Aleksandra Mikhaylova, Roman Zvyagintsev,

Marina Pinskaya, Lorin Anderson

DIFFERENCES IN SCHOOL EFFECTIVENESS BETWEEN RESILIENT AND STRUGGLING RUSSIAN SCHOOLS

BASIC RESEARCH PROGRAM

WORKING PAPERS

Aleksandra Mikhaylova[1], Roman Zvyagintsev[2],

Marina Pinskaya[3] and Lorin Anderson[4]

DIFFERENCES IN SCHOOL EFFECTIVENESS BETWEEN RESILIENT AND STRUGGLING RUSSIAN SCHOOLS[6]

Our research is dedicated to identifying what allows schools operating in difficult social conditions to show good academic results. We answer this question through the conjugation of two theoretical frameworks: academic resilience and school effectiveness. We analyze several models of school effectiveness and compare resilient and struggling schools through them. The study uses a quantitative and qualitative mixed-methods design. Our main arguments are based on an analysis of interviews conducted with students, parents, teachers, and principals in different schools—3 resilient and 3 struggling. We conclude that the schools differ in the strategies they implement; the main problem facing struggling schools is not the lack of effective elements, but the presence of negative ones; in further studies of school effectiveness, it would be worth using an integrative model that combines both poles.

Keywords: school effectiveness, academic resilience, mixed-methods design, resilient school.

JEL Classification: Z

[1] National Research University Higher School of Economics. Institute of Education, Junior Researcher. E-mail: amikhailova@hse.ru

[2] Corresponding author, National Research University Higher School of Economics. Institute of Education, Junior Researcher. E-mail: rzvyagincev@hse.ru

[3] MGIMO University, Academic Curriculum Supervisor. E-mail: m-pinskaya@yandex.ru

[4] University of South Carolina, Columbia USA. E-mail: anderson.lorinw@gmail.com

Introduction

Educational inequality as a part and continuation of socio-economic inequality is one of the central problems of modern society, affecting social, political and economic processes (Belfield and Levin, 2007; Kurakin, 2020). The question of whether schools can help to overcome educational inequality dates back to the research of Coleman (1966), which showed that the socio-economic status (SES) of a student's family affects educational outcomes much more than school. Subsequent studies, however, argue that it is not so simple and the school, in fact, can still make a change (Hanushek, 1997; Rivkin, Hanushek and Kain, 2005). This is also relevant for schools operating in the most adverse conditions (Hargreaves and Harris, 2011). Successful schools in such conditions have been called resilient schools (Pinskaya *et al.*, 2018).

Research on academic resilience has a distinct place in the literature on educational inequality (Crosnoe, 2005; Wills and Hofmeyr, 2019). Academic resilience is the ability of an individual or organization to perform well in a challenging environment (Yastrebov, Pinskaya and Kosaretsky, 2014; Agasisti *et al.*, 2018). Quantitative and qualitative studies have shown a set of factors related to the academic resilience of schools and their students (Harris, 2008; Vera, Valenzuela and Sotomayor, 2015; Agasisti, Soncin and Valenti, 2016; Longobardi *et al.*, 2018).

Our study explores in detail the question of which school practices distinguish resilient schools from other low SES schools with poor academic results. For our analysis, we use the school effectiveness research framework (Edmonds, 1979; Teddlie and Reynolds, 2001; van de Grift and Houtveen, 2006; Reynolds *et al.*, 2014) combined with the academic resilience framework (Martin and Marsh, 2009) and a mixed-method research design in which we collect qualitative data from resilient and struggling schools—interviews with all participants in the educational process (students, parents, principals, teachers)—and then we transform them into a quantitative format to build school profiles. In the discussion, we identify the differences in the profiles of the two types of schools, the application of a new methodology, and the possible contribution of the research to the existing theoretical framework.

Literature review

Over the past half century, researchers and practitioners alike have attempted to identify factors that differentiate schools that are more successful in educating their students from those less successful. From a research perspective, the search began at Michigan State University in the mid-1970s under

the umbrella of "effective schools research". The first task facing these researchers was to define an effective school. They came up with three criteria: "(1) 95 (or greater) percent of all students at each grade level demonstrate minimum academic mastery and are prepared to succeed in the next grade [...]; (2) there shall be no significant difference in the proportion of students demonstrating minimum academic mastery as a function of socioeconomic class; and (3) the above two conditions have been obtained for a minimum of three consecutive years" (Sudlow, 1985).

Researchers visited several schools that met these criteria and, based on observations and interviews, attempted to identify commonalities among them. In 1979, Ron Edmonds published a short article in which he summarized the findings in what became known as the correlates of effective schooling (Edmonds, 1979). Initially, there were five correlates; over time the number grew to seven.

1. High expectations for success;
2. Strong instructional leadership;
3. A clear and focused mission;
4. Opportunity to learn/time on task;
5. Frequent monitoring of student progress;
6. A safe and orderly environment; and
7. Positive home-school relations (Lezotte and Snyder, 2011, p. 2).

During the early years of the 21st century, researchers, still attempting to determine what makes some schools more successful in educating their students, developed the concept of "academic resilience" (Martin and Marsh, 2006; Longobardi and Agasisti, 2014; Sandoval-Hernández and Białowolski, 2016). The concept became internationally recognized when it appeared in the OECD (2010) report on the results of the 2009 Program for International Student Assessment (PISA). In that report, academic resilience was defined in terms of students from low SES families who achieve good academic results.

The concept of academic resilience permitted a somewhat different definition of an effective school. As Longobardi et al. (2018: 33) wrote: "Although resilience is a property of individuals, education policies and school practices can greatly reduce the vulnerability of disadvantaged students and enable resilience as a result". It follows then that effective schools, now known as resilient schools, are schools in which educators achieve high academic results with low SES students while working

4

under adverse conditions (Mortimore, 1988; Muijs *et al.*, 2004; Hargreaves and Harris, 2011; Reynolds *et al.*, 2014). In the literature, resilient schools are also called "schools performing beyond expectations" (Hargreaves and Harris, 2011), "high poverty high performing" (Kannapel and Clements, 2005; Parret and Budge, 2020) and "high flying schools" (Harris, 2007).

During the past quarter century, researchers have identified school-related factors that promote academic resilience. Among them are the values and school climate, the nature of leadership, the effect of the teacher, pedagogical methods and expectations (Henderson and Milstein, 2003; Rockoff, 2004; Siraj and Taggart, 2014); the distribution of the school budget for certain programs and activities, teachers' salaries, and teachers' professional experience (Tajalli and Opheim, 2005); family-school partnerships and community support (Cicchetti, 2013; Masten and Cicchetti, 2016); and significant student relationships with adults (both parents and teachers), the positive use of learning time (including extra-curricular activities), motivation through encouragement and the communication of high expectations, and the recognition of accomplishment (Pisapia and Westfall, 1994). Several of these factors have been identified consistently in both comparative cross country studies (Agasisti, Longobardi & Regoli, 2017; Sandoval-Hernández & Białowolski, 2016) and national studies in countries with different economic and social contexts (Agasisti, Soncin & Valenti, 2016; Pinskaya et al., 2018; Wills & Hofmeyr, 2019).

As might be expected, there is a substantial overlap between the correlates of effective schools and the factors associated with resilient schools. A comparison of the two is shown in Table 1. Some cells remain empty due to the incomplete overlap of the theoretical frameworks. The third column indicates the factors considered in our study.

Table 1

A Comparison of Effective School Correlates with Factors Associated with Resilient Schools

Correlate/Factor	Effective Schools	Resilient Schools	Present Study
Shared vision with focus on learning	X	X	X
Positive school culture (safe and orderly)	X	X	X
Strong instructional leadership	X	X	X
Positive home-school relations, parent involvement	X	X	X
High expectations for student and staff success	X	X	X
Productive use of time/opportunity to learn	X	X	
Frequent monitoring of student progress	X		X
High quality teachers and teaching		X	X
Positive student relations with adults		X	
Public celebration of student success		X	X
Community support		X	X
Adequate budget (including teacher salaries)		X	

Although most researchers have focused on the positive elements, van de Grift & Houtveen (2006) suggest there is value in considering the negative elements, particularly when the focus turns to struggling schools. They suggest that struggling schools are often characterized by (a) learning material that is insufficient to achieve the core targets, (b) insufficient time for students to reach the minimum objectives of the curriculum, (c) low quality instruction, (d) insufficient insight into students' performance levels, (e) insufficient ameliorating measures for struggling learners, and (f) a prolonged dysfunctional school organization. In these struggling schools, one also finds more instability in leadership and high mobility of students and staff. Finally, and very importantly, these weaknesses do not appear singly, but in combination with other factors (van de Grift & Houtveen, 2007). Research conducted by Mortimore, Sammons, & Hillman (1995) and Stringfield (1998) lend support to van de Grift & Houtveen's analysis.

In combination, the results of these studies suggest that struggling schools not only lack the positive qualities that characterize effective or resilient schools but they also possess several negative

features. Table 2 displays the positive and negative poles of the major factors shown in Table 1. A more detailed analysis is contained in Annex 1.

Table 2

Contrast of positive and negative elements based on research of effective and resilient schools

Factors	Positive elements	Negative elements	Factors
Focus on learning	+	-	Lack of academic focus
Public celebration of student successes	+	-	Lack of public celebration of student successes.
High expectations of students and staff	+	-	Low expectations
Shared vision	+	-	Lack of shared vision
Positive school culture (climate)	+	-	Negative culture (climate)
Involvement of parents	+		
Professional development of staff	+	-	Dysfunctional staff relationships
Emphasizing responsibilities & rights	+		
Effective leadership	+	-	Unfocused leadership
Effective teaching practices	+	-	Ineffective classroom practices. Low levels of student engagement
Monitoring progress at school, classroom, and student levels	+	-	Insufficient insight into students' performance levels

Note. The list of positive school elements was based primarily on the work of Edmonds (1979), Pisapia & Westfall (1994), Sammons & Bakkum (2011), and Reynolds et al. (2014). The list of negative school elements was based primarily on the work of Stringfield (1998), van de Grift & Houtveen (2006, 2007), and Sammons & Bakkum (2011).

The purpose of this research is to identify positive and negative elements that exist in resilient and struggling schools in Russia. More specifically, the research investigates elements within schools

that are related either to academic resilience or to deficits in student achievement in schools that have large percentages of lower SES students. The following questions guided the research.

1. Are there differences between resilient and struggling schools in terms of school effectiveness or ineffectiveness? If so, are the major differences in the lack of positive elements and strategies, in the number of negative elements and strategies, or both?
2. How common is the set of elements or strategies implemented by schools in resilient schools and struggling schools?
3. Are positive and negative elements and strategies mutually exclusive within schools or can school profiles include both?

Method

This study applies a quantitative and qualitative mixed-method research design. The study was divided into three stages. We begin with an overview of the stages and then describe each stage in detail.

The first stage is quantitative and includes two data sources. The first is a contextualization questionnaire distributed to educators in two regions of Russia—the Tomsk Region and the Republic of Sakha (Yakutia). The second is the results of the Main State Examination (MSE) in 9th grade and the Unified State Examination (USE) in 11th grade. These data were obtained from the Regional Education Quality Assessment Centers in the two regions.

The second stage is qualitative and includes interviews with participants in each school. The data from this stage were used to understand what had been taking place within each school and what, if anything, differentiates the two groups of schools.

In the third stage, the qualitative data collected in the second stage are transformed into quantitative data. There are several reasons to perform this transformation (Boyatzis, 1998). Two of the most important are the ability to triangulate the results from the classical qualitative analysis and the increased reliability of the results of the entire study.

First Stage

The sample consisted of 87% of all schools in Tomsk Region and 60% of all schools in the Republic of Sakha (Yakutia). Schools were initially selected based on their students' SES using

the procedure described in Pinskaya et al. (2019). All schools initially chosen were in the lowest SES quartile for their region. Within this sample, resilient schools were defined as those with USE results in the highest quartile in their region. In contrast, struggling schools were defined as those with test results in the lowest quartile in their region. Three schools that met either of these criteria were randomly selected from each region, resulting in one resilient school and two struggling schools from Tomsk Region and two resilient schools and one struggling school from the Republic of Sakha (Yakutia).

It is important to note that resilient schools are rare in Russia. Our studies reveal that they account for less than 5% of all schools (Pinskaya et al., 2019). Disadvantaged rural schools with poor academic achievement levels (struggling schools) are a much more common phenomenon; unfortunately, most rural schools in Russia fit this description. Table 3 presents the descriptive statistics for the selected resilient and struggling schools.

Table 3

Achievement and Enrolment Figures from Sampled Rural Schools, Tomsk Region and the Republic of Sakha

	Resilient Schools	**Struggling Schools**		
Tomsk Region Schools	School 1	School 2	School 3	Regional mean
Examinations				
MSE (Russian)	79.5	66.6	67.9	74.3
MSE (mathematics)	63.4	46.9	45.3	54.7
Enrolment				
Total Students	70	42	110	391
Students from single parent households (%)	30.0	23.8	40.9	23.9
Students with special needs (%)	14.3	26.2	41.8	11.6

Republic of Sakha Schools	School 1	School 2	School 3	
Examinations				
USE (Russian)	68.8	61.8	45.2	56.5
USE (mathematics)	39.8	50.0	19.8	40.1
Enrolment				
Total Students	73	81	101	247
Students from single parent households (%)	20.1	27.2	31.7	18.4

Note: Examination scores are mean percentage scores out of 100. Data on students with special needs were not available for the Republic of Sakha schools. All the schools are in the lowest SES quartile for each region. The number of students from single parent households (%) is given as an example of not to overload method part with full description of SES calculation.

Second Stage: Overview

At each school, we interviewed the principal, held a focus group with teachers, and conducted a series of individual interviews with parents and with students. Thirty-four interviews were conducted in Tomsk Region and 31 in the Republic of Sakha (Yakutia). Approximately 25 hours of interview data were collected.

The interview guides were developed using a composite of the school effectiveness and school resilience factors described earlier. The guide included open-ended questions along with explicit instructions and a debriefing stage for every participant. All the information gathered was confidential. In summary, there were four types of participants per school:

- 1 principal (individual interviews);
- 5–6 teachers (focus-group);
- 4–5 parents (individual interviews); and,
- 4–5 students (middle and high school, individual interviews).

To increase the reliability of the results, every guide contained almost identical topics, the differences were in the relevance of each topic to each type of a participant (often referred to as the 360-degree method). For example, the topic of teacher professional development was present only in guides for teachers and principals, whereas the issue of parents' involvement was present in all guides with a slight adjustment for the participants interests and possible knowledge about

the topic (Kvale and Brinkmann, 1996). Table 4 contains an example of the corresponding questions from different guides.

Table 4

Corresponding questions in different interview guides

Interviewee	Questions in guides. Aspect: Parents' Involvement in Education
Administration	How are the students' families in your school involved in their children's education? What do you expect from them in this respect? (Do you expect parents' assistance to improve their children's performance?) How do you involve parents? \ How do you interact with parents? Do you carry out specific activities, etc.?
Parents	In your opinion, how should parents participate in their children's education? Do you believe it is appropriate for parents to provide their children with assistance to improve his/her performance?
Students	In your opinion, how should parents participate in their children's education? Do you believe it is appropriate for parents to provide their child with assistance to improve his/her performance?
Teachers	How are the students' families in your school involved in their children's education? What do you expect from them in this respect? (Do you expect parents' assistance to improve their children's performance?) How do you involve parents? \ How do you interact with parents? Do you carry out specific activities, etc.?

Second Stage: Coding

After the data were collected and interviews transcribed, a meeting was held among the researchers to determine and define the coding categories and the rules for assigning codes. During the coding process, a second meeting was held during which several interviews were coded simultaneously by different researchers to ensure inter-coder reliability. After the coding, a third meeting was held to examine coding categories that were added inductively *post hoc*. Atlas.Ti 7.0 software[8] was used for processing the text. Thematic analysis (Braun and Clarke, 2006) was used to examine the results of the qualitative analysis, develop the initial coding table, identify and code themes, analyze the results, and prepare an interim report on selected themes.

Every quotation that was relevant to either a positive or negative element was coded. If there were multiple quotations within a single code group in one interview, each quotation was coded separately with the same code group. If an interview contained multiple examples of the same element only one quotation was coded. Therefore, the variety of elements mentioned in an interview, not the quantity, was the key reason to assign a quotation to a coding category (Cohen, Manion, & Morrison (2007).

Overall, there were 190 coding categories in 22 coding groups. No evidence of "Dysfunctional staff relations" was found in any school, so there are no quotations in that code group. There were 459 quotations coded in struggling schools and 563 in resilient schools.

Some quotations were placed in multiple coding categories; therefore, the sum of the quotations across coding categories does not equal the total number of quotations. The quotation below is an example of how one quotation has reference to several coding categories: "focus upon learning" as they prepare for exams, "positive school climate", and "students' motivation and engagement".

It takes a lot of time to prepare for exams and to visit electives. There is a lot of time for extra-curriculum education: art, singing. In spring, they work on the garden area, plant flowers. Extracurricular activities, Olympiads […]. Children are not forced to go to school. (Parent)

Table 5 contains examples of quotations assigned to selected coding categories. The complete table is available on request. An example of how a code group was formed is provided in Table 6.

---

[8] https://atlasti.com/

During the analysis, three coding categories were added to the list because they were important for the analysis:

- school's social capital (school's connection to other institutions and the local community);
- student motivation and engagement;
- differentiated instruction and assessment.

This process was referred to as inductive coding.

Third Stage

After all the interviews had been coded, we again turned to the quantitative methodology and transformed qualitative data into quantitative with the use of qualitative thematic analysis. We counted the number of codes for all the topics we consider in different interviews across schools (Boyatzis, 1998; Braun and Clarke, 2006). This transformation allowed us to determine whether resilient and struggling schools were different from one another and if so, whether the difference was the result of individual schools within the resilient/struggling grouping or whether the groups of resilient and struggling schools differed from one another. We also wanted to find an empirical foundation that permitted us to say something about theoretical models of resilient and struggling schools. To do this, we looked at whether there was a connection between the frequency of occurrence of different groups of codes and the type of school.

To locate the differences, we decided to see how the proportions of different elements varied in schools, respondent groups and individuals. Thus, we examined whether the number of codes was different in different groups of schools (for example, different elements related to parental involvement) when controlling for the total number of all selected codes in all interviews from different groups of schools.

Results

Two types of indicators are shown in the graphs that follow. Absolute indicators show the number of quotations that occur within resilient and struggling schools or each type of respondent (i.e., principal, teacher, parent, student). Relative indicators show the percentage of quotations from all citations for each school group or type of respondent. Thus, relative indicators are used to standardize the data. The number of quotations included in the standardization will vary depending on each specific aspect of the analysis.

1. When comparing groups of schools, the denominator for the percentage calculations is the number of quotations in each group of schools.
2. When comparing schools, the denominator for the percentage calculations is the number of quotations in each school.
3. When comparing respondents, the denominator for the percentage calculations is the total number of quotations from the respondents.

As an example, consider the data summarized in Figure 1. The numbers at the top of the columns are absolute indicators. We can clearly see that positive elements are prevalent in all three resilient schools. There also are positive elements in the three struggling schools, but there are far fewer. Negative elements are almost non-existent in the resilient schools. In contrast, the number of negative elements associated with the struggling schools are about half as many as the number of positive elements.

Turning our attention to the relative indicators, we see that 34 of the 94 quotations (36%) associated with Struggling School 1 were negative. We believe the relative values provide a more accurate representation of the schools because absolute values can depend on the "talkativeness" of the respondents possibly biasing the results.
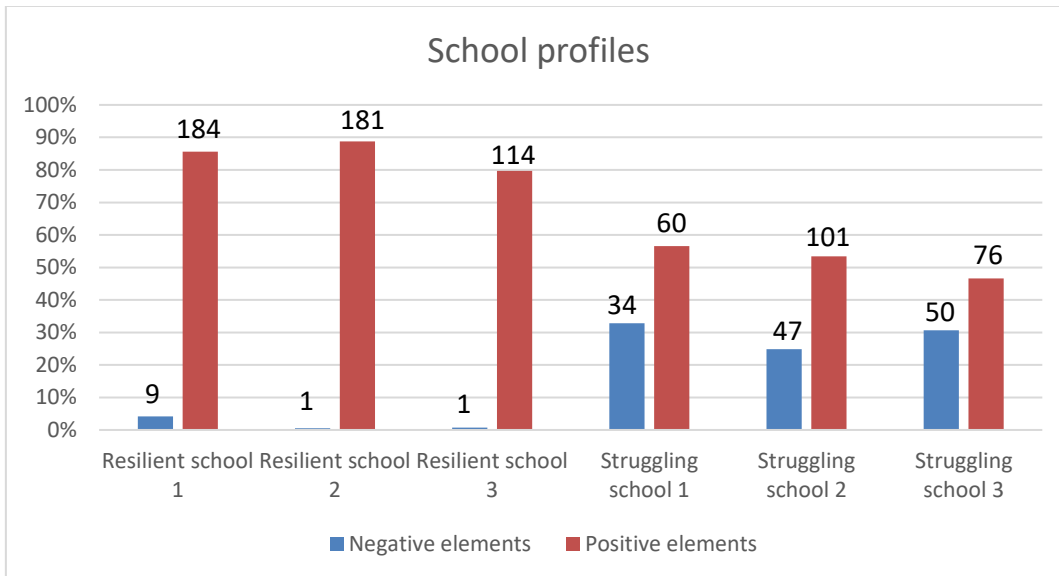
Figure 1. School profiles

Differences Between Resilient and Struggling Schools

The data summarized in Figure 1 are relevant to answering the first research question. There are clear differences between resilient and struggling schools. The differences are evident in the number of positive elements, but especially noteworthy in the number of negative elements. Resilient schools seem to have virtually eliminated negative elements, whereas the number of negative elements in struggling schools are approximately half as many as the number of positive elements. Figure 2 contains the aggregated data for struggling and resilient schools. For the resilient schools, approximately 98% of the elements were positive. In contrast, for the struggling schools, slightly more than one-third of the elements were negative.
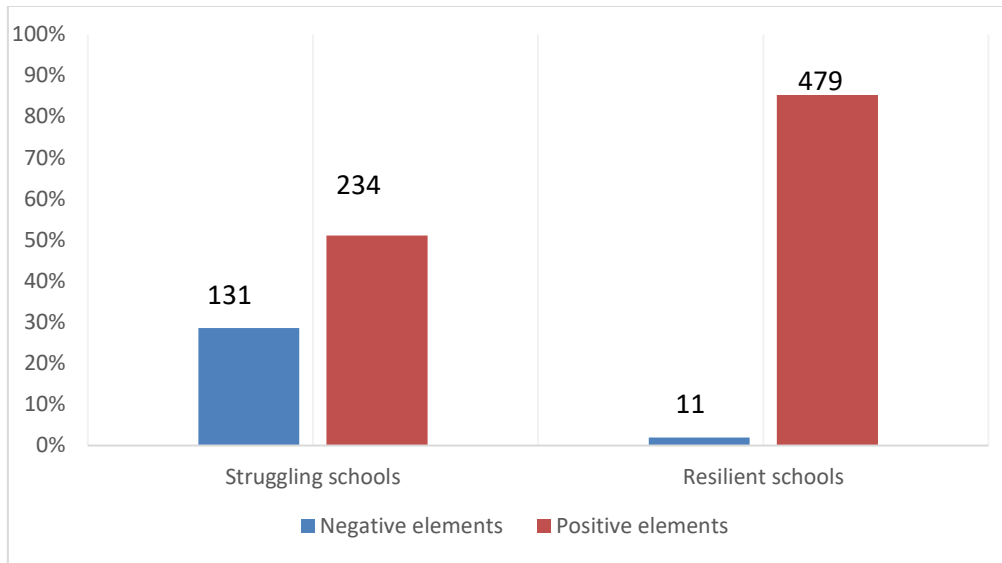
Figure 2. Totals of the positive and negative elements for struggling and resilient schools

Common Elements in Resilient and Struggling Schools

To address our second and third research questions, we built profiles for each school. Based on these profiles, we searched for positive and negative elements that were common to both resilient and struggling schools. Figure 3 summarizes the results of the analysis for positive elements.

Figure 3 shows that six of the positive elements derived from previous research are common to both resilient and struggling schools, although the order of these elements in terms of their frequency is slightly different. The order for resilient schools is effective leadership, focus on learning, shared vision, parental involvement, effective teaching, and a positive school culture. For the struggling schools, the most frequently mentioned positive element was focus on learning, followed by parental involvement, effective teaching, shared vision, effective leadership, and a positive school culture. Somewhat surprisingly, the most frequently mentioned positive element in both types of schools is student motivation and engagement.

Two of the positive elements, professional development of staff and differentiated instruction and assessment, were mentioned more often in the struggling schools than the resilient schools. Because of the uniqueness of these findings, we decided to unpack both categories. "Differentiated instruction and assessment" includes three subcategories: whether the school supported high-performing students, low-performing students, or both. Figure 4 shows that the reversal of

struggling and resilient schools in Figure 3 can be explained by the primary focus on low-performing students in the struggling schools.
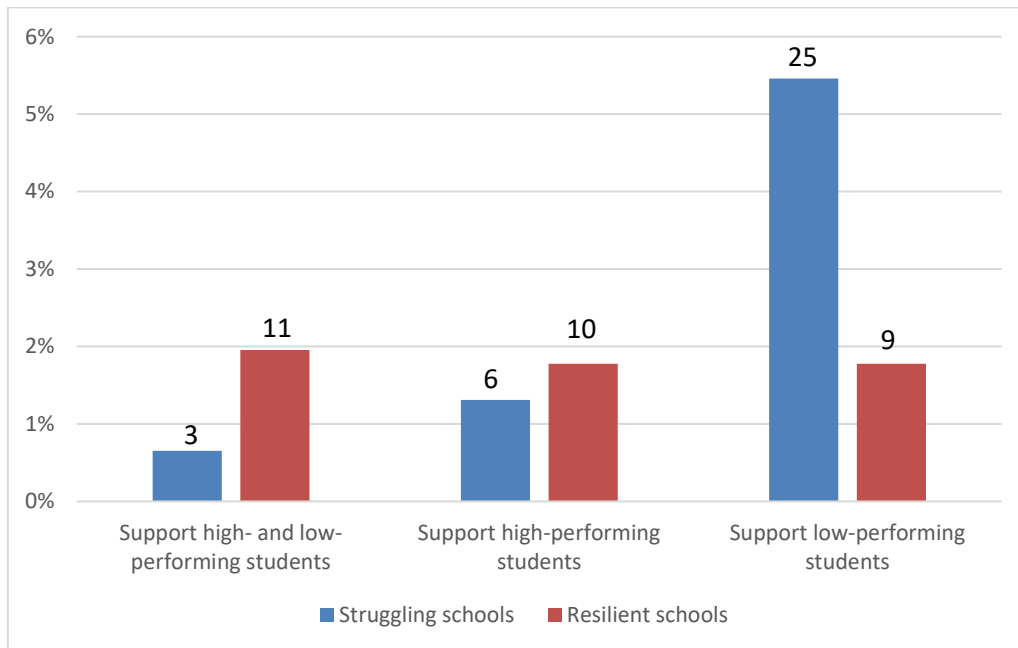

Figure 4. Unpacking of the code group "Differentiated instruction and assessment"

"Professional development of staff" includes five sub-categories as shown in Figure 5. A comparison of the data for the sub-categories suggests a quite different view of professional development in the resilient and struggling schools. Teachers in the struggling schools see professional development as attending professional development courses (e.g., "We have completed all of the necessary courses that are required by our educational standards"). In contrast, teachers in the resilient schools talk more about sharing practices and how they can choose professional development courses based on their professional needs. In their view, professional development requires cooperation among the teaching staff and a conscious construction of their own trajectory of professional development. Thus, the reversal shown in Figure 3 suggests a very different understanding of the nature and value of professional development.
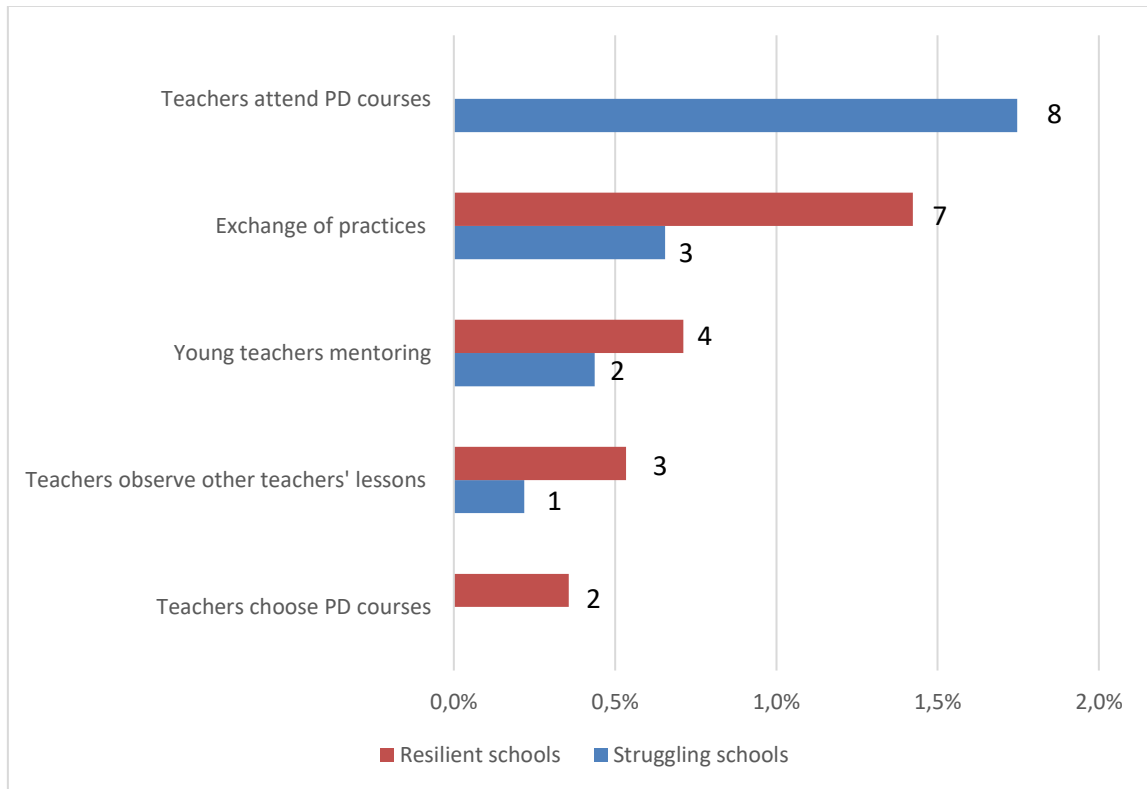
Figure 5. Unpacking the code group "Professional development of staff"

Figure 6 shows the results for the negative elements. For the struggling schools, the most frequently mentioned negative elements are low academic expectations and unfocused leadership. As seen earlier, very few negative elements were present in the resilient schools.
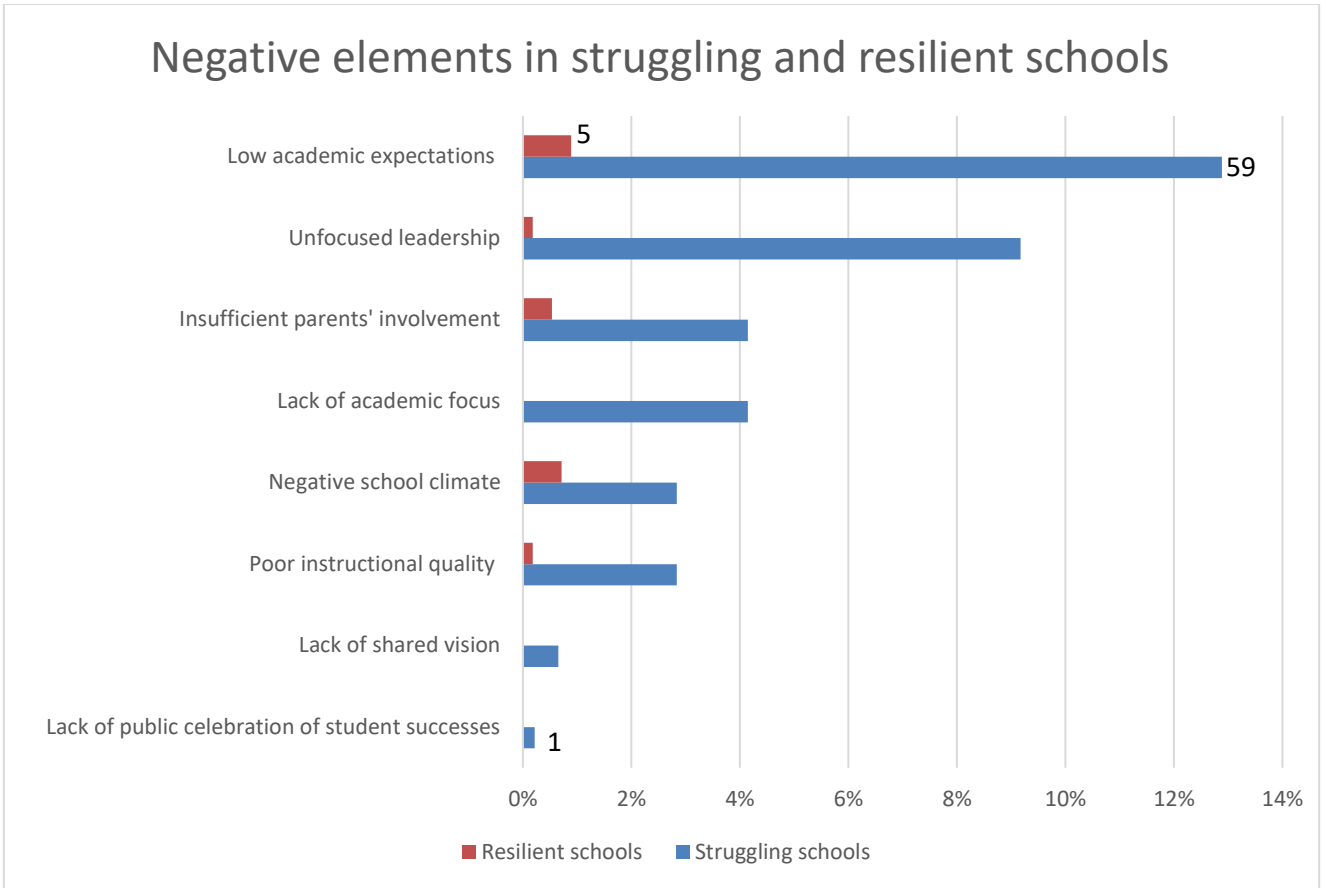
Figure 6. Negative elements in struggling and resilient schools

Low academic expectations became apparent, for example, in the choice of school staff, parents and students leaving the school, and less frequent assessment of students. Unfocused leadership was exemplified by educational processes pointed out by teachers as important but not addressed by the principal. For example, some teachers said that they paid for some students' Olympiad fee as the students' parents were unable to pay. The principals in these schools neither participated, nor endorsed, such activities. Another example of unfocused leadership is the principal's lack of understanding of the importance of pedagogical goals. These principals saw their role primarily as a manager, not as a "head teacher" or a mentor to the teaching staff.

DISCUSSION AND CONCLUSIONS

One of the most interesting and important results of the study is the similarity of the school profiles within each group. For the resilient schools, the elements are overwhelming positive and similar to the correlates identified by the literature on effective school research. Negative elements in general are virtually non-existent in the resilient schools. While our research does not prove a causal relationship between the presence of positive elements, the absence of negative elements, and academic resilience, it seems as though school resilience and school effectiveness go hand-in-hand.

Although there are several positive elements in the struggling schools, these schools are recognizable primarily by their negative elements. Two of these negative elements appear to be particularly important, low academic expectations and unfocused leadership. The implication here is that without high academic expectations and strong, focused leadership, positive elements will not turn struggling schools around.

The absence of negative elements in the resilient schools and the large number in the struggling schools adds to our understanding of the distinction between the two groups. Educators in struggling schools not only engage in positive practices; they avoid engaging in negative practices. Conversely, the presence of negative practices in the struggling schools diminishes the effect of their positive practices. This suggests that the transformation of struggling schools must begin by eradicating negative elements and practices.

It is important to emphasize that there are external circumstances independent of a school that may contribute to its failure. In our study, for example, two of the struggling schools, although located in the same municipality as the resilient one, and only a small distance from it, were more isolated. Greater isolation and inaccessibility may have negative consequences. These may be in the form of students' families having a low SES, and a shortage of school staff as teachers prefer to find work in a less remote, less economically disadvantaged areas. Thus, the elements of resilient and struggling schools that we focused on in our study may not fully explain the presence or absence of academic resilience. Nonetheless, we believe that we have identified several important in-school elements that differentiate resilient from struggling schools.

The inclusion of what we referred to as "inductive coding categories" added an important dimension to the study beyond what was possible using only the *a priori* coding categories. Three

inductive coding categories were identified: school social capital, student motivation and engagement, and differentiated instruction and assessment. Student motivation and engagement emerged as an important indicator of successful schools. In contrast, differentiated instruction and assessment was one of only two categories reported more often in struggling schools than in resilient schools. Further investigation led to the conclusion that struggling schools focused their efforts more on low-performing students.

Resilient schools also differed from struggling schools in their development and use of social capital (that is, the school's connection with their local communities and use of external resources). Researchers and educational policy makers have long recognized that a priority for schools enrolling large number of economically-disadvantaged students is to establish good working relationships not only with parents, but also with partners in the surrounding areas, including business and social stakeholders (OECD, 2011). According to principals, teachers, and parents in the resilient schools, a wide range of activities are used to expand and strengthen partnerships with the community and build mutual trust. This strategy is referred to as "building school social capital", which resilient schools convert into additional educational resources for their students.

Although we took a very analytical approach, we have come to realize that there are interrelationships among the elements that enable schools to become resilient. For example, schools differ in the importance of homework and the ways in which homework is used and graded. A recent study (Núñez *et al.*, 2017) has suggested that students have different attitudes towards homework depending on the degree of parental involvement. Those who report a high degree of parental control and support spend more time on their homework and do it more carefully. This is consistent with our data which revealed that, in contrast to struggling schools, both students and parents in resilient schools reported that teachers strictly demand homework and students meet these requirements. This is likely to affect student achievement, as "the amount of time spent on mathematics homework in Singapore were more strongly associated with higher probabilities of academic success for disadvantaged students" (Sandoval-Hernández and Białowolski, 2016).

We recognize some limitations in our study. We could not fully evaluate the quality of teaching, which is one of the most important factors that affect students' academic achievement and educational motivation (Day & Gu, 2013; Joyce & Showers, 2003; Konstantinovsky, Pinskaya & Zviagintsev, 2019). Teacher's expectations and the quality of the feedback and support they provide

have been found to be positively correlated with student motivation, engagement, learning interest, learning efforts, and academic achievement (Cornelius-White, 2007; Liebenberg et al., 2015; Rivkin, Hanushek & Kain, 2005; Wang et al., 2016). To properly examine teacher quality, it is insufficient to rely exclusively on interviews. Additional research in this area should include classroom observations and observations made during extracurricular activities.

In addition, the generalization of our findings is limited somewhat by our selection of schools. We selected schools with "extreme" levels of both SES and academic achievement. As might be expected, most of the schools in these regions are somewhere in the middle of the distributions, both in terms of SES and academic achievement.

Finally, we there is the possibility of bias in the coding process. Despite using independent coding, inter-rater reliability, and expert sessions, there remains the possibility that the familiar subjective lenses through which we looked at these schools and what is happening in them may have influenced the way in which the qualitative data were coded.

References

Agasisti, T., Avvisati, F., Borgonovi, F. and Longobardi, S. (2018). 'Academic resilience', (167).

Agasisti, T., Longobardi, S. and Regoli, A. (2017). 'A cross-country panel approach to exploring the determinants of educational equity through PISA data'. *Quality and Quantity*. Springer Netherlands, 51 (3), pp. 1243–1260. doi: 10.1007/s11135-016-0328-z.

Agasisti, T., Soncin, M. and Valenti, R. (2016). 'School factors helping disadvantaged students to succeed: empirical evidence from four Italian cities'. *Policy Studies*. Taylor & Francis, 37 (2), pp. 147–177. doi: 10.1080/01442872.2015.1127341.

Belfield, C. R. and Levin, H. M. (2007). *The Price We Pay: Economic and Social Consequences of Inadequate Education*. Brookings Institution Press. Available at: https://books.google.ru/books?id=5SVaRWXYLXgC.

Boyatzis, R. E. (1998). 'Transforming qualitative information: Thematic analysis and code development.' *Transforming qualitative information: Thematic analysis and code development*. Thousand Oaks, CA, US: Sage Publications, Inc, pp. xvi, 184–xvi, 184.

Braun, V. and Clarke, V. (2006). 'Using thematic analysis in psychology Using thematic analysis in psychology', 3 (2), pp. 77–101. doi: 10.1191/1478088706qp063oa.

Cicchetti, D. (2013). 'Annual Research Review: Resilient functioning in maltreated children--past, present, and future perspectives'. *Journal of child psychology and psychiatry, and allied disciplines*. 2012/08/28, 54 (4), pp. 402–422. doi: 10.1111/j.1469-7610.2012.02608.x.

Cohen, L., Manion, L. and Morrison, K. (2007). 'Research methods in education, 6th ed.' *Research methods in education, 6th ed.* New York, NY, US: Routledge/Taylor & Francis Group, pp. xviii, 638–xviii, 638.

Coleman, J. (1966). 'Equality of Educational Opportunity'. *Educational Theory*, 26 (1), pp. 3–18. doi: 10.1111/j.1741-5446.1976.tb00708.x.

Cornelius-White, J. (2007). 'Learner-Centered Teacher-Student Relationships Are Effective: A Meta-Analysis'. *Review of Educational Research - REV EDUC RES*, 77, pp. 113–143. doi: 10.3102/003465430298563.

Crosnoe, R. (2005). 'Double Disadvantage or Signs of Resilience? The Elementary School Contexts of Children From Mexican Immigrant Families'. *American Educational Research Journal*, 42 (2), pp. 269–303. doi: 10.3102/00028312042002269.

Day, C. and Gu, Q. (2013). *Resilient teachers, resilient schools: Building and sustaining quality in testing times. Resilient Teachers, Resilient Schools: Building and Sustaining Quality in Testing Times*. doi: 10.4324/9780203578490.

Edmonds, R. R. (1979). *Effective Schools for the Urban Poor*. Available at:

https://www.midwayisd.org/cms/lib/TX01000662/Centricity/Domain/8/2. Edmonds Effective Schools Movement.pdf.

van de Grift, W. and Houtveen, A. (2006). 'Underperformance in primary schools'. *School Effectiveness and School Improvement*. Routledge, 17 (3), pp. 255–273. doi: 10.1080/09243450600697317.

van de Grift, W. and Houtveen, T. (2007). 'Weaknesses in Underperforming Schools'. *Journal of Education for Students Placed at Risk (JESPAR)*. Routledge, 12 (4), pp. 383–403. doi: 10.1080/10824660701758942.

Hanushek, E. A. (1997). 'Assessing_the_effects_of_school_resources_on_student_performance', 19 (2), pp. 141–164.

Hargreaves, A. and Harris, A. (2011). 'Performance beyond expectations'. *National College for School Leadership*, p. 19. Available at: https://dera.ioe.ac.uk/10022/1/download%3Fid=151888&filename=performance-beyond-expectations-full-report.pdf.

Harris, A. (2008). 'Effective Leadership in Challenging Schools', pp. 1–14.

Harris, D. (2007). 'High-Flying Schools, Student Disadvantage, and the Logic of NCLB'. *American Journal of Education*. The University of Chicago Press, 113 (3), pp. 367–394. doi: 10.1086/512737.

Henderson, N. and Milstein, M. (2003). *Resiliency in Schools: Making It Happen for Students and Educators*. Corwin Press.

Joyce, B. and Showers, B. (2003). 'Student Achievement through Staff Development'. *National College for School Leadership 2003*, pp. 1–5.

Kannapel, P. J. and Clements, S. J. (2005). *Inside the Black Box of High-performing High-poverty Schools: A Report from the Prichard Committee for Academic Excellence*. Prichard Committee for Academic Excellence. Available at: https://books.google.ru/books?id=1uE3HAAACAAJ.

Konstantinovsky, D. L., Pinskaya, M. A. and Zviagintsev, R. S. (2019). 'Professional health of teachers: From enthusiasm to burnout'. *Sotsiologicheskie Issledovaniya*. The Russian Academy of Sciences, (5), pp. 14–25. doi: 10.31857/s013216250004949-6.

Kurakin, D. (2020). 'Tragedy of Inequality: Dehumanizing “L’Homme Total”'; *The Russian Sociological Review*, 19 (Russ. Sociol. Rev.), pp. 167–231. Available at: https://sociologica.hse.ru/en/2020-19-3/403294728.html.

Kvale, S. and Brinkmann, S. (1996). *InterViews: An Introduction to Qualitative Research Interviewing*. SAGE Publications. Available at: https://books.google.ru/books?id=tJPZAAAAMAAJ.

Lezotte, L. W. and Snyder, K. M. (2011). *What effective schools do: Re-envisioning the correlates*. Solution Tree Press.

Liebenberg, L., Theron, L., Sanders, J., Munford, R., van Rensburg, A., Rothmann, S. and Ungar, M. (2015). 'Bolstering resilience through teacher-student interaction:

Lessons for school psychologists'. *School Psychology International*, 37 (2), pp. 140–154. doi: 10.1177/0143034315614689.

Longobardi, S. and Agasisti, T. (2014). *Educational institutions, resources, and students' resiliency: An empirical study about OECD countries. Economics Bulletin.*

Longobardi, S., Agasisti, T., Avvisati, F. and Borgonovi, F. (2018). *Academic resilience. What schools and countries do to help disadvantaged students succeed in PISA.* doi: 10.1787/e22490ac-en.

Martin, A. J. and Marsh, H. W. (2006). 'Academic resilience and its psychological and educational correlates: A construct validity approach'. *Psychology in the Schools*, 43 (3), pp. 267–281. doi: 10.1002/pits.20149.

Martin, A. J. and Marsh, H. W. (2009). 'Academic resilience and academic buoyancy: multidimensional and hierarchical conceptual framing of causes, correlates and cognate constructs'. *Oxford Review of Education*. Routledge, 35 (3), pp. 353–370. doi: 10.1080/03054980902934639.

Masten, A. S. and Cicchetti, D. (2016). 'Resilience in development: Progress and transformation.' *Developmental psychopathology: Risk, resilience, and intervention, Vol. 4, 3rd ed.* Hoboken, NJ, US, NJ, US: John Wiley & Sons Inc, pp. 271–333. doi: 10.1002/9781119125556.devpsy406.

Mortimore, P. (1988). *School Matters: The Junior Years*.

Mortimore, P., Sammons, P. and Hillman, J. (1995). *Key Characteristics of Effective Schools: A Review of School Effectiveness Research*.

Muijs, D., Harris, A., Chapman, C., Stoll, L. and Russ, J. (2004). 'Improving Schools in Socio-economically Disadvantaged Areas: a Review of Research Evidence'. *School Effectiveness and School Improvement*, 15 (April), pp. 37–41. doi: 10.1076/sesi.15.2.149.30433.

Núñez, J. C., Epstein, J. L., Suárez, N., Rosário, P., Vallejo, G. and Valle, A. (2017). 'How Do Student Prior Achievement and Homework Behaviors Relate to Perceived Parental Involvement in Homework? '. *Frontiers in Psychology* , p. 1217. Available at: https://www.frontiersin.org/article/10.3389/fpsyg.2017.01217.

OECD. (2010). *PISA 2009 Results : Overcoming Social Background - Equity in Learning Opportunities and Outcomes (Volume II). Oecd.* doi: 10.1787/9789264091504-en.

OECD. (2011). *Equity and Quality in Education - Supporting Disadvantaged Students and Schools. Methodology.* doi: http://dx.doi.org/10.1787/9789264130852-en.

Parret, W. and Budge, K. (2020). *Turning High-Poverty Schools into High-Performing Schools*. 2nd edn. Alexandria: ASCD.

Pinskaya, M., Kosaretsky, S., Zvyagintsev, R. and Derbishire, N. (2019). 'Building resilient schools in Russia: effective policy strategies'. *School Leadership &*

Management. Routledge, 39 (2), pp. 127–144. doi: 10.1080/13632434.2018.1470501.

Pinskaya, M., Khavenson, T., Kosaretsky, S., Zvyagintsev, R., Mikhaylova, A. and Chirkina, T. (2018). 'Above Barriers: A Survey of Resilient Schools'. *Voprosy obrazovaniya / Educational Studies Moscow*, (2), pp. 198–227. doi: 10.17323/1814-9545-2018-2-198-227.

Pisapia, J. and Westfall, A. L. (1994). *Developing Resilient Schools and Resilient Students. Research Brief #19*. Available at: https://files.eric.ed.gov/fulltext/ED411343.pdf.

Reynolds, D., Sammons, P., De Fraine, B., Van Damme, J., Townsend, T., Teddlie, C. and Stringfield, S. (2014). 'Educational effectiveness research (EER): a state-of-the-art review'. *School Effectiveness and School Improvement*. doi: 10.1080/09243453.2014.885450.

Rivkin, S. G., Hanushek, E. A. and Kain, J. F. (2005). 'Teachers, Schools, and Academic Achievement'. *Econometrica*. Blackwell Publishing Ltd, 73 (2), pp. 417–458. doi: 10.1111/j.1468-0262.2005.00584.x.

Rockoff, J. E. (2004). 'The Impact of Individual Teachers on Student Achievement: Evidence from Panel Data'. *The American Economic Review*. American Economic Association, 94 (2), pp. 247–252. Available at: http://www.jstor.org/stable/3592891.

Sandoval-Hernández, A. and Białowolski, P. (2016). 'Factors and conditions promoting academic resilience: a TIMSS-based analysis of five Asian education systems'. *Asia Pacific Education Review*, 17 (3). doi: 10.1007/s12564-016-9447-4.

Siraj, I. and Taggart, B. (2014). *Exploring Effective Pedagogy in Primary Schools : Evidence from Research.*

Stringfield, S. (1998). 'Choosing success'. *American Educator*.

Sudlow, R. (1985). *What is an Effective School?* Washington, D.C.: ERIC Clearinghouse.

Tajalli, H. and Opheim, C. (2005). 'Strategies for Closing the Gap: Predicting Student Performance in Economically Disadvantaged Schools'. *Educational Research Quarterly*, 28.

Teddlie, C. and Reynolds, D. (2001). *The International Handbook of School Effectiveness Research*. doi: 10.1016/S0272-7757(01)00009-7.

Vera, G. G., Valenzuela, J. P. and Sotomayor, C. (2015). 'Against All Odds: Outstanding Reading Performance among Chilean Youth in Vulnerable Conditions'. *Comparative Education Review*. [The University of Chicago Press, Comparative and International Education Society], 59 (4), pp. 693–716. doi: 10.1086/683108.

Wang, C., Hatzigianni, M., Shahaeian, A., Murray, E. and Harrison, L. J. (2016). 'The combined effects of teacher-child and peer relationships on children's

social-emotional adjustment'. *Journal of School Psychology*. Society for the Study of School Psychology, 59, pp. 1–11. doi: 10.1016/j.jsp.2016.09.003.

Wills, G. and Hofmeyr, H. (2019). 'Academic resilience in challenging contexts: Evidence from township and rural primary schools in South Africa'. *International Journal of Educational Research*, 98, pp. 192–205. doi: https://doi.org/10.1016/j.ijer.2019.08.001.

Yastrebov, G., Pinskaya, M. and Kosaretsky, S. (2014). 'The use of contextual data in the system of education quality assessment: experience in developing and testing tools'. *Educational Studies, Moscow*, 4.

Corresponding author:

Roman Zvyagintsev
National Research University Higher School of Economics. Institute of Education, Junior Researcher.
E-mail: rzvyagincev@hse.ru

Any opinions or claims contained in this Working Paper do not necessarily reflect the views of HSE.

Supplementary materials

Table 5

Examples of code groups and positive and negative quotations within each group

	Number of coding categories in code group	Quotes
Effective school elements		
Focus upon learning	8	"The main goal of school is education. So that students get solid knowledge, every child, and thus could make a progress in life then. Graduating from this school, our children study in a college better. My daughter successfully passes all exams, she has solid knowledge. I am sure that the school laid the foundation of that. (Parent)
Parents' involvement	6	"This year we prepared event for parents: Students sang, danced, presented pieces from some school events. We take photos all the time, make videos – also to present to parents. They like to look at their children. Parents start to visit our meetings – it is interesting for them too". (Principal).
High expectations of students and staff	1	"It is important for our teachers that we prepare seriously, write tests and pass exams successfully. They see one's talent and suggest additional tasks and grade them. To study well I need to prepare all subjects at home, not only the Russian language and math" (Student, 9th grade)

Pedagogical leadership\effective leadership	13	It is needed to direct teachers from time to time. I most of all am responsible for students' knowledge and what they get. It is my responsibility. I poke my nose everywhere". (Principal)
Ineffective school elements		
Lack of academic focus	2	I: What is the focus area of education at your school: knowledge, exams, anything else? R: God knows… I do not know. Cannot say for sure (Parent)
Insufficient parents' involvement	5	"Parents come with complaints. They have an attitude that we owe them" (Principal) "Parents can't control students' educational process. If they wash their hands, wear clean clothes and don't sleep at our lessons – that is an achievement" (Focus group with teachers)
Low academic expectations	6	"Most of our students are boys…so what can we expect from them. Boys usually don't study well" (Principal) "It is just such a child – he is prescribed to have medication. Dad is an alcoholic, mom is almost alone. What can we do? Only be tender" (Principal)
Unfocused leadership	7	"It's all magic. I cannot explain it… It is not a method, not a technology that one can use at the lesson. How s/he does it, how it works – I do not know. I wouldn't say that a specific method would work" (Principal)

Table 6

Code group forming

Code group: Focus on learning	Focusing on academic outcomes and Maximized learning time.
Code:	Quote:
School focuses on knowledge	I do not think the school has one aim. The specialists here are good, they teach our children well. As far as I know, most graduates are now enrolled, not only in vocational schools, but in major institutions. Classes are small, my child still must do homework every day. (Parent)
	In our village, the school is the only place for children where they get knowledge based on their interests (Parent)
Focus on higher education	If the teacher has time, (s)he can give additional class for students to study, for an hour and a half: "If you want to come, I can help you fix this bad mark" (Teachers).
Prepare for Olympiads	I visit all sorts of competitions; teachers often introduce them to me. Teachers are demanding of me. If the students are not very capable, then the teachers judge by other certain standards. And if I make any mistakes, I am more sternly asked (Student).

|	
Focus on exams	"First, it is needed to strengthen the quality: to conduct better lessons and additional classes. We need to start in the autumn. To give tasks examples to the national exam. It is in the spring already, so you need to prepare in the autumn". (Principal)
High school	I: Why did you decide to go to high school? R: I have a basic belief that it is more difficult to study in grades 10-11. But then your education will be more complete. Besides, I want to go to a Medical University, which I can enter only by finishing grade 11. (Student)
Maximizing learning time	"It takes a lot of time to prepare for exams and to visit electives. There is a lot of time for extra-curriculum education: art, singing. In spring, they will work on the garden area, plant flowers. Extracurricular activities, Olympiads… Children are not forced to go to school" (Parent)
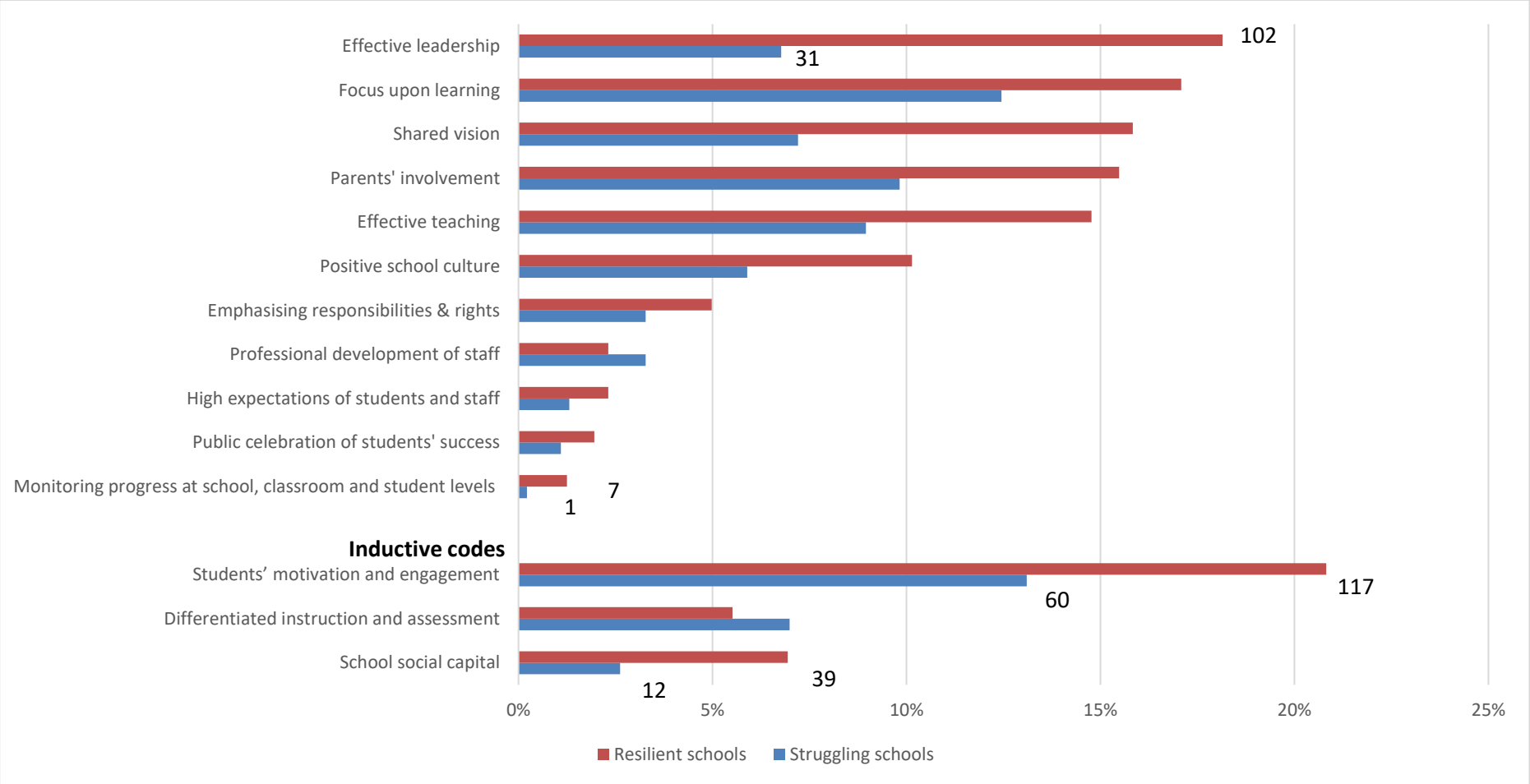
Figure 3. Effective elements in resilient and struggling schools

Annex 1. Full version comparison of model of school effectiveness / ineffectiveness

	Ineffective school elements			Effective school elements	
Grift	Sammons	Stringfield	Sammons	Reynolds	
			lack of academic focus; spending considerably less time per hour and day engaged in academic learning	Developing & maintaining a pervasive focus on learning	A focus upon learning that involved: Focusing on academic outcomes and Maximized learning time.
			regular disruptions to and wasting of academic time	Creating an information rich environment	
			lack of public celebration of student successes.	culture of praise	teachers showing high levels of praise and encouragement

School level					
		lower expectations for students of low socio – economic status (SES)		high ideals and expectations	High expectations of students and staff.
	Learning material offered at school is insufficient to achieve core targets		resources working at crossed purposes. Inefficient use of school libraries/media centres;		
	Insufficient cooperation within the team of teachers	Dysfunctional staff relationships	teachers teaching in isolation from one another.	Promoting continuous professional development	Professional development of staff that was: Site located and Integrated with school initiatives.
	Prolonged significant discord within the team of teachers		challenges in recruiting and developing teachers and other key staff		

		lack of vision		Creating a shared vision	Shared vision
		negative culture		Creating a positive school culture	A positive school culture that involved: Shared vision, An orderly climate, and Positive reinforcement
				Involving parents in productive & appropriate ways	Involving parents through: Buffering negative influences and Promoting positive interactions
				Emphasising responsibilities & rights	Involving students in the educational process through: Responsibilities and Rights.
Principal	The principal does not support or motivate the teachers	unfocused leadership.	Principals are not conversant with the specifics of their schools' curricula. passive in the recruiting new teachers.	Enhancing leadership capacity	Effective leadership that was: Firm, Involving, instrumentally orientated, involving monitoring, and Involved staff replacement.

			providing feedback to current teachers		
Teachers	Poor instructional quality

teachers did not give clear instructions and explanations | inconsistent approaches to the curriculum and teaching | | | |
| | teachers did not

succeed to involve all students in the lesson

teachers did not | ineffective classroom practices | low or uneven rates of interactive teaching

relatively unengaging tasks | structured teaching' | Generating effective teaching through:
Maximizing

learning time, grouping strategies, benchmarking against best practice, and Adapting practice to student needs. |

ensure effective classroom management	low levels of student involvement in their work			
Insufficient or inappropriate special measures for struggling learners		minimal moderate-to-long-term planning		
Insufficient insight into students' performance levels			Monitoring progress at all levels	Monitoring progress at school, classroom, and student levels.