

**RELATIONS BETWEEN ATTITUDES OF SCHOOL
ADMINISTRATIONS TOWARDS SCHOOL PERFORMANCE
CRITERIA AND THE NATIONAL EXAMINATION RESULTS IN
ESTONIAN SCHOOLS**

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Abstract. The aim of this article is to explore how attitudes of school administration towards school performance criteria are related to pupils' national examination results. The national examination results for each school from a period of six years (2000–2005) were compared with school administration attitudes. The empirical study was conducted in 2005–2006 among school administrations in Estonian secondary schools (n = 57, one respondent from each school). The questionnaire consisted of 24 different aspects of the criteria for potential school performance. A factor analysis enabled us to divide these criteria into four groups: 1) pupils' academic performance, 2) school management, pupils' non-academic skills, 3) school environment, and 4) pupils' educational progress, competence of teachers. The results showed that school administration attitudes have an effect on pupils' national examination results; although, this depends on the school's size and location. School leaders can influence pupil achievement and so it is proposed that cooperating with other stakeholders would assist this crucial development.

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1. Introduction

The national examinations have now been conducted in Estonian schools for about ten years. The examination results are publicly available for each school and sometimes these stimulate discussion about whether the schools that have pupils with higher results in the national examinations are more successful. There is no consensus about this matter, but as there is little or no evidence or statistics about other fields of school success, some pupils and teachers tend to choose schools where pupils get higher examination results. These schools are also very beneficial

for pupils who want to study at university because national examination results are an important criterion for entrance into universities in Estonia.

As the school administration¹ is responsible for the school's performance, in various respects it seems reasonable to find out how the national examination results relate to the school administration's understanding of that performance. It is important to find out what areas of school management may contribute to the pupils' academic achievement and how important the school administration actually believes them to be.

The aim of this article is to explore how attitudes of school administration towards school performance criteria are related to pupils' national examination results. The results of the study will provide the school administration with information about areas of school management that need special attention and so may lead to higher examination results and pupil competency in Estonian schools.

In the following review, we will discuss how school administration attitudes, and according to that the chosen leadership practices, may influence academic performance among pupils. In the empirical part we will introduce an instrument that allows us to measure attitudes about school performance criteria in a reliable way and explore the relations between the attitudes of the school administration and national examination results. The final part discusses the results of the study and offers proposals for school management.

2. The influence the school administration has on academic performance

2.1. School leadership

School leadership has its unique characteristics. Childress et al. (2006) suggest that school leaders should not apply the same methods as business managers because schools have to serve all customers (pupils) regardless of their interest in academic achievement. Therefore, there is a need to adapt both business and non-profit sector strategies and create a unique approach to leadership in the school context. The Harvard Business School and Harvard Graduate School of Education launched the Public Education Leadership Project (PELP) in 2003. The PELP team worked to identify effective leadership and management practices for urban public schools in the US, and PELP partnered schools gained noticeable advantages by applying the gained knowledge.

Cranston (2002) brings out some changes in the roles and skills of school principals, claiming that the leadership through visionary, attitudinal and cultural change has become more important in recent decades. Due to the increasing diversity and complexity of their work, principals need more interpersonal skills for communication, collaboration, negotiation and conflict management. As in the

¹ School administrations consist of school principals and head teachers in our sample. Head teachers are subordinate to the principal and, for example, coordinate the work of the teachers, help develop curricula, mediate communication between principal, teachers, parents and pupils, and organize various school events, extra-curricular activities etc.

business world, school principals also handled more administrative and management tasks before, but now there is a greater need to focus on the implementation of leadership qualities (Neil et al. 2001). Good leaders do not simply administer organizational structures and tasks, but first of all concentrate on the people carrying out these functions (Huber 2004).

The role of school leadership in terms of school effectiveness (often defined via pupils' academic performance) is widely discussed in academic literature (e.g. Leithwood 2005, Gurr et al. 2005, Huber 2004, Gibbs and Slate 2003, Neil et al. 2001, Leithwood and Jantzi 1999). Sometimes the direct effect of the school leadership on school outputs is highlighted, but often the indirect effect is also emphasised. For example, Hallinger and Heck (1998) have collected data about studies looking at the principal's contribution to pupil academic achievement. The results indicate that very few studies (only 6 from 22) showed any direct impact from the principals on the academic achievement of their pupils, whereas most of the indirect models (13 from 19) showed a significant impact on the pupils' academic achievement. Hallinger and Heck (1998) say that the results of the direct effects of principals' actions are surprisingly clear. Researchers have been unable to produce consistent evidence of the principals' direct effect on pupil achievement. However, a mediated-effects framework hypothesizes that leaders achieve their effect on school outcomes indirectly. Leadership practices contribute to those outcomes desired by the schools, but the contribution is almost always mediated by other people, events and organizational factors. School leaders clearly do not have direct contact with all pupils; they do not have time for it. These aspects led us to the current interesting research topic.

We propose that the attitudes held by the administration are very important. Firstly, attitudes determine how the administration behave and which leadership practices they implement; and secondly, leaders' attitudes and behaviour also have an impact on the attitudes and behaviour of the teachers, pupils etc. (Gibbs and Slate 2003, Harris and Crane 2002, Neil et al. 2001). The following quote by DiPaola et al. (2004) illustrates this well: "Principals' attitudes, values, beliefs and personal characteristics inspire people to accomplish organisational goals and if pupil achievement improves over time it is, in large measure, because key stakeholders share the leader's vision about these goals". In the following we provide an overview of the areas of school leadership that were found to be important in respect of better academic performance. These are 1) creating the school environment, 2) maintaining stakeholder relationships and satisfaction, 3) creating opportunities for the non-academic development of pupils and 4) recruitment and training teachers.

2.2. Creating the school environment

The school environment is one of the important areas that require the attention of the school administration. For example, school safety is one of the most important concerns because without safety teachers cannot teach properly and pupils cannot learn effectively (Van der Westhuizen et al. 2005, Kitsantas et al.

2004). Stewart (2008) found that schools with many social problems (e.g. violence, mugging, disorder, lack of discipline etc.) have lower levels of academic achievement. In a similar vein, Bazron et al. (2005) indicate that pupils perform better in environments that are warm and safe and have adequate social support. Kitsantas et al. (2004) suggest that the best school safety plans involve the entire community including teachers, pupils, parents, politicians, academics, and business and community leaders etc. Thus, creating safe schools is an inclusive and cooperative process that involves more than just the school, and the school administration's role is to manage this process.

A good spirit, a creative environment and a sense of vision also contribute to the learning environment of a school (Erb 2006, Mulford et al. 2004, Griffith 2004, Kitsantas et al. 2004, Lan and Lanthier 2003, Bosker and Scheerens 2000, Young 1998, Haynes et al. 1997). We refer to Stewart (2008), who found that schools with high levels of cohesion have higher levels of academic achievement.

The school climate is one of the most discussed elements of a school environment (e.g. Karatzias et al. 2001, Bosker and Scheerens 2000, Haynes et al. 1997). Stewart (2008) defines it as follows "school climate is the heart and soul of a school". Haynes et al. (1997) emphasize that research has shown a relationship between the school climate and various indicators – pupil self-concept, pupil behaviour, absenteeism, dropout rates and pupil achievement. The opposite tendency has also been studied and results show that a negative school climate leads to a greater risk of school failure and dropouts (Gillock and Reyes 1996). Fostering a positive and supportive climate in schools is associated with lower levels of risk behaviours and positive effects on pupil achievement and behaviour in school. Pupils who feel a sense of belonging or a bond to a school and at the same time trust the administration are less likely to commit violent acts (Kitsantas et al. 2004).

Organizational culture is also a very popular focus of studies of the school environment because it contributes to the effective functioning of an organization such as a school. Van der Westhuizen et al. (2005) and Stewart (2008) indicate that school culture evolves a set of unwritten beliefs, norms, values, attitudes, and various forms of interaction among pupils, teachers and administrators. Organizational culture also displays the unique character of each school and exercises a specific influence on the behaviour of school members (Van der Westhuizen et al. 2005). Furthermore, school culture can also affect the pupils' sense of belonging – the extent to which pupils feel accepted, respected and supported in schools. Research has shown that the pupils' sense of belonging influences their academic achievement (Ma 2003). Organizational culture also influences motivation among teachers and pupils, pupil achievement and dropout rates (Van der Westhuizen et al. 2005). Empirical research confirms that schools that are performing well or average have a strong and effective organizational culture, whereas poorly performing schools have a weak and even negative organizational culture (Van der Westhuizen et al. 2005). To improve academic achievement, it is crucial to pay attention to the school's organizational culture and especially to work to improve it in low performing schools.

2.3. Maintaining stakeholder relationships and stakeholder satisfaction

Although the principal is viewed as the initiator and sustainer in the design and development of an organization (Van der Westhuizen et al. 2005), the contributions from other stakeholders are also very high. Common values and convictions act as a glue that binds stakeholders together and counterbalances possible divisions that may occur because of the diversity among members of the organization (Van der Westhuizen et al. 2005). This leads to the second very important area of school leadership – creating good communication and cooperation between all stakeholders in the school. This is one key to a school performing well (Childress et al. 2006, Mulford et al. 2004, Griffith 2004, Visscher and Coe 2003, Bosker and Scheerens 2000, Pashiardis 2000, Peterson and Deal 1998). School leaders who shape school culture so that it becomes more collaborative should reap the benefits of greater teacher and pupil academic performance (Gruenert 2005, Deal and Peterson 1999). Here we refer to a study by Haynes et al. (1997) where they indicate that pupils achieve academically and develop well in school communities where collaborative interpersonal relations ensure the successful implementation of policies and programs. They also suggest that as a school community, personnel, parents and pupils share the responsibility for developing these collaborative interpersonal relations. Low morale and poor cooperation among stakeholders is evident where pupils are achieving poorly (Van der Westhuizen et al. 2005).

Childress et al. (2006) admit that manager-stakeholder relationships are especially challenging because stakeholders rarely agree on what success looks like, and therefore, the satisfaction of stakeholders is an ever-present issue for school administrations. As many studies show, this is a very important factor of pupil achievement (e.g. Loudon and Wildy 1999). Karatzias et al. (2001) and Pors (2001) emphasize the role of pupil satisfaction, while Griffith (2004, 2003), stresses the role of the satisfaction of the school personnel. Gillock and Reyes (1996) highlight that pupils with a positive perception of their school and their teachers showed higher average grades and lower dropout rates. Lan and Lanthier (2003) indicate that a negative perception of the school (the schools' spirit, discipline, school safety) leads to low school satisfaction. To achieve satisfaction with the school, the participation of the school personnel in the decision-making process is also relevant (Mulford et al. 2004, Griffith 2003, 2004, Pashiardis 2000, Haynes et al. 1997).

Many authors also find that parent satisfaction and participation in school life is important for school performance (Mulford et al. 2004, Karatzias et al. 2001, Bosker and Scheerens 2000, Pashiardis 2000, Loudon and Wildy 1999, Haynes et al. 1997).

2.4. Creating opportunities for the non-academic development of pupils

The third area that needs the attention of the school administration is the pupils' non-academic skills. These also contribute to the academic performance of the pupils. This indicates that the school's role is not only to concentrate on the academic curriculum, but also to provide extracurricular activities for its pupils (Mulford et al. 2004, Lan and Lantier 2003), and in the end this also helps to

improve the success (also academic one) of its pupils. A number of studies have demonstrated relationships between pupil involvement with extracurricular activities and their grades (Guest and Schneider 2003, Broh 2002, McNeal 1995, Marsh 1992). Extracurricular activities such as sports, drama and journalism clubs have been associated with increased levels of achievement. Those who participate in extracurricular activities develop more positive feelings towards the school, and pupils who feel more attached to their school make a bigger effort. Bazron et al. (2005) suggest that successful schools help pupils regulate their own behaviour and deal with the many social and academic challenges they face. Teaching pupils social and emotional skills, such as relationship building, self-awareness, self-management and responsible decision-making, can prevent problem behaviour and promote academic success. Pupils who develop these skills are less likely to engage in high-risk behaviour and are more able to manage academic challenges.

Gilloc and Reyes (1996) studied pupils' perceptions about themselves and how these correlate with academic achievement. The results showed that pupils who perceived themselves as intelligent, talented and motivated towards schoolwork had higher grades in reading and mathematics (correlation coefficient 0.48, $p < 0.01$), while there was also a positive relationship between general self-worth and school grades (correlation coefficient 0.35, $p < 0.05$). These results show that pupils who are more satisfied with themselves get better grades. Or vice versa, pupils who get better grades at school have higher self-esteem. Offering extracurricular activities is one way a school can help improve the pupils' self-esteem.

2.5. Recruitment and training of teachers

The fourth important area for the school management involves the recruiting, supervision and training of teachers in their schools. It is obvious that good schools need good teachers and thus the experience and knowledge of teachers are considered an important aspect of school performance (Childress et al. 2006). Verstegen and King (1998) show a positive correlation between teacher experience and pupils' academic performance in 85 per cent of empirical studies. Darling Hammond's (2000) analyses indicate that assessments of teacher preparation and certification have a strong positive correlation with pupil achievement in reading and mathematics.

Ascher and Fruchter (2001) indicate that pupils tutored by ineffective teachers for several consecutive years have significantly lower achievement levels and lower gains than those who were lucky to get highly effective teachers. Ascher and Fruchter (2001) compared low performing schools with high performing schools in the US and found that there are noticeable differences. In low performing schools, the percentage of teachers who were not fully licensed was 25.9 per cent compared to 7.6 per cent in high performing schools. In low performing schools 33.3 per cent of the teachers had less than 5 years teaching experience, while the per cent in the high performing schools was 23.7. In low performing schools, there were also more teachers who did not have an advanced degree (30.9 per cent) compared to high performing schools where only 18.1 per cent of teachers did not

have an advanced degree. These examples explain why low and high performing schools differ from each other.

On the contrary, Hanushek (1989) has concluded that teacher education and experience do not contribute to academic achievement, and that hiring more educated and experienced teachers necessarily raises pupil achievement. The educational level of teachers was a significant aspect in only 12 per cent of 113 studies in the years 1967–1987 analyzing academic performance. Thirty-six per cent of 140 studies showed significant relations between teacher experience and pupil educational outcomes. Hanushek (1997) also suggests that obtaining an advanced degree does little to ensure that teachers do a better job in the classroom. In more recent studies Goldhaber et al. (1999) have also found that a teacher's long experience at secondary school, teacher's certification and having master's or a higher degree is not significantly correlated with pupils' test scores in mathematics.

We can conclude that the evidence about the impact of a teacher's education and experience on the academic performance of their pupils is contradictory. This is because we can encourage teachers to get higher degrees and principals to hire experienced teachers, but this does not guarantee that these teachers will do a good job. There are also other important matters that certainly contribute to pupil performance – teachers' teaching abilities, activity, motivation, communication skills etc.

Therefore, finding highly qualified and motivated teachers is a serious problem especially for schools that are already lower performing because teachers prefer to work in high-performing schools, and therefore these usually have much more choice between different teacher candidates (Torff and Sessions 2005). So it is crucial to enable good training opportunities and development for teachers in high-performing schools, but especially in low-performing schools (Childress et al. 2006, Mulford et al. 2004, Griffith 2004, Visscher and Coe 2003, Pors 2001, Bosker and Scheerens 2000).

Erb (2006) compares schools to sports teams. The trainer can recruit top players, but the team may never win. The problem here is that the trainer is not capable of making the players work as a team. An analogous situation exists in schools. Erb (2006) says: "Successful schools are much more than the result of hiring highly qualified teachers and letting them function in isolation in their separate classrooms". This is where cooperation, communication and relationships between school stakeholders come in. Leadership issues and school culture are also important intangible aspects of school life and performance.

School leadership, environment, stakeholder relationships, extra-curricular activities and finding qualified teachers are areas that school administrations can influence. In the next section we will discuss specifics, such as school size and location, which are beyond the control of school leaders.

3. School size and location

3.1. School size

Management duties and challenges in a large school are somewhat different compared to a small school. In Estonia there are schools that have more than fifty teachers and also schools that have only five teachers. Accordingly, the number of pupils varies a great deal. It is complicated to communicate and consider everybody's interests in a large organization and creating a good environment is difficult. Gibbs and Slate (2003) analyzed the leadership activities of secondary school principals and found that school size influenced these significantly – in a larger school principals had less contact and personal involvement with personnel and so on, compared to their counterparts in small schools. Regardless of these aspects it has been found that large schools have advantages when the academic performance of pupils is an issue.

The results of empirical studies mostly show that in larger schools academic performance is better (e.g. Driscoll et al. 2003, Barnett et al. 2002, Bradley and Taylor 1998, Mok and Flynn 1986). Bradley and Taylor (1998) found that in schools with fewer than 799 pupils, the examinations results were, for example, between 29.4 and 36.6, whereas in schools with more than 800 pupils, the examination results were between 41.7 and 49.2. However, there are also some results that suggest the reverse. For example, Young (1998) points out three studies that have shown that pupils from smaller schools performed as well as pupils from larger schools. The authors did not find any publication where smaller schools performed better than larger schools when academic performance was the criterion for measuring success. Some of the advantages and disadvantages of large schools presented in the pertaining literature are summarized in Table 1.

But Eberts and Schwartz (1990) used other performance indicators besides academic performance in their study (i.e. pupil, teacher and leadership characteristics), and their results show that smaller schools perform better than larger ones. This evidence, in the authors' opinion, indicates that the role that the size of a school plays in school success can depend on what factors are considered when measuring performance. If the focus is upon the examination results and tests, then larger schools have an advantage; however, when other criteria are used, smaller schools show good results.

Bradley and Taylor (1998) confirm this view by saying: "The benefits of a smaller school may include, for instance, the development of personal and social skills and a greater awareness of each person's responsibility towards their fellow human beings, rather than focusing blindly on developing skills to pass exams." Several researchers have hypothesized that smaller school size, which is often associated with more personal attention, more opportunities for involvement, leads to positive behavioural and academic outcomes for the pupils (Rumberger and Palardy 2005, Johnson et al. 2001, Holland and Andre 1987). Deutsch (2003) highlights studies concluding that small classes stimulate pupil engagement, allow more innovative instructional strategies, increase teacher-pupil interactions, reduce

Table 1. Advantages and disadvantages of large schools

Advantages	Disadvantages
More effective in recruitment of teachers	School governance is harder
Greater specialization among teachers	Teachers and administration are less accessible to parents
More effective in offering diverse and comprehensive curricula	Fewer opportunities for developing pupil leadership
Greater specialization among curriculum subjects	Interaction between pupils and teachers may suffer
Fewer administrative tasks for teachers	Less attention to the personal and social skills of pupils
Additional resources for teaching	Less attention to pupils with special needs
Less teacher turnover	Problems with school discipline
More cost effective	Higher dropout rates
	A less improved school climate

Compiled by authors, sources: Tajalli and Opheim 2004, Borland and Howsen 2003, Lan and Lanthier 2003, Lee and Burkam 2003, Barnett et al. 2002, Taylor and Bradley 2000, Bradley and Taylor 1998, Eberts and Schwartz 1990, Mok and Flynn 1986.

the amount of time teachers devote to discipline and improve teacher morale. Lee and Loeb (2000) say that smaller schools (750 or fewer pupils) are more favourable for educational environments, not just for the pupils' learning, but also for positive teacher attitudes toward pupils. More specifically, teachers in smaller schools took more personal responsibility for their pupils' learning than teachers in larger schools.

In addition, Borland and Howsen (2003) indicate that there can be an optimum number of pupils in a school (they found that 760 is optimum), because too small is not beneficial but too large has disadvantages, too. Also, Lee and Smith (1997) demonstrated that pupils learned more in secondary schools that enrolled 600-900 pupils (i.e. small but not too small).

3.2. School location

The specific characteristics of location that concern school leadership mostly relate to lower school budgets, shortages of qualified teachers and the characteristics of pupil backgrounds (Gibbs and Slate 2003). When a school has many pupils from disadvantaged families, school leaders have to put more energy into solving problems that schools with pupils from mostly affluent backgrounds do not have. The family background of the pupils includes their parents' education, occupation and income, which have been proven to influence academic achievement, but also the level of support from the parents and the expectations they have of their child. Pupils with well-educated parents earning high incomes generally do better at schools than pupils with less-educated parents on low incomes (Hanushek 1989).

Roscigno and Crowley (2001) also emphasize the importance of such family investments as:

1. household educational items (number of educational items in the home, including books, newspapers, encyclopaedia, computers, places to study);
2. cultural capital (extent to which pupils attend museums and take classes in art, music, language, history etc. outside of school).

It is obvious that higher income parents can afford these kinds of expenditures more than lower income parents, and in addition, parents with a higher education usually value their children's education and may invest in it more than less educated parents. Naturally, it is an issue of priorities, not only finances and education. Not all parents are willing to invest in their children's education even if they have such an opportunity. Research shows that parental expectations, and their support and involvement in their children's schoolwork were positively related to the likelihood that children would successfully graduate from secondary school (e.g. Stewart 2008, Torff and Sessions 2005, Lan and Lanthier 2003, Bradley and Taylor 1998).

When analyzing location effect on pupils' academic performance the urban areas show better results. Roscigno and Crowley (2001) suggest that pupils living in rural areas of the US exhibit lower levels of educational achievement and a higher likelihood of dropping out than their urban counterparts. Average math/reading achievement is approximately 2.53 points lower in rural localities ($p < 0.001$). The average likelihood of dropping out of secondary school is approximately 15% higher in rural places ($p < 0.05$). Also, Young (1998) has found that rural schools had significantly lower achievement. Location of school appeared to account for 21.5% of the variation in achievement. The pupils' background impact was thereby eliminated. Consequently, he summarizes that rural pupils are disadvantaged in terms of their achievement compared to urban pupils. Reeves and Bylund (2005) also found in their study carried out between 1999 and 2003 that rural locations are significantly lower performing than urban areas. Still, some available evidence shows that rural pupils performed about as well as their peers in urban schools (Fan and Chen 1999, Greenberg and Teixeira 1995).

We have not found any evidence (published) where rural schools had better performance than urban schools, when the performance indicator is academic achievement, while many researchers emphasize the importance of rural schools in other areas. They say that these schools are often an integral part of the local community and their closure could result in serious social consequences (Bradley and Taylor 1998). Rural schools are often a centre for community activity and this provides pupils with a greater sense of belonging and a better self-concept (Young 1998). Pashiardis and Ribbins (2003) claim that the advantage of living in a small community is that pupils with their parents, and often most of their extended family, know each other and that could be beneficial for creating a suitable atmosphere for improving the pupils' abilities. Rural schools are often small and this also enables them to take advantage of all the benefits of a smaller school (see Table 1).

4. Sample

In 2005/2006 there were 299 secondary schools in Estonia. We only examined municipal or state-owned schools without children with special needs that offered daytime lessons in Estonian (there were 150 such schools) (Undrits 2006). National examination results for each school over a period of six years (2000–2005)² were compared with school administration attitudes.

In order to find connections between the attitudes held by school administrations towards school performance criteria and national examination results, a sample of Estonian secondary schools was formed, ensuring that schools of various sizes and locations were present in the sample. To create a more homogeneous sample, the elite schools and schools in the capital of Estonia, Tallinn, were not included. For those counties with fewer schools like, for example, Hiiumaa County, we invited all secondary schools to participate. For counties with many schools we chose 4 large schools (over 800 pupils) and 4 small schools (less than 799 pupils) and asked them to participate in the study. The margin 800 was chosen because in previous studies this rate has been used for distinguishing between smaller and larger schools (e.g. Borland and Howsen 2003, Bradley and Taylor 1998, Eberts and Schwartz 1990)³.

The study of attitudes was conducted in 2005–2006 among the administrations of Estonian secondary schools. In the study, 57 secondary schools from all 15 Estonian counties participated. From each school one respondent – principal or head teacher – completed the questionnaire. The response rate was 47.5 per cent, which is quite high due to contacts the authors had in schools from a previous successful study in 2003. The sample represents 38% of all Estonian secondary schools (from municipal or state-owned schools without special needs children and offering daytime lessons where the language of instruction was Estonian). Principals represented 52.5 per cent of the respondents and head teachers 47.5 per cent. The average age of the participants was 49 years (standard deviation, henceforth SD = 8.2). Work experience in the current school was 17.9 years (SD = 11.2). Forty-five per cent of the participants were male and 55 per cent female. Seventy-two per cent of the schools that participated were from rural areas (from a rural municipality or small town) and 28 per cent were from urban areas (from a city or county town). Small schools formed 75 per cent and large schools 25 per cent of the sample. We see that mostly smaller schools and rural schools preferred to participate in the study. Most of the small schools are located in the rural areas (88.4 per cent), while the larger schools operate in the urban areas (78.6 per cent).

² The reason for longer time period is to avoid occasional low or high results for a specific school.

³ In 2005/2006 there were 91,739 pupils in secondary schools that were municipal- or state-owned schools with the daytime study where the language of instruction was Estonian and which do not take children with special needs. (Undrits 2006) The average number of pupils in schools is therefore 611 (91739 divided by 150).

5. Method

In order to measure school administration attitudes towards various performance criteria, a questionnaire was compiled covering three stages. First, we examined academic publications to find out the important aspects contributing to school performance. Secondly, this was followed by an analysis of the instructions published in *The Self-evaluation of Schools* (Putk 1996) and *The External Evaluation of Schools* (Kond 1997) proposed by the Estonian Ministry of Education⁴. Thirdly, the associate professor of the Faculty of Economics and Business Administration at Tartu University, a principal of a school, two officials from the Estonian Ministry of Education and Research and doctoral students, were asked to critically evaluate the initial concepts of the measurement. This multistage process increased the validity of the construct.

Based on the preparatory work, the final version of the measurement tool was composed. The questionnaire consists of 24 potential performance indicators (see Appendix 1). The respondents were asked to indicate their attitude towards the items on a 10-point scale ranging from 'completely disagree' (1 point) to 'completely agree' (10 points).

In order to find out each school's average national examination results we gathered data from the homepage of the National Examinations and Qualification Centre (NEQC) (Homepage of...). The exam results in mathematics, English, composition and history were considered for the comparison. We emphasize three reasons for selecting the abovementioned subjects. First, these are most frequently chosen curricula for national examinations (*Ibid.*). Second, these subjects are often considered when selecting students for university admission in Estonia. Third, some of these subjects have also been chosen in previous studies for measuring school performance (e.g. Machin et al. 2004, Ross and Lowther 2003, Haque and Bell 2001). We calculated the six-year (2000–2005) average for the abovementioned subjects for each school.

For statistical processing of the data we used factor analysis, correlation analysis and an analysis of variances (ANOVA) in the statistical data processing package SPSS 10.0. The acceptable significance level chosen was 0.05.

6. Results

As in previous studies, the national examination results are significantly higher in the large and urban schools in our sample. The mean values and standard deviations of national examination results are presented in Table 2. This result led us to separate schools according to their location and size because otherwise we could lose some relevant and important information.

⁴ Now Estonian Ministry of Education and Research

Table 2. Differences in national examination results in regard to size and location

Location and size of a secondary school	National examination results		Significance (ANOVA)
	Mean	SD	
Urban school	59.12	0.38	p = 0.005
Rural school	52.81	0.49	
Large school	58.21	0.40	p = 0.003
Small school	52.31	0.47	

In order to find out how school management attitudes towards performance criteria are related to the national examination results in the school, the performance criteria were grouped. The correlation analysis revealed that some statements are strongly correlated and thus, it is reasonable to integrate these variables together into a single group. A factor analysis was performed and the principal components method was chosen for factor extraction followed by factor rotation (Varimax method using Kaiser Normalization) – four factors were obtained (see Table 3).

On the basis of the four-factor structure of 20 items, we developed four subscales of the attitudes towards performance criteria to measure 'pupils' academic performance' (**factor 1**), 'school management, pupils' non-academic skills' (**factor 2**), 'school environment' (**factor 3**), and 'pupils' educational progress, competence of teachers' (**factor 4**).

The mean values and standard deviations for each factor are presented in Table 4. The ANOVA results showed only one statistically significant difference between performance criteria mean values in different school types ($p = 0.03$). This shows that the school administrations in large schools value pupils' academic performance more as a predictor of school performance (mean value 8.47) compared to the administrations in small schools (mean value 7.72). In other school performance matters, the opinions of the school administrations are relatively similar.

Next we present the results of correlations between the attitudes held by school administrations about performance criteria and national examination results (see Table 5). The results show that the attitudes of school administrations about academic performance and national examination results are negatively correlated in large and urban schools.

Factor 2 (school management, pupils' non-academic skills) and factor 3 (school environment) are positively correlated with national examination results in large schools and urban schools. In small schools and rural schools there is a positive correlation between factor 4 (competence of teachers, pupils' educational progress) and national examination results.

Table 3. Results of the factor analysis

	Factor 1	Factor 2	Factor 3	Factor 4
Pupils' academic performance				
Item 19. Pupils' results in various contests	0.84	0.00	-0.01	-0.00
Item 18. Pupils' results in final examinations	0.83	0.15	0.16	0.01
Item 20. Pupils' success in further stages of study (e.g. in secondary school, institution of higher education)	0.81	0.11	-0.10	-0.00
Item 22. Pupils' results in national examinations	0.80	0.00	-0.12	0.00
Item 21. Number of excellent graduates	0.72	0.01	0.00	0.17
Item 17. Pupils' grades for in-school examinations	0.66	0.01	0.21	0.18
School management, pupils' non-academic skills				
Item 14. Successful management	0.23	0.80	0.10	0.24
Item 13. Parental participation in school life	-0.13	0.70	0.00	0.24
Item 6. Pupils' overall maturity (e.g. interpersonal and public speaking skills, cooperation, tolerance, etc)	0.25	0.69	0.17	-0.18
Item 15. Well-coordinated communication between the management, teachers, pupils and parents.	0.16	0.67	0.23	0.22
Item 7. Extra-curricular activities (activity clubs, etc.)	0.14	0.62	0.24	0.17
Item 12. Participation by school personnel in decision-making	-0.18	0.59	0.28	0.00
School environment				
Item 4. Pupil friendliness	-0.10	0.00	0.90	0.03
Item 3. Secure learning environment	-0.10	0.00	0.90	0.13
Item 11. School personnel (e.g. teachers) satisfaction with school life	0.19	0.26	0.70	0.26
Item 2. Spirit and traditions of the school	0.22	0.28	0.58	0.13
Item 1. Good reputation in the local community	0.19	0.28	0.56	0.00
Pupils' educational progress, competence of teachers				
Item 23. Few pupils repeating	0.00	0.13	0.16	0.91
Item 24. Few dropouts	0.00	0.17	0.13	0.85
Item 8. Competence of teachers	0.27	0.31	0.11	0.51
Eigen value	6.61	3.52	1.69	1.52
Cumulative variance explained, %	33.06	50.66	59.09	66.67
Cronbach alphas	0.72	0.57	0.62	0.60

Note. N = 57. Loadings greater than .30 are boldfaced. The items are approximate translations from Estonian to English.

Table 4. Mean values and standard deviations of the four factors

Location and size of a secondary school	Factor 1		Factor 2		Factor 3		Factor 4	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Urban school	8.35	0.79	8.88	0.82	8.85	1.04	8.41	1.07
Rural school	7.93	1.22	8.67	0.88	8.58	1.26	8.71	0.87
Large school	8.47	0.72	8.75	0.95	8.93	1.16	8.69	0.81
Small school	7.72	1.27	8.67	0.79	8.44	1.20	8.58	1.03
Total sample	8.06	1.11	8.70	0.85	8.66	1.20	8.63	0.93

Notes: 10-point scale

Factors: 1. pupils' academic performance, 2. school management, pupils' non-academic skills, 3. school environment, 4. competence of teachers, pupils' educational progress

Boldface indicates that the differences between the views of respondents from large and small schools are significant at the level $p < 0.05$

Table 5. Correlation between attitudes about performance criteria and national examination results

Attitudes about performance criteria	National examination results			
	Urban school	Rural school	Large school	Small school
1. pupils' academic performance	-0.29*	-0.03	-0.32*	-0.02
2. school management, pupils' non-academic skills	0.29*	0.17	0.27*	0.19
3. school environment	0.37*	0.11	0.37*	0.11
4. competence of teachers, pupils' educational progress	-0.10	0.33*	-0.16	0.30*

* p<0.05

7. Discussion

We found some significant correlations between the attitudes of school administrations about school performance criteria and pupils' national examination results, but these depend on school size and location. In large schools and urban schools there is a negative correlation between attitudes about pupils' academic performance and the national examination results. This means that in urban and large schools, where the administration believes that school performance is primarily expressed in terms of the pupils' results in various examinations and contests the national examination results are actually lower and vice versa. In other words, the lower the results in national examinations the more the school administration emphasizes the importance of the pupils' academic performance. It could lead to a situation where the school administration concentrates more and more on academic success, pressuring teachers and pupils to work harder and harder, even though this may not bring the desired result. In the authors' opinion, the school administration should not underestimate their own role in the success of the school, or hope that pupils and teachers take up most of the responsibility. Dealing with the so-called 'soft issues' such as the school environment and the satisfaction of school members could be a more effective way of improving pupils' national examination results.

Our correlation analysis showed a positive relationship between factor 2 (school management and pupils' non-academic skills) and the national examination results in large and urban schools. This means that when the school administrations think that, for example, stakeholder relationships and participation in school life are important for good school performance, the national examination results are higher. Also, when school administrations value the pupils' overall maturity, their interpersonal and cooperation skills, and extra-curricular activities, the academic achievement of pupils is better. Or in other words, when national examination results are high, the school administrations must not be so concerned with this matter and spare time and energy for valuing other areas. In our opinion

this provides an extra advantage to these schools because in this way they can improve their school performance even further.

Attitudes about the school environment showed a positive relationship with the national examination results in large and urban schools. A secure learning environment, pupil friendliness, a good reputation in the local community, the spirit and traditions of the school and school personnel being satisfied with school life were taken into consideration here. When the school administration thinks that these areas are important for school performance, pupils perform better academically. Similarly, the higher the national examination results the more the school administration values elements of the school environment. If the school administration is not so concerned about pupils' exams, they can be more involved with environmental issues and this may lead to even higher school performance.

In small schools and rural schools there was no significant correlation between factors 1–3 and national examination results. In the authors' opinion, the reason could be that although school administrations in these types of schools may value aspects of the school environment and the contribution of stakeholders this does not affect their pupils' national examination results. The results showed that the attitudes about school performance criteria in small schools and rural schools were approximately as high as in large schools and urban schools, but the national examination results were not related to these attitudes. We presume that there are other factors that affect exam results more. These are, for example, family background, the shortage of qualified teachers and low budgets.

In small schools and rural schools there was a positive correlation between factor 4 (competence of teachers, pupils' educational progress) and national examination results. When the school administrations view the competence of teachers and training opportunities for teachers as being important for school performance, the national examination results are higher. Also, when the school administration thinks that the good performance of a school depends on low numbers of pupils repeating and dropping out less, the academic achievement of the pupils is higher. In other words, when national examination results are high the competence of teachers and pupils' educational progress are seen as being important.

In large schools and urban schools these areas (in factor 4) were not significant. This result is expected because the teacher shortage is a particular problem in rural areas and in smaller school in Estonia. This affects academic performance (including dropout and repeating a year) noticeably. It is often the case in Estonia that some core teaching positions in schools are not filled at all, or the work is done by teachers of other subjects (for example the teacher of history gives lessons in mathematics) (see, for example, Kivine 2004). In rural areas there is less likelihood that many candidates apply for one position as is often the case in a larger city, and therefore, the school administration has fewer opportunities to choose proper candidates. This also affects the potential for specialization among teachers.

The efforts by the school administration and also stakeholders towards good results in national examinations depend on the size and location of a school. These factors are strongly related. Small schools are usually located in rural areas and vice versa in Estonia. In small schools and in rural schools the national examination results are not as high as in large schools and urban schools. School administrations have little influence over the factors causing this tendency, but as the academic curriculum is not the only mission of the school, good leadership is still very important. The diverse development of pupils and respecting their individual differences should be more important than just the exams. Considering the fact that the number of pupils will decrease in Estonia in the near future, schools have to offer more than an academic curriculum to survive.

The study results trigger us to propound the idea that school administration attitudes and behaviour have an indirect effect on national examination results, and this is mediated through the contribution of the other stakeholders. Here pupils' results in national examinations offer feedback for both the stakeholders and the school administrations. According to this feedback, the stakeholders and school administrations can regulate their behaviour in order to gain the desired results.

There is no question that the job of the school administration is difficult, wide-ranging and involves considerable responsibility. The results of this study indicate that administrations need to admit the substantial role they play in school performance and adopt an attitude that embraces leadership and school environmental issues as the key to a more successful school. If they focus only on academic performance, in the authors' opinion, this could result in the opposite effect.

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Appendix 1**Questionnaire for school administration**

Please evaluate on a 10-point-scale which of the areas listed below is important for school performance? Please choose 10 if you completely agree that the area is important for school performance and 1 if you completely disagree.

To guarantee good school performance the following is important:

1. good reputation in the local community
2. spirit and traditions of the school
3. secure learning environment
4. pupil friendliness
5. pupils possess good levels of knowledge
6. pupils' overall maturity (e.g., interpersonal and public speaking skills, cooperation, tolerance, etc)
7. extra-curricular activities (activity clubs, etc.)
8. competence of teachers
9. training opportunities for teachers
10. teachers' activeness (participation in various projects etc)
11. school personnel (e.g. teachers) satisfaction with the school life;
12. participation of school personnel in decision-making
13. parental participation in the life of the school
14. successful management
15. well-coordinated communication between the management, teachers, pupils and parents,
16. pupil success in the further stages of life
17. pupil grades for in-school examinations
18. pupil results in final examinations
19. pupil results in various contests
20. pupil success in further stages of study (e.g. in secondary school, institution of higher education)
21. number of excellent graduates
22. pupil results in national examinations
23. few pupils repeating
24. few dropouts

Note: The items are approximate translations from Estonian to English.