

THE ESTONIAN SCHOOL BETWEEN ORGANISATIONAL LEARNING AND UNLEARNING

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Abstract

The article identifies the features of a learning organisation in the Estonian school, as no surveys have been carried out yet in this area. It looks at the concepts of development and change, the background of organisational learning, and it deals with success factors and factors that influence the development process at school. The authors prepared a questionnaire for the study of the learning organisation on the basis of the Senge's learning organisation model and Mets's model of the framework of organisation development.

The base model of the questionnaire, which arose from Senge's 5-factor model, covered the structure of the questionnaire as the result of the factor analysis, which is characteristic of Mets's 3-factor model: the main process, individual and joint learning, and the mental (value) system. Senge's model may not have been operational due to chaotic development activities.

If data are generalised we may say, on the basis of this survey, that the development process in schools lacks system and concept. The article presents a recommended development scheme along with methods for shaping the model to launch a learning organisation in the school. This model is based on the practices of business organisations and includes three stages: diagnostics of teachers' capacities, setting up of an objective, and individual and joint learning.

The following conditions should be met in order to guarantee change, flexibility and improvements:

1. The position of top manager should be introduced with all the relevant tasks, rights and responsibilities in the general education system, at the managerial level which yields most results (the director does not have such a role according to Estonian legislation).
2. A lesson delivered by a teacher should be considered an indicator of the quality of work of the whole education system. The teacher's professionalism is revealed in the main process, and prerequisites for learning are created here and values corrected.

This is an opportunity to evoke change in the ways of working of those teachers who work autonomously, with joint learning as an additional value. If the model is introduced, the management style and quality of teachers' work in schools will change, the prerequisites will be created for the prevention and reduction of problems among the participants in the main process (dropping out of school and repeating grades), and the desire for lifelong learning will be retained, which will promote a rise in labour quality.

The role of life-long learning in knowledge-based economy cannot be underestimated. School can act as a representative of the knowledge-based society and economy only if it is able to learn and develop itself. We believe that each school is unique and special just as its members are. Organisational learning provides an opportunity for a school to open abilities of its members. The very special task of the head of a school is to supervise the teamwork of teachers in the school as a learning organisation.

The suggested concept and the survey may be of interest in transition countries where the range of problems and processes may be similar to those of Estonia.

Keywords: management of the learning organisation, the Estonian school, organisational development.

Introduction

General education issues are widely debated both in Estonia and all over the world. Good education is required on the labour market. The degree of preparedness of young entrants to the labour market is tightly correlated with the competence and quality of work in the general education system.

There has been progress in updating Estonia's educational institutions since re-independence, but not at the speed expected by society. Changes in schools remain linked to political development (over the period of independence 1991-2005 we have had 13 Ministers of Education). Ways need to be found to enhance the development of schools and consider complicated mutually-contradicting impacts within the system.

In 2005-2006 a radical reform of the financing system of Estonian general education will take place, seeking to improve the volume of investment in schools' study environments while still financing the study costs, and to regulate the system (Reps, 2005). The main issues regarding the quality of work in educational institutions in Estonia are the high dropout rate – 1243 pupils – and the large number of pupils repeating a grade – 5729 pupils in grades 1-12 in the 2003/2004 academic year (data of the Statistical Office). Unsuccessful studies are not just a one-off event which causes frustration in the pupil, they are a key factor in minimising the desire to study as a precondition for life-long learning and for high quality labour.

The national programme "Education in the 21st century" sets a strategic goal for the development of the school as a learning organisation. However, the programme does not specify the content of the changes needed, life-long learning in the future of today's students and society as a whole serving as one of the leading conceptual means to achieve the goal (21. sajandi hariduse tegevuskava). One of the ways the goals can be achieved is through the development of competence of teachers. The list of teachers' competences may be rather extensive, ranging from subject specific skills to communicative and social ones; the primary skill will be the ability to arrange an adequate learning environment and the environment surrounding learning based on understanding of the immediate reality as well as of the whole of society.

This means improving the learning capabilities of teachers “as learners” and of the school as the organisation, i.e. the teaching organisation becomes a learning organisation through the teachers’ competence-building. Organisational learning and the competences of the organisation’s members are in a tight mutual relationship, the learning capabilities having become the leading competence in the organisations (Thompson & Cole, 1997; Moilanen, 2005; Silins *et al*, 2002; etc).

The last 10-15 years of studies of the development processes in the modern school have demonstrated that it is possible to learn a lot from, and then apply, the methods of efficient business organisation development and management models (Cardno, 2002; Storey, 2004; Davies, 2004). The features of the learning processes in different organisations have more similarities than dissimilarities. However, this issue has not been widely considered in studies of the Estonian school. Studies of the school organisation development in Estonia have been episodic, there are no surveys underway on the school as a learning organisation. The present article focuses on these issues.

The article will look at the concepts of development and change and the background of organisational learning, and it will deal with success factors and factors that influence the development process at school. It will also provide an overview of an empirical study, suggest a development scheme with methods, form a model for launching the school as a learning organisation, and draw conclusions.

The suggested concept and the survey may be of interest in transition countries where the range of problems and processes may be similar to those of Estonia.

Organisational learning and knowledge creation

The learning organisation is a knowledgeably managed organisation where the managers support learning and bear responsibility for an environment which facilitates learning. Managers’ capability is today measured not by what they know or can do, but rather by how they learn, that is, their learning results are assessed.

Smilor (1997:344) describes learning as the core of the entrepreneurial process: “... effective entrepreneurs are exceptional learners. They learn from everything. They learn from customers, suppliers, and especially competitors. They learn from employees and associates. They learn from other entrepreneurs. They learn from experience. They learn by doing. They learn from what works, and more importantly, from what doesn’t work.”

It should be noted that the main process of learning – learning from business, stakeholders, the environment, colleagues, experience, or the wide variety of phenomena involved in the learning process – is not limited to entrepreneurs. OL (Senge) includes a large number of business-specific behavioural patterns which are evident in organisations with quite varied objectives. OL in the current context is entrepreneurial learning irrespective of the type of organisation.

Learning means a permanent process which results in opportunities, challenges, unexpected situations at work, and any previous experience being turned into a learning experience. The keywords of the process are “*analysis*”, “*design*”, “*evaluation*” (Gilley and Maycunich, 2000; Sydänmaanlakka, 2002).

“Organisational learning” and “learning organisation” are the main concepts used to describe an organisation’s ability to manage change. The word “learning” comes from the Indo-European word *leis*, a noun which means “furrow” or “path”. Learning thus acquires the meaning of “gathering experience by following a particular path, presumably for the whole life” (Senge, Kleiner, Roberts *et al*, 2003: 61). The learning organisation and action learning possess an ability to renew through changes in the process and working methods. In practice, renewal means that the organisation is continuously ready to acquire new competences and implement them immediately, whether individually, in a group, or in the organisation. Basic models of learning at work represent simple processes for turning duties and daily problems or opportunities into learning experiences. The process seeks to activate learning at work by using systematic planning of the acquired knowledge, action, evaluation, understanding, application and transfer (Sydänmaanlakka, 2002; Marsick, O’Neil and Watkins, 2002; Sanchez, 2003). The model for building up a learning organisation is proposed as containing five cycles, most importantly, precise perception of the action, creation of the need, and selection of the experience and data (Merali, 2003; Sanchez, 2003). Learning is also defined as “the detection and correction of errors”. “Error is mismatch: a condition of learning and matching is a second condition of learning” (Argyris, 1976). Researchers have identified the following levels of systematic learning: zero, single loop, double loop and triple loop learning (e.g. Argyris, 1977; Georges, Romme and Witteloostuijn, 1999). The mistake is to “define learning too narrowly as mere problem solving...”. It is a reflection of how people “think – that is cognitive rule” (Argyris, 1999). Triple loop learning concerning “structures and strategies for learning” is a relevant “overall learning infrastructure” as well as “competences and skills to use this infrastructure”. All types of learning and “particularly triple loop learning are concerned with structural patterns”: mental maps, facilitating structures, etc (Georges *et al*, 1999).

Organisational learning mostly originates from a company’s internal and external environment, business processes, resources, knowledge, etc. and also serves as cognitive mapping. A cognitive map is defined as “mental constructs which we use to understand and know our environment” (Spicer, 1998).

Consequently, the characteristics of organisational learning are those of a process as well as those of an infrastructure and are of mental origin, and these different characteristics form the three different dimensions of organisational learning and organisation development.

Therefore it may be claimed that new knowledge creation is realised by an interaction of:

- the main process,
- learning (sometimes partly training) and
- mental systems,

which together provide a framework for organisation learning and development (Figure 1).

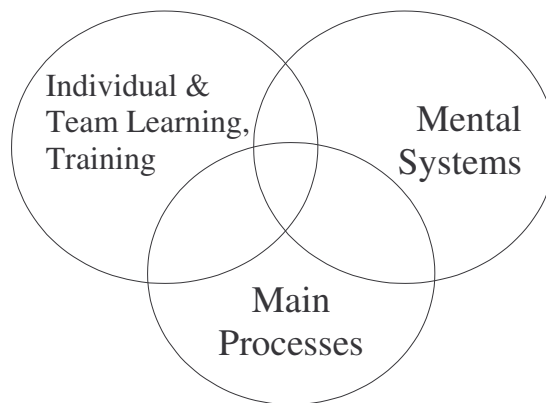


Figure 1. Framework of organisation development (Mets, 2002)

Organisational learning is not a cumulative result of members' learning but a new quality. "Learning in organisations means continuously checking each experience and its transfer so that it is accessible for the whole organisation, something which is vital for the objectives of the organisation" (Senge; Kleiener, Roberts *et al*, 2003:60). Mental models and cognitive maps created in the main and learning (training) processes guide the behaviour of an organisation's members, in conjunction with their shared values.

Methodology and main results

The empirical survey was carried out in March-April 2005 in four Estonian schools: Põltsamaa, Mõisaküla, and Lihula upper secondary schools and Sillaotsa basic school (Saare and Valga counties). The respondents were pedagogues from all over Estonia who were participating in further training courses offered by Tallinn University.

A special questionnaire was prepared for the survey by M. Torokoff, which was based on the features of a learning organisation by Senge and the model of organisation development by T. Mets (see Fig. 1); an expert group was also involved. The questionnaire consisted of five sections with 10-12 statements in each section. The statements were to be evaluated on a 10-point scale (1 – do not agree, and 10 – I fully agree with the statement). It also contained eight open-ended questions on the main process, joint learning and values at school.

330 questionnaires were distributed personally, 198 were returned (60%). The sample contained 148 teachers (75%), 22 school managers (11%), 18 officials in other positions (9%) and 10 questionnaires (5%) where the post had not been indicated. Respondents' ages were given as: up to 25 – 6%, 26-35 – 20%, 36-45 – 29%, 46-55 – 23%, 56-65 – 10%, over 65 – 4%, not indicated – 8%. 79% of respondents were female and 13% male, 8% did not specify gender.

The research used a combination of qualitative and quantitative methods.

Factor analysis was used in the data analysis. The planned model foresaw five factors (including features of both Senge's model of the learning organisation and Mets's model), but after the factor analysis three factors were distinctive, which is characteristic of Mets's model of an organisation's development (Mets, 2002). Cronbach's alpha was used to check the scales' reliability. The first factor is values (8 statements, $\alpha = 0.862$), the second factor is individual and joint learning (6 statements, $\alpha = 0.737$), and the third factor is main process (6 statements, $\alpha = 0.721$). The accepted value for reliability in social sciences is 0.7 or over (Ogbonna *et al*, 2000). The result is therefore acceptable. The data processing programme SPSS 13.0. version was used.

The article seeks to pinpoint the features of a learning organisation in the Estonian school. To this end, the concept of the development and study process of an organisation will be analysed with the focus on the development of the school as an organisation. The model of the learning organisation (Senge *et al*, 2003) and the framework model of the organisation development (Mets, 2002) serve as the basis for this.

Analysis and Discussion

The main results of the survey are briefly presented in Tables 1 (see Appendix 1) and 2 present the three factors with statements, its basis being the Mets model of organisation development. In order to better identify the spheres in need of organisational development, most essential connections are focused on, and the statements are analysed one by one.

It appeared that the highest correlations occur in statements related to teacher's values, which was apparently predictable. Through teachers' personal professionalism and values the pupils' attitudes and opinions are influenced and their values shaped. Values are acquired by copying the examples of authoritative leaders. For instance, polite teachers give pupils justified marks ($r = 0,68$; $p < 0,01$). There is a link between teachers' and pupils' frustration: when pupils ignore rules of conduct, a polite teacher is more offended. From the aspect of development, that link displays the low tolerance level of the teachers, as the young people are only learning to communicate and behave adequately, and the teacher's role is to analyse, explain and influence pupils' fundamental human values. The results also show that polite teachers are tolerant towards contradictions. From the point of view of the development process, arising contradictions should be removed immediately because over a longer period they will inhibit cooperation and impede both the individual's and the organisation's development. From the school's point of view, information gathering is valuable along with its profound strategic analysis, while only good information allows a good strategy to be created. The mean result in the value factor was teachers' efforts to achieve quality. The open responses also showed that high academic progress is among the three most frequently referred to fundamental values of the school. Estonian schools are ranked by their examination results and teachers and pupils receive awards for high achievements in contests. However, many children are unhappy and discontinue their studies. Fact-centred teaching is still dominant. The responses, not included in the factor analysis, revealed that colleagues are not invited to lessons to introduce new methods, there are no regular analysis or development discussions with managers. In the main process factor a feature appeared that teachers value regular control, and analysis and interpretation of results.

It should be only natural in school for teachers to improve both their behavioural skills and subject knowledge (Delors, 1999). Schechter (2004) has pointed out in the treatment of specific issues of general educational institutions that work in a school is fairly autonomous and teachers can work without much contact with their colleagues. Therefore, there is little dependence on colleagues and team learning and professional dialogues have a modest role; however, the article's authors cannot agree with that statement. The results of this article show that good work may impact the results of colleagues' work and their experience can be learnt from. The survey revealed a positive aspect that teachers seek parents' advice on teaching and educating, and parents' ideas are considered, which makes it an essential efficient cooperation and success factor. In the development process, a constant exchange of ideas is extremely important, as is the tendency and need for team learning, and common discussions, as shown in the survey: regular counselling of teachers is carried out to achieve objectives better.

The questionnaire included eight open-ended questions seeking to receive more information on fundamental values and the main process in schools, but more profound analysis of these responses is not included in this article. It was evident in the survey that the most frequently occurring teachers' wishes were that reforms not hinder their work; less bureaucracy; less interruption and discussion in order to work in peace; measurable aims; and a less modest common vision of the future in five years. Teachers' cooperation at school was given a high place, but new methods in their ways of working are introduced only by a few teachers; team learning and learning from experience happens at random in schools.

If schools seek to appear reliable, they should endeavour to be seen as examples of a learning organisation by changing their approach. First and foremost, the teachers should see themselves as partners to students and parents. The teachers render their acquired knowledge at a professional level, however, they do not share experience, are not ready to learn or implement the acquired knowledge in the interest of their institution. Values of the learning organisation which ideally should support professional growth and development, openness, tolerance of stress, innovation, change, flexibility, cooperation and mutual dependence, are those features which appear in contradicting terms in this survey. On the other hand, there is some contradiction in all cultures.

General education is treated as a complex of knowledge and skills and a system of values and behavioural norms required for socialisation, which enable a pupil to become capable of life-long learning and become a learning person. The labour market is and will be changing as rapid technological advances present challenges to the labour force, and as, moreover, in a dynamic environment it is necessary to withdraw from previously gained knowledge from time to time. In information and communication technology (ICT), which determines modern technical progress, generations are replaced every three years. These factors necessitate life-long learning. If pupils are taught to learn in the educational organisation and they have the desire to learn, they will more easily overcome changes in their working life.

Evaluation of the quality of teachers' work and performance serves different purposes. However, teaching is an extremely intricate process which involves not only teachers' competence, but also

intuition, and cultural and traditional standards. Evaluation policies differ greatly across countries. The creation of the system for evaluating teaching is considered a value more frequently. On the other hand, the function of organisational learning is seen similarly in different countries, as is the greater need for cooperation and partnership with families, industry, the business community, non-profit organisations and the cultural sphere.

The framework requirements for competences set for teachers are clearly determined in Estonia's legislation (RT I 2000, 87, 575); however, no criteria have been established for achieving the aims in terms of state supervision (RTL 2000, 02, 1372). Estonia has followed the example of the Helsinki conference of ministers of education (1978), where the main focus lay in the development of teachers' self-assessment. Self-assessment presumes a very high level of critical and systematic thinking, experiential learning, two and three-tier learning and lessons on how to learn from one's mistakes (Senge *et al*, 2003). Open questions on most important values in the school received the following typical responses: "Coaching students for exams is most important, there is competition because schools are ranked according to exam results." Culture of Estonian schools is filled with rating and scales, and authoritarian and hierarchical structures which shape daily life in schools. In principle, teachers work on their own and autonomously, except for the projects based on cooperation. Learning from work experience may multiply opportunities for the school organisations, but the present survey allows conclusions that people mostly follow the principle: "Live and let live".

If data is generalised we may say, on the basis of this survey, that the development process in the schools remains random and chaotic. The development process in schools is not systematic. A general concept of the development plan is absent, it will be presented by the authors in this article. The base model of the questionnaire, which arose from Senge's 5-factor model, covered the structure of the questionnaire as the result of the factor analysis, *which is characteristic of Mets's 3-factor model: mental systems (value factor); individual and team learning factor, and the main process factor*

Table 1. Descriptive statistics (Mean - M, Std. Deviation – SD) and Pearson correlation coefficients

	Mean	SD	V1	V2	V3	V4	V5	V6	V7	V8	L1	L2	L3	L4	L5	L6	P1	P2	P3	P4	P5
V1	7,34	2,27																			
V2	6,97	2,63	0,65*																		
V3	7,69	2,30	0,75*	0,68*																	
V4	7,03	2,31	0,57*	0,58*	0,59*																
V5	7,89	2,07	0,63*	0,48*	0,51*	0,57*															
V6	7,33	2,22	0,40*	0,32*	0,35*	0,39*	0,35*														
V7	7,11	2,35	0,38*	0,33*	0,37*	0,42*	0,35*	0,38*													
V8	6,58	2,97	0,30*	0,45*	0,34*	0,47*	0,21*	0,31*	0,27*												
L1	5,82	3,12	-0,07	-0,06	-0,03	0,18'	0,10	0,10	0,13	0,10											
L2	7,01	2,60	-0,03	0,03	-0,04	0,15'	0,10	0,27*	0,13	0,16'	0,43*										
L3	6,60	2,90	-0,17'	-0,17'	-0,16'	0,04	-0,10	0,09	0,06	-0,07	0,39*	0,38*									
L4	6,40	2,79	-0,04	0,02	-0,03	0,15'	0,13	0,12	0,08	0,11	0,47*	0,56*	0,21*								
L5	6,52	2,73	0,09	0,03	0,03	0,13	0,07	0,11	0,09	0,14	0,32*	0,21*	0,39*	0,34*							
L6	5,54	2,99	-0,21*	-0,22*	-0,20*	0,03	-0,18'	-0,08	0,03	0,03	0,30*	0,22*	0,27*	0,07	0,10						
P1	5,97	2,46	0,03	0,03	0,01	0,01	0,08	0,06	0,09	-0,06	-0,05	0,11	0,15	0,12	0,06	0,07					
P2	5,81	2,66	-0,01	0,05	-0,08	-0,04	0,02	-0,02	0,09	-0,02	0,15'	0,15'	0,12	0,21*	0,08	0,10	0,39*				
P3	6,39	2,65	-0,02	0,08	-0,01	0,05	0,05	0,02	0,18'	0,11	0,14	0,12	0,16'	0,13	0,04	0,13	0,36*	0,22*			
P4	6,43	2,45	0,08	0,03	-0,06	-0,02	-0,01	-0,09	0,13	0,00	0,08	0,07	0,05	0,19*	0,02	0,05	0,22*	0,52*	0,29*		
P5	7,43	2,14	0,04	0,14	0,05	0,04	0,08	0,07	0,03	0,00	0,01	0,11	0,02	0,03	0,00	-0,17'	0,40*	0,24*	0,34*	0,18'	
P6	7,85	2,06	0,02	0,06	0,00	0,03	0,06	0,04	0,18'	0,00	0,12	0,08	0,11	0,14	-0,03	0,12	0,24*	0,22*	0,38*	0,27*	0,21*

*p < 0,01; 'p < 0,05; two-tailed

Table 2. Results of factor analysis

Question	Factor Name	Values	Individual and joint learning	Main process
	Cronbach's alpha	0,862	0,737	0,721
V1	Civility	0,867		
V2	Mistake acknowledgement	0,833		
V3	Justified marking	0,804		
V4	Time management	0,781		
V5	Quality effort	0,721		
V6	Dignity	0,635		
V7	Devotion	0,576		
V8	Frustration	0,499		
L1	Learn from parents		0,764	
L2	Learn from colleagues		0,693	
L3	Plan change		0,677	
L4	Development seminars		0,621	
L5	Job consultancy		0,580	
L6	Overcoming contradictions		0,572	
P1	Collegial impact			0,678
P2	Surveys			0,677
P3	Expertise			0,636
P4	Supervision&analysis			0,630
P5	Cooperation with family			0,583
P6	Different opinions			0,545
Cumulative variance explained, %		21,863	36,471	49,087

Note: Extraction method: principal component analysis; rotation method: varimax with Kaiser normalisation; rotation converged in five iterations.

Conclusions

As a result of the factor analysis of the given survey, the structure of the questions was made more operational, which is more characteristic of the Mets's framework model than of Senge's model. The analysis revealed that the school's development process may be mapped through research into the main processes, learning and mental systems. The factor of values is the highest ranked in schools, the teachers' fundamental values had the highest indicator among statistical mean indicators; however, the management of the development process lacks system and concept. The article suggests a recommended development scheme for schools along with methods of shaping the model to launch the school as a learning organisation. This model is based on the practices of business organisations and includes three stages: diagnostics of teachers' capacities; setting up of the objectives; individual and team learning.

When data is generalised we may say, on the basis of this survey, in order to guarantee change, flexibility and improvement, the following conditions should be met:

1. The position of top manager should be introduced with all the relevant tasks, rights and responsibilities in the general education system, at the managerial level which yields most results (the director does not have such a role according to Estonian legislation).

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This is an opportunity to evoke change in the ways of working of those teachers who work autonomously, with team learning as an additional value. If the model is introduced, the management style in schools will change, the prerequisites for the prevention of destructive processes in the main process will be created, and the desire for lifelong learning will be retained.

Senge's model may not have been operational due to chaotic development activities in the study of the Estonian schools.

The role of organisational learning in knowledge-based economy cannot be underestimated. School can act as a representative of the knowledge-based society and economy only if it is able to learn and develop itself. We believe that each school is unique and special just as its members are. Organisational learning provides an opportunity for a school to open abilities of its members. The very special task of the head of a school is to supervise the teamwork of teachers in the school as a learning organisation.

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Questions to respondents

Values

1. Teachers of our school are polite towards all pupils.
2. Our teachers react adequately to criticism. Our teachers analyse and admit their mistakes.
3. Our teachers give fair grades to pupils.
4. Our teachers use time efficiently for teaching.
5. Our teachers make efforts to achieve good quality tuition.
6. Our teachers are determined to support each pupil's self-confidence and self-respect.
7. We place a high value on teachers' dedication to work.
8. I am offended when the pupils ignore the rules of conduct in spite of my efforts.

Individual and team/joint learning

1. I seek parents' ideas in teaching and education and take them into consideration.
2. I learn from my colleagues' experience.
3. The management of our school plans changes and implements them systematically.
4. We have regular and joint seminars on the issues of the school's development.
5. Teachers receive regular professional consultancy on the better achievement of goals in our school.
6. I do not tolerate conflicts in my work and attempt to resolve them.

The main process

1. My good work influences the end result of my colleagues' work.
2. Our school uses survey results for the preparation of its development plan.
3. I seek the services of a specialist to resolve complicated situations.
4. Regular inspection is considered important in our school, we analyse and interpret the inspection results.
5. I seek opportunities to change pupils and parents.
6. I listen carefully to the opinions of people who observe my work and consider their ideas even when these differ from mine.