THE EVALUTION OF THE CHANGEABLE EDUCATIONAL ENVIRONMENT OF LATVIA RURAL SCHOOLS
Latvijas lauku skolu mainīgās izglītības vides attīstība

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Abstract. *Nowadays Latvian rural schools function under the conditions of constantly changeable environment, where the process of self-development is observed. Due to the influence of economical, demographical and social crises the problem of the sustainability of a rural school as the educational environment has become urgent in Latvia. The sustainability of rural community and its cultural environment also considerably depends on the sustainability of a rural school. The educational environment of rural schools has been studied by the authors of this article for many years, providing the multi-dimensional point of view. The research results enable to draw a conclusion that very important changes have taken place in the educational environment of research base schools. In outcome rural school of general education becomes a multi-level, multi-component and multi-functional educational environment in the countryside of Latvia that strives by help of education to promote the development of the pupil as a personality as well as the development of the local rural community.*
Keywords: *changeable educational environment, evaluation, rural schools, sustainability.*

Introduction
Ievads

Since the end of the 20th century and the beginning of the 21st century Latvian rural schools function under the conditions of constantly changing environment, where the process of self-development is observed. Nowadays, due to the influence of economical, demographical and social crises the problem of the sustainability of a rural school as the educational environment has become urgent.

Nowadays a rural school as a self-developing environmental system faces a choice: either to change and exist, ensuring its viability nowadays and sustainability in the future perspective, or not to change at all, waiting for better times to come and instructions "from above", thus endangering its existence and exposing itself to the risk of liquidation.

A rural school has to find the most appropriate developmental perspective for its internal resources under the conditions of surrounding environment, to develop a suitable model of educational environment for the specifity of the cultural

environment of rural community and that of the rural school, respecting the interests and needs of all inhabitants of rural community.
The aim of the article is to publish our empirical research, namely, the results of internal expertise of the educational environment of rural schools in Latvia.

Methodology of Research
Pētījuma metodoloģija

We based our research on *the ecological approach in education*. It is possible to identify several directions in the philosophically methodological substantiation of our experimental research, grounded on three views on a rural school: 1) *rural school as a viable, self-developing, self-organizing and self-assessing system of educational environment;* 2) *rural school as an open humanistically target oriented lifelong education environment for sustainable development of community; 3) rural school as a learning organization to change and develop.*
These three views on rural school are based on: 1) our personal experience and observation; 2) the results of our theoretical research (Katane, 2007; Katane, Laizane, 2009); 3) the results of previously carried out studies (Katane, 2006a; Katane, 2006b; Katane, Laizane, 2011).
Our empirical research, the results of which we would like to present in this article, consisted of several stages.

- Preparatory stage: 1) the development of the methodology for the evaluation of the educational environment of rural schools, including the development of the system of evaluation indicators (in total 54 indicators - the indications of the educational environment of a rural school); 2) the creation of the sample of research base schools; 3) the choice of experts at each school (Research workers: I. Katane, A. Laizane).
- The internal expertise of rural schools (Research workers: I. Katane, A. Laizane).
- The aggregation and processing of data (Research workers: I. Katane, A. Laizane).
- The analysis and evaluation of the research results and the presentation of the research results in various seminars, scientific conferences and other events and publications (Research workers: I. Jurgena, I. Katane, A. Laizane).

The aim of research: the evaluation of the fluctuation of the educational environment of rural schools, viewed from different aspects within the period of time: 2008 - 2012, by experimentally approbating the developed methodology for the evaluation of the educational environment of rural schools.
Research methods: 1) data obtaining methods (the internal expertise of the educational environment of rural schools); 2) *data processing methods* (Binomial Test; Sign Test; the verification of qualitative correspondence by means of χ^2 criterion, using SPSS 17.0).

The base schools of the experiment (6 secondary schools and 25 basic schools; in total: 31 schools) represented all 4 culturally historical regions of Latvia: Kurzeme, Latgale, Vidzeme and Zemgale.

Results of Research
Pētījuma rezultāti

The Results of Primary Data Processing.

At the beginning *the primary mathematical processing* was carried out using Binomial test with the aim to define the coefficient of proportion of indications of educational environment of rural schools (2008/2009-2010/2011). Comparing the coefficient of proportion of every indication of 2008/2009 school year with every indication of the coefficient of proportion of 2010/2011 school year, positive and negative differences were gained.

All indicators were divided into four main groups after primary processing of data and analysis of results:

- positive difference indicator group (39 indicators) that points out that the coefficient of proportion has increased in 2010/2011 school year in comparison with 2008/2009 school year;
- negative difference indicator group (5 indicators) that points out that the coefficient of proportion has decreased in 2010/2011 school year in comparison with 2008/2009 school year;
- an indicator group (6 indicators) that points out that there are no changes in the coefficient of indications of indicators of 2010/2011 in comparison with 2008/2009 school year;
- an indicator group (4 indicators) that points out indications that are not found out in the educational environment of rural schools both in 2010/2011 school year and 2008/2009 school year.

After the primary processing, analysis of results and evaluation it was learnt that 44 indicators out of 54 testify that there occurred changes in the period of time of 3 study years. *That means that there are statistically more indications that point at the fluctuation of educational environment of rural schools than indications that did not take place (6 indicators) or that were not found out at all (4 indicators).*

The results of primary data processing that refer ***to the first main group of indicators*****,** show that there is a characteristic fluctuation with an increasing tendency of educational environment of rural schools because the coefficient proportion has increased in the time of three school years. The authors have formed six indicator subgroups that show on-going changes in the educational environment of rural schools with this positive difference. Some indicators from the first main group were included into some subgroups of indicators because they characterize educational environment of rural schools from different

aspects and draw attention to some on-going processes in the educational environment of rural schools.

1. *Subgroup of rural school as a viable, self-organizing, self-developing and self-assessing system of educational environment.*

The number of schools increases that can be called self-organizing, self-developing and self-assessing systems of educational environment that try to provide their viability on balance with changeable outer environment and its sustainability in the future perspective.

2. *Subgroup of rural school as a learning organization.*

Some changes in the educational environment of rural schools delight because they stress out the fact that more and more rural schools provide their viability in the hard demographical and economical conditions as well as sustainability in the future perspective, become learning organizations.

3. *Subgroup rural school as an educational environment of multi-functional community.*

The biggest subgroup of the first main group of indicators is formed by 10 indicators and that prove that rural schools change into multi-functional systems of educational environment or multi-functional centers in the countryside.

4. *Subgroup of structure of rural schools educational environment.*

Obtained results in the way of inner expertise enable to draw conclusion that rural schools gradually change into multi-functional centers that are opened to the whole community as well as reorganization that was carried out on the level of municipality has brought in some changes in the educational structure of rural schools.

5. Subgroup of rural school of audience and educational offer.

Rural schools turning into multi-functional educational environment has increased their audience in the life-long context. Rural schools offer education not only to pupils, but also to the whole community, int.al. family education, adult's education, teachers' education.

6. *Subgroup of rural school as a humanistic, target oriented pedagogical environment.*

High indicators of the coefficient of proportion were obtained both in 2008/2009 and 2010/2011 school years that have increased in the time of 3 school years. That means that a humanistic, target oriented pedagogical environment is already characteristic in the long period of time.

The results of the expertise show that there is a less number of rural schools in 2010/2011 school year in comparison with 2008/2009 school year, for example: where pupils study from concrete local municipality as well as from other municipalities because pupils' parents and children have chosen the environment of this school as the most suitable for development of a child; in cooperation with the medical staff of municipality, the rural school organizes medical check-up for schoolchildren once a year; is awarded recognition status (for example, Eco school) etc. ***The indicators of this second main group*** also

indicate that there are on-going changes in the educational environment of rural schools in the period of time of 2008/2009 - 2010/2011 school years.

After the primary processing of data it was found out that are some indications that are and were characteristic to the educational environment of rural schools. That is proved by the high results of the coefficient of proportion of the period of time of three years that has stayed without any changes. The indications are the following: 1) individual programs are worked out in order to integrate youth, who exceeded the age of schoolchildren of the primary school and who could not obtain compulsory education due to some reasons; 2) it is characteristic for a rural school to organize learning outside premises in natural environment (excursions, learning that is connected with observation and research organized outside school's premises etc.); 3) the environment of rural school provides the development of talented children according to their interests, needs, abilities and possibilities; 4) rural schools' pupils succeed not only in a school's daily learning process, but take part in various events of district and state - olympiads, expositions competitions, contests and etc.; 5) rural school improves the material technical base that provides an informative development of schools environment; 6) rural school develops and arranges its physical environment (rooms, premises), for example, renovation, modernization of rooms etc. These indicators form ***the third main group.***

In the way of inner expertise it was found out that many indications that were characteristic to the educational environment of 2000 till 2005 school years were not observed in the educational environment of rural schools in 2008/2009-2010/2011 school years, for example, nowadays rural schools don't solve transport questions that pupils are delivered to school and back home; rural school takes care about children qualitative catering, providing ecological clean products, using delicious, warm meal in preparing dinner; a democratic educational environment of rural school provides pupils' self-determination, i.e. pupils active activity in self-government. It is ***the fourth main group of indicators.***

Also these research results show that fluctuation of educational environment exists in the longer period of time. But there should be marked that such fluctuation of educational environment of rural schools should be further researched in order to find the reasons of nonbeing of such indications.

Having performed the primary data processing, as well as having analyzed and evaluated the obtained results, we could draw a conclusion that *the changes in the educational environment of Latvian rural schools take place in many directions*.

The Results of the Second Processing Stage of Acquired Data of Research.

The second processing stage of acquired data of research deals with the data secondary processing for obtaining the conclusive statistics. It was important not only to establish the fluctuation in the educational environment of rural schools, but also to find out, how significant are these changes that had taken place

during three study-years (2008/2009 – 2010/2011) in the educational environment of research base schools (Sign Test; SPSS 17.0). The hypotheses were advanced.

H_0: there exists an unanimity between sampled population of expert of concrete indications of educational environment of a rural school of 2008/2009 and 2010/2011.

H_1: there does not exist an unanimity between sampled population of expert of concrete indications of educational environment of a rural school of 2008/2009 and 2010/2011.

Table 1

Results of the Sign Test (SPSS 17.0)
Zīmju testa rezultāti (SPSS 17.0)

Constant and changeable indications	**Number of indications**	**Conclusions of results of secondary processing of data**
Constant or unchangeable indications	21	Exists *excellent* unanimity between linked indications of sampled population.
	3	Exists *good* unanimity between linked indications of sampled population.
Total:	24 indications	
Indications in unsubstantial change	11	Exists *moderate* unanimity between linked indications of sampled population.
Total:	11 indications	
Indications in statistically substantial change	8	*There are marked changes between* linked indications of sampled population.
	7	*Exist very substantial changes between* linked indications of sampled population.
Total:	15 indications	

We summarized the obtained results in the table (see Table 1).

In our research in the analysis of conclusive statistics and evaluation a *moderate unanimity* was used as the boarder division between correlation and features of difference, when changes were found out in the educational environment of rural schools in the primary processing of data, but conclusive statistics proved, that these changes are not substantial.

After such way of summarization of results of the last stage of research there was carried out the mathematical processing checking an assumption: indications in the educational environment of rural schools are divided into two groups: 1) indications that in the time of three school years stayed unchanged (constant indications; in total 24 indications); and 2) indications that changed (these indications testify about changes in the educational environment of Latvian rural schools; in total: 26). The processing of data was carried out, checking the concordance of indications selection with a defining test χ^2 criteria in SPSS software. The hypotheses were advanced:

H_0: constant number of indications is equal with the number of indications of educational environment of rural schools that are changeable ($n_i = ń_i$).
H_1: constant number of indications is not equal with the number of indications of educational environment of rural schools that are changeable ($n_i \neq ń_i$). (see Table 2, Table 3).

Table 2

Results of the Test χ^2 criteria
χ^2 kritērija testa rezultāti

	Observed indications N	Predictable division N	Difference
Constant indications	24	25	1.0
Indications that change	26	25	-1,0

Table 3.

Obtained Values
Iegūtās vērtības

	Values
χ^2 criteria (Chi – Square)	0.080
freedom degree (df)	1
p – value (Asymp.Sig.)	0.777

From critical value table was read that with the materiality level α=0,05 and freedom degree df=1 Chi – Square criteria value is: χ^2 =0,08 < $\chi^2_{0,05;1}$=3,84; but p=0,777 > α=0,05. That indicates that bifurcation processes take place in the educational environment of rural schools: 1) the specifity of educational environment of rural schools is saved; 2) innovative search and process of changes take place in the educational environment of rural schools. Having performed the secondary data processing and the analysis and evaluation of obtained results, we drew a conclusion that there exist significant differences between the evaluation given by experts in the study-years 2010/2011 and 2008/2009, which shows that *very significant changes have occurred in the educational environment of research base rural schools within three years*.

Conclusions
Secinājumi

- Nowadays modern rural schools as the self-developing, self-evaluating, self-organizing and open systems of educational environment: 1) improve the quality of all the components of their educational environment; 2) offer life-long educational opportunities to the rural inhabitants near the place of their residence; 3) accept responsibility for their and the local community's sustainable development within the modern changeable environment; 4) try

to find new models of their environment, new, unconventional trends and priorities, didactic models of its development, possibilities to enlarge their target audience, 5) increase the number of programmes and additional functions of formal and non-formal education by extending the age limits of their target audience and thus complicating their structure.

- The distribution of the constant and fluctuating qualities of the educational environment of rural schools is even. It shows that *the bifurcation process* takes place in the educational environment of Latvian rural schools: 1) the specificity of the educational environment of rural schools is being preserved (it is proved by the constant indications of the educational environment of rural schools); 2) at the same time the search for innovations and the *fluctuation process* takes place in the educational environment of rural schools (it is proved by the indications of the educational environment of rural schools that have emerged only in the study-year 2010/2011, but were not established in the study-year 2008/2009, as well as the indications that were present in the study-year 2008/2009, but were not established in the study-year 2010/2011).
- There has been a great diversity of the educational environment of rural schools in Latvia. In the interaction process with outside heterogeneous educational environment quantity and qualitative changes take place in the educational environment of modern rural school. In outcome *general education school* becomes a multi-level, multi-component and multi-functional educational environment in the countryside of Latvia that strives by help of education to promote the development of the pupil as a personality as well as the development of the local rural community.

Kosavilkums
Summary

Kopš 20. gs. beigām un 21. gs. sākuma Latvijas lauku skolai ir jānodrošina sava dzīvotspēja mūsdienu mainības apstākļos, kā arī ilgtstspēja nākotnes perspektīvā. Šo procesu būtiski ietekmē pārmaiņas, kas notiek ārējā vidē, jo lauku skolai jāfunkcionē un jāattīstās ekonomiskās, demogrāfiskās un sociālās krīzes apstākļos. Lauku skola meklē iekšējos resursus savai un visas lauku kopienas un tās kultūrvides ilgtspējīgai attīstībai.

Šī raksta mērķis bija publicēt veikto empīrisko pētījumu rezultātus. Veiktie pētījumi balstījās uz ekoloģisko pieeju izglītībā. Tika izstrādāta teorētiski metodoloģiskā bāze, kur lauku skola tika pamatota no vairākiem aspektiem:

1) lauku skola kā dzīva, pašattīstoša, pašorganizējoša, pašvērtējoša izglītības vides sistēma;
2) lauku skola kā humānistiski mērķorientēta, atvērta mūžizglītības vide visas lauku kopienas ilgtspējīgai attīstībai;
3) lauku skola kā organizācija, kas mācās, lai attīstītos un mainītos.

Empīriskie pētījumi tika veikti vairākos posmos: 1) sagatavošanas posms, kurā tika izstrādāta pētījumu metodika, t.sk. lauku skolu izglītības vides 54 indikatoru izvērtēšanas sistēma (I. Katane, A. Laizāne); 2) lauku skolu izglītības vides iekšējā ekspertīze (I. Katane, A. Laizāne), pētījumu bāze: 31 Latvijas lauku skola, kas pārstāvēja visus četrus Latvijas kultūrvēsturiskos novadus (reģionus); 3) iegūto datu apkopošana un apstrāde, izmantojot dažādas metodes SPSS 17.0 lietojumprogrammā (I. Katane, A. Laizāne); 4) pētījuma rezultātu izvērtēšana un popularizēšana (I. Katane, I. Jurgena, A. Laizāne).

Iegūto rezultātu analīze un izvērtēšana ļāva nonākt pie vairākiem būtiskiem secinājumiem.

Mūsdienu lauku skolas, lai saglabātu savu un kopienas dzīvotspēju un ilgtspēju, kļūst par pašattīstošām, pašorganizējošām, pašvērtējošām vides sistēmām, kas:

1) cenšas uzlabot izglītības vides visu komponentu kvalitāti;
2) piedāvā mūžizglītības iespējas lauku iedzīvotājiem netālu no viņu dzīves vietas;
3) uzņemas atbildību par lokāla mēroga lauku kopienu ilgtspējīgu attīstību mūsdienu mainīgajos apstākļos;
4) meklē jaunus izglītības vides modeļus;
5) palielina savu mērķauditoriju un piedāvāto izglītības programmu klāstu, paplašina mērķauditorijas vecuma robežas, uzņemas papildfunkcijas, pašsarežģot savu izglītības vides struktūru.

Pētījuma rezultāti liecina, ka lauku skolu izglītības vidē notiek *bifurkācijas* (sazarošanās) un *mainības* process: 1) no vienas puses, tiek saglabāta gadsimtu gaitā izveidojusies lauku skolu izglītības vides un kultūrvides specifika; 2) no otras puses, lauku skola kā *dzīva sistēma* meklē inovatīvus ceļus, lai mainītos mainīgās vides apstākļos.

Mūsdienu lauku skola kļūst par daudzlīmeņu, daudzkomponentu, daudzfunkcionālu izglītības vides sistēmu, kas ir atvērta katram lauku kopienas indivīdam un ir vērsta uz savas un visas lokāla mēroga lauku kopienas ilgtspējīgas attīstības nodrošināšanu.

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