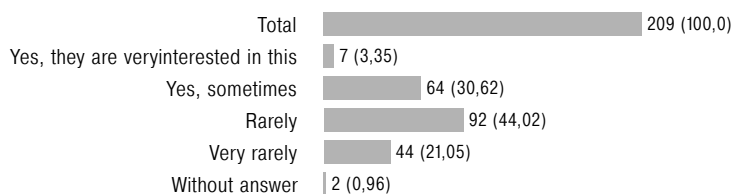


Figure 5. **The level of parental involvement in kindergarten activities, picture books**
(Number of respondents (%))



nificant 22.97% of respondents observed that parents do not do read to children at all.

As we can see from the presented case, pre-school teachers have a very sceptical attitude towards the responsibility and seriousness of parental involvement and the degree of their commitment in mediating picture book content and values to their children. As a limiting factor here, we must bear in mind the lack of parents' perspective in this regard, so that we compiled data on the family affirmation of children's book values through evaluation by pre-school teachers.

Parents have the opportunity to participate directly in kindergarten activities, and to read picture books to children, share impressions of content and messages with them resulting from the joint experience of stories, and initiate other activities as continuation of work on picture book material.

We were interested to which extent are parents involved in the work and mediation of picture book's content to children in kindergarten, in the opinion and awareness of pre-school teachers in our sample.

In Figure 5, we can observe the level of parental involvement in educational activities concerning picture books and conclude that the significant 65.07% of teachers opted for option rarely and very rarely, while just 3.35% of respondents opted for the only completely affirmative option, very interested in this type of activity.

Table 4. Type of picture books that parents prefer
(Picture books that parents prefer—dominant messages/values)

	Number of respondents	%
Those that have messages about family, kindness, friendship, love.	64	30.62
Traditional, well-known stories.	51	24.40
Those that have interesting and rich illustrations.	51	24.40
We do not have information and did not talk with parents about it. Parents do not have the time or the interest to work with children.	43	20.57
Total	209	100.00

Table 5. Activities that parents initiate
(Which activities parents initiate after working on a picture book
(if you have such experiences or findings)?)

	Number of respondents	%
We have no findings; we do not talk about this topic with them.	66	31.58
Drawing, painting, common games, engaging in small plays in kindergarten.	49	23.44
Visits to the library, bookstore, children's theatre.	47	22.49
They do not have time to do it; they just give them games and do not deal with these issues enough.	47	22.49
Total	209	100.00

Once we gave picture books to children and suggested to them that they read them with the parents and afterwards tell us how it was. Most of them returned pristine picture books, stating that parents did not have time to deal with them! (Respondent from a kindergarten in Podgorica.)

We had a project in which we visited all kindergartens in Nikšić, talked with children and parents about the importance of books and libraries, instructed them how to borrow a picture book, take it home and read it together. However, although they took picture books home, most of them did not even open them. Parents think that it should not be imposed to them, as that is our job to do! (A pre-school teacher who works in the kindergarten library in Nikšić.)

To our open question about which picture books parents prefer, i.e., which are dominant features and/or messages/values that parents

mediate to children, we got a variety of answers from the interviewed teachers. We classified them into four categories from the point of semantically congruent contents:

From the responses of pre-school teachers, as well as from interviews with them after the seminars that had picture books as a topic, we learned that parents do not engage enough in educational activities at the kindergarten.

When asked which activities parents initiate after working on a picture book, pre-school teachers answered:

Most of the interviewed teachers answer that they did not have any information about parental behaviour (31.58%), how much attention they actually gave to the selection of picture books, whether they considered it important and how much they read to children, how they did it or whether they followed their children's interests. Significantly, 22.49% of respondents assumed that parents did not have any time at all to choose picture books with children, and that they diverted children to other resources that do not require their (parental) engagement and practiced a 'highly communicative parent-child relationship,' as Chang and Tsai [2014] define it. Based on the responses we received from teachers during the interviews and additional observations and reflections on this subject, it is possible to conclude there is some dissonance with parents regarding the application of picture books in working with children and other spheres of cooperation. Teachers reported that parents lack interest in this topic, were uninformed and inflexible, but in turn, they self-critically concluded that they did not have enough information, or initiative to find out more from parents.

A constructive, proactive model of childhood rests on the concept of respecting a child's potential, opinions, perspectives, as well as on a solid team 'circle' of all direct and indirect participants who believe in and share the best interests of the child. From the answers of our respondents, we conclude that there is no cooperation between teachers and parents when it comes to picture book application, i.e., adults generally do not have and do not build a shared image of the needs and interests of the child. The love of the book, promoting the value of reading, caring about the book, exchanging ideas about picture book content is to be developed in an atmosphere of support and encouragement of adults in the family and pre-school institutions. From these findings, it is possible to 'read' the lack of joint interest of adults in a child's need for profiling fundamental reading affinities. Here again we witness implicitly epistemological deficit model of childhood, according to traditionally established matrix 'at school, we will begin all seriously.'

**Application of
picture books:
group interview**

Answering the question of the quality and type of picture books that they prefer in working with children, interviewed teachers (interviews

at picture book's seminars) answered that they selected titles depending on the age of children, children's affinity, but also their own assessment of the valuable contents. A pre-school teacher in the seminar group in Budva told us:

I discovered a picture book story The Story of the Little Mole Who Knew it was None of His Business by authors Werner Holzwarth and Wolf Erlbruch, which was not known in our surroundings. The kids were delighted, and so were we! They were happy they could learn about different animals in such an interesting and likable way. They laughed, watched inquisitively and raced to answer.

Picture books that provoke a sense of participation and empathy, encourage the child to explore the reality and help release negative emotions were particularly important for younger pre-school children. However, talking to pre-school teachers in our sample, we concluded that they need help in both selecting quality picture books and presenting new editions.

A teacher from Podgorica kindergarten explained that 'sometimes we are not sure what is good and really instructive for children. Illustrations are unclear, some say they are good, symbolic, interesting, some that they are inadequate ... I do not know; we need help from someone who has the right knowledge of it. Maybe a psychologist, an art teacher, I do not know ... It's not easy.' Our respondents suggested that a team of experts (pedagogue, psychologist) could give this subject more attention, in terms of information about good picture books, assessment in the selection and purchase of new titles, all that which is lacking in the current context. Also, our respondents in all three focus groups underlined the extremely important role of teachers and adults in mediating picture book's content.

Additional challenges

From the presented answers of teachers on the survey questions, it is possible to clearly identify the most common and pronounced challenges in working with picture books. We added to these items the broader responses supported by interesting narratives from interviews with our respondents from all three communities. Taking into account the overall review of the present work with picture book in kindergarten received from pre-school teachers surveyed, it is possible to identify the following challenges:

- Insufficient picture book corpus in kindergartens (42.11% of surveyed and 76.34% of interviewed teachers)
- Lack of professional support and assistance in the selection and application of quality picture books in working with children; lack of professional advice by pedagogues, psychologists, illustrators (interviewed teachers, 54.84%)

- Continuous professional development in the field of picture book for all pre-school teachers (exchange of experiences and workshops at the level of an institution, corresponding training programmes, etc.) (Interviewed teachers, 49.46%)
- Lack of conditions for the application of 'e-picture books,' being that the present possibilities of digital interaction are exceptionally huge (interviewed teachers, 60.22%). 'There is enormous number of titles offered by web page "Goodreads" and so many others, and that is very well known, but we are still using hook and crook,' according to a pre-school teacher from the coastal municipality of Budva.

During conversations with teachers at seminars, we asked them why their working spaces lacked picture books, why there were no domestically-authored picture books, and why there was no serious effort toward qualitative selection and mediation of important messages and values in the first books children encounter. Our respondents pointed out that these problems are caused by insufficient understanding in the system of the potential and needs of children at an early age.

Examples of good practice in the picture book application

As one of the most important breakthroughs in terms of participatory and co-creative involvement of children in deeper thinking and organising their own picture book-story, our respondents specified the practice of creating domestic picture books, which teachers create together with children and point out that it is a highly beneficial activity. Our interviewees, pre-school teachers from all three regions, explained that children love to participate in the process of designing a picture book; they create it, reflect on its contents, explore and find illustrations with which they will complete the composition of the picture book, draw parts of the story, cooperate and negotiate, thereby building their cognitive-linguistic and socio-emotional competence. When asked about the recommendations/proposals for the efficient use of picture books in the future, teachers responded:

- Work on creating picture books that are made and illustrated by children, teachers and parents, 'to jointly devise the beginning and the end' (35.41%)
- Follow children's interests, increase application, take account of the picture book's appearance, text and pictures to be appropriately composed (28.23%)
- Picture books with some current, educational topics, modern challenges: diversity tolerance, ecology, etc. (19.62%)
- Find more picture books for younger children, sound-books, interactive, pop-up, etc. (16.75%).

The answers and recommendations of teachers indicate the need for more serious teamwork in the application of picture books in teaching and adequate multidisciplinary practice in working with children at an early age. It is clear that a picture book can induce children's expression of inner or internalised reality, the release of repressed fears and prohibitions, as well as creative imaginative activities and linguistic semantic games, so the role and responsibility of professionals in evaluating, selecting, preparing and interpreting a picture book in educational activities with children is crucial.

Conclusion Given the complexity, multidimensionality and interdisciplinary foundation of picture book as a medium used for teaching children of early and pre-school age, this paper aims to assess the place and role of picture book from the perspective of pre-school teachers in Montenegro, considering the current concept of childhood. Attitudes towards this topic, reflects, in its own way, the current nurturing paradigm of childhood underlying pre-school practice of Montenegro. As expected, picture books are in continuous use in the educational process. Teachers and children choose them according to the age, thematic criteria, equipment and the level of openness and interactive provocation. However, our respondents (pre-school teachers from the three regions in Montenegro pre-school institutional sphere), point out the lack of systematic focus on this field of children's interests and that as a result they do not have at their disposal sufficiently rich and purpose-built corpus of appropriate titles. They remarked on the lack of interest among the Montenegrin public to engage in creation and production of domestically-authored picture books, while in the case of parents, they pointed to the lack of a continuous exchange of ideas on the careful selection and planned teamwork while mediating the lessons and benefits of picture books to children. Teachers observed that parents were not sufficiently devoted to reading and mediating content to children, but also pointed out that these are only their assumptions, because there has been no intensive and detailed communication with parents concerning this topic.

As for the practice of working with picture book contents, we conclude that teachers apply traditional methods, mainly stimulating content-reproductive knowledge (retell, illustrate, paint, role-play, etc.), while more complex activities, such as critical thinking, team exchanges, producing ideas in different ways, developing positive habits and a love of reading, are mainly lacking in our research findings. Again we have a confirmation that instead of the model of the 'powerful,' resourceful, active child, we have in practice predominantly a 'view from above,' i.e., an adult-centric approach towards the 'child in need' (deficient childhood).

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Professional Motivation of Preschool Teachers: Work or Creative Activity?

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Abstract This study draws upon modern motivation theories to formulate a hypothesis on associations between teachers' interest in creative work and their professional motivation. Research was performed to select and justify forms of preschool teacher training that would promote teachers' creative motivation for developing an enriched learning environment for children. Between 2016 and 2019, 50 teachers of preschool institutions in Ivanovo and Ivanovo Oblast were surveyed using a questionnaire to identify the primary sources of their professional motivation. Such sources were found to be related to appropriation of collective goals, awareness of the importance of one's work, and personal perception of the profession. The findings are used to devise the mechanisms of motivating teachers to engage in creative activities to develop an enriched learning environment. The article provides examples of need-satisfaction oriented conditions to promote teachers' intrinsic motivation, encourage and support their autonomy and initiative. Enriched preschool learning environment is regarded as a specific domain of teachers' creative activity to boost their creative self-expression and thus provide conditions for a comprehensive child development.

Keywords preschool education, teachers' collective, professional motivation, enriched learning environment, creative activity.

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Exploring the Development of Psychological and Pedagogical Competence in Young Teachers

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Abstract Young teacher professional development and retention is a major concern for any region of Russia. Professional adaptation of young teachers is complicated nowadays by changes in the teaching profession as such. In particular, those changes result in higher levels of psychological and pedagogical competence required from teachers, which implies embracing new activity-based methods of teacher induction. Young Professional Teacher Games have been held in Krasnoyarsk Krai since 2011 as an innovative way of promoting professional skills in young teachers that provides conditions for the development of their psychological and pedagogical competence. The article presents data from a comparative study of psychological and pedagogical competence development in young teachers as a function of whether they participated in the Young Professional Teacher Games or not. Findings show that competence indicators increased significantly in the experimental group as compared to the control group. Inferences are made on the possible ways of fostering psychological and pedagogical competence in young teachers.

Keywords young teachers, professional development, psychological and pedagogical competence, teacher induction.

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Economic Education of School Students: Causes of the Crisis

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Abstract Russia's national school curriculum standards stipulate economic education at three levels: basic, advanced, and as part of the social theory course, yet schools rarely include basic economics in their curricula. Curricula of 615 St. Petersburg schools available at their official websites as well as data from online surveys of parents, students, teachers, and school administrators are used to find evidence of the demand for economics as a subject among school students. The fact that only two levels of economics instruction are represented in St. Petersburg schools is explained by staffing issues and impossibility to take the Unified State Exam (USE) in economics. Initiatives for a meaningful change the current situation are proposed in the article.

Keywords school, economics, economic education, social theory, the Unified State Exam (USE), curriculum.

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Educational Resources: Saturation or Satiety?

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Abstract. The article explores the methodological issues of education system evaluation. Such evaluation, based on the comparative analysis of national and regional education systems, is an important source of information for education policy design and implementation through educational development programs. The existing approaches to and methods of education system evaluation are discussed. It is shown that they are based on internal indicators, not those perceived by end users or the effects external to the system. Even though there have been some objective reasons for using such approach, it remains unclear to what extent its results reflect the ed-

ucational outcomes for the end users—that is, individuals, society, and economy? Statistical analysis methods are applied to OECD education statistics to investigate the relations between the education indicators characterizing the level of educational attainment, education accessibility, and the amount and quality of the resources involved, on the one hand, and the outcome effects for individuals, society, and economy. Where such relations are observed, they tend to be non-smooth and only manifest themselves up to a certain point in the vast majority of cases. Such cessation of growth in the outcome indicators that happens after achieving certain levels of resources involved, educational attainment, and other education indicators can be described as oversaturation or satiety effect. Inferences about the limitations and conditions of applying education indicators in education system evaluation are drawn from the findings.

Keywords: education system evaluation, education indicators, external effects, outcome indicators for end users.

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Researchers have been interested in evaluating education systems and their learning outcomes for decades. Such evaluation is vital to understand how adequately education policy and education system respond to social, economic, and individual needs. But what is actually “good education” or a good education system? What criteria and, consequently, indicators can be used to evaluate an education system, its performance and evolution dynamics?

It would seem natural to link education system learning outcomes to the goals set. However, the statutory education objectives

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I. Zhuchkova.*

officially declared in the National Doctrine of Education in the Russian Federation¹, the Key Areas of Long-Term Socioeconomic Policy of the Government of the Russian Federation (The Gref Program, 2000), and the Education Development State Program 2013–2020² are too general to build a system of evaluation criteria and indicators on their basis.

Another possible way of evaluating an education system is to see whether its learning outcomes match the demands of society, economy, and individuals/families. Yet, this option is fraught with two hindrances. First, such demand is only formulated (if at all) in a very general, non-operational form, being hard to convert into criteria and indicators. Second, learning outcomes, except in professional development courses, are achieved with a significant time lag, so the demand identified today may become irrelevant by the time current students graduate.

Impossibility or inability to provide objective- or demand-based evaluation of education systems along with a number of other challenges induced by the intrinsic characteristics of education that will be discussed below necessitate searching for proxy ways of building education system evaluation. The popular quality–accessibility–effectiveness triad has not solved the problem completely, faced with the predictable lack of uniform understanding of what quality is and how effectiveness should be measured.

Today's most common approach to education system evaluation makes allowance for system size (educational attainment), academic achievements, and resources involved. Using such criteria and relevant indicators is a desperate measure, since they characterize intermediary, intersystem results instead of end-user ones. The approach based on those characteristics assumes the following:

- The higher the level of educational attainment, the higher the output in terms of economic growth and employment;
- We know which knowledge and competencies will be in demand in after-school life;
- The more resources involved in education and the higher their quality, the better the final outcomes of system functioning.

This article uses statistical analysis of international and regional statistics in an effort to measure the extent to which the assumptions above are plausible, i.e. whether it is true that the amount and quality of educational resources, educational attainment, and student achievement are positively related to end-user satisfaction with education system outcomes.

¹ Resolution of the Government of the Russian Federation No.751 On the National Doctrine of Education in the Russian Federation of October 4, 2000.

² Approved by Governmental Resolution No.295 of April 15, 2014.

The possibility of using other indicators external to education systems to measure the relationship between education characteristics and its potential outcomes for the economy and society is also discussed in the article.

1. Education System Evaluation Indicators and System Outcomes

Three categories of indicators are used in various combinations today to evaluate education systems, based on whether they characterize (a) student achievement, (b) education system size and education accessibility, and (c) resources involved in education.

To what extent are those indicators related to the external effects of education for individuals, society, and economy? Is outstanding academic achievement related to successful graduate socialization, high levels of educational attainment to economic growth and labor productivity, and large amounts of resources involved in education to better system outcomes?

To answer this question, we are comparing the education system indicators to the end-user outcomes of education for individuals, society, and economy. We are using economic growth and labor productivity as outcome indicators for economy and the Gini coefficient as an outcome indicator for society. Of course, these two indicators are largely affected by other factors as well, but positive economic impact and reduction of social inequality are key objectives of education systems, so relations to education are expected to be observable.

As for end-user outcomes for individuals, adaptation to after-school life, i.e. successful transition to the labor market or to the next education level, is a critical one. The success of this transition is measured based on the “share of youth not in employment, education or training” (NEET) [OECD 2018]. This measure is external to the education system and describes the integration of graduates into socioeconomic life. The relationship between NEET and education has been investigated in a number of studies, including the longitudinal Effective Pre-School, Primary and Secondary Education survey (EPPSE 3–16+) administered by the University of London’s Institute of Education [Siraj et al. 2014]. Another study, produced by Sarah Gracey and Scott Kelly, demonstrates that the content of lower secondary curriculum as well as early school leaving have a critical impact on NEET [Gracey, Kelly 2010].

National and regional NEET rates are certainly affected by other factors as well, unemployment in particular, but they measure graduate socialization, which is bound to be an educational outcome, at least to some extent. We are using NEET as an external measure of school education quality among 15- to 19-year-olds. Education system outcomes are more than likely to have an impact at later stages of human life as well, but the longer the time lag, the more difficult it is to separate the influence of education from that of other factors affecting ca-

reer and social life. For that reason, analysis in this article is restricted to the age group specified above.

1.1. Integrated Assessment

Pearson's Global Index of Cognitive Skills and Educational Attainment³ and UNESCO's Education for All (EFA) Development Index⁴ are the most famous integrated systems of education assessment today.

The Global Index of Cognitive Skills and Educational Attainment ranks countries based on PISA, PIRLS, and TIMSS scores, literacy rate, and secondary and tertiary enrollment rates.

The EFA Development Index is compiled of primary education enrollment, adult literacy, and mean uа the gender parity indexes (GPI) for primary education, secondary education and adult literacy, and primary school graduation rate. However, EFA estimators apparently use poor-quality data and/or imperfect methodology, otherwise it is hard to explain why Russia is ranked below Kirgizia and Tajikistan, being essentially behind the latter in primary education enrollment and primary school completion rates⁵. Yet, some comfort can be taken in the fact that education systems of several advanced economies, including South Korea, the United States, and Israel, are ranked even lower.

Integrated education assessments have been performed in some countries, including Czech Republic [OECD 2012b] and New Zealand [OECD 2010], within the framework of the OECD Education Statistics program. Those assessments used a wide array of indicators largely based on two types of data, (a) statistics submitted by educational institutions and (b) national performance in PISA, PIRLS, and TIMSS.

The key indicators of Russia's Education National Priority Project⁶ also belong to the domains of academic achievement and enrolment in education, describing the performance of Russian school students in international student assessments and their participation in extra-curricular activities.

A noteworthy attempt to develop a theoretical framework for integrated assessment of education systems in Russia was made by AI-

³ <http://gtmarket.ru/ratings/global-index-of-cognitive-skills-and-educational-attainment/info>,
[http://www.edmide.gr/analoinoseis/The-Learning-Curve-Report-20140%20\(1\).PDF](http://www.edmide.gr/analoinoseis/The-Learning-Curve-Report-20140%20(1).PDF)

⁴ <https://en.unesco.org/gem-report/education-all-development-index>

⁵ Primary school completion is measured using survival rate, which is estimated as the ratio of graduates to the number of students enrolled in the first grade of the relevant education cycle. This indicator has been renamed into completion rate relatively recently, probably for political correctness reasons.

⁶ Passport of National Priority Project "Education" was approved by the Presidium of the Presidential Council for Strategic Development and National Priority Projects (Protocol No.16 of December 24, 2018).

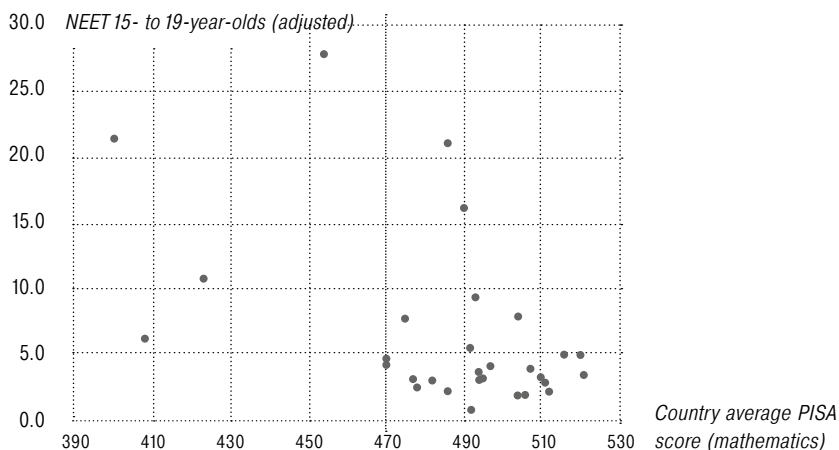
exander Novikov and Dmitry Novikov [2006]. The authors identified groups of users of assessment results, from students to society to enterprises, and assigned a set of criteria to each of the groups. Unfortunately, those sets of criteria have not been justified scientifically, the authors admitting that nearly each of them “has not been formalized so far”.

1.2. Student Achievement and Its Trends

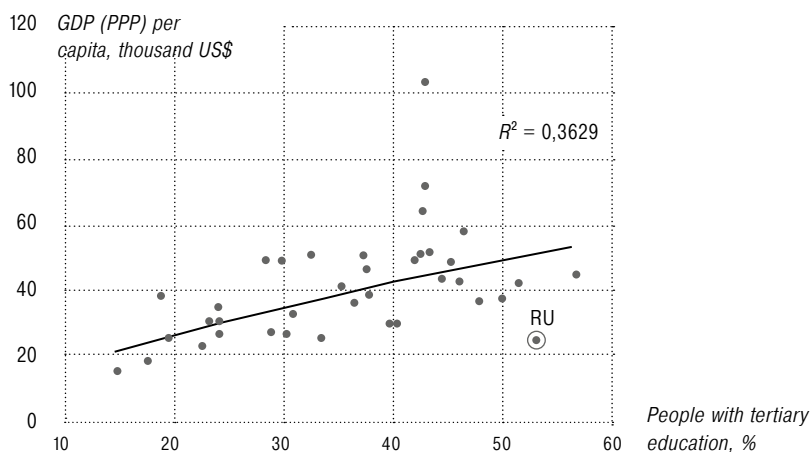
Student performance in national and international educational assessments is the most popular measure of education system evaluation. However, validity of such approach is open to question. First, that same PISA showed that socioeconomic background explained the largest amount (19 percent) of the within-school variance in student performance [OECD 2004], which means that it is not educational effort but parental education and family income that this variance depends on. High scores in the Unified State Exam (USE) are largely the product of tutoring and extracurricular courses rather than school effectiveness. What proportion of learning outcomes is actually owed to school, teachers, program, and curriculum? If it is less than a half, then whom and what do we evaluate? Second, and this seems to be an even stronger reason for doubting the feasibility of student achievement as a criterion for education system evaluation. Education is a unique sector where those who decide what to teach and how to assess learning outcomes are the same people who actually perform evaluation and use its results to make inferences about system effectiveness and development. Yet, there has been no evidence that the educational objectives and learning outcomes reflected in curricula or, indirectly, national and international assessment tests, will pave the way to success in adult life. Neither is there evidence that high USE or PISA scores correlate positively with self-fulfillment and success in after-school life or satisfy the demand of end users, i.e. individuals, society, and economy. Particularly, it concerns the prospective demand, since it is not until tomorrow that the demand for and use of today's education outcomes can be assessed. Nonetheless, the results of international student assessments are still basically the only measure of education system performance available today.

The relationship between student achievements and graduate socialization is ambiguous. Figure 1 demonstrates PISA scores and NEET values across countries. As youth unemployment varies significantly across the sample—from 2.3% in the Czech Republic to 19.0% in Greece—the NEET values have been adjusted to eliminate the impact of this factor.

As seen from the graph, no correlation between PISA scores and NEET is observed beyond the threshold of 470 scores.

Figure 1. **Education quality and graduate socialization.**

Source: Estimated from [OECD 2016b], <https://stats.oecd.org>.

Figure 2. **Correlation between economic growth and educational attainment.**

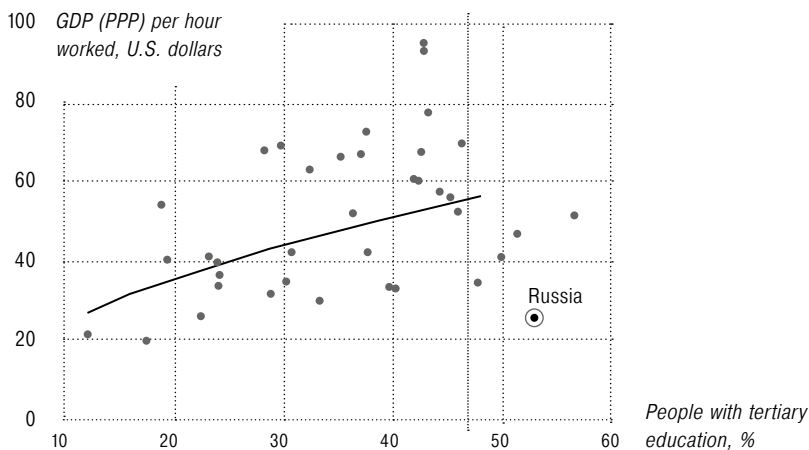
Source: Estimated from [OECD 2018].

1.3. Education System Size Characteristics

Educational attainment is an important indicator in most methods of education system evaluation. By tacit agreement, higher percentage of educated population is expected to correlate with higher levels of national and personal income. With regard to correlation between educational attainment and economic growth, this assumption is confirmed with a correlation coefficient of 0.47 (Figure 2).

However, it cannot be claimed that high economic growth follows from high educational attainment rate and not vice versa. Besides, a

Figure 3. **Percentage of people with tertiary education and labor productivity.**



Source: Estimated from [OECD 2018], <https://stats.oecd.org>.

strong positive correlation is only observed up to approximately the 45th percentile of the population with tertiary diploma. Beyond that, other factors apparently come into play, as per capita GDP is higher in the countries with tertiary attainment rates of 40–45% than in those with higher rates.

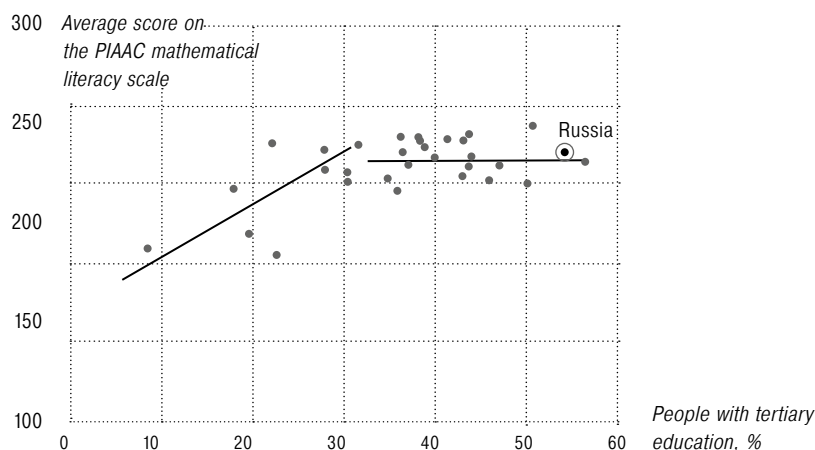
It could be suggested that educational attainment is related to labor productivity at the national level. This hypothesis was investigated, in particular, using the 1990–2007 data on South Korea, where a significant relationship between the change in the rate of people with higher education among the economically active population and sales per person was revealed [Jung Dae Bum 2015].

Here, however, just as in the previous case, the positive correlation assumption is only confirmed up to a certain point. As seen in Figure 3, labor force productivity is lower in the countries with the highest proportion of people with tertiary education (above 46%) than in those with less educated population (40–45%).

This is where it would be appropriate to recall Eric A. Hanushek's work demonstrating that economic growth is affected more by education quality than by the enrollment and attainment rates [Hanushek, Woessmann 2007].

Results of the Programme for the International Assessment of Adult Competencies (PIAAC) [OECD 2016b] contributed to the evidence for the prevalent role of education quality and curriculum as compared to attainment indicators. A comparison of average reading and mathematical literacy rates to those of educational attainment across the OECD countries revealed, again, that an increase in educational attainment correlates significantly positively with function-

Figure 4. **Relationship between mathematical literacy and educational attainment.**



Source: Estimated from [OECD 2016a; 2016b].

al literacy but only at small scales, losing its effects on both reading and mathematical literacy after reaching a certain threshold (Figure 4).

Institutional selectivity is another reason why the influence of educational attainment on labor productivity and individual indicators of socioeconomic status has been put into question [Torche 2011].

Reduction of social inequality is another socioeconomic effect allegedly related to education. It is widely believed that better education accessibility may gradually reduce the social inequality gap. A number of studies demonstrate the role of education as a driver of social mobility; in particular, Fabian T. Pfeffer and Florian Hertel have found that the impact of socioeconomic status on social mobility goes down with increasing educational attainment [Pfeffer, Hertel 2015]. The income Gini coefficient is a recognized indicator of social inequality. Education accessibility is measured using the participation, graduation, and attainment rates. Figure 5 presents correlation between Master's degree graduation rates and Gini coefficient value by countries. For the whole sample the correlation coefficient between the two variables is statistically significant (-0.59) across the 39 countries for which data is available, confirming the assumption that income disparities diminishes as education grows more accessible. Yet, the correlation disappears as soon as the graduation rate exceeds 22%.

A similar trend is observed when the Gini coefficient is linked to educational attainment (Figure 6), correlation between the indicators disappearing or changing its sign as soon as the percentage of people with tertiary education exceeds 31%.

Figure 5. **Accessibility of higher education and social inequality.**

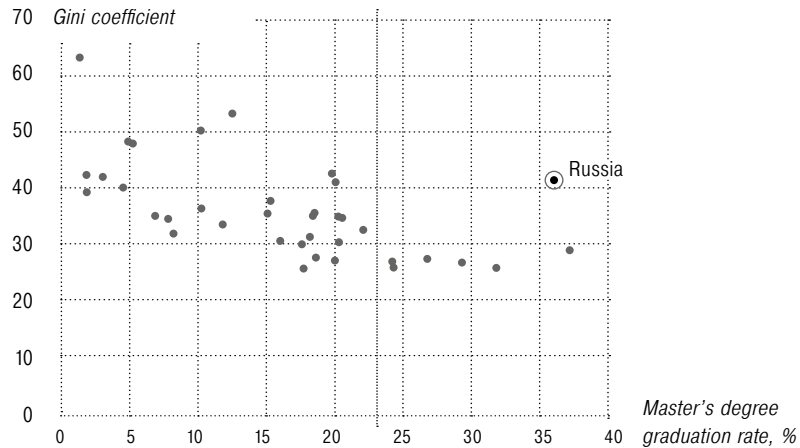
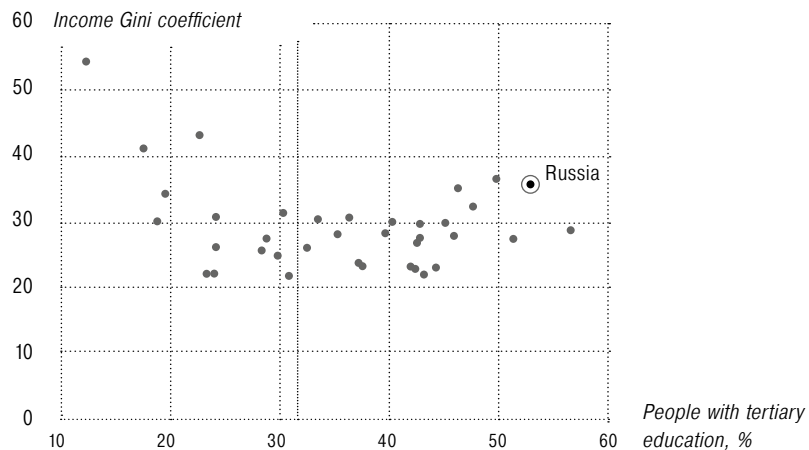


Figure 6. **Educational attainment and social inequality.**



1.4. Resources Involved in Education

Along with attainment rate and student achievement, indicators reflecting changes in the amount or quality of resources involved in education are also used when measuring progress in the development of education and education systems at international and national levels. Common examples include such indicator of Sustainable Development Goals in education (SDG 4) as “percentage of teachers who

received in-service training in the last 12 months”⁷ or the Education National Priority Project indicator “participation rate of children aged from 5 to 18 in extracurricular activities”.

Clearly, higher participation rate in extracurricular activities, or higher teacher salaries, or even higher percentage of teachers who received in-service training cannot serve as targets of an education development program. Those are outcomes within the system. Program targets and relevant target indicators should be described in terms of effects for the external user. For example, it can be academic and social success in primary school for preschool education, increase in the percentage of economically active youth and reduction of youth unemployment for vocational education, etc. However, using such indicators involves considerable difficulties.

The difficulties associated with using outcome indicators are well-known. They include, first of all, delayed effects of education on socioeconomic status, social life, career and social success of an individual. The end results of innovations, managerial and economic initiatives in education often become visible beyond the program’s planning horizon—and even then, they are usually distorted by external factors.

Furthermore, the program reporting systems are very specific, which cannot be neglected. In Russia, programs have no right to remain unfulfilled. That is why developers and implementers refrain from using indicators they cannot influence directly, which is exactly what outcome indicators are. Unlike final outcome indicators and end-user effects, indicators of resources involved entirely depend on program implementers and funds availability, making it much easier to achieve the goals set.

For the reasons stated above, indicators of resource quality and quantity are used as a proxy measure. Investments in education have been traditionally viewed as a way of improving its quality and accessibility, better teacher competence being expected to enhance student performance. The interrelation between results and spending has been represented as a saturation curve and searching for a reasonable limit to resource intensification has been widely discussed in the advanced and most of the middle-income economies. In the developed countries, a trend has even emerged towards reducing somewhat the relative education costs in one form or another, increasing the average class size in particular. However, analysis of international statistics shows that the relations between investments and outcomes in education are non-smooth and can rarely be described using the saturation curve.

The choice of indicators reflecting quantitative and qualitative changes in resources (similar to those mentioned above) as program

⁷ <http://uis.unesco.org/sites/default/files/documents/quick-guide-education-indicators-sdg4-2018-en.pdf>

target indicators is fairly explainable. It is based on the assumption that an increase in the amount or quality of resources involved in education leads to improvements in education quality and/or accessibility. However, resource-based indicators can only be used as target indicators of national and international programs in case there is a proved causal relation between resources and final outcomes, which is certainly not always the case, no matter how obvious it might seem. With respect to all the SDG 4 indicators designed to increase the quantity or quality of resources involved in education, no statistically significant correlation has been found with the results of international education assessments [Agranovich 2017]. In some instances, the relation between expenses in the broadest sense and learning outcomes is observed up to a certain point, beyond which the correlation between the size of a country's investments in education and its performance in international student assessments is close to zero.

Let us consider some examples

When developing the SDG 4 indicator “average teacher salary relative to other professions requiring a comparable level of qualification” [Statistical Commission of the United Nations Economic and Social Council 2016], the authors (UNESCO Institute for Statistics) premised that higher salaries would attract or allow selection of top professionals, thus enhancing education quality. However, PISA results raise doubts as to the direct relationship between teacher pay and learning outcomes. Figure 7 shows the correlation between relative lower secondary school teacher pay and average performance in PISA 2015 across the countries.

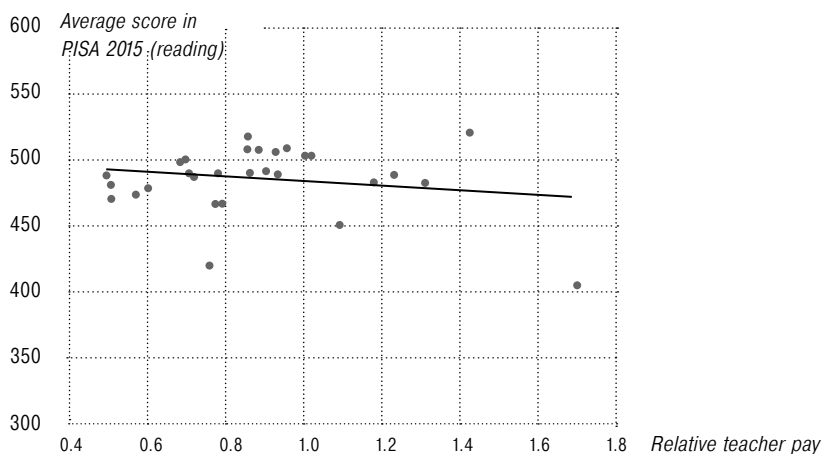
The graph clearly demonstrates the absence of relationship between relative teacher pay in Russia and performance of 15-year-old Russian students in the PISA assessment. Unfortunately, data on teacher salaries is only available for 28 countries participating in PISA, which is not enough for an adequate correlation analysis, yet the correlation coefficients estimated using this data (-0.18 for reading and -0.13 for mathematics) definitely indicate that there is no positive correlation between the size of teacher pay and the learning outcomes.

Similarly, no relationship was found between relative teacher pay and NEET (adjusted). In addition to being statistically insignificant (0.11), the correlation coefficient between the two indicators has a positive sign, meaning that higher teacher salaries leads to the higher NEET.

Correlation analysis between the indicator “percentage of teachers who received in-service training in the last 12 months by type of training” and performance in PISA 2015 across the countries (Figure 8) also finds no positive relationship between the two variables.

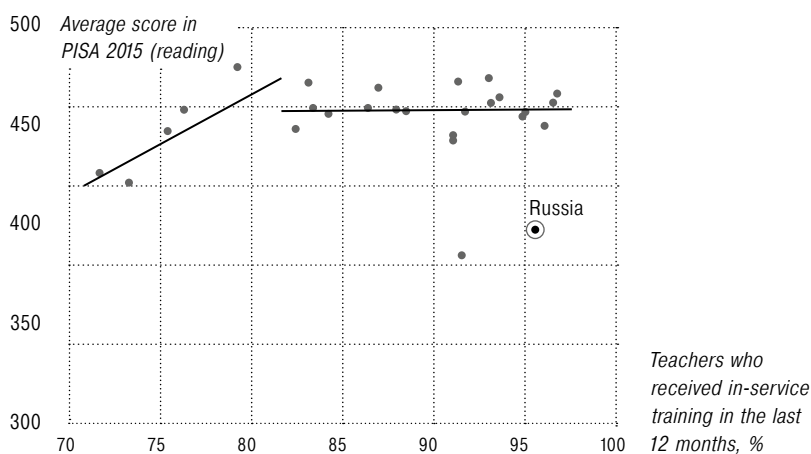
The correlation coefficients between the percentage of teachers who received in-service training and PISA performance on the reading and mathematical literacy scales estimated for the 28 countries for which data is available are 0.07 and 0.01 , respectively. Other-

Figure 7. **Relative teacher pay and student achievement.**



Source: Estimated from [OECD 2017; 2016b].

Figure 8. **Correlation between in-service training of teachers and performance in PISA 2015 (reading).**



Source: Estimated from [OECD 2017; 2016b].

wise speaking, there is no statistically significant relationship between these two indicators. It may be suggested that the content, method, and duration of teacher training are at least as important indicators as the very fact of training experience.

No relationship between teacher participation in in-service training and NEET as a characteristic of graduate socialization has been found, either (Figure 9).

Figure 9. **Teacher participation in in-service training and NEET by country.**

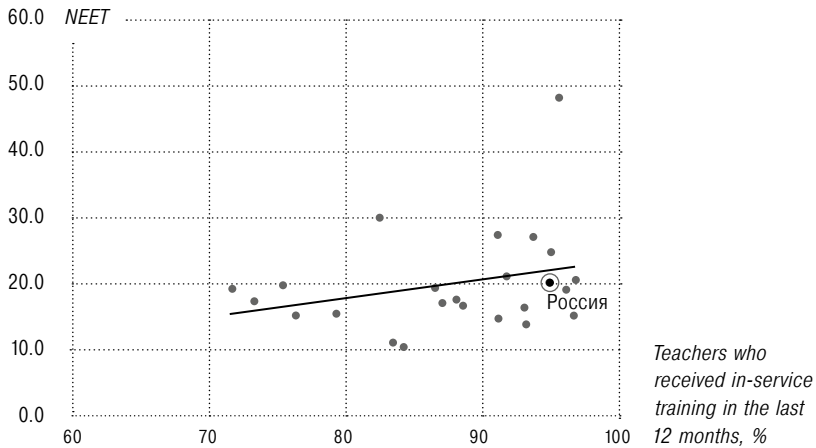
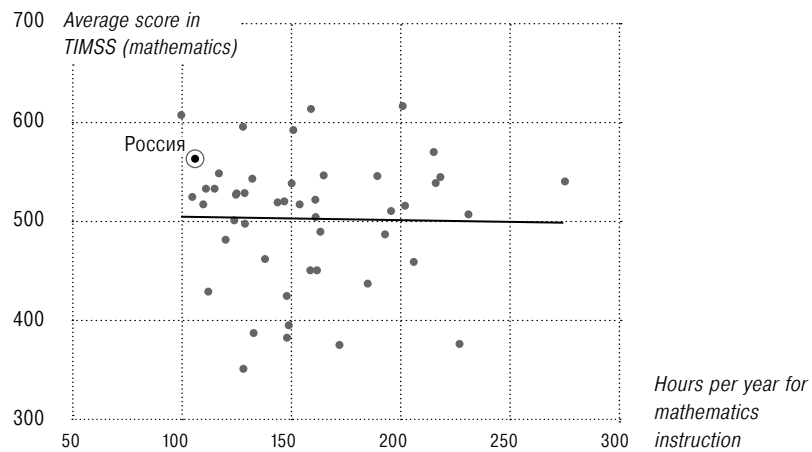


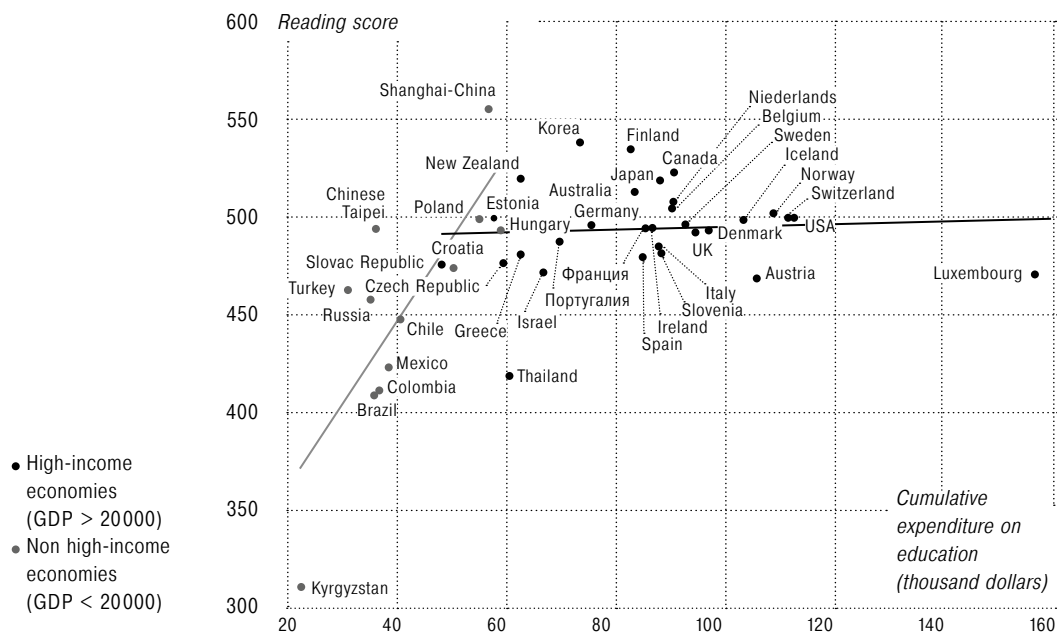
Figure 10. **Instructional time spent on mathematics and TIMSS performance.**



In addition to the above examples of no expected correlation between invested resources and educational outcomes, two more arguments will be given below to support the idea that caution should be exercised when using resources as an indicator in education quality evaluation.

Figure 10 presents data on time devoted to mathematics in primary school curricula and four-graders' TIMSS scores by country [Mullis et al. 2016]. It is clearly seen from the graph that time spent on ear-

Figure 11. **Average reading performance in PISA and average spending per student from the age of 6 to 15 (PPP), U.S. dollars.**



ly numeracy learning activities is not related to TIMSS performance in any way.

The other argument is borrowed from PISA in Focus Notes [OECD 2012c]. As can be seen in Figure 11, larger amount of resources (in this case, average spending per student aged 6 to 15) is related to better student performance up to a certain point. Beyond that point, however, the correlation between investments and learning outcomes is not observed.

2. How Education is Perceived by the Population and the Parties Involved

Satisfaction with education occupies a special place in education system evaluation. In particular, this indicator is used to assess performance of executive authorities⁸.

The Russian Education National Priority Project includes indicators of employers' satisfaction with graduate skills with a breakdown by college and higher education programs.

⁸ Decree of the President of the Russian Federation No.548 On Assessing the Performance of Executive Authorities in the Subjects of the Russian Federation of November 14, 2017.

It is not until monitoring instruments are developed (integration expected in 2022) that the use of this indicator for education system evaluation can be considered. Yet, a lot of studies in Russia [Seliverstova 2018] and other countries (e.g. [Succi, Canovi 2019]) indicate that graduates' professional skills are not the top-priority recruitment criteria for employers.

Using the results of population surveys for education system evaluation⁹ also appears to be irrelevant. Our findings [Agranovich 2010] show that satisfaction with the education system does not correlate with such indicators important for families as participation in pre-school education or regional average USE score. Rather, what is observed is that population's perceptions of the education system are related to regional economic growth indicators, unemployment, and household income. Therefore, it is rather general public mood than attitude toward education that is described by such surveys.

In fact, opinions of the parties involved in the educational process (students, parents, school teachers and administrators) [Avraamova et al. 2015] that are revealed as a result of population surveys can tell more about the respondents themselves than the educational situation.

3. Conclusion

Analysis of the education system evaluation and outcome indicators presented in this article indicates that an increase in educational attainment or amount and quality of educational resources only promotes improvements in the outcomes for end users (individuals, society, and economy) up to a certain point. In other words, there is no evidence to support the hypothesis that the saturation curve can describe the relationship between resources, student achievement, and educational attainment, on the one part, and education system performance, on the other part. There are points of satiety, beyond which resource intensification does not improve the outcomes anymore.

Consequently, the existing approaches to developing the indicators for evaluating education systems and their progress have to be revisited, both in general and with regard to education development program monitoring.

First, indicators of final/end-user effects should be preferred over intermediary/within-system indicators. Educational outcomes for individuals manifest themselves in the successful socialization in life after school. Of all the existing indicators of socialization, "youth not in employment, education or training" (NEET) is most workable one. Of course, this indicator is affected by other factors as well, unemploy-

⁹ State Programme: Education Development, 2013–2020. Approved by Governmental Resolution No.295 of April 15, 2014.

ment in particular, but it measures graduate socialization, which is bound to be a learning outcome, at least to some extent.

Second, where using external indicators to evaluate education systems or monitor achievement of education development program goals has some objective limitations, education indicators can only be used provided there is a proven positive correlation between resource intensification and end-user outcome indicators, a correlation between resource characteristics and external effects provided by the education system. Proxy measures should also be designed to evaluate the most advanced education systems, as capacity-based indicators are ineffective as a measure in this case, which has been proved by the analysis above.

With regard to the design of national or regional education development programs, using indicators that reflect quantitative or qualitative improvements in resources involved in education as well as quantitative education system characteristics (participation rate by level/program, educational attainment, etc.) as target indicators is fraught with actually failing to achieve the program goals, because an increase in the quantity or quality of resources may have no impact on the final outcome beyond a certain threshold. Moreover, there is a real risk of using ineffectively the funds allocated for resource intensification.

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The Catalogues of Textbooks for Secondary Schools of the Ministry of Public Education: Principles of Composition, Structure, Evolution

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Abstract The article is devoted to the study of the phenomena of the special catalogues of textbooks for secondary schools, published by the Ministry of Public Education of the Russian Empire. During the second half of the 19th—beginning of the 20th century an intensive process of developing principles for their compilation, optimal structure and periodicity of output took place. The Scientific Committee of the Ministry was engaged in reviewing educational literature and compiling catalogs. It was called upon to play the role of a kind of filter that did not allow unprofessional textbooks into secondary school. However, despite all the efforts and the large amount of work done, ensure that only recommended textbooks were used in teaching practice throughout the empire, the Ministry has failed.

Keywords study manuals, schoolbooks, textbooks catalogs, Ministry of Public Education, Scientific Committee.

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Marketization of Higher Education and University Branding

Review of: Papadimitrou A. (ed.) Competition in Higher Education Branding and Marketing: National and Global Perspectives¹

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Abstract The volume reviewed provides a critical examination of contemporary trends in the marketization of higher education and university branding. Being bound to respond to external challenges, in particular seek additional sources of finance in the context of reduced public funding, universities are increasingly more likely to adopt governance and development practices from businesses. The book authors consider higher education as a highly competitive market in which universities compete in a very corporate way. In a competitive climate, university branding becomes an effective way of attracting partners and students. Examples of higher education systems in a number of countries (Belgium, Mozambique, Hong Kong, etc.) are used to investigate the strategies used by universities to create, promote and differentiate their brands. The book also explores specific aspects of private university branding, the role of rankings in brand building, government participation in the positioning of national universities in the global higher education market, and the current challenges in branding development and promotion faced by universities, such as the need to develop social capital, differentiate from other institutions, and deal with piggyback marketing.

Keywords higher education, universities, university brand, branding, branding effects, globalization, university marketing, higher education market.

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